The Influence of Corporate Governance on Managers' Opportunistic Behaviours prior to Leveraged Buyouts in the UK

LI, CHEN

The Influence of Corporate Governance on Managers' Opportunistic Behaviours prior to Leveraged Buyouts in the UK

Chen Li

A thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy

Department of Accounting and Finance
Durham University Business School
Durham University

2016

The Influence of Corporate Governance on Managers' Opportunistic Behaviours prior to Leveraged Buyouts in the UK

Abstract

This research investigates the influence of corporate governance mechanisms on managers' opportunistic behaviours prior to leveraged buyouts (LBOs) in the UK. The UK is, after the US, the second largest LBO market in the world, where the total deal value of LBOs rose from £458.62 million in 1997 (the initial year of the sample period) to £817.12 million in 2011 (the end year of the sample period). This 15-year period covers a significant wave of LBO activity in the UK. This research extends previous studies of corporate governance and managerial opportunism by considering management leveraged buyouts (MBOs) and third-party LBOs separately, because managers' incentives in each setting are different. Managers' direct involvement in MBO transactions may lead to conflicts of interests between managers, who have an incentive to try to minimise the purchase price, and shareholders, who seek to maximise their selling price. In contrast, third-party LBOs are inherently more uncertain for managers' long-term job security, which may serve to intensify managers' incentives to engage in opportunistic activities to prevent takeovers.

This research comprises three empirical studies, which are structured to compare third-party LBOs with MBOs in relation to: the influence of managerial interests on takeover resistance and bid premiums (empirical study 1); the relationship between accounting conservatism and corporate governance (empirical study 2); and the influence of board structures and board effectiveness on takeover premiums (empirical study 3).

The first empirical study finds that managerial share options are negatively related to the likelihood of takeover resistance in third-party LBOs, possibly because managers can accrue high returns from exercising options immediately after the buyout. However, as expected, managerial share options and the likelihood of bid resistance are positively related in MBOs. The research also finds that high levels of managerial share options reduce the size of takeover premiums in both MBOs and third-party LBOs. The research suggests that while managerial ownership is positively associated with takeover resistance and bid premiums in third-party LBOs, these variables are not significantly related in MBOs.

The second empirical study finds that, during the year prior to the announcement of MBOs (year Y−1), managers engage in more conservative accounting, i.e. the asymmetric reporting of good and bad news, where bad news is disclosed faster than good news, possibly to reduce the perception of the firm's value and thus depress their purchasing price. In order to identify the differences between accounting conservatism prior to MBOs and third-party LBOs, this study examines three years' data preceding LBOs event. The research finds that managers engage in more conservative accounting in year Y−1 prior to MBOs than prior to third-party LBOs, but less conservative accounting in year Y−2. The research also finds a mean-reversion of managerial behaviours toward accounting conservatism precedes both types of LBOs. In particular, managerial behaviours shifted from less to more conservative prior to MBOs from year Y−2 to Y−1, but from more to less conservative preceding third-party LBOs from year Y−2 to Y−1 and year Y−3 to Y−1. In addition, this research suggests that the ownership characteristics and board characteristics have a greater impact on accounting conservatism in third-party LBO than in MBO firms.

The investigation of the relationship between board structures and takeover premiums in third-party LBOs and MBOs in the first empirical study suggested that board structures are not significantly related to takeover premiums in either case. However, the overall impact of the board on takeover premiums is not only determined by board structures but also by its effectiveness, which encapsulates directors' qualifications, experiences, engagement, integrity and their ability to work together. Conflating board structures with its effectiveness can be misleading. Therefore, the third empirical study extends previous research on the effects of the board by investigating the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs. In particular, during the analysis, this study takes into account the potential for moderating or mediating relationships between board structures and board effectiveness. Moreover, this research extends previous studies by employing the degree of accounting conservatism as a new measure of board effectiveness. The findings suggest that board size has a moderating effect on the relationship between board effectiveness and takeover premiums in MBOs such that the relationship is more positive when board size is smaller. Moreover, the research finds that board effectiveness moderates the relationship between CEO duality and takeover premiums in MBOs such that the relationship is more negative when there is a higher level of board effectiveness.

Keywords: LBOs, MBOs, third-party LBOs, accounting conservatism, conditional accounting conservatism, board structures, board effectiveness, corporate governance, opportunistic behaviours, managerial ownership and share options

Table of Contents

List of Tables

Tables in the main text

Tables in the appendix

List of Glossary and Abbreviations

LBO	Leveraged buyout
MBO	Management leveraged buyout
Third-party LBO	Third-party leveraged buyout
M&A	Mergers and Acquisitions
SEM	Structural equation modelling
OLS	Ordinary least square
2SLS	2-Stage least square
Y-1	One year prior to the announcement of buyout
Y-2	Two year prior to the announcement of buyout
Y-3	Three year prior to the announcement of buyout
VIF	Variance inflation factor

Declaration

I hereby declare that this thesis is solely based on my own research. For the best of my knowledge and belief, no material contained in the thesis has previously been submitted for a degree in this or any other institution.

Statement of Copyright

Acknowledgements

First and foremost, I would like to express my sincerest gratitude to my supervisors, Dr. Rebecca Stratling and Professor Richard Slack, for their guidance, continuous support and kind advice throughout my PhD research studies. Their patience, motivation, enthusiasm and immense knowledge had greatly influenced me in all the time of research and writing of this thesis.

I am grateful to Dr. Riham Riz for her comments and suggestions in my annual reviews. I appreciate Dr. Gary Hsu and Dr. Thomoson Kuo for their advice and guidance at the early stages of my study.

I also appreciate all the recommendations and comments from the participants of the BAFA Annual Conference and Doctoral Colloquium 2013, the BAFA Annual Conference 2015, and the FRBC doctoral stream 2015. I extend my appreciation to the academic and administrative staff of Durham University Business School for their support and assistance.

I am most deeply grateful to my family for the support they provided me through my entire life and in particular, I must acknowledge my parents, without their love and encouragement, I would not have finished this thesis.

Last but not least, there are my friends. I would like to thank my friends for the sleepless nights we were working together before deadlines and for all the fun we have had in the last four years. Furthermore, I have to offer my special thanks to my friend Dr. Yang Yu not only for his stimulating discussion and great options, but also for his hearty support and encouragement when I am depressed.

Dedication

I dedicate this thesis to my family

Chapter 1: Introduction

1.1 Research Background and Motivation

This thesis investigates the influence of corporate governance mechanisms on managers' opportunistic behaviours preceding leveraged buyout (LBO) transactions in the UK. A LBO is the acquisition of a company in which a publicly quoted company is purchased by private equity using a significant amount of debt (Fox and Marcus, 1992; Weir et al., 2005a). The UK is, after the US, the second largest leveraged buyout market of the world (Geddes, 2011; Nash, 2011). Buyout activities tend to display 'wave' patterns as the number and deal values of LBOs tend to increase and decrease over periods of time following broad economic trends. The wave under observation, 1997–2011, is characterised by an increasing presence of private equity and debt financiers and the rapid growth in target size and total transaction value (Renneboog et al., 2007; Kaplan and Strömberg, 2009; Amess and Wright, 2012; Weir et al., 2013). When comparing this with the wave in the 1980s, during the years under study from 1997 to 2011 there were approximately 40 per cent of buyout deals belonging to third-party leveraged buyouts, which is much higher than in the 1980s (12 per cent) (Thomson One Database). Moreover, the total deal value of leveraged buyouts rose from £458.62 million in 1997 to £817.12 million in 2011 with a peak of £21.54 billion in 2006. As increasingly larger corporations were being targeted, the mean deal value rose from 57.33 million in 1997 to 90.79 million in 2011 (see Table 3.7 in the Appendix).

In a LBO, the acquiring group could be led by outside investors or by the target's existing management team (Weir et al., 2005b; Weir and Wright, 2006). Accordingly, leveraged deals are subdivided into third-party leveraged buyouts (third-party LBOs) and management leveraged buyouts (MBO). Third-party LBOs are deals where the bidding group consists solely of institutional investors and private equity firms (Hafzalla, 2009; Weir et al., 2013; Renneboog et al., 2007). As third-party LBOs make managers' long-term job security inherently more uncertain, they are arguably more likely to engage in opportunistic activities to try to avoid a takeover, e.g. by pushing up the share price and offer price (Weir et al., 2005b; Weir and Wright, 2006; Amess and Wright, 2012). By contrast, in an MBO, the target's incumbent management is directly involved in the transaction, and seeks to purchase the firm possibly with the help of private equity funds (Weir and Wright, 2006; Fox and Marcus, 1992). Management's direct involvement in MBO transactions may generate a conflict of interest between the firm's managers, who have incentives to try to reduce the purchase price, and their shareholders, who seek to sell their shareholdings at a high price (Hafzalla, 2009; Weir et al., 2005b; Weir and Wright, 2006). Therefore, LBOs may create incentives for managers to alter their behaviours opportunistically. Buyouts thus become an ideal setting to examine the impact of corporate governance mechanisms on managerial behaviours.

There is a call for future research to extend the study of buyouts in the UK market. For example, Campbell et al. (2015) argue that earning manipulation and LBOs are a worldwide concern that should be investigated. Future research into managers' opportunistic behaviours "could expand the investigation of delisted firms outside of US incorporated firms, the US financial market, and US GAAP regulatory influence" (Campbell et al., 2015: 62). It would be interesting to investigate the incentives of earnings manipulation "imposed by different global regulatory groups, corporate structures, and investor/stockholder expectations" (Campbell et al., 2015: 62). Kawanishi et al. (2014: 11) argue that "companies not in MBOs must also be included in the sample using such techniques as a paired sample" to provide full understanding of shareholder wealth protection in buyout firms. Hafzalla (2009) suggests that managerial incentives and their disclosure behaviours could be different in specific settings; future studies could provide more evidence on managers' opportunistic behaviours in comparing MBOs with third-party LBOs. Therefore, this research explores the influence of corporate governance mechanisms on managers' opportunistic behaviours in UK third-party LBOs and MBOs.

LBOs are an important tool to restructure corporations in global finance, and have been the subject of much academic interest (Weir et al., 2005a; Renneboog et al., 2007). Previous studies of LBOs have generally been based on the US market covering the 1980s (see Table 1.1). For example, Van de Gucht and Moore (1998) examine the reversal probabilities of LBOs that took place in the US during the period 1980–1992. They find that there is a high reversal probability of LBOs over the first seven or eight years following a typical LBO. Moreover, Halpern et al. (1999) focus on MBOs and third-party LBOs between 1981 and 1986 in the US market and find pre-firm performance is negatively related to takeover premiums but moderated by the levels of managerial ownership. They also suggest that buyout firms tend to have different levels of managerial ownership, performance and debt compared to non-buyout firms.

In the UK, the buyout market developed from the late 1990s onwards. The UK buyout market has some specific characteristics that differ from the US market. For example, in the UK, LBOs have relatively fewer hostile takeovers, tend to involve less debt finance, focus more on target growth opportunities and are more commonly financed by privately placed mezzanine bonds rather than junk bonds (Renneboog et al., 2007; Toms and Wright, 2005). Hence, it is questionable to what extent the US findings can be generalised to a different governance and financial reporting regime in the UK (Renneboog et al., 2007).

Table 1.1 Previous studies of leveraged buyouts: post 1990s

Authors	*Country*	*Nature of transactions*	*Findings*
Long and Ravenscraft (1993)	US	MBOs, LBOs	LBOs lead to reductions of R&D expenditures
Van de Gucht and Moore (1998)	US	LBOs	The reversal probabilities of LBOs are found to increase over the first seven or eight years following a typical LBO
Andrade and Kaplan (1998)	US	LBOs	Financial distress has positive effects on firm value
Halpern et al. (1999)	US	MBOs, third-party LBOs, LBOs	MBO firms display higher managerial ownership, poorer performance, greater use of debt and higher expenditures on taxes than companies that remain publicly quoted; third-party LBO firms display lower managerial ownership, less use of debt and poorer performance than firms remain publicly quoted; the poorer the prior performance of the LBOs, the higher the takeover premiums but these are moderated by the levels of managerial ownership
Desbrières and Schatt (2002)	France	MBOs	French buyouts differ to the US and UK buyouts in two ways: a higher concentrated shareholding in the acquired firms before the buyouts and a lower debt level; MBO firms provide better returns on equity than their industry counterparts before buyout
Begley et al. (2003)	US	MBOs	Prior to MBOs, boards with more independent directors and higher compensated CEO tend to discourage earnings manipulation; managers are more likely to revise their bidding price upwards when the manipulation is most severe, and blockholders tend to put pressure on managers to make these revisions; downward earnings manipulation does not prevent managers from retaining control of the firm, but they tend to pay a higher premium
Weir et al. (2005a)	UK	LBOs	Buyout firms are more likely to have higher CEO ownership and institutional ownership, and CEO duality
Weir et al. (2005b)	UK	MBOs, third-party LBOs	Buyout firms tend to have a perceived undervaluation prior to buyout; they have non-optimal governance structures and higher board and institutional ownership
Weir and Wright (2006)	UK	MBOs, MBIs[1], LBOs	MBOs have fewer non-executive directors, a greater incidence of duality and higher board shareholdings than traditional acquisitions of listed firms
Renneboog et al. (2007)	UK	MBOs, MBIs, third-party LBOs	Shareholder wealth gains in LBOs mainly associated with pre-buyout undervaluation of targets, incentive realignment and increased interest tax shields

[1] MBIs: management leveraged buy-in (MBI) is a going private transaction where the equity may be largely held by new incoming managers and private equity financiers (Weir and Wright, 2006).

Nikoskelainen and Wright (2007)	UK	LBOs	Increases in value and return characteristics of LBOs are positively related to corporate governance mechanisms, especially management's equity share
Kaplan and Strömberg (2009)	US	LBOs	Private equity activity creates economic value
Hafzalla (2009)	US	MBOs, third-party LBOs	Managers involved in MBOs selectively release negative disclosures before transactions; disclosure in MBO firms becomes significantly more pessimistic than in third-party LBO firms and performance-matched control sample
De Maeseneire and Brinkhuis (2012)	European	LBOs	Reputable private equity sponsors are more capable of obtaining high leverage for their target firms
Weir et al. (2013)	UK	LBOs	LBO firms have a significant improvement in financial health in the post-deal years relative to the year before buyout
Mao and Renneboog (2015)	UK	MBOs, third-party LBOs	Managers in MBOs tend to engage in negative earnings management via both accrual and real earnings management

Furthermore, researchers have previously applied their studies in LBO and MBO settings (see Table 1.1). For instance, Weir et al. (2005a) analyse the corporate governance factors that affect LBO transactions and suggest that buyout firms are more likely to have higher CEO ownership, institutional ownership and CEO duality. Cotter and Peck (2001) and Nikoskelainen and Wright (2007) investigate the impact of corporate governance mechanisms on firm performance in the LBO setting. They find that corporate governance mechanisms can facilitate shareholder wealth gains in LBO firms.

Moreover, Desbrières and Schatt (2002) examine MBO firm performance and suggest that such firms could provide better returns on equity than their industry peers before MBOs. Renneboog et al. (2007) investigate the determinants of MBOs and third-party LBOs and find that pre-buyout undervaluation of target firms, realignment of incentives and increased interest tax shields are significantly related to shareholder wealth gains.

Halpern et al. (1999), Weir et al. (2005b) and Weir and Wright (2006) study the corporate governance characteristics of MBO and third-party LBO firms. They suggest that MBO firms have fewer non-executive directors, a greater incidence of duality and higher board and institutional shareholdings than listed firms that involved in traditional acquisitions.

Furthermore, Begley et al. (2003) examine managerial incentives and the effects of corporate governance on earnings management prior to MBOs. They find that a high proportion of independent directors and more highly compensated CEOs tend to discourage earnings manipulation prior to MBOs. Besides, managers may revise their bidding price upwards when manipulation is severe, and blockholders are likely to push managers to make these revisions. Hafzalla (2009) also examines managerial disclosure behaviours prior to MBOs. He finds that managers involved in MBOs tend to selectively release negative information prior to a buyout.

However, little attention has been given to managerial incentives and behaviours and shareholder wealth protection in MBOs in comparison with that in third-party LBOs. Typically, market undervaluation is one of the most significant characteristics for both third-party LBOs and MBOs. Management's direct involvement in buyout transactions differentiates third-party LBOs from MBOs (Fox and Marcus, 1992; Weir et al., 2013; Weir and Wright, 2006). Compared with third-party LBOs, managers in MBOs are on both sides of the transaction. On the one hand, the target firm's management is acting on behalf of shareholders to determine whether the buyout is in the interests of shareholders and to seek as high a purchase price as possible. On the other hand, managers are buyers who act in their own interests to reduce the purchase price (Lowenstein, 1985).

In third-party LBOs, managers may gain financially from increases in the value of their shares, but may lose compensation, control and power if they are displaced after buyout (Bange and Mazzeo, 2004; Cotter and Zenner, 1994). Weir et al. (2005b) and Weir and Wright (2006) suggest that third-party LBO targets are likely to experience high undervaluation, which may intensify the incentives of outside buyers to make changes to firms' management team after buyouts. Moreover, although the outside buyers may continue to hire the targets' managers as they are more familiar with firms' operation, the outside investors may re-sale the firms in the next few years (Hafzalla, 2009; Weir et al., 2005b; Renneboog et al., 2007). Hence, prior to third-party LBOs, managers may have strong incentives to protect their long-term job security that may motivate them to engage in opportunistic activities, such as manipulating earnings upwards to avoid the firm being taken over, even though this is not always in the best interests of shareholders (Weir et al., 2005b; Weir and Wright, 2006; Amess and Wright, 2012). In the actual event of a takeover, while shareholders might paradoxically benefit from an artificial overstatement of the firm, such earnings overstatements during the buyout period will eventually be reversed. This may result in a significant drop or an even worse loss in the future that is harmful to the long-term interests of shareholders (Hafzalla, 2009; He et al., 2010). As the prediction of third-party LBOs is more difficult than MBOs, shareholders are likely to be more prudent to avoid overpaying incompetent managers. Therefore, MBOs and third-party LBOs provide distinct settings to examine managers' behaviours and shareholder wealth protection.

Moreover, accounting conservatism usually indicates that managers have adopted prudent attitudes towards recognising economic gains than losses, so that compare with good news, bad news tends to be recognised timeliness (Basu, 1997). Accounting standards board (ASB) and financial accountant standards board (FASB) advocate conservatism and state that conservative accounting reporting is a prudent reaction to uncertainties and risks of business activities (FASB, 2010; ASB, 2000). Previous studies (e.g. Ball, 2001; Ball and Shivakumar, 2005; Watts, 2003a) suggest that under conservative accounting disclosure, managers are less likely to exert efforts to overstate earnings for the sake of their private benefits. As the overstatement will reverse eventually, conservative accounting is supposed to address the issues of limited horizons that protects the long-term interests of shareholders (Lafond and Roychowdhury, 2008; Watts, 2003a). However, due to the asymmetric recognition of economic gains and losses, conservative accounting indeed affect firm's current value (Beekes et al., 2004; Begley et al., 2003). Within the rules, managers can choose the degree of accounting conservatism in practice. Their incentives are likely to be the main factors in affecting their behaviours towards accounting conservatism. Therefore, it is expected that managers may engage in different levels of accounting conservatism depending on whether they can participate in the buyout transactions. LBOs then provide unique opportunities to examine managerial incentives and the mechanisms that managers might use to exploit the interests of shareholders.

In addition, corporate governance mechanisms may play an important role in mitigating opportunistic behaviours by management; few prior studies have explored this issue in the leveraged buyout setting. Specifically, as discussed above, different types of leveraged buyout may provide different incentives for managers. Their behaviours in third-party LBOs tend to differ from those in MBOs. The effects of corporate governance mechanisms on opportunistic behaviours by management thus may be different in third-party LBOs as opposed to MBOs.

Overall, this research makes contributions to mergers and acquisitions (M&A), accounting and corporate governance literature by extending the study of corporate governance and managerial opportunistic behaviours in leveraged buyout settings. Buyouts have provided unique opportunities for the investigation as managers tend to have different incentives prior to third-party LBOs and MBOs. Managers may have long-term job security issues in facing with third-party LBOs, which provide them with incentives to engage in self-interest activities to prevent firms being taken over. However, in MBOs, managers are also buyers who may have incentives to minimise their purchase price. The findings of this thesis may have implications for institutional investors and boards of directors in understanding the incentives of management and their behaviours preceding third-party LBOs and MBOs. Additionally, the findings may have implications for the effectiveness of corporate governance mechanisms. They may provide more empirical evidence on how to enhance the monitoring and control mechanisms over opportunistic behaviours by management.

1.2 Aims and Objectives

This thesis investigates the influence of corporate governance mechanisms on opportunistic behaviours by managers prior to LBOs in the UK. Depending on whether the incumbent management team participates in leveraged buyouts or not, managerial incentives to engage in opportunistic behaviours are different. This thesis subdivides leveraged buyouts into third-party LBOs and MBOs for the purpose of this investigation.

In particular, in third-party LBOs, a firm's undervaluation may attract outside buyers to take over the firm. In this case, the target firm's managers may have long-term job security issues, as the external buyers are likely to take over control and make changes to the firm's existing management team to improve its efficiency of governance after third-party LBOs (Hafzalla, 2009; Weir et al., 2005b). Although outside investors may continue to retain the target firm's management because they are more familiar with its operations, the transaction is likely to threaten managers' long-term job security (Hafzalla, 2009; Weir et al., 2005b; Weir and Wright, 2006; Renneboog et al., 2007). Therefore, such managers are likely to engage in opportunistic activities to try to reduce the firm's undervaluation to prevent a takeover. However, artificially inflated share prices are not in the interest of shareholders, due to the inevitable adjustment in the long run. As the prediction of third-party LBOs is difficult, shareholders are more prudent in earnings manipulation, so as to avoid overpaying the incompetent managers. Managers and shareholders thus have a conflict of interest prior to third-party LBOs.

By contrast, management in MBOs "is on both sides of the table, acting on behalf of the shareholders to determine whether a sale is in their interest and to seek the best possible price, all the while acting in their own proprietary interest as purchasers" (Lowenstein, 1985: 732). There exists a conflict of interest between the target firm's managers and shareholders, since managers can benefit from the MBOs at the expense of the shareholders (Hafzalla, 2009). The managers' personal interests may motivate them to engage in more opportunistic behaviours, such as to depress the pre-MBO accounting earnings to the detriment of shareholder interests (Hafzalla, 2009; Weir et al., 2005b; Weir and Wright, 2006).

Corporate governance mechanisms are designed to prevent inappropriate sub-optimal behaviours of managers and ensure that firms are managed efficiently in the interests of shareholders (Ahmed and Duellman, 2007; Lara et al., 2009). Good corporate governance is supposed to mitigate agency conflicts by effectively motivating managers and better controlling and monitoring their behaviours. Weak corporate governance may enable greater managerial discretion and may therefore lead to more opportunistic behaviours (Lara et al., 2007; Shleifer and Vishny, 1997). Hence, this thesis provides a new insight into the effects of corporate governance by examining the influence of corporate governance on managerial opportunistic behaviours prior to third-party LBOs and MBOs in the UK.

1.3 Theoretical Framework

Agency relationships are defined as relationships between principal(s) and agent(s) "under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent" (Jensen and Meckling, 1976: 308). In many listed companies, where ownership diversification and the recruitment of professional managers has led to a separation of ownership and control, shareholders are seen as principals, which hire (directly or indirectly) managers as agents work on behalf of or for their interests (McGuire, 1988;

Eisenhardt, 1989; Solomon, 2013). However, the managers (agents) do not bear the full wealth effects of their decisions because managers are likely to control the firms' operation but generally do not hold a significant equity share (Jensen and Meckling, 1976; Fama and Jensen, 1983; Schroeder et al., 2010). Therefore, the agency problems may arise from the separation of ownership and control (McGuire, 1988; Eisenhardt, 1989; Solomon, 2013; Jensen and Meckling, 1976).

Agency problems are caused by the conflict of interests and information asymmetry. In the assumption, shareholders are assumed to seek for maximising the firm performance to protect their long-term wealth (Roche, 2009; Solomon, 2013). However, managers may be motivated to maximise their private interests and utilities rather than the goal of shareholder wealth protection. For example, managers may have strong incentives to obtain high salaries and bonuses, and protect their control power and job security within the firms (Berle and Means, 1932; Gul, 2007; Jensen and Meckling, 1976; Solomon, 2013). Hence, managers may not always act in the interests of shareholders. Instead, they are likely to have incentives to act inappropriately when their interests are not aligned with those of the shareholders (Schillhofer, 2003; Gul, 2007; Saam, 2007; Schroeder et al., 2010; Solomon, 2013).

Moreover, different risk preferences of managers and shareholders may be another reason for the aberrant activities of agents (Jensen and Meckling, 1976). Typically, managers and shareholders tend to hold different views towards the corporate risk, in order to defend their own interests. Under the prerequisite of separate ownership and control, it is not the money which belongs to managers as well as the risks. Therefore, principals are assumed to be risk-neutral, while agents are assumed to be risk averter (Saam, 2007; Solomon, 2013; Roche, 2009; Tricker, 2009; Gul, 2007). This risk divergence tends to motivate managers and shareholders to engage in different actions

(Eisenhardt, 1989; Solomon, 2013).

The second assumption of agency theory concerns that the monitoring and verification of agents can be expensive and difficult due to the information asymmetries (Solomon, 2013). Information asymmetries are likely to be raised because the agents' competences, intentions, knowledge and actions cannot be fully observed by the principals (Saam, 2007; Kim and Suh, 1992). Due to this inefficient monitoring, the information gap may put the principals in a disadvantageous position where shareholders will never be certain about the contribution of managers in the business (Gul, 2007; Mallin et al., 2005). Since then, shareholders may need to pay a high price to obtain the same information or it may even be impossible for them to acquire (Schillhofer, 2003; Keil, 2005). Agency costs are then raised from shareholders' attempts to monitoring the management (Solomon, 2013; Tricker, 2009).

Agency costs usually refer to the misalignment of the interests between shareholders and managers when the ownership and control separate (Jensen, 1986a). It can be incurred by the principals applying for control and monitoring to align their interests with agents when facing with information asymmetry or different risk preferences (Weir et al., 2002; Weir et al., 2005b; Solomon, 2013) . In general, the agency costs are subdivided into the ex-ante and ex-post cost. Ex-ante cost refers to the cost incurred in developing the contract, whereas ex-post cost refers to the cost of enforcing and monitoring the contract (McGuire, 1988). Jensen and Meckling (1976) suggest that the ex-post costs are the sum of the (1) principal monitoring costs that arise from the expenditures of incentive schemes, monitoring procedures, and supervision; (2) agent bonding expenditures which are used to guarantee that the agents will not take certain actions which would harm the principals or to compensate principals if such actions happen; and (3) residual loss is incurred by the costs of full enforcement of contracts exceeding the benefits (McGuire, 1988; Solomon, 2013; Fama and

Jensen, 1983).

Although agency costs are unavoidable expenses in resolving agency problems, it is necessary to be reduced to protect the wealth of shareholders (Solomon, 2013; Jensen and Meckling, 1976). Agency theory suggests a set of corporate governance mechanisms to minimise the agency costs and align the interests between principals and agents so as to protect shareholders wealth (Keasey, 2005; Solomon, 2013; Davis et al., 1997). Jensen and Meckling (1976) suggest that the proper incentives can restrict the aberrant activities of the agents, limit the divergences between the two parties and shrink the agency costs. In particular, incentive schemes are the mechanisms that enable principals to motivate the particular actions of the agents in both a positive way, which indicates the rewards of promotion in return for compliance, and a negative way of dismissal and demotion in the opposite (Grant, 2005). The early studies (e.g. Jensen and Murphy, 1990; Weir et al., 2005a; Lafond and Roychowdhury, 2008) confirm the positive correlation between monetary incentive and performance outcomes. Conversely, several studies (e.g. Sprinkle, 2000; Bonner and Sprinkle, 2002; Coles et al., 2012; Shleifer and Vishny, 1997) suggest that incentives contrasts may not improve but degrade the performance of agents. This is because incentives can divert managers' attention away from performing a task instead of focusing on how to obtain more wealth from incentive schemes. Moreover, a good corporate governance structure is expected to lead to better control and monitoring over management that is helpful in reducing the occurrence of the agency problems and agency costs (Cornett et al., 2008; Lara et al., 2007; Shleifer and Vishny, 1997).

In facing with buyout transactions, managers may engage in self-interest activities to affect shareholders' perceptions of firm value. In MBOs, there is a clear conflict of interests between managers, who seek to minimise their purchase price, and shareholders, who seek to maximise their selling price

(Hafzalla, 2009; Lowenstein, 1985). By contrast, in third-party LBOs, managers may have long-term job security issues that may motivate them to manipulate earnings upward to try to prevent a takeover, however, this is not always in the interests of shareholders (Weir et al., 2005b; Amess and Wright, 2012; Weir and Wright, 2006). Accounting conservatism refers to the asymmetry recognition of economic gains and losses, where economic losses are disclosed faster than economic gains, either in order to follow a prudent and cautious approach to corporate reporting and reduce the need for future negative restatements of accounts, or in order to deliberately depress the firm value due to opportunistic consideration by managers (Basu, 1997; Beekes et al., 2004; Ahmed and Duellman, 2007). Before buyouts, managers tend to engage in different levels of accounting conservatism in order to protect their wealth. Corporate governance mechanisms are supposed to mitigate the agency conflicts by effective monitoring and control over management, and better align the interests between managers and shareholders (Shleifer and Vishny, 1997; Lara et al., 2009).

The agency theory has addressed the control role of directors, referring to the monitoring and governance functions in which directors serve shareholders by ratifying the decisions of management and monitoring managers' behaviours in decision implementation (Fama and Jensen, 1983; Baysinger and Butler, 1985; Donaldson and Davis, 1991; Edgerton, 2012). However, another distinct role that directors play is that of providing various resources of knowledge, skills, expertise and experience (Pfeffer and Salancik, 1978; Pugliese et al., 2009; Carpenter and Westphal, 2001; Johnson et al., 1996; Hillman et al., 2000; Boyd, 1990; Daily and Dalton, 1994a; Daily and Dalton, 1994b). These resources are supposed to be helpful in managing external dependencies (Pfeffer and Salancik, 1978), reducing environmental uncertainty for the firm (Pfeffer, 1972), decreasing the transactions costs (Williamson, 1984) and ultimately facilitating the survival of the firm (Singh et al., 1986; Hillman et al., 2009).

Resource dependence theory proposes that boards are important mechanisms to provide advice and counsel to the organisation, access to channels of information in linking the firm to environmental contingencies, access to facilitate external relations and resources, legitimacy and aiding in the formulation of firms' strategy and decision making (Dalton et al., 1998; Pfeffer and Salancik, 1978; Donaldson and Davis, 1991; Muth and Donaldson, 1998). Zahra and Pearce (1989: 292) further support that the board of directors has service role in "enhancing company reputation, establishing contracts with the external environment and giving advice and counsel to executives". Moreover, the board has strategy role "in the strategic arena through advice and counsel to the CEO, by initiating their own analyses, or by suggesting alternatives" (Zahra and Pearce, 1989: 298). Johnson et al. (1996: 411) indicate that directors have service role in "advising the CEO and top managers on administrative and other managerial issues as well as more actively initiating and formulating strategy" and resource dependence role in "facilitating the acquisition of resources critical to the firm's success".

In particular, board's expertise, experience, knowledge, reputation and skills are supposed to be positively associated with the provision of advice and counsel. The board of directors is often composed of lawyers, financial representatives, marketing specialists and public affairs who tend to bring with them expertise, experience, knowledge and skills to facilitate advice and counsel to the firms (Baysinger and Butler, 1985; Gales and Kesner, 1994; Carpenter and Westphal, 2001). For example, Pfeffer and Salancik (1978) and Luoma and Goodstein (1999) find that firms in regulated industries tend to have more outsiders, particularly those with relevant experience. Kor and Misangyi (2008) examine the managers' and directors' industry experience and suggest that the board can supplement top management with vital advice and counsel.

Moreover, board's expertise, experience, knowledge and skills are supposed to provide channels of information and communication between the firm and the external organisation. These characteristics of the board provide the firm with timely and valuable information that may reduce firm's transaction costs in dealing with uncertainties, thereby enhance firm performance (Hillman and Dalziel, 2003). It is also found that executive directors' external ties can facilitate firm's access to strategic information and subsequently improve firm performance (Eisenhardt and Schoonhoven, 1996; Geletkanycz and Hambrick, 1997; Kor and Sundaramurthy, 2009).

In addition, board's knowledge, expertise and experience are helpful for firms to acquire external resources, such as financial capital influence and influence from customers, suppliers and other communities (Hillman and Dalziel, 2003). For example, start-up firms often put venture capitalists on the boards not only for access to capital but also for their expertise and reputation (Fried et al., 1998; Davila et al., 2003; Strömsten and Waluszewski, 2012).

Also, board's knowledge, expertise and experience are supposed to be linked to the provision of firm legitimacy (Daily and Schwenk, 1996; Hambrick and D'Aveni, 1992). Pfeffer and Salancik (1978), Daily and Dalton (2001) and Dunn (2012) suggest that the prestige of directors can enhance the firm performance, as the prestigious or legitimate persons may represent that the board are able to provide confirmation for the value and worth of the firm to the public. Therefore, resource dependence theory is an alternative theoretical base of this research in examining the effects of corporate governance mechanism on managers' opportunistic behaviours.

Early studies using resource dependence theory to examine the effects of board focus on its structures as indicators of the board's ability and suggest that boards are able to provide critical resources to the firm (Hillman et al., 2009).

Pfeffer (1972), Pfeffer (1973) and Sanders and Carpenter (1998) suggest that board structure is related to the firms' environmental needs and the level of internationalisation are an indicator of a successful resource dependence strategy. Fried et al. (1998) further indicate that board structures are contingent not only on the firm's external environment but also on its current strategy and prior financial performance.

There is one additional theory used in corporate governance research stewardship theory (Davis et al., 1997; Donaldson and Davis, 1991; Muth and Donaldson, 1998). The stewardship theory suggests that managers are steward whose motives are aligned with the objectives of their shareholders rather than the entirely self-interested (Muth and Donaldson, 1998; Davis et al., 1997). Under the theory, managers are supposed to have a range of non-financial motives, which includes "the need for achievement and recognition, the intrinsic satisfaction of successful performance, respect for authority and the work ethic" (Muth and Donaldson, 1998: 6). Stewardship theory holds that managers are essentially a good steward of the corporate assets, and be loyalty to the firm (Muth and Donaldson, 1998; Donaldson and Davis, 1991). Managers may comply their duties and identifications with the organisation when to confronting with personally unrewarding courses (Etzioni, 1975). Therefore, stewardship theory suggests that performance variations arise from whether the firm structure has located executive facilitates effective control actions (Donaldson and Davis, 1991; Muth and Donaldson, 1998). Corporate structures are expected to facilitate this goal by the extent to which that they have provided clear, consistent role expectations, authorities and empower to management (Donaldson and Davis, 1991).

1.4 Structure of Thesis

This thesis is structured into five chapters. Chapter 1 discusses the motivations and outlines the objectives of the study, specifies the research questions, overviews the methodology and highlights the key findings and contributions of the thesis. The rest of the thesis is organised as follows:

In particular, three empirical studies are designed to test the influence of corporate governance mechanisms on managers' opportunistic behaviours in third-party LBO and MBO transactions. Chapter 2 (empirical study 1) examines the impact of managerial interests on takeover resistance and bid premiums in the settings of third-party LBOs and MBOs. Specifically, it examines managerial interests, including managerial ownership and share options.

Chapter 3 (empirical study 2) investigates the accounting conservatism preceding leveraged buyouts in the UK. It first examines the differences between degrees of conservatism prior to third-party LBOs and MBOs. Then, the study investigates how accounting conservatism may change over the period preceding third-party LBOs and MBOs. Moreover, it examines the influences of corporate governance mechanisms; in particular, the effects of board characteristics and ownership characteristics on accounting conservatism prior to third-party LBOs and MBOs.

Chapter 4 (empirical study 3) investigates the moderating and mediating effects of board structures in the relationship between board effectiveness and takeover premiums prior to third-party LBOs and MBOs. Moreover, it examines the moderating and mediating effects of board effectiveness in the relationship between board structures and takeover premiums prior to third-party LBOs and MBOs.

Chapter 5 presents a summary of the thesis and draws conclusions from and implications of the findings. This chapter also discusses potential limitations and makes suggestions for future research.

1.5 Research Overview

In order to achieve the aims of the study, the following research questions are examined:

Chapter of the Thesis	Research Questions
Chapter 2: Empirical Study 1	(1). What is the relationship between managerial ownership, share options and takeover resistance in UK third-party LBO and MBO transactions? (2). What is the relationship between managerial ownership, share options and takeover premiums in UK third-party LBO and MBO transactions? (3). Is there a difference between the effects of managerial ownership and share options in UK third-party LBO and MBO transactions?
Chapter 3: Empirical Study 2	(4). What is the difference between the degree of accounting conservatism prior to third-party LBOs and MBOs in the UK? (5). How does the degree of accounting conservatism change over the period preceding third-party LBOs and MBOs in the UK? (6). What are the influences of corporate governance mechanisms, including board characteristics and ownership characteristics, on firms' financial reporting conservatism prior to third-party LBOs and MBOs in the UK?
Chapter 4: Empirical Study 3	(7). Are there any mediating or moderating effects of board structures and board effectiveness which affect takeover premiums in UK third-party LBOs and MBOs?

This thesis first explores the influence of managerial ownership and share options on takeover resistance and bid premiums in UK third-party LBO and

MBO transactions to provide a new insight into managerial behaviours and their incentive schemes. As options can only provide managers with the right to purchase the firm's shares at an agreed upon price or within a certain time requirement, options and ownership are likely to provide different incentives for managers (Bender, 2003; Song and Walkling, 1993; Langley, 1997; Vallascas and Hagendorff, 2013). In particular, share options are different from ownership, as options can align the interests of management with shareholders when the share price increases, while there is no real reduction of managerial wealth when the share price declines (Tufano, 1996; Sanders, 2001; Veenman et al., 2011; Hagendorff and Vallascas, 2011). Hence, this study provides a better understanding of the influence of managerial incentives on their reaction to shareholder wealth protection by comparing the effects of managerial ownership with share options. Furthermore, as third-party LBOs and MBOs can provide different incentives for managers, the investigation and comparison of these two types of buyouts can provide a better understanding of the effects of managerial ownership and share options on shareholder wealth protection.

In the second research, the study investigates the existence of accounting conservatism and its relationship with corporate governance mechanisms preceding third-party LBOs and MBOs in the UK. As buyouts provide managers with incentives to behave opportunistically, this study investigates the changes of accounting conservatism over the period preceding third-party LBOs and MBOs. Moreover, this research extends the literature of accounting conservatism by investigating the influence of corporate governance on it prior to third-party LBOs and MBOs. As the degree of accounting conservatism is based on managerial discretion over business operational decisions, managers' incentives and board monitoring and control are important factors, affecting behaviour towards conservatism. Accordingly, this research focuses on the effects of board characteristics and ownership characteristics on accounting conservatism prior to third-party LBOs and MBOs.

In the third study, this research aims to investigate the potential relationship between board structure, board effectiveness and takeover premiums in third-party LBOs and MBOs in the UK. The inconclusive relationship between board structures and takeover premiums in third-party LBOs and MBOs in the first empirical study might indicate that the research fails to model the impact of the board on performance outcomes correctly. The overall impact of the board is determined by its structures and its effectiveness (Hermalin and Weisbach, 2001; Roberts et al., 2005; Payne et al., 2009; Kirkpatrick et al., 2015). Conflating board structures with board effectiveness can be misleading. Therefore, this study builds a new model to improve the understanding of the link between board structures, board effectiveness and takeover premiums. By taking into account the potential interrelationship between board structures and board effectiveness, this research investigates the moderating and mediating effects of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs. In addition, it aims to provide a new proxy for board effectiveness: the degree of accounting conservatism. Board effectiveness occurs when the directors have fulfilled their responsibility of protecting shareholder wealth (Nicholson and Kiel, 2004). Accounting conservatism is expected to proxy the effectiveness of the board, as cautious accounting reporting protects the shareholders' interests in the long run (Watts, 2003a; Lafond and Roychowdhury, 2008; Ahmed and Duellman, 2011).

1.6 Methodology

This thesis investigates UK leveraged buyout transactions on the London Stock Exchange between 1997 and 2011. This time period covers a significant wave of LBO activities in the UK. The sample of firms examined in this thesis is consisted with third-party LBO and MBO transactions in the UK. It excludes non-UK firms and financial services companies, since they are likely to be subject to a different set of financial structures, regulatory disclosure requirements and corporate governance systems.

Under the study, the valuation of executive share options is measured via the Black and Scholes (1973) model. Accounting conservatism is measured initially using the Basu (1997) model. The Khan and Watts (2009) C-score model and the Ball and Shivakumar (2005) accruals-based model are also used to provide alternative measures for accounting conservatism.

The first two empirical studies adopt ordinary least square (OLS) and logistic regression models to investigate corporate governance and opportunistic behaviours by managers in third-party LBOs and MBOs. The research studies start by considering whether MBO firms differ from third-party LBO firms using univariate tests.

In the third empirical study, multiple regression analysis and structural equation modelling are adopted to test the moderating and mediating effects of board structures and board effectiveness. This is different to a lot of previous literature (e.g. Han et al., 2009; Zemzem and Ftouhi, 2013; Schepers and Wetzels, 2007), which usually focus on either of the approach.

Also, this thesis has concerns over the potential endogeneity of the models. According to the accounting and corporate literature (Larcker and Rusticus, 2010), lagged values are used as instrumental variables to test for endogeneity. The Hausman test is used to check for endogeneity where the null hypothesis is rejected ($p<0.05$) and endogeneity presents (Hadri and Mikhail, 2014; Adkins and Hill, 2011; Diamond and Tolley, 2013). Similar to prior studies (e.g. Hadri and Mikhail, 2014; Baum, 2006; Adkins and Hill, 2011), the two-stage least squares (2SLS) regression is then used to address endogeneity. However, if the instrumental variables are weak, 2SLS can produce a biased estimation over OLS. Furthermore, this thesis runs a set of additional analyses to test the robustness of the results. In particular, the studies use alternative measurements and different analysis approaches for robustness tests.

1.7 Results

The first empirical study (Chapter 2) examines the influence of managerial interests, specifically ownership and share options, on takeover resistance (i.e. the initial mood of target's board to takeover attempt, friendly or hostile) and bid premiums in third-party LBOs and MBOs. As anticipated, given the different managerial incentives in third-party LBO and MBO contexts, the findings suggest that the effects of managerial incentive schemes on takeover resistance and bid premiums are different in these transactions. Moreover, ownership and share options tend to provide different incentives to managers that are likely to affect their actions of shareholder wealth protection in different ways.

The research indicates that managerial ownership is positively related to takeover resistance in third-party LBOs, but surprisingly they are not significantly correlated in MBOs. This may suggest that in third-party LBOs, higher levels of ownership can provide managers with power in their decision-making that helps them protect their own interests. Nevertheless, managers' involvement in the MBOs can provide more direct and strong incentives for managers other than their shareholdings.

Moreover, it is found that managerial share options are negatively related to the likelihood of takeover resistance in third-party LBOs. This may be because managers of target firms can accrue additional benefits from exercising their options immediately after a third-party LBO (Moeller, 2005). Higher values of share options may reduce the likelihood of takeover resistance from target firms' management in third-party LBOs. However, the research finds that there is a positive relationship between managerial share options and takeover resistance in MBOs. Although managers' share options are also exercisable after an MBO takeover, they are likely to serve to increase managers' ownership in the firm, rather than being a cash pay-off. Moreover, if the board of directors is aware of managers' economic incentives from share options and shares, non-executive directors may be more wary of MBO proposals and tend to resist takeover offers.

In addition, the research finds that managerial ownership is positively related to takeover premiums in third-party LBOs. This may be because managers may try to use their influence on the board to increase takeover premiums to maximise their wealth gains after the takeover.

The findings also suggest a negative relationship between the value of outstanding share options owned by managers and takeover premiums in both third-party LBOs and MBOs. In third-party LBOs, higher values of share options may reduce the incentives of managers to drive up takeover premiums. This is because higher premiums may increase the risk of failure of the takeover, which would prevent managers from exercising their options after the takeover. However, in MBOs, share options do not provide cash incentives to managers. Managers may try to exercise these options after a takeover to increase their shares in the firm. In MBOs, managers have strong incentives to reduce their possible purchase price. Hence, higher managerial share options may be associated with lower takeover premiums in MBOs.

The second empirical study (Chapter 3) investigates the impact of corporate governance mechanisms on accounting conservatism prior to third-party LBO and MBO transactions. In general, the findings suggest that the accounting conservatism is different prior to third-party LBOs and MBOs. Moreover, the corporate governance mechanisms are likely to have a greater impact on accounting conservatism in third-party LBO than in MBO firms.

Particularly, this research finds that managers tend to engage in more conservative accounting one year before MBOs, possibly to reduce the perception of the firm’s value and thus depress the purchase price of the buyout. In order to identify the differences in managerial behaviour regarding accounting conservatism before third-party LBOs and MBOs, this research investigates data for the three years preceding a buyout event. By comparing the implementation of conservatism one year prior to MBOs and third-party LBOs, the research finds that managers are likely to engage in more conservative accounting in MBOs than in third-party LBOs. This difference may be because managers have different incentives in MBOs, as they seek to depress the purchase price, and third-party LBOs, as they seek to protect their long-term job security by preventing the takeover. Moreover, by comparing managerial behaviours regarding accounting conservatism three years before a buyout, the research discovers a mean-reversion in that managerial behaviours shift from more to less conservative preceding third-party LBOs, but from less to more conservative prior to MBOs.

In addition, the research finds that corporate governance mechanisms have different effects on accounting conservatism one year prior to third-party LBOs and MBOs. In particular, as the prediction of third-party LBOs is difficult, more conservative accounting is expected to protect the long-term interests of shareholders before takeovers. The research finds that before third-party LBOs, a higher proportion of non-executive directors and institutional shareholding can lead to more conservative accounting. However, CEO duality, higher non-executive shareholding and a high level of audit committee independence can result in less conservative accounting prior to third-party LBOs. Moreover, there is a U-shaped relationship between managerial ownership and accounting conservatism preceding third-party LBOs.

However, prior to MBOs, more conservative accounting cannot protect the shareholders' interests, as it may depress the share price of the target firm. The research finds that high levels of audit committee independence can lead to less conservative accounting preceding MBOs. Moreover, high institutional shareholding is associated with more conservative accounting prior to MBOs. Other governance mechanisms, such as CEO duality, the proportion of non-executives on the board, managerial ownership and non-executive ownership are not significantly correlated to accounting conservatism in MBOs.

The third empirical study (Chapter 4) investigates the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs, by taking into account their potential moderating or mediating effects. The findings suggest that board size moderates the relationship between board effectiveness and takeover premiums in MBOs. The relationship between board effectiveness and takeover premiums is more positive when board size is smaller. Moreover, the research finds that board effectiveness has moderating effects on the relationship between CEO duality and takeover premiums in MBOs. The relationship between CEO duality and takeover premiums is more negative when there is a higher level of board effectiveness.

1.8 Contributions

Overall, this study is purposed to make contributions to the mergers and acquisitions (M&A), accounting and corporate governance literature in several ways. First, this study extends the previous literature by examining the influence of corporate governance on managers' opportunistic behaviours in the leveraged buyout market. Leveraged buyouts are a distinct and increasingly important type of acquisition. As discussed before, managers of target firms may have a clear conflict of interests with shareholders prior to third-party LBOs and MBOs. Third-party LBOs are inherently more uncertain for managers' long-term job security, which may intensify their incentives to behave opportunistically to prevent a takeover threaten (Weir et al., 2005b; Weir and Wright, 2006; Renneboog et al., 2007). In contrast, managers' direct involvement in MBOs may generate conflicts of interests between managers, who seek to reduce their purchase price, and shareholders, who seek to sell for a highest possible price (Hafzalla, 2009; Lowenstein, 1985). Analysing the effects of corporate governance mechanisms in these settings may provide further evidence on how to effectively motivate managers and better monitor and control their opportunistic behaviours.

In particular, this study provides new evidence on the effects of managerial incentive schemes in third-party LBO and MBO settings. Although previous studies have examined the relationship between managerial incentive schemes and shareholder wealth protection in general in M&A firms (e.g. Cotter and Zenner, 1994; Walkling and Long, 1984; St-Pierre et al., 1996; Moeller, 2005), there is little attention paid to leveraged buyout firms. Analysing the effects of managerial incentive schemes in third-party LBOs and MBOs tends to provide a better understanding of this relationship. This is because managers have played different roles in third-party LBOs and MBOs and are likely to engage in different behaviours in the two types of buyouts. The effects of managerial incentive schemes are likely to vary within these settings. It is important to analyse whether and to what extent are the incentive schemes can motivate managers to protect the interests of shareholders in the settings of third-party LBO and MBO.

Moreover, this study provides a better understanding of the effects of managerial incentive schemes by distinguishing managerial ownership from share options. In contrast to ownership, which ties managerial wealth in direct proportion to shareholder returns, managers who are paid with share options do not suffer real and immediate reductions when the share price declines (Bender, 2003; Song and Walkling, 1993; Langley, 1997; Veenman et al., 2011; Vallascas and Hagendorff, 2013). Although ownership and share options are able to affect managerial incentives, ownership can also affect managers' control power on the boards. Comparing the effects of ownership and share options in the analysis may provide additional evidence of how and which incentive schemes can be more effective in protecting the interests of shareholders.

Furthermore, this research extends the previous literature by examining accounting conservatism in third-party LBO and MBO settings. Previous studies (e.g. Ahmed and Duellman, 2007; LaFond and Watts, 2008; Beekes et al., 2004) have examined firms' accounting conservatism, while little attention has been paid to accounting conservatism prior to buyouts. MBOs generate a clear incentive for managers to depress the purchase price. However, there is little evidence about how managers can exploit the interests of shareholders. This study provides direct evidence that managers can decrease the firm's value through more conservative accounting disclosure prior to an MBO. Additionally, comparing third-party LBOs with MBOs may provide an additional insight in observing the changes in managerial behaviours concerning accounting conservatism and the changes to the buyout transaction itself. This is because managerial incentives around most events (such as the studies of listed firms in e.g. Jensen and Meckling, 1976; Ahmed and Duellman, 2007; Lafond and Roychowdhury, 2008) are to increase the firm's value, while MBOs provide specific incentives for managers to decrease it, which affects managers' behaviours regarding disclosure of accounting information.

Likewise, this study extends previous research concerning accounting conservatism by investigating the influence of corporate governance mechanisms, including board characteristics and ownership characteristics, on accounting conservatism prior to MBOs and third-party LBOs. MBOs and third-party LBOs are different types of buyouts, which have some distinct features. Managers are likely to have different incentives in third-party LBOs and MBOs. Analysing the impacts of corporate governance in different settings provide new evidence on how and to what extent are the corporate governance mechanisms affect the degree of accounting conservatism.

Second, this research extends the previous literature on boards of directors by differentiating board structures from board effectiveness to better understand the effects of the board. In the literature on boards, previous studies (e.g. Baliga et al., 1996; Bliss, 2011; Brickley et al., 1997; Elsayed, 2007; Krivogorsky, 2006; Lefort and Urzúa, 2008; Coles et al., 2008) have primarily focused on the impacts of board structures on performance outcomes, but fail to find conclusive results. However, the overall impact of the board is determined not only by its structures but also by its effectiveness. This study provides a better understanding of the effects of boards by taking into account the interrelationship between board structures and board effectiveness and their effects on takeover premiums in buyout transactions.

Third, this research also extends the previous studies on boards by providing a new measure of board effectiveness as accounting conservatism, rather than board structures and financial expertise. Although in previous studies board structures are usually mixed and conflated with board effectiveness (e.g. Hermalin and Weisbach, 1991; Peasnell et al., 2005; Levrau and Van den Berghe, 2007; Lee, 2008; Gonzalez and André, 2014), they are essentially different. Conflating board structures with board effectiveness may give misleading results. In particular, board structures are defined as the makeup of the board, referring to board size, the proportion of non-executives on the board and CEO duality. Board effectiveness tends to indicate the ability of the board, which encapsulates the directors' expertise, experience, engagement, integrity and social skills (Cornforth, 2001; Payne et al., 2009; Forbes and Milliken, 1999; Kirkpatrick et al., 2015). However, these factors are difficult to measure empirically. Prior studies either ignore these issues or draw on fairly poor proxies for board effectiveness such as board structures (Kang et al., 2007; Jackling and Johl, 2009; Bedard et al., 2004), directors' ages, tenure, gender and academic qualifications (Anderson et al., 2004; Westphal and Zajac, 1995; Peasnell et al., 2005). Although some survey-based research (e.g. Wan and Ong, 2005; Pahuja, 2011; van der Walt and Ingley, 2000) proxies board effectiveness by collecting data on directors' effort norms, the cohesion in the board, and how they use their skills and knowledge, survey based research tends to have a limited number of observations and is likely to rely on the integrity and self-awareness of the interviewees.

Consequently, this research extends the previous literature by providing a new measure of board effectiveness: the degree of accounting conservatism. Nicholson and Kiel (2004) suggest that board effectiveness occurs when the directors have fulfilled their duties. Accounting conservatism is proposed to be a measure of board effectiveness, as a cautious approach to financial reporting protects the long-term interests of shareholders (Lafond and Roychowdhury, 2008; Watts, 2003a; Ahmed and Duellman, 2011). Moreover, the degree of accounting conservatism can reflect the directors' knowledge, expertise and experience (Fadzil and Ismail, 2014). The analysis of accounting conservatism prior to third-party LBOs and MBOs also indicates that boards are able to adjust their approach to accounting conservatism for the interests of shareholders. Therefore, accounting conservatism does not merely reflect a general approach to accounting, but a reasonable measure of board effectiveness.

Fourth, this study adds the previous literature on corporate governance and M&A by examining the influence of corporate governance on managers' opportunistic behaviours in the UK buyout market. Buyout market has developed in the UK from the 1990s upwards. UK buyouts have some specific characteristics that different from the US market. For example, they have less hostile takeover, lower debt level, focus more on target growth opportunity and more commonly financed by privately placed mezzanine rather than junk bonds (Renneboog et al., 2007; Wright et al., 2006; Kaplan and Strömberg, 2009).

Chapter 2: Managerial Interests, Takeover Resistance and Bid Premium: Evidence from UK Leveraged Buyouts

2.1 Introduction

This study investigates the impacts of managerial ownership and share options on reactions of shareholder wealth protection in the setting of MBO and third-party LBOs. Specifically, it examines three research questions: (1) What is the relationship between managerial ownership, share options and takeover resistance in MBOs and third-party LBOs? (2) What is the relationship between managerial ownership, share options and takeover premiums in MBOs and third-party LBOs? (3) What are the differences between the effects of managerial ownership and share options in MBOs and third-party LBOs?

The board of directors, including the general management or CEO, are critical in business operations and decision-making. During the takeover process, the primary responsibilities of the board of directors are to control and monitoring management, provide governance to the firms, approve firm's strategic plans and with additional considerations that arise in connection with a sale because the sale transaction provides an opportunity for shareholders to achieve premiums for their investment. Thus, the board has responsible for assessing whether this is an opportune time to sell the firm. Moreover, the board of directors is obligated to secure the best price reasonably available for shareholders and act through the process to maximise the shareholder wealth (Phillips and Levitin, 2010; Ertimur et al., 2010; Johnson et al., 1993). On the other hand, the managers are responsible for executing the approved business strategy and decisions (Phillips and Levitin, 2010; Ertimur et al., 2010; Van Ees et al., 2009).

In general, during the takeover process, the decision on whether to sell or not sell the firm is a decision for the board. When the firm receives a takeover offer, the bidders will negotiate with the target board (Bange and Mazzeo, 2004). The board is then supposed to assess whether the shareholder wealth would be maximised by selling the firm at this time or it can be better served by remaining the firm independently (Phillips and Levitin, 2010; Ertimur et al., 2010; Van Ees et al., 2009). However, managers are the agents who are able to influence the other board of directors in decision making, particularly when managers hold higher levels of shareholdings. It is recognised that managers are responsible for firms’ daily operation, while the other board of directors are usually non-executives who may lack the time, expertise and information to challenge the efficiency and the decisions of management (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010; Patton and Baker, 1987; Gilson and Kraakman, 1991). Therefore, during the process of takeover negotiation, managers are likely to have a strong influence on the other board members to make a decision.

However, managers tend to have a conflict of interests with shareholders in facing with a takeover either because of their job security concerns or their direct involvement in the transactions (Hafzalla, 2009; Weir et al., 2005b). According to agency theory, incentives are key mechanisms in mitigating agency conflicts and guiding the behaviours of management (Jensen and Meckling, 1976; Walkling and Long, 1984). The literature on general M&A finds evidence that the levels of managerial ownership affect managers’ attitude to takeover (e.g. Walkling and Long, 1984; Cotter and Zenner, 1994; St-Pierre et al., 1996) and the size of takeover premiums (Song and Walkling, 1993; Belot, 2009; e.g. Fama and Jensen, 1983; Moeller, 2005). However, there is another type of takeover that has been overlooked in previous studies, the leveraged buyouts.

A LBO occurs when the equity of a publicly quoted company is purchased by private investors and therefore no longer quoted on the share market (Weir et al., 2005a; Fox and Marcus, 1992; Hunt, 2009). As managers' wealth, job security and power of control tend to undergo great changes after a firm is privatised, the context of LBOs presents a unique opportunity to investigate the conflicts between managers and shareholders. This research is motivated by the fact that the effects of managerial incentives are under-researched, as previous studies did not distinguish between MBOs and third-party LBOs, where the managers have played different roles in these settings (Cotter et al., 1997; Weir et al., 2005b). This study, therefore, extends the previous literature on managerial incentives into MBO and third-party LBO settings, as these settings provide clear and direct evidence of the impacts of managerial incentives on shareholder wealth maximisation that is contrary to the analysis of traditional acquisitions of listed firms.

The sample of this study is split into MBOs and third-party LBOs. This distinction is potentially important, because management has played different roles in these contexts and the effects of incentives may vary with managers' involvement. An MBO is the purchase of all the outstanding equity of the firm by incumbent management, where the current management is likely to remain in post after the buyout (Wright et al., 1991; Weir et al., 2005a; Weir et al., 2005b). Management's direct involvement in the transaction generates a conflict of interest between the firm's managers, who are willing to pay the lowest possible purchase price, and the shareholders, who are likely to sell the shareholdings for the highest possible price (Hafzalla, 2009; Weir and Wright, 2006; Renneboog et al., 2007; Weir et al., 2005b). Evidence is found (e.g. Weir et al., 2005b; Weir and Wright, 2006) that, the larger extent of pre-transaction undervaluation may increase management's potential wealth gains from MBOs. Hence, prior to MBOs, managers are likely to use their influence, control and voting power to pursue their self-interested actions, such as to reduce resistance from other directors and ensure the success of the buyouts. In addition to purchase price effects, opportunistically selecting which shareholders can be driven by the size of the premiums, the level of management shareholding decides the amount of equity purchase, the difficulty of finance and the bid premiums paid (Alchian and Demsetz, 1972; DeAngelo and DeAngelo, 1985; Hafzalla, 2009).

In contrast, the purchasers of third-party LBOs usually consist of outside buyers (typically institutional investors and other private equity houses) (Weir and Wright, 2006; Weir et al., 2005b). The direct involvement of outsiders results in great uncertainty concerning managers' control power and their long-term job security that may intensify their incentives to behave opportunistically. Although, in most cases, the outside investors would like to continue to hire the target firms' management as they are more familiar with the firms' operation, their discretion is likely to be highly constrained. For example, the debt finance of buyout may reduce managers' control power of free cash flows (FCFs). The outside investors also tend to be more active in monitoring and participating in firms' operations to maximise their benefits after buyouts (Weir et al., 2005b; Weir et al., 2005a; Hafzalla, 2009; Renneboog et al., 2007). Moreover, managers may become potential subjects for dismissal, as the buyout firms are likely to be relisted in the next few years, so managers may not able to keep their jobs for a long period. Besides, the outsiders might make changes to firms' existing management team after a third-party LBO to improve the efficiency of firm's governance and performance (Renneboog et al., 2007; Weir et al., 2005b; Weir and Wright, 2006).

Hence, there is a conflict of interests, in that managers have incentives to behave in their own interests in order to protect their discretion, long-term job security, and control power, but shareholders may be motivated to sell the shareholdings to obtain benefits from the premiums (Cao, 2011; Weir et al., 2005a; Weir and Wright, 2006; Wright et al., 1991; Weir et al., 2005b). That is to say, managers' interests are not always best served by accepting the offers. However, as managers may also gain financially from increases in the value of their shares at the announcement of a buyout, managerial ownership and share options are the instruments which may affect their decision-making and behaviours of shareholder wealth protection. As a result, managers' decision to resist or support a tender offer may depend on the tradeoff between their gains resulting from shareholdings and their potential losses of discretion, job position, compensation and control power (Hafzalla, 2009; Cotter and Zenner, 1994).

Moreover, this study has distinguished managerial ownership from share options in analysing their effects on takeover resistance and bid premiums in third-party LBOs and MBOs. Ownership and share options are supposed to provide divergent incentives for managers that are likely to affect their behaviours in different ways. First, ownership can align the interests between managers and shareholders by offering a certain amount of shares to managers and allowing them to become the co-owners of the firm (Lafond and Roychowdhury, 2008; Ali-Ahmed, 2009; Baek et al., 2009; Mallin et al., 2005; Bender, 2003). The increased ownership can not only provide managers with incentives to increase the firm value and protect the interests of shareholders, but also can enhance their control and power in decision making. High ownership then has entrenchment effects that may allow managers to be less disciplined and be able to engage in self-interested actions (Buchholtz and Ribbens, 1994; Song and Walkling, 1993; Belot, 2009; Lafond and Roychowdhury, 2008).

Second, differing from ownership that ties managerial wealth in direct proportion to shareholder returns, share options provide managers with the right to purchase the firm's shares, which only aligns the interests of management with shareholders when the firm's share price increases (Veenman et al., 2011; Sanders, 2001; Tufano, 1996; Bender, 2003; Vallascas and Hagendorff, 2013). The decline in the share price will result in no reduction in real wealth when managers hold options (Kahneman and Tversky, 1979; Burns and Kedia, 2006). Moreover, share options are available for exercise immediately after the takeover, which might be able to take additional interests to managers (Moeller, 2005). Therefore, share options and ownership are expected to have different effects on shareholder wealth protection.

Consequently, it is expected that during third-party LBO deals, share options tend to provide managers with great incentives to look for the chance to exercise these options, which may reduce the likelihood of takeover resistance from managers and may also reduce the probability that managers will work to maximise takeover premiums. However, managerial ownership is likely to provide strong incentives for management to maximise takeover premiums to increase their gains in wealth.

In contrast, although options are also exercisable immediately after MBO transactions, managers are more likely to exercise their share options to increase their ownership in the firm rather than in a cash-pay off. Moreover, if the boards are aware of managers' incentives from share options, which is to immediately exercise their options after the takeover offer, they might be more cautious about the MBO offers and tend to resist the takeovers. In addition, as managers are likely to pay the lowest possible purchase price, share options are likely to have similar effects to ownership and are expected to have negative effects on the size of takeover premiums in MBO transactions (Veenman et al., 2011; Tufano, 1996; Moeller, 2005).

This study is purposed to contribute to the corporate governance and M&A literature in several ways. First, it contributes to the corporate governance literature by providing additional evidence on the effects of managerial ownership and share options in MBO and third-party LBO settings. Much of the prior literature documents mixed evidence on the effects of managerial incentives on shareholder wealth protection under traditional acquisitions of listed firms (e.g. Song and Walkling, 1993; Belot, 2009; Moeller, 2005; Walkling and Long, 1984; Cotter and Zenner, 1994; St-Pierre et al., 1996). This study has differentiated MBOs from third-party LBOs, as managers may play different roles in each setting. The effects of managerial ownership and options are likely to vary with managers' involvement in the transactions, because managers are the future owners of the firm in MBOs, while they have long-term job security issues in third-party LBOs. The results of the study suggest that managerial options are significantly negative related to takeover resistance in third-party LBO offers, but have a significant positive impact on takeover resistance in MBOs.

Second, this study contributes to the empirical evidence on managerial incentives by investigating how far the effects of incentives – in the form of managerial ownership and options – drive the decision to go private, as well as guiding managers' behaviour regarding bid premium maximisation. It adds to the literature by distinguishing managerial ownership from share options. Differing from share ownership, which ties managerial wealth in direct proportion to shareholder returns, managers who are paid with share options do not suffer real and immediate losses when the firm's share price declines; this also allows them to take more risks in making decisions (Veenman et al., 2011; Sanders, 2001; Tufano, 1996; Bender, 2003). Moreover, since the options are available for exercise immediately after the buyout, managers are able to obtain additional benefits, which may affect their reactions to an offer (Moeller, 2005). The study provides evidence that managerial ownership is significantly positively related to takeover resistance and bid premiums in third-party LBO settings. However, share options have negative relationship with takeover resistance and bid premiums in third-party LBO.

Finally, this study extends the previous literature by examining the effects of managerial interests on the likelihood of takeover resistance and the size of bid premiums based on the UK market. Previous studies about managerial wealth and tender offers are the result of samples from the US data during the 1980s. However, the LBO market developed in the UK from the late 1990s onwards, and to date there has been virtually no systematic research on sources of managerial wealth effects in UK LBO transactions (Kaplan and Strömberg, 2009; Renneboog et al., 2007; Wright et al., 2006). UK LBO transactions have some specific characteristics that differ from US deals. For example, there are fewer hostile takeovers and lower debt levels; they focus more on target growth opportunities; and they are more commonly financed by privately placed mezzanine bonds rather than junk bonds (Renneboog et al., 2007; Toms and Wright, 2005). This study complements the corporate governance literature by providing additional evidence of the relationship between the managerial ownership structure and shareholder wealth protection in the UK market.

The reminder of this chapter is organised as follows. Section 2.2 reviews theoretical and empirical evidence on the link between executive incentives and takeover resistance and bid premiums. Section 2.3 presents the development of the hypotheses. Section 2.4 describes the research design and presents descriptive statistics. Section 2.5 reports the main findings and additional tests and Section 2.6 concludes the chapter.

2.2 Literature Review

2.2.1 Managerial interests and the severity of agency problems

The separation of ownership and control has generated conflicts of interest between managers and shareholders (Berle and Means, 1932; Jensen and Meckling, 1976). As managers can effectively control the firm's operation but generally do not hold a significant equity share (Fama and Jensen, 1983), managers are able to pursue self-interested actions without shareholders being able to detect this at an early stage. Managerial incentive schemes have long been recognised as a governance mechanism that can be used to align the interests of shareholders and management, and mitigate the agency problems between these contracting parties (Nicholson and Kiel, 2007; Mande et al., 2012; Weir et al., 2005a).

As the key incentive mechanisms, share-based remuneration includes common shares and options, is purposed to restrict the aberrant activities of management by offering them a certain amount of shares and allowing them to become the co-owners of the firm (Lafond and Roychowdhury, 2008; Ali-Ahmed, 2009; Baek et al., 2009; Mallin et al., 2005; Bender, 2003). Increased managerial ownership encourages diligence and reduces the incentives of managers to consume excess perquisites because managers have to bear a higher fraction of the cost for their poor decisions (Song and Walkling, 1993; Jensen and Meckling, 1976; Leland and Pyle, 1977; Jensen and Ruback, 1983). However, the influence of target managerial ownership on their reactions of acquisition activity is unclear. It is recognised that the risk of takeover disciplines management through the external market of corporate control, as the target's managers may have a threat of long-term job security and control power loss after acquisitions. The increased managerial ownership may then be supposed to provide addition control power for managers either to stop such acquisition or at least force bidders to pay for a higher takeover premium. Specifically, managers can use this power to resist the offer when the gains from the acquisition are inadequate to offset the lost benefits of incumbency. Therefore, higher managerial ownership can also generate entrenchment effects and make managers less likely to be disciplined, engaging in actions that serve their own interests but conflict with shareholder wealth maximisation (Buchholtz and Ribbens, 1994; Song and Walkling, 1993; Belot, 2009; Lafond and Roychowdhury, 2008).

However, differently to share ownership that ties executive wealth changes in direct proportion to shareholder returns, an executive share option only provides managers the right to purchase firm share at a pre-determined exercise price under a particular performance achievement and/or a time restriction (Langley, 1997; Bender, 2003; Song and Walkling, 1993). The agency theory suggests that share-based compensation (i.e. share ownership and options) benefits managerial wealth along with shareholders when share prices rise, which may align the interests of management with shareholders (Jensen and Meckling, 1976). Nevertheless, such a view places little emphasis on downside risk, where share ownership and option pay have different risk characteristics, in terms of their degrees of effects on incentives. It is recognised that, when the firm's share price declines, executives who own shares will suffer real and immediate reductions in their current wealth, but those paid with options will experience no reduction in real wealth. In the event that the options' positive payoff is that the share price remains above the option price. Whenever the share price is at or below the option price, the payoff for options becomes zero or negative, and no executives would exercise their options (Veenman et al., 2011; Sanders, 2001; Tufano, 1996).

Moreover, research in behavioural decision theory also suggests that decision makers are more likely to exhibit strong preferences for risk aversion when they have something to lose. Alternatively, if they have nothing to lose but something to gain, managers may prefer to take more risks in terms of opportunistic benefits. Therefore, the risk-reward characteristics of share ownership and option pay may provide different incentives for managers in decision-making. The downside risk associated with share ownership may lead executives to be more risk averse or, alternatively, associated with share option pay that results in risk-seeking behaviours (Sanders, 2001; Kahneman and Tversky, 1979; Sitkin and Weingart, 1995; Burns and Kedia, 2006).

It is recognised that managers are instigators of the MBOs whose intention is to successfully take over the target, which differs from the management in third-party LBOs, who are more likely to deter the acquisition to protect their long-term job security. This study, therefore, examines the influence of managerial ownership and share option on takeover resistance and bid premiums by differentiating MBOs from third-party LBOs. Specifically, in MBOs, managers are likely to use their influence, control and voting power to pursue their self-interested actions, such as to reduce resistance from other board members, minimise their possible purchase price and ensure the success of the buyouts (DeAngelo and DeAngelo, 1985; St-Pierre et al., 1996; Jiraporn et al., 2004; Hafzalla, 2009). In MBOs, managerial shareholdings and options tend to decide the amount of their equity purchase and the potential bid premiums. Besides, the distribution of ownership in MBOs has become the mechanism that represents the power for managers to convince the board and shareholders to accept the offer.

By contrast, there are conflicts of interests in third-party LBOs, in that managers have incentives to try to push up the share price and prevent takeovers in order to protect their long-term job security, while shareholders are motivated to sell their shares to obtain benefits from premiums (Hafzalla, 2009; Renneboog et al., 2007). High ownership may allow managers to be less disciplined and pursue their self-interests. The benefits from share options are used to offset the loss of job security and control power, and align the interests of management with shareholders (Cao, 2011; Weir et al., 2005a; Weir and Wright, 2006; Wright et al., 1991).

2.2.2 Prior literature

Early studies have examined the relation between managerial ownership and takeover resistance under the general M&A of listed firms, which present mixed results. For example, the US studies by Walkling and Long (1984) and Cotter and Zenner (1994) relate the probability of takeover resistance to the managerial wealth changes between their capital gains of ownership, golden parachutes, and their potential losses in compensation, perquisites and control, and then find a negative relation. Further, Buchholtz and Ribbens (1994) find support that a higher ownership enables managers to share more benefits from premium when takeover occurs, thus decreasing their resistance to the offer. In contrast, by studying a sample in Canada, St-Pierre et al. (1996) have provided evidence of managerial entrenchment, since a substantial proportion of ownership has distributed greater voting rights for managers, which finally increase managers' resistance to offers.

Moreover, in relation to shareholder wealth protection, evidence comes from the general M&A, which shows that managerial ownership of targets has produced two opposite effects in aligning with premium maximisation. Jensen and Meckling (1976), Song and Walkling (1993) and Bauguess et al. (2009) suggest that the distribution of ownership can either align the interests of shareholders with managers by connecting the share price change with the gains of personal wealth for management, or entrench the behaviour of management by transferring their focus to other self-interested activities such as seeking long-term job security or control power within the firm. A number of US studies (e.g. Stulz, 1988; Song and Walkling, 1993), find that increased inside ownership gives the target management a greater bargaining power, which has increased managers' ability to extract higher takeover premiums from bidders. Stulz (1988) points out another reason that increased managerial ownership improves the firm performance, as well as increasing the difficulty of a takeover; the lower market anticipation of a potential takeover gains will result in higher target returns if a takeover is announced. Other studies include Morck et al. (1988b) and Fama and Jensen (1983), which also note a positive relation between managerial ownership and bid premium. They suggest that a greater shared ownership allows target management to be entrenched or engaged in activities harmful to shareholders' interests, which is negative related to an ex-ante firm performance, and a larger premium will be paid to overcome these inefficiencies.

In contrast, the US study by Moeller (2005) suggests that the power from high levels of ownership may be used to bargain for personal compensation and side payments instead of bid premiums for existing shareholders. Grossman and Hart (1988), and Harris and Raviv (1988) further find evidence within a US sample that managers may use their position of privilege and control to expropriate benefits from takeover premiums, which results in a negative impact of inside ownership on takeover premiums. In related literature, Demsetz and Lehn (1985), Demsetz and Villalonga (2001), Hartzell et al. (2004) and Bauguess et al. (2009) report the evidence from US studies that if the incentive alignment has motivated managers to optimise the ex-ante firm value, there should have no possible efficiency gains that the bidder management could pass along to target shareholders in terms of takeover premium.

2.3 Development of Hypotheses

2.3.1 The role of takeover resistance and bid premiums in MBOs

As discussed before, the conflicts of interest between management and shareholders that arise in MBOs are caused by managers' direct benefits from the transaction. The characteristics of undervaluation and a large free cash flow of target companies are the prerequisites to realise these profits (Weir et al., 2005b). The undervaluation of MBOs reflects the perceived undervaluation where managers may have some private information that led them to value the firm differently from the market. If the market does not value this information, they may not accurately value the companies in terms of their share price. Undervaluation may therefore reflect the deterioration of company's share price relative to firms remaining public that motivate the movement of this perceived incumbent management to take over the company. This is because the larger the extent of pre-transaction undervaluation, the higher will be the wealth gains of management in an MBO (Weir and Wright, 2006; Weir et al., 2005b; Renneboog et al., 2007).

Additionally, the substantially high level of free cash flows in MBOs is able to ensure the firms' ability of the future debt payment and the reliability of management's wealth gains, as managers are the sole residual claimants once the debt is fully paid off (Fox and Marcus, 1992). Therefore, managers and shareholders are likely to have a conflict of interests before MBO where managers tend to purchase the firms with the lowest possible price, while shareholders tend to sell their shareholdings with the highest possible price (Hafzalla, 2009). Once such a conflict occurs, ownership and options become the instruments and the approaches to help management to accomplish their purpose of an MBO.

According to agency theory, increased ownership has generated an entrenchment effect that helps managers to realise their personal profits. As stated by Alchian and Demsetz (1972) and DeAngelo and DeAngelo (1985), the distribution of managerial ownership increases the influence of management on the board of directors. The higher vote ownership holding has also provided managers with greater influence over the composition of the board of directors and thus reduces the likelihood of opposition from outside directors (DeAngelo and DeAngelo, 1985; St-Pierre et al., 1996). Consequently, it is expected that before MBOs, higher managerial ownership can provide managers with greater influence and voting power on pursuing their self-interested actions, which might be helpful in reducing the likelihood of takeover resistance from the board. For consistency, it is hypothesised that:

$H_{2.1}$: Managerial ownership is negatively related to the likelihood of takeover resistance in MBOs.

Furthermore, in MBOs, managers are also the buyers who are always willing to acquire the firm at the lowest possible price (Weir and Wright, 2006; Weir et al., 2005b). Higher ownership has provided managers with strong power and influence on board that enable them to pursue their own interests (DeAngelo and DeAngelo, 1985; St-Pierre et al., 1996). Moreover, prior to MBOs, higher managerial ownership also implies that there is a lower proportion of shareholding needs to purchase. Hence, it is expected that higher shareholdings are more likely to motivate the management to offer a lower takeover premium to reduce their costs of takeover. Accordingly, the next hypothesis states that:

$H_{2.2}$: Managerial ownership is negatively related to the takeover premiums in MBOs.

Share ownership and share options are fundamentally different in terms of the degree of their effects in incentives. As discussed before, ownership aligns executive wealth changes more directly and immediately with shareholder interests. However, options fail to align the interests of management with shareholders when the firm's share price declines, as the low share price does not reduce real management wealth (Sanders, 2001). Moreover, during acquisitions, share options are available to be exercised immediately after buyout. Acquirers will use cash or the shares of the new company to exchange these options (Moeller, 2005; Bauguess et al., 2009).

In MBOs, although the share options are exercisable after takeovers, managers are less likely to exercise their options in a cash-pay off rather than to increase their ownership in the firms. In the event that if the boards aware of the incentive from options, they might be more cautious about the MBO offers and may tend to resist the offers. Hence, it is to be expected that the board is more likely to reject the MBO when there is a higher managerial share option (Veenman et al., 2011; Sanders, 2001; Tufano, 1996). According to the above arguments, the next hypothesis states that:

$H_{2.3}$: Executive share option is positively related to the likelihood of takeover resistance in MBOs.

In MBOs, managers are the instigators of the takeover, and are always willing to acquire the firm at the lowest possible price, as they are the sponsors for all takeover costs (Weir and Wright, 2006; Weir et al., 2005b). As discussed above, in MBOs, share options do not have cash incentive, instead to increase managers' ownership in the firms after a takeover. Hence, managers are less likely to offer high premiums when they held higher share options, because a higher takeover premium can increase managers' takeover costs. Consequently, it is expected that management with higher share options are more likely to offer a lower takeover premium. Therefore, the next hypothesis states that:

$H_{2.4}$: Executive share option is negatively related to takeover premiums in MBOs.

2.3.2 The role of takeover resistance and bid premiums in third-party LBOs

In third-party LBOs, the acquisitions are initiated and executed solely by a third party, without including incumbent management. As discussed before, management exclusion creates a conflict of interest between managers and shareholders, where managers are likely to avoid buyouts to maintain their long-term job security, position and control power, but shareholders are seeking to sell their shareholdings and get benefits from the takeover premiums (Hafzalla, 2009; Renneboog et al., 2007). The characteristics of undervaluation and large free cash flow holdings are the main reasons explaining these conflicts in third-party LBOs.

The direct involvement of outsiders has caused great uncertainties for managers' long-term job security, discretion and control power within firms, which may intensify their incentives to engage in opportunistic activities to prevent a third-party LBO. Although, in most cases, outside investors may continue to hire the targets' managers in firms after buyouts because they are more familiar with those firms' operations, managers' discretion will be firmly constrained (Weir et al., 2005b; Weir et al., 2005a). Once bought-out firms are planned to relist in the next few years, managers in third-party LBOs are likely to be threatened by the risk of being fired (Hafzalla, 2009).

Moreover, differently to MBOs, the undervaluation of third-party LBO targets may reflect a higher objective undervaluation but lower perceived undervaluation (Weir and Wright, 2006; Weir et al., 2005b). According to previous literature Weir et al. (2005b) and Renneboog et al. (2007), objective undervaluation may result from poor decisions of prior management and low growth opportunities of firms. A buyout is an avenue for turning a failing company around. Hence, this objective undervaluation may grant the wish of outside buyers to make changes to a firm's existing management team after a buyout and ultimately intensify the incentives for management to protect their own interests, especially their long-term job security. However, for shareholders, this objective undervaluation reflects a lower share price which motivates their willingness to sell their shareholdings and obtain benefits from the premium (Jensen and Ruback, 1983; Cotter and Zenner, 1994; Hafzalla, 2009; Weir et al., 2005b).

In addition, the increased free cash flow holdings may enhance the control power of incumbent management prior to buyout, since free cash flows are available, subject to self-interested managerial discretion, for either reinvestment or dividend distribution. However, the debt payment of the buyouts may reduce the control power of management to use free cash flows where these are fully used to pay off the debt. It is known that the penalty for defaulting on the debt payment is apparently greater than the corresponding penalty for reducing dividend payments (Renneboog et al., 2007; Fox and Marcus, 1992). Therefore, in third-party LBOs, managers are more likely to impede acquisitions to protect their own interests, while ownership and options are the main incentive schemes that work to align the interests of management with shareholders.

According to the agency theory, managerial ownership aligns the interests of shareholders with management via the offer of shares. But the increased shareholding has also provided a greater power to management by entrenching their self-interested actions (Song and Walkling, 1993; Lafond and Roychowdhury, 2008). In third-party LBOs, the distribution of ownership may provide managers with power to resist the bid to protect their long-term job security and power using free cash flows. Agrawal and Walkling (1994) suggest that an objective undervaluation increases the risks of managers being dismissed and strengthens their motivation to protect their long-term job security, remuneration and control power of using free cash flows. This is because if managers of target firms lose their jobs subsequent to the bid, it is generally difficult for them to find another senior executive position in public firms (Agrawal and Walkling, 1994). Moreover, Weir et al. (2005b) and Weir and Wright (2006) suggest that the lower perceived undervaluation in third-party LBOs may indicate that management does not have private information that leads them to believe that the market is wrong but shows that outside buyers value the firms differently. Consequently, managers may not agree to abandon funding expansion from the current equity market, as there is no signal to show that going private will make more profits and opportunities for the company (Weir and Wright, 2006; Weir et al., 2005b).

Higher ownership has provided managers with greater power and influence on the board, which may enable them to protect their own interests rather than those of shareholders (DeAngelo and DeAngelo, 1985). Therefore, it is expected that higher executive ownership provides managers with greater voting power and influence on the board to reject third-party LBO offers in order to protect their own interests concerning job security and control power within the firm. Accordingly, it is hypothesised that:

$H_{2.5}$: Managerial ownership is positively related to the likelihood of takeover resistance in third-party LBOs.

In addition to takeover premiums, ownership aligns the interests of managers and shareholders, as any growth of premiums will directly increase the financial gains of management. Based on the discussion above, it is expected that, in third-party LBOs, managers with higher levels of ownership are more likely to use their power and influence to demand higher premiums either to stop the bidders to take over the firm or at least to get a higher premium on their shares. Moreover, higher premiums can increase the difficulty of buyouts and protect their interests when the bid successes. Hence, it is expected that managers with higher levels of ownership are likely to require a higher takeover premium. For consistency, it is hypothesised that:

$H_{2.6}$: Managerial ownership is positively related to takeover premiums in third-party LBOs.

Additionally, a third-party LBO provides opportunities for management to exercise options immediately after the transaction, which results in managers who can realise additional personal profits without conditions or restrictions. According to agency theory, it is recognised that holding options allows management to take more risks in decision-making (Weir et al., 2005b; Renneboog et al., 2007; Sanders, 2001). Consequently, it is expected that the holding of share options may motivate management to pursue higher returns from the exercise of options and thus lead to a lower likelihood of resistance to a takeover. Accordingly, this study tests the hypothesis that:

$H_{2.7}$: Executive share option is negatively related to the likelihood of takeover resistance in third-party LBOs.

Moreover, it is recognised that, in third-party LBOs, options align the interests of management with shareholders, as they can maximise the gains in wealth from increased takeover premiums (Jensen and Meckling, 1976). However, the prerequisite for managers to acquire these premiums is to ensure the accomplishment of the buyouts, because the share options are available to exercise immediately after the takeovers (Moeller, 2005). Higher managerial share options may reduce managers' incentives to drive up the takeover premiums, since higher premiums may be associated with a high risk of takeover failure. Consistent with this argument, it is expected that the high level of options will motivate the target firm's managers to accept the offer with a lower level of premium. Accordingly, the hypothesis is stated as follows:

$H_{2.8}$: Executive share options are negatively related to takeover premiums in third-party LBOs.

Table 2.1 The summary table of the hypotheses

Panel A:	MBOs	Third-party-LBOs
Hypotheses	$H_{2.2}$: Managerial ownership is negatively related to the likelihood of takeover resistance	$H_{2.5}$: Managerial ownership is positively related to the likelihood of takeover resistance
	$H_{2.2}$: Managerial ownership is negatively related to takeover premiums	$H_{2.6}$: Managerial ownership is positively related to takeover premiums
	$H_{2.3}$: Executive share option is positively related to the likelihood of takeover resistance	$H_{2.7}$: Executive share option is negatively related to the likelihood of takeover resistance
	$H_{2.4}$: Executive share option is negatively related to takeover premiums	$H_{2.8}$: Executive share option is negatively related to takeover premiums

Panel B:	MBOs				Third-party-LBOs			
	RESIST		*PREM*		*RESIST*		*PREM*	
	Expected Signs	*Actual Signs*	*Expected Signs*	*Actual Signs*	*Expected Signs*	*Actual Signs*	*Expected Signs*	*Actual Signs*
Ownership	-	+	-	+	+	+*	+	+***
Share options	+	+**	-	-*	-	-**	-	-***

2.4 Research Design and Sample Selection

2.4.1 Measurement

2.4.1.1 Dependent variables

Resistance to a takeover attempt represents an opportunistic behaviour on the part of managers who are willing to refuse the offer to retain control of the target firm (Baron, 1983; Turk, 1992; Buchholtz and Ribbens, 1994). Following prior research, takeover resistance (*resist*) represents the initial mood of the target's board to buyout attempts, which is a dummy variable that takes the value of 0 if the bid is classified as friendly and 1 otherwise. As Cotter and Zenner (1994) and Maheswaran and Pinder (2005) demonstrate, the hostility of a bid is regarded as initial evidence in justifying rejection by the target firm's management. This study addresses this concern and proposes that the deal's attitude of describing takeover attempts as hostile, unsolicited or even not applicable represents resistance by the board.

The takeover premiums from the announcement (*prem*) reflects the premiums that the shareholders may receive from tendering their shares (Buchholtz and Ribbens, 1994). It is the percentage increase in the share price of the target firm for the time frame of four weeks before the announcement of the offer to the final offer price. Following its definition in Thomson One Banker:

$$Premium = \frac{(Offer\ \ price - Share\ \ price\ \ 4\ \ )}{Share\ \ price\ \ 4} \tag{2.1}$$

Where the offer price is the final offer price to the targets, share price 4 is the share price four weeks before the announcement of the takeover.

2.4.1.2 Independent variables

The executive managers are the key agents of the shareholders in charge of the firms' operational strategies and policies. This study uses two proxies of top executive ownership and executive share options to measure managerial interests in relation to takeover resistance and bid premium. Executive ownership (*exeown*) is defined as the number of shares held by the executive managers divided by the total number of outstanding shares. Executive share options (*exeso*) are defined as the logarithm of the valuation of executive share options. In line with the previous literature, this study uses the valuation as the measure of option holdings by calculating with the Black-Scholes' (1973) valuation model:

$$c = s \cdot n(d_1) - x_e^{-rt} \cdot n(d_2)$$

$$d_1 = \frac{ln\left(\frac{s}{x}\right)+\left(r+\frac{\delta^2}{2}\right)t}{\delta\sqrt{t}}; \qquad d_2 = d_1 - \delta\sqrt{t} \qquad (2.2)$$

Where c is the market value of the call option; s is the share price at the annual report date selected; x is the exercise price; r is the risk-free interest rate; t is the time to expiration; δ is the volatility; and $n(d_i)$ is the cumulative normal density function evaluated at d_i.

2.4.1.3 Control variables

In the empirical analyses, this study controls for several factors, which are potentially related to the dependent and independent variables.

This study controls for undervaluation of the price earnings ratio. As discussed before, a firm's perceived undervaluation is one of the most significant reasons for companies to go private, as the current market valuation of the company, measured by the price earnings, does not reflect management's perception of its true value (Weir et al., 2005b; Weir and Wright, 2006). It is for the reason that the market had not accurately valued the company in terms of share price; firms with a low price earnings ratio are thought to be temporarily unevaluated because investors become excessively pessimistic when faced with some bad earnings reports or other bad news. Once future earnings turn out to be better than the forecasts, the price is seen to be undervalued. Similarly, firms with high price earnings ratios are thought to be overvalued, before the price is adjusted by a predictably fall (De Bondt and Thaler, 1985). Consistent with this argument, this study measures a firm's perceived undervaluation (*pe*) following Alford (1992) and Francis et al. (2005) who constructed industry-adjusted price earnings ratios as the difference between the target firm's price earnings ratio and the median industry price earnings ratio. This study draws similar inferences, using the ratio of the firm's price earnings ratio to the two-digit industry classification benchmark (ICB) codes of the median industry price earnings ratios. Therefore, firms with low (high) *pe* ratios are likely to be undervalued (overvalued).

This study controls for free cash flow (*fcf*). Generally, free cash flow can be used to achieve managerial objectives rather than maximise shareholder wealth. However, after buyout it will be used to pay off the debt, which may reduce the control power of management (Weir et al., 2005a; Weir and Wright, 2006; Fox and Marcus, 1992). Moreover, the large amount of free cash flow is an attractive factor for acquirers to take the firm private, as it provides sufficient financial support to ensure the firm's ability to pay future debt (Renneboog et al., 2007; Toms and Wright, 2005). This study measures *fcf* scales as the funds from operations after subtracting capital expenditure and cash dividends following by the firm's total assets.

This study controls for firm performance, measured by return on assets (*roa*). The target firm's prior performance will influence management's reaction toward a buyout, as past corporate performance is fundamental for buyout valuation (Demsetz and Villalonga, 2001). Previous literature (Morck et al., 1988a; Buchholtz and Ribbens, 1994) suggests that those managers who have been performing poorly are more likely to resist takeover attempts, because they do not want to reveal their incompetence.

Additionally, the ex-ante firm performance will affect the bid premium for the reason that a better firm performance will result in fewer available takeover gains and target returns for acquirers, and thus reduce the offered premium (Jensen and Meckling, 1976; Hartzell et al., 2004). This study uses return on asset (*roa*) as a measure for firm performance, which is calculated by dividing the net income, by the total assets.

Firm size will affect the difficulty of a buyout because of the magnitude of the credit required to finance the transaction. Large firms likely hold large financial resources that cause them to be more successful in resisting takeover attempts (Morck et al., 1988a; Buchholtz and Ribbens, 1994; Cotter et al., 1997).

Furthermore, firm size is likely to affect the bid premium for three reasons. First, the larger a firm, the more difficult it will be for acquirers, because of the financial stress and risks that the higher magnitudes of the credit are required to finance the transaction. Second, the expected synergies from the acquisition for a larger firm are more likely to be uncertain, and therefore a lower premium is usually paid. Third, large firms tend to be subject to lower managerial ownership and are more likely to accept a lower premium. Therefore, this study controls for firm size (*size*) by including the natural logarithm of a firm's market value (Shrivastava, 1986; Demsetz and Lehn, 1985; Cotter et al., 1997; Bauguess et al., 2009; Morck et al., 1988a; Buchholtz and Ribbens, 1994).

This study controls for the amount of ownership held by the board directors other than the CEO's beneficial interest (*other-own*). The board of directors is supposed to supervise the actions of management, particularly in directing the CEO, safeguarding shareholders' interests and vetoing poor business decisions (Ertimur et al., 2010; Nguyen, 2012; Weisbach, 1988). Under agency theory, a larger degree of ownership by directors will lead to a greater incentive for them to be involved and pursue common interests with shareholders (Jensen and Meckling, 1976; Carline et al., 2011; Buchholtz and Ribbens, 1994). According to Kosnik (1990) and Buchholtz and Ribbens (1994), the extent to which a board member may actively defend shareholder interests depends on the extent to which board members have similar interests to the shareholders on the outcome of the decision. Therefore, directors with large equity holdings are more likely to acquiesce to the offer and urge for a higher bid premium than those directors whose personal interests are unaffected by the decision (Buchholtz and Ribbens, 1994).

Under agency theory, debt is used as a governance structure that works to bind the management to act in the shareholders' interests. The issuing of debt has established a covenant between creditors and debtors. Under this relationship, debtors are required to more carefully observe the firm's stipulated interest payments, the liquidity of the business and the redeployability of the assets, as there is a stricter penalty for failure to repay debt payments (Williamson, 1988; Renneboog et al., 2007; Fox and Marcus, 1992; Jensen, 1986a; Jensen, 1986b). Moreover, a leveraged buyout is usually financed with a high percentage of debt, typically 85%–90% of the purchase price. The firm's prior debt finance has significant effects in buyout debt financing and the likelihood of the final success of the takeover. This is because if the company has higher leveraged debt before a buyout, managers are likely to have more difficulty in issuing new debt. Consequently, this difficulty may further reduce the premium that they offer and increase the likelihood of resistance to the takeover (Jensen, 1986a; Jensen, 1986b; Hafzalla, 2009). Therefore, this study includes the ratio of debt to total assets (*level*) as a control variable in investigating the managerial reactions of concerning takeover resistance and maximisation of the bid premium (Williamson, 1988; Fox and Marcus, 1992).

Takeover premium reflects the premiums that target shareholders will receive for tendering their shares. Managers who seek to maximise shareholder wealth are more likely to accept an offer with a high premium (Buchholtz and Ribbens, 1994). Consistent with this argument, Walkling and Long (1984), Jennings and Mazzeo (1993) and Hirshleifer and Titman (1990) find that lower premiums are usually associated with a greater rate of takeover rejection. Therefore, this study controls for the takeover premium (*prem*) in investigating the effects of managerial wealth on takeover resistance.

Moreover, it is expected that new CEOs have usually had little time to develop and increase their power to be able to influence the board. They are more vulnerable to dismissal and are less likely to have an effect upon takeover resistance than CEOs who have been appointed for a long period (Buchholtz and Ribbens, 1994). This study controls for the change in CEO (*ceoch*) as defined by Buchholtz and Ribbens (1994), which is equal to 1 if the new CEO has been appointed in the financial year prior to the takeover announcement and otherwise it is equal to 0.

This study uses the proportion of non-executive directors (*ned*) on the board as an explanatory variable. Non-executive directors are viewed as a governance mechanism, which supervises and controls the behaviour of management. The outside directors, who have no tie to the firm or its management, can more successfully fulfil their function to monitor and control the activities of its managers to represent the best interests of shareholders (Buchholtz and

Ribbens, 1994; Cotter et al., 1997). According to Jiraporn et al. (2004), in buyout transactions, outside directors have played a critical role in protecting shareholders' interests.

This study includes the dummy variable of multiple bidders (*multi*), which has a code of 1 if there is more than one simultaneous bidder for the target and a value of 0 otherwise. The greater the number of competing buyers, the greater the bargaining strength for sellers to require a higher premium, since the sellers can play one bidder against another (Flanagan and O'Shaughnessy, 2003). The argument that multiple bidders are positively correlated with tender offer premiums is also supported by Bugeja (2005), Moeller (2005), Bauguess et al. (2009) and Bugeja (2011).

The only purpose of institutional investors is to extract the maximum profit from their investments. As block holders, institutional investors usually hold a large number of shares, which gives them a greater power to pursue a higher premium during buyout. For acquirers, in order to complete the buyout, they need to purchase the shares currently in the hands of institutional investors (Cao, 2011; Weir et al., 2005a; Weir and Wright, 2006; Wright et al., 1991). Consequently, a higher takeover premium is an attractive condition for institutional investors. Following the approach of Buchholtz and Ribbens (1994), Sridharan and Reinganum (1995), Bauguess et al. (2009) and Carline et al. (2011), this study controls for institutional shareholders (*insti*) as the sum of the common shareholding for all institutions that hold more than 3% of the company's issued shares.

Audit independence is the mechanism that monitors managers' behaviours in specific accounting techniques (Lowenstein, 1985; Weir et al., 2005a; Fox and Marcus, 1992). Since the degree of reliance on and confidence in financial information will affect the true value of the firm, audit independence is associated with the size of bid premium. Following the measures used by Defond et al. (2002) and Bugeja (2011), this study controls for audit independence (*lnnas*) as the natural logarithm of the non-audit fees paid to the incumbent auditor.

2.4.2 Empirical models

This study estimates the following empirical models containing the two proxies of managerial interests, including executive ownership and share options, and the control variables of the characteristics of the organisations, using logistics regression and ordinary least squares (OLS) regression respectively.

$$resist = \beta_0 + \beta_1 executive\ \ interests + \beta_2 pe + \beta_3 fcf + \beta_4 roa + \beta_5 size + \beta_6 other - own + \beta_7 level + \beta_8 prem + \beta_9 ceoch + \varepsilon \tag{2.3}$$

$$prem = \beta_0 + \beta_1 executive\ \ interests + \beta_2 pe + \beta_3 fcf + \beta_4 roa + \beta_5 size + \beta_6 other - own + \beta_7 level + \beta_8 ned + \beta_9 multi + \beta_{10} insti + \beta_{11} lnnas + \varepsilon \tag{2.4}$$

Where *pe* is the price earnings ratio that is calculated by adjusting the target price earnings ratio by subtracting the industry median price earnings ratio, along with using the 2-digit ICB code; *fcf* is the free cash flow scaled by the total amount of assets; *roa* is the firm's return on assets; *size* is the natural logarithm of the market value; *level* is the total debt divided by the total assets; *other-own* is the amount of common shares held by the target board directors other than the CEO; *prem* is the takeover premium of the offer price to the target firm's closing share price four weeks prior to the original announcement date; *ceoch* is a dummy variable that takes a value of 1 if the new CEO has been appointed in the financial year prior to the takeover announcement and otherwise takes a value of 0; *ned* is the percentage of non-executive directors on the board; *multi* is the dummy variable that takes a value of 1 if there is more than one simultaneous bidder for the target and otherwise takes a value of 0; *insti* is the total amount of common shares held by institutional investors divided by the total amount of common outstanding shares; *lnnas* is the natural logarithm of non-audit fees.

2.4.3 Sample and data

The sample consists of all the complete and withdrawal leveraged buyout tender offers that took place on the London Share Exchange from 1997 to 2011 for which full data were available. LBOs are defined as public-to-private transactions, where listed companies are taken over by financial institutions, by the executive directors or another individual blockholder (Weir et al., 2005a). This study is entirely based on UK data. The initial sample includes 113 MBO tender offers and 88 third-party LBO tender offers. The sample excludes non-UK corporations (8 MBOs and 3 third-party LBOs) and financial services companies because they are subject to a different set of financial structures, regulatory disclosure requirements and corporate governance systems. Panels A and B in Table 2.7 in the Appendix report the number of observations having sufficient data to be included in the tests of takeover resistance and bid premiums respectively. The final sample consists of 92 MBO and 65 third-party LBO tender offers in the investigation of takeover resistance, and 84 MBO and 62 third-party LBO tender offers in the investigation of takeover premiums. During the period under study, the number of buyout tender offers reached a peak in 1999 and 2006.

Information on buyout transactions is taken from four sources. Deal information and the firms' annual reports are collected from the Thomson One Banker database, Thomson Research and the Nexis UK-Lexis database. DataStream represents the accounting and financial information. To be included, the financial and governance data at the last year-end before the announcement of a LBO is required. All the corporate governance information is hand collected from the companies' annual reports. Moreover, this study winsorises the top and bottom 1% of the testing variables through the 3 times of stand deviation, to mitigate the effects of extreme observations.

Table 2.2 Name of variables

Variables	Definitions
Dependent variables:	
resist	A dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise
prem	The takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date
Independent variables:	
exeown	The percentage of executive shareholding
ceoown	The percentage of CEO shareholding
exeownv	The year-end share price times the number of executive shares held and is in millions of pounds
ceoownv	The year-end share price times the number of CEO shares held and is in millions of pounds
exeso	The logarithm of the valuation of executive share options with Black-Scholes' (1973) model
Control variable:	
pe	The price earnings ratio that calculate by adjust the target PE ratio by subtracting the industry median PE, along with using the 2-digit industry classification benchmark (ICB-code) sorting
fcf	Free cash flow, which is defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets
roa	Return on assets
size	The natural logarithm of market value
other-own	The common shares held by the target board directors other than the CEO
level	Total debt divided by total assets
ceoch	A dummy variable that takes value of 1 if the new CEO has been appointed at the financial year prior to the takeover announcement and otherwise 0
ned	The percentage of non-executive directors on the board
insti	The total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%
lnnas	The natural logarithm of the non-audit fees
multi	A dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0

2.5 Results

2.5.1 Descriptive statistics

Table 2.3 presents an overview of descriptive statistics for the key variables in the models. As reported in Panel A of Table 2.3, about 3.26% of the MBOs and 9.23% of third-party LBOs have an initial hostile target management reaction, which is much lower than the US hostile takeover rate reported by Cotter and Zenner (1994), who found that 50% of the firms sampled in 1988-1991 received target management resistance. In the sample, 6.52% of MBO offers and 9.23% of third-party LBO offers have changed their CEO within one year of the tender offer being announced, and 11.9% of MBO deals and 38.71% of third-party LBO deals have more than one bidder.

Table 2.3 Descriptive statistics

Panel A: Descriptive Statistics for Dummy Variables

		MBO			*Third-party LBO*		
resist		*Freq.*	*Percent*	*Cum.*	*Freq.*	*Percent*	*Cum.*
	0	89	96.74	96.74	59	90.77	90.77
	1	3	3.26	100	6	9.23	100
Total		92	100		65	100	
ceoch		*Freq.*	*Percent*	*Cum.*	*Freq.*	*Percent*	*Cum.*
	0	86	93.48	93.48	59	90.77	90.77
	1	6	6.52	100	6	9.23	100
Total		92	100		65	100	
multi		*Freq.*	*Percent*	*Cum.*	*Freq.*	*Percent*	*Cum.*
	0	74	88.1	88.1	38	61.29	61.29
	1	10	11.9	100	24	38.71	100
Total		84	100		62	100	

Table 2.3, Panel B reports the descriptive statistics for determinants of takeover resistance. The mean ownership by the top executive (*exeown*) is 14.141% in MBOs and 6.274% in third-party LBOs, while the mean ownership by the CEO (*ceoown*) is 8.152% and 3.356% in MBOs and third-party LBOs respectively. *exeown* and *ceoown* exhibit a considerable degree of skewness in that the

median values are only 6.433% and 0.715% in MBOs, and 1.084% and 0.266% in third-party LBOs. The 75th percentile value for MBOs/third-party LBOs, 20.275%/10.841% of top executive ownership and 9.714%/3.295% of CEO ownership, indicates that management involved in MBO deals holds a larger percentage of shareholdings. The mean (median) executive share option (*exeso*) is 10.724 (11.86) and 11.452 (12.561) in MBOs and third-party LBOs respectively. The mean (median) CEO ownership value (*ceoownv*) and executive ownership value (*exeownv*) exhibit £0.342 million (£0.038 million) and £0.618 million (£0.137 million) in MBO deals, compared with the values of £0.182 million (£0.043 million) and £1.128 million (£0.096 million) in third-party LBOs.

The distribution of price earnings ratio (*pe*) appears to be generally skewed and presents mean values often considerably higher than median values. The median values of *pe* −4.784 in MBOs and −5.629 in third-party LBOs imply that at least more than 50% of buyout firms tend to exhibit perceived undervaluation one year prior to the announcement of the takeover. The free cash flow over total assets (*fcf*) shows that MBOs have a significantly greater proportion of firms exhibiting this characteristic than do firms in third-party LBOs. MBOs also have higher *roa* ratios. The firm size (*size*) extends from a value of 14.431 (15.601) to 21.975 (23.019) in MBOs (third-party LBOs). Average leverage ratios (*level*) were 0.171 in MBOs and 0.257 in third-party LBOs, which indicate that MBO targets hold less debt than third-party LBO targets. The mean (median) other insider ownership is 11.867% (3.618%) and 6.436% (0.943%) in MBOs and third-party LBOs, respectively.

Panel B: Descriptive Statistics for Determinants of Takeover Resistance

	MBO								*Third-party LBO*							
	Mean	*Median*	*S.D.*	*Min*	*0.250*	*0.750*	*Max*	*N*	*Mean*	*Median*	*S.D.*	*Min*	*0.250*	*0.750*	*Max*	*N*
prem (%)	45.587	43.210	35.995	-60.000	25.675	58.475	208.200	92	45.389	37.250	50.473	-99.380	22.230	63.680	228.570	65
exeown (%)	14.141	6.433	18.147	0.000	0.652	20.275	73.190	92	6.274	1.084	12.062	0.000	0.172	10.841	72.835	65
exeownv (million £)	0.618	0.137	1.610	0.000	0.046	0.486	13.031	92	1.128	0.096	6.708	0.000	0.019	0.324	54.136	65
ceoown (%)	8.152	0.715	14.410	0.000	0.069	9.714	68.050	92	3.356	0.266	8.606	0.000	0.064	3.295	64.764	65
ceoownv (million £)	0.342	0.038	1.390	0.000	0.005	0.181	12.965	92	0.182	0.043	0.573	0.000	0.009	0.094	4.500	65
exeso	10.724	11.860	3.905	0.000	10.590	12.984	15.571	90	11.452	12.561	4.328	0.000	10.685	14.235	15.819	65
pe	6.709	-4.784	55.975	-24.724	-10.499	2.233	378.267	92	-1.231	-5.629	29.795	-42.347	-10.299	0.998	210.952	65
fcf (%)	0.892	2.238	9.034	-41.535	-3.456	5.933	22.001	92	-0.252	0.821	8.651	-37.540	-2.119	4.589	20.130	65
roa	0.061	0.068	0.128	-0.514	0.028	0.114	0.540	92	0.051	0.067	0.107	-0.521	0.038	0.092	0.315	65
size	17.357	17.307	1.219	14.431	16.765	18.000	21.975	92	18.767	18.579	1.773	15.601	17.332	19.859	23.019	65
other-own (%)	11.867	3.618	17.430	0.010	0.443	16.986	72.951	92	6.436	0.943	10.108	0.007	0.171	9.831	41.584	65
level	0.171	0.147	0.148	0.000	0.051	0.238	0.740	92	0.257	0.250	0.186	0.000	0.110	0.373	0.833	65

Panel C: Descriptive Statistics for Determinants of Bid Premiums

	MBO								*Third-party LBO*							
	Mean	*Median*	*S.D.*	*Min*	*0.250*	*0.750*	*Max*	*N*	*Mean*	*Median*	*S.D.*	*Min*	*0.250*	*0.750*	*Max*	*N*
prem (%)	45.889	43.210	36.243	-60.000	26.570	58.110	208.200	84	46.440	38.545	51.354	-99.380	22.230	64.960	228.570	62
exeown (%)	13.554	6.249	17.650	0.000	0.652	19.076	73.190	84	6.554	1.258	12.285	0.000	0.172	10.992	72.835	62
exeownv (million £)	0.645	0.151	1.679	0.000	0.046	0.472	13.031	84	1.177	0.096	6.867	0.000	0.016	0.464	54.136	62
ceoown (%)	7.644	0.700	13.409	0.000	0.069	8.291	56.227	84	3.514	0.318	8.784	0.000	0.064	3.773	64.764	62
ceoownv (million £)	0.354	0.038	1.451	0.000	0.005	0.181	12.965	84	0.190	0.049	0.585	0.000	0.009	0.100	4.500	62
exeso	10.748	11.845	3.863	0.000	10.590	12.984	15.571	82	11.345	12.547	4.367	0.000	10.685	14.225	15.819	62
pe	2.713	-5.109	41.672	-24.724	-10.882	1.366	287.435	84	-1.119	-6.242	30.500	-42.347	-10.366	0.998	210.952	62
fcf (%)	0.829	2.238	9.316	-41.535	-3.456	5.933	22.001	84	-0.300	0.841	8.791	-37.540	-2.119	4.589	20.130	62
roa	0.059	0.068	0.127	-0.514	0.028	0.113	0.540	84	0.051	0.068	0.107	-0.521	0.038	0.092	0.315	62
size	17.357	17.307	1.235	14.431	16.765	18.000	21.975	84	18.708	18.526	1.791	15.601	17.214	19.682	23.019	62
other-own (%)	12.127	3.821	17.823	0.010	0.520	17.194	72.951	84	6.710	0.838	10.273	0.007	0.171	10.920	41.584	62
level	0.168	0.140	0.152	0.000	0.050	0.233	0.740	84	0.261	0.253	0.186	0.000	0.123	0.373	0.833	62
ned (%)	45.476	42.900	13.823	14.300	38.750	50.000	75.000	84	52.902	50.000	12.447	22.200	44.400	62.500	75.000	62
insti (%)	34.748	31.660	20.940	0.000	20.855	49.566	89.000	84	35.235	34.764	16.863	0.000	25.670	44.752	72.720	62
lnnas	10.956	11.002	1.172	7.601	10.240	11.711	14.095	84	11.773	11.851	1.640	6.908	10.779	12.882	15.274	62

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (ICB-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees.

Panel C of Table 2.3 also reports the descriptive statistics for the determinants of takeover premiums. Consistent with earlier studies (e.g. Bugeja, 2011; Bargeron et al., 2008), target shareholders usually receive significant positive abnormal returns four weeks before the takeover announcement with the mean (median) of 45.889% (43.21%) and 46.44% (38.545%) in MBOs and third-party LBOs respectively. In terms of board independence, on average 45.476% (MBOs) and 52.902% (third-party LBOs) of board directors are non-executives. External shareholdings held by institutions have a mean value of 34.748% (35.235%) in MBOs (third-party LBOs), which means that large institutional shareholders held three times (six times) as many as executive shareholders. Finally, the statistics for audit independence (*lnnas*) show a mean (median) value of 10.956 (11.002) in MBO deals and 11.773 (11.851) in third-party LBO deals, which indicate that MBO firms tend to have more independent audit than third-party LBO firms.

Tables 2.9 and 2.10 in the Appendix report the Pearson correlation matrix between the variables used in estimating the models of takeover resistance and bid premiums, each one associated with the corresponding significance level. Reading through the columns, it can be observed that *exeown* and *ceoown* are highly correlated, with a correlation coefficient of 0.752 (MBOs) and 0.807 (third-party LBO) in determining takeover resistance, and 0.736 (MBOs) and 0.806 (third-party LBOs) in determining the bid premium. In MBOs, *exeownv* and *ceoownv* are also highly correlated, which should not be included in the same equation to avoid multicollinearity. According to the research of Tabachnick and Fidell (2007), the correlation for every variable in our models is below 0.7, which indicates that multicollinearity will not be a problem in the regression analysis. Moreover, this study applies the variance inflation factor (VIF) test, which verifies that the results are not distorted by multicollinearity.

In the correlation tables, it is found that the following factors are significantly correlated with takeover premiums and bid resistance. Specifically, panel A of Table 2.9 in the Appendix demonstrates that *ceoch* (0.199) is significantly associated with a higher level of *resist* in MBOs. Panel B in the same table shows that *resist* is significantly positively correlated with *exeownv* (0.39), *size* (0.419) and *ceoch* (0.266) in third-party LBOs. In Panel A, Table 2.10 in the Appendix reports that *prem* exhibits a significantly negative correlation with *exeso* (−0.333) but a significantly positive correlation with *pe* (0.329) and *lnnas* (0.216) in MBO deals. Panel B, Table 2.10 in the Appendix observes that *prem* is negatively correlated with *pe* (-0.331), *roa* (-0.475) and *level* (−0.211) but positively associated with *multi* (0.229) in third-party LBOs.

2.5.2 Main results

Table 2.4 presents the logistic regression results to test the association between managerial interests and the likelihood of takeover resistance (*resist*) in the context of MBOs and third-party LBOs. The research tests the influence of executive ownership, executive share options and their joint effects on takeover resistance. In addition, the robust regression method is used to make adjustments in terms of heteroscedasticity by estimating the regression models with robust standard errors or including the industry cluster option of the four-digit ICB code.

Overall, in Table 2.4 and 2.5, the research finds that the pseudo R-squares in examining the influence of managerial ownership and share options on takeover resistance are 0.14 (0.55) and 0.16 (0.6) in MBOs (third-party LBOs). This is an acceptable level. The previous literature on the determinants of hostility finds that the R-square of the model is about 0.1 (Maheswaran and Pinder, 2005). Carline and Yadav (2008) identify that the R-square for the model in examining the influence of corporate governance on target board resistance is about 0.39. Dimopoulos and Sacchetto (2014) find that the R-square of the model for the determinants of target resistance is 0.22.

As shown in Table 2.4, the general performance of the models is satisfactory. The Wald-Chi2 tests show that all the equations are highly significant (p-value<0.01). The pseudo R-squares in third-party LBO models are much greater than those of MBO models. Models 1, 2, 4 and 5 show that the executive ownership (*exeown*) is not significant correlated with takeover resistance in MBOs ($\beta_{Model1,2} = 1.733$; $z - stat_{Model1} = 0.657$; $z - stat_{Model2} = 0.665$; $\beta_{Model4,5} = 0.993$; $z - stat_{Model4} = 0.378$; $z - stat_{Model5} = 0.382$). This result may suggest that, in MBOs, increased executive share ownership does not significantly influence takeover resistance from the board, which rejects Hypothesis 2.1. Although it may be expected that, in MBOs, increasing executive share ownership provides managers with greater influence and voting power to prevent takeover resistance from other board directors, the results suggest otherwise. This might because management's direct involvement in MBOs can provide them with stronger incentives that affect their decision-making, independent of their prior shareholding in the firm.

Table 2.4 The relationship between managerial ownership, share options and takeover resistance

	Dependent Variable=RESIST													
	MBO							Third-party LBO						
	Expected Signs	Model1	Model2	Model3	Model4	Model 5	Model6	Expected Signs	Model7	Model8	Model9	Model10	Model11	Model12
exeown	-	1.733	1.733			0.993	0.993	+	13.701*	13.701*			15.105***	15.105***
		(0.657)	(0.665)			(0.378)	(0.382)		(1.825)	(1.796)			(2.630)	(2.639)
exeso	+			0.182**	0.182*	0.170*	0.170	-			-0.468**	-0.468**	-0.375***	-0.375***
				(2.059)	(1.733)	(1.897)	(1.602)				(-2.447)	(-2.298)	(-2.801)	(-2.767)
pe		-0.004	-0.004	-0.005	-0.005*	-0.005	-0.005**		0.013	0.013	-0.059**	-0.059*	-0.049*	-0.049**
		(-0.916)	(-1.159)	(-1.542)	(-1.936)	(-1.542)	(-2.057)		(0.545)	(0.557)	(-1.978)	(-1.958)	(-1.785)	(-2.040)
fcf		5.474	5.474	7.157	7.157	7.137	7.137		-3.637	-3.637	-2.745	-2.745	0.849	0.849
		(1.233)	(1.112)	(1.540)	(1.515)	(1.449)	(1.429)		(-0.553)	(-0.557)	(-0.436)	(-0.481)	(0.085)	(0.084)
roa		-1.752	-1.752	-2.321	-2.321	-2.519	-2.519		-18.748	-18.748	-29.375	-29.375	-31.557**	-31.557**
		(-0.277)	(-0.276)	(-0.403)	(-0.415)	(-0.417)	(-0.430)		(-1.347)	(-1.336)	(-1.587)	(-1.557)	(-2.230)	(-2.210)
size		0.562**	0.562**	0.586**	0.586**	0.613**	0.613**		1.327***	1.327***	2.013**	2.013**	1.892***	1.892***
		(2.034)	(2.306)	(2.171)	(2.469)	(2.117)	(2.360)		(2.695)	(2.716)	(2.303)	(2.210)	(3.396)	(3.373)
other-own		-1.295	-1.295	0.942	0.942	0.600	0.600		-7.671	-7.671	3.584	3.584	-8.387	-8.387
		(-0.417)	(-0.434)	(0.268)	(0.277)	(0.218)	(0.227)		(-1.526)	(-1.487)	(0.733)	(0.658)	(-1.418)	(-1.347)
level		0.129	0.129	0.069	0.069	0.140	0.140		-7.429	-7.429	-12.058**	-12.058**	-11.395*	-11.395*
		(0.016)	(0.015)	(0.008)	(0.008)	(0.018)	(0.017)		(-1.408)	(-1.335)	(-2.255)	(-2.345)	(-1.954)	(-1.896)
prem		1.974*	1.974**	2.999**	2.999***	2.990**	2.990***		-2.707	-2.707	-4.270	-4.270	-4.883**	-4.883**
		(1.656)	(1.984)	(2.343)	(2.656)	(2.362)	(2.675)		(-1.100)	(-1.111)	(-1.475)	(-1.518)	(-2.083)	(-2.099)
ceoch		2.872**	2.872**	3.045**	3.045**	3.173**	3.173**		3.127*	3.127*	4.238*	4.238*	4.218**	4.218**
		(2.155)	(2.202)	(2.106)	(2.003)	(2.254)	(2.131)		(1.680)	(1.683)	(1.769)	(1.759)	(2.316)	(2.398)
Industry Cluster			Yes		Yes		Yes			Yes		Yes		Yes
Constant		-14.825***	-14.825***	-17.834***	-17.834***	-18.288***	-18.288***		-25.862***	-25.862***	-32.182**	-32.182**	-30.757***	-30.757***
		(-3.168)	(-3.600)	(-3.807)	(-4.321)	(-3.714)	(-4.192)		(-3.039)	(-3.071)	(-2.320)	(-2.211)	(-3.451)	(-3.469)

Wald Chi2		29.980***	63.520***	23.550***	38.250***	22.780***	42.600***		23.180***	39.050***	24.220***	22.110***	27.080***	26.620***
Prob>Chi2		0.000	0.000	0.005	0.000	0.012	0.000		0.006	0.000	0.004	0.009	0.003	0.003
Pseudo R Square		0.142	0.142	0.160	0.160	0.162	0.162		0.555	0.555	0.604	0.604	0.624	0.624
Observations		92	92	90	90	90	90		65	65	65	65	65	65

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0.

However, as expected in Hypothesis 2.3, the results of Models 3, 4 and 5 in Table 2.4 suggest that increases in executive share option holdings tend to increase takeover resistance (*resist*) in MBOs. The coefficient of executive share options (*exeso*) is significantly positive at the 0.05 (Model3, z-stat=2.059) and 0.1 (Model4, z-stat=1.733; Model5, z-stat=1.897) levels. This result may further indicate that option-based compensation allows the board of directors to observe management efforts to improve the firm's performance. While the share options are available to exercise immediately after MBOs, managers are likely to exercise them to increase their ownership in the firm rather than in a cash-payment. The board of directors might be more cautious about the MBO offers and may tend to resist the offer when they are aware of managers' incentives from share option.

The results of control variables for determinant takeover resistance in MBOs are generally consistent with prior studies. The coefficient of *pe* and *resist* is negatively significant at the 0.1 level, while *size* and *ceoch* are positively related to *resist* at the 0.05 level. Moreover, the results suggest that a higher *prem* results in a higher *resist* at the 5% level in MBOs. This further indicates that managers would like to provide higher premiums to overcome resistance from the board in MBOs. However, the coefficients of *fcf*, *roa*, *other-own*, and *level* are all insignificant.

Next this study tests the relation between executive ownership and takeover resistance in the setting of third-party LBOs. In Models 7, 8, 11 and 12 of Table 2.4, the results suggest that an increased *exeown* is positively significantly correlated with *resist* ($\beta_{Model7,8} = 13.701$; $z - stat_{Model7} = 1.825$; $z - stat_{Model8} = 1.796$; $\beta_{Model11,12} = 15.105$; $z - stat_{Model11} = 2.63$; $z - stat_{Model12} = 2.639$). Consistent with Hypothesis 2.5, that since the management is not involved in buyout transactions, managers with higher share ownership are likely to have greater power and influence to affect the board's decision (DeAngelo and DeAngelo, 1985). This allows them to reject buyout offers in order to protect their own interests as regards their long-term job security and discretion within the firm.

However, instead of ownership with share options, the coefficient of *exeso* is significantly negative ($\beta_{Model9,10} = -0.468$; $z - stat_{Model9} = -2.447$; $z - stat_{Model10} = -2.298$; $\beta_{Model11,12} = -0.375$; $z - stat_{Model11} = -2.801$; $z - stat_{Model12} = -2.767$) as shown in Models 7, 8, 11 and 12 in Table 2.4. This result confirms that ownership and options could provide managers with different incentives. As share options allow managers to realise additional personal profits without conditions or restrictions (Sanders, 2001), higher options can increase their motivation to accept an third-party LBO offers and accrue higher returns from the exercise of share options immediate after buyout.

With respect to the control variables of takeover resistance in third-party LBO context, the coefficients of *size* and *ceoch* are significantly positive, as expected, in all models. These findings are consistent with the predictions and results of prior studies, which indicate that larger firms and newly designated CEOs tend to generate more resistance to buyout offers. A significantly negative coefficient of *level* indicates that firms with high debt have less takeover resistance. However, this study does not find evidence that *fcf*, *roa* and *other-own* have significant effects on *resist*.

The hypotheses relating to managerial interests and takeover premiums are tested in a similar method as in Table 2.5, by including robust standard errors and the industry cluster option of the four-digit ICB code. Table 2.5 reports the regression results of managerial interests on both measures of share ownership and options. The F-test shows that Models 14, 18 and 19 to 24 are highly significant at the 1% level, Model 15 is significant at the 10% level and Model 16 is significant at the 5% level, while Model 13 and 17 are statistically insignificant. The research finds that the R-squares of the model in examining the influence of managerial ownership and share options on takeover premiums are 0.25 (0.57) and 0.32 (0.56) in MBOs (third-party LBOs). Compare with the earlier studies, the R-squares in this research are in an acceptable range. The previous literature of Bugeja (2011) identifies that the R-square of the model in examining the influence of auditor independence and reputation on takeover premiums is 0.076. Moreover, in examining the determinants of takeover premiums, the R-squares are 0.22 in Sudarsanam and Sorwar (2010), and 0.68 in Dimopoulos and Sacchetto (2014).

Models 13 and 14 in Table 2.5 report the results for *exeown* on takeover premiums in MBOs; Models 15 and 16 repeat the exercise for *exeso*, while Model 17 and 18 test the joint effects of *exeown* and *exeso* on premiums. According to Hypothesis 2.2, that in MBOs managers who hold higher ownerships may offer a lower takeover premium, as managers are likely to purchase the firm with a lowest possible price. However, the result suggests that none of the coefficients of *exeown* variables is significant in MBOs; the coefficients in Models 13 and 14 are 0.01 (t-stat=0.031) and 0.01 (t-stat=0.034), respectively. One possible explanation for this insignificant relation might be that although managers are likely to pay the lowest possible price to take over the firms, high takeover premiums can easily attract the interest of other shareholders and increase the success of takeover.

The negative coefficient on *exeso* in Model 15 of Table 2.5 (−0.027) is statistically significant at the 10% level but insignificant after including the industry cluster option in Model 16. These results suggest that as the instigators of buyouts, managers are more likely to offer lower premiums to reduce their cost of buyouts. Share options do not have cash incentive in MBOs, but to increase managers' ownership in the firms after the takeovers. Hence, managers are less likely to offer higher premiums in MBOs when they have higher share options within the firms.

Turning to control variables of takeover premiums in third-party LBOs, the coefficient of *size* confirms the significantly negative relation with *prem* at the 5% level, as expected in all models. Consistent with the existing literature, such as Bugeja (2011), the coefficient of *lnnas* is significantly positive. However, this study fails to find evidence that the effects of *pe*, *fcf*, *roa*, *other-own*, *level*, *ned*, *multi* and *insti* are significant.

Table 2.5 The relationship between managerial ownership, share options and takeover premiums

	Dependent Variable=PREM													
	MBO							*Third-party LBO*						
	Expected Signs	*Model13*	*Model14*	*Model15*	*Model16*	*Model17*	*Model18*	*Expected Signs*	*Model19*	*Model20*	*Model21*	*Model22*	*Model23*	*Model24*
exeown	-	0.010	0.010			0.023	0.023	+	1.234***	1.234***			1.196***	1.196***
		(0.031)	(0.034)			(0.077)	(0.089)		(3.035)	(3.182)			(3.210)	(3.088)
exeso	-			-0.027*	-0.027	-0.027*	-0.027	-			-0.026***	-0.026***	-0.025**	-0.025***
				(-1.830)	(-1.564)	(-1.815)	(-1.561)				(-2.874)	(-2.930)	(-2.591)	(-2.928)
pe		0.002	0.002	0.002	0.002	0.002	0.002		-0.004***	-0.004***	-0.005***	-0.005***	-0.004***	-0.004***
		(1.275)	(1.151)	(1.418)	(1.267)	(1.395)	(1.247)		(-3.568)	(-3.562)	(-4.648)	(-4.733)	(-3.823)	(-4.126)
fcf		0.073	0.073	-0.021	-0.021	-0.020	-0.020		-0.042	-0.042	0.295	0.295	0.175	0.175
		(0.224)	(0.232)	(-0.069)	(-0.064)	(-0.066)	(-0.062)		(-0.077)	(-0.085)	(0.491)	(0.533)	(0.312)	(0.329)
roa		0.041	0.041	0.003	0.003	-0.001	-0.001		-2.654***	-2.654***	-2.737***	-2.737***	-2.934***	-2.934***
		(0.100)	(0.113)	(0.008)	(0.009)	(-0.002)	(-0.002)		(-5.460)	(-6.065)	(-5.214)	(-5.511)	(-6.310)	(-6.622)
size		-0.110**	-0.110**	-0.095**	-0.095**	-0.095**	-0.095**		-0.044	-0.044	-0.041	-0.041	-0.031	-0.031
		(-2.292)	(-2.516)	(-2.143)	(-2.309)	(-2.107)	(-2.248)		(-1.229)	(-1.139)	(-1.134)	(-1.099)	(-0.843)	(-0.809)
other-own		0.197	0.197	0.001	0.001	-0.003	-0.003		-1.165***	-1.165**	-0.589	-0.589	-1.075**	-1.075**
		(0.893)	(1.028)	(0.003)	(0.004)	(-0.010)	(-0.012)		(-2.719)	(-2.564)	(-1.124)	(-1.125)	(-2.553)	(-2.446)
level		-0.036	-0.036	-0.015	-0.015	-0.017	-0.017		-0.959***	-0.959***	-1.058***	-1.058***	-1.093***	-1.093***
		(-0.119)	(-0.099)	(-0.047)	(-0.044)	(-0.053)	(-0.047)		(-3.022)	(-3.267)	(-3.473)	(-3.800)	(-3.578)	(-3.986)
ned		-0.044	-0.044	-0.181	-0.181	-0.167	-0.167		0.353	0.353	-0.141	-0.141	0.223	0.223
		(-0.114)	(-0.130)	(-0.518)	(-0.560)	(-0.403)	(-0.395)		(0.695)	(0.745)	(-0.249)	(-0.252)	(0.413)	(0.414)
multi		0.133	0.133	0.131	0.131	0.132	0.132		0.222**	0.222***	0.236**	0.236**	0.263***	0.263***
		(1.361)	(1.580)	(1.531)	(1.587)	(1.517)	(1.616)		(2.387)	(2.758)	(2.332)	(2.484)	(2.715)	(3.052)
insti		0.051	0.051	0.062	0.062	0.069	0.069		0.447	0.447	0.239	0.239	0.358	0.358
		(0.253)	(0.286)	(0.303)	(0.329)	(0.324)	(0.397)		(1.312)	(1.527)	(0.695)	(0.732)	(1.059)	(1.106)

lnnas	0.122**	0.122**	0.111***	0.111**	0.112***	0.112**	0.083***	0.083***	0.067**	0.067**	0.087***	0.087***
	(2.569)	(2.655)	(2.682)	(2.574)	(2.687)	(2.601)	(3.127)	(3.100)	(2.612)	(2.412)	(3.417)	(3.042)
Industry Cluster		Yes		Yes		Yes		Yes		Yes		Yes
Constant	0.992	0.992	1.225*	1.225*	1.208*	1.208	0.251	0.251	1.083*	1.083*	0.378	0.378
	(1.561)	(1.692)	(1.881)	(1.893)	(1.735)	(1.684)	(0.366)	(0.340)	(1.910)	(1.890)	(0.584)	(0.543)
F-test	1.450	8.100***	1.700*	2.400**	1.590	3.450***	21.460***	33.370***	19.110***	22.350***	30.760***	43.250***
Prob>f	0.168	0.000	0.090	0.027	0.115	0.003	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.253	0.253	0.324	0.324	0.324	0.324	0.568	0.568	0.563	0.563	0.604	0.604
Root MSE	0.336	0.336	0.324	0.324	0.326		0.373	0.373	0.375	0.375	0.361	0.361
Observations	84	84	82	82	82	82	62	62	62	62	62	62

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees.

Moreover, Models 19, 20, 23 and 24 in Table 2.5 provide evidence that increasing *exeown* tends to increase *prem* in third-party LBOs. Consistent with Hypothesis 2.6, the coefficient of *exeown* is significantly positive ($\beta_{Model19,20} = 1.234$; $t - stat_{Model19} = 3.035$; $t - stat_{Model20} = 3.182$; $\beta_{Model23,24} = 1.196$; $t - stat_{Model23} = 3.21$; $t - stat_{Model24} = 3.088$). This finding indicates that ownership could align the interests of managers and shareholders, as the growth of premiums will increase managers' gains in wealth.

In addition, the significantly negative coefficient of *exeso* reported in Models 21 (t-stat=-2.874), 22 (t-stat=-2.93), 23 (t-stat=-2.591) and 24 (t-stat=-2.928) for third-party LBOs suggests that higher options reduce the incentive of management to require a higher premium. As higher takeover premiums may increase the difficulty for acquirers to raise funds and increase the risk of takeover failure, managers with higher share options in third-party LBOs may have less incentives to drive up the takeover premiums.

Finally, the results for the control variables in third-party LBOs suggest that the coefficients of *pe* and *roa* are negatively significant with *prem* at the 1% level. The coefficient of *level* is negatively significant, consistent with Hafzalla (2009). Consistent with Flanagan and O'Shaughnessy (2003), the coefficient of *multi* is significantly positive. Consistent with Bugeja (2011), the coefficient of *lnnas* is significantly positively correlated with the level of takeover premiums.

2.5.3 Additional analysis

2.5.3.1 The effects of managerial interests in LBOs

This study conducts a number of additional sensitivity analyses to test the robustness of the results. As the sample of LBOs is the combination of MBOs and third-party LBOs and the characteristics of undervaluation, and free cash flows are the common motivations for firms going private, this study estimates the influence of managerial interests on shareholder wealth protection using the whole sample of LBOs.

Table 2.6 presents results of regressing the managerial interests based on *exeown, exeso* and their joint effects with takeover resistance in LBOs. The results in Table 2.6 suggest that *exeown* is significantly positive associated with *resist* in LBOs, which is consistent with the results in third-party LBOs but contrary to the results in MBOs in Table 2.4. Moreover, the coefficients of *exeso* in Models 27 to 30 have the same sign as the results reported for third-party LBOs but contrary to the results reported for MBOs in Table 2.4. This indicates that executive ownership and share options are likely to have different effects in MBOs and third-party LBOs. It further provides evidence that MBOs and third-party LBOs could offer managers different incentives. Therefore, it is necessary to analyse the effects of managers' interests by splitting LBOs into MBOs and third-party LBOs.

Table 2.6 The relationship between managerial ownership, share options and takeover resistance in LBOs

	Dependent Variable=RESIST					
	Model25	*Model26*	*Model27*	*Model28*	*Model29*	*Model30*
exeown	3.482**	3.482**			3.843**	3.843**
	(2.075)	(2.286)			(2.029)	(2.129)
exeso			-0.056	-0.056	-0.074	-0.074
			(-0.920)	(-1.122)	(-1.295)	(-1.494)
pe	0.003	0.003	0.002	0.002	0.003	0.003
	(0.745)	(0.763)	(0.486)	(0.529)	(0.580)	(0.608)
fcf	2.352	2.352	1.526	1.526	2.348	2.348
	(0.560)	(0.831)	(0.409)	(0.650)	(0.521)	(0.793)
roa	-5.231	-5.231	-4.760	-4.760	-5.919	-5.919
	(-1.379)	(-1.452)	(-1.509)	(-1.563)	(-1.548)	(-1.630)
size	0.921***	0.921***	0.883***	0.883***	0.978***	0.978***
	(3.622)	(3.604)	(3.698)	(3.736)	(3.627)	(3.608)
other-own	-1.481	-1.481	-0.949	-0.949	-2.147	-2.147
	(-0.601)	(-0.560)	(-0.374)	(-0.365)	(-0.960)	(-0.910)
level	-2.400	-2.400	-2.991	-2.991	-2.745	-2.745
	(-1.090)	(-0.993)	(-1.336)	(-1.207)	(-1.243)	(-1.125)
prem	0.213	0.213	0.289	0.289	0.144	0.144
	(0.330)	(0.317)	(0.453)	(0.426)	(0.214)	(0.198)
ceoch	2.662***	2.662***	2.483**	2.483***	2.789***	2.789***
	(2.747)	(3.613)	(2.492)	(3.217)	(2.967)	(4.247)
Industry Cluster		Yes		Yes		Yes
Constant	-20.123***	-20.123***	-18.426***	-18.426***	-20.239***	-20.239***
	(-4.086)	(-4.058)	(-4.019)	(-4.034)	(-3.979)	(-3.973)
Wald Chi2	28.670***	39.160***	27.530***	60.300***	32.440***	63.080***
Prob>Chi2	0.001	0.000	0.001	0.000	0.000	0.000
Pseudo R Square	0.313	0.313	0.304	0.304	0.320	0.320
Observations	157	157	155	155	155	155

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0.

In the analysis of managers' behaviour to maximise takeover premiums, Table 2.7 presents the results based on Models 31–36 for LBOs. To analyse robustness, this study re-estimates all the regressions involving *exeown* and *exeso* in LBOs, which increases the sample size to 146 observations. In Model 31 and 35, the coefficient of *exeown* is significantly positive with *prem* ($t - stat_{Model31} = 1.702$; $t - stat_{Model32} = 1.705$), consistent with Song and Walkling (1993), Morck et al. (1988b) and Fama and Jensen (1983). Although, in Model 32, *exeown* is positive but statistically insignificant, the sign of the results is consistent with the hypothesis, which expects that higher ownership may result in higher takeover premiums. In Table 2.7, Models 33 to 36, the *exeso* is significantly negatively related to takeover premiums in LBOs ($t - stat_{Model33} = -2.459$; $t - stat_{Model34} = -2.394$; $t - stat_{Model35} = -2.43$; $t - stat_{Model36} = -2.284$. This confirms the robustness of the results in third-party LBOs but different with the expectation in MBOs. This further implies that it is necessary to examine managers' incentives in MBOs and third-party LBOs respectively.

Table 2.7 The relationship between managerial ownership, share options and takeover premiums in LBOS

	Dependent Variable=PREM					
	Model31	*Model32*	*Model33*	*Model34*	*Model35*	*Model36*
exeown	0.422*	0.422			0.417*	0.417
	(1.702)	(1.577)			(1.705)	(1.517)
exeso			-0.021**	-0.021**	-0.021**	-0.021**
			(-2.459)	(-2.394)	(-2.430)	(-2.284)
pe	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001
	(-0.223)	(-0.231)	(-0.409)	(-0.454)	(-0.421)	(-0.452)
fcf	0.080	0.080	0.125	0.125	0.127	0.127
	(0.210)	(0.204)	(0.323)	(0.338)	(0.336)	(0.344)
roa	-0.956**	-0.956***	-1.061***	-1.061***	-1.126***	-1.126***
	(-2.393)	(-3.832)	(-2.626)	(-4.623)	(-2.838)	(-4.624)
size	-0.075***	-0.075**	-0.071***	-0.071**	-0.067**	-0.067**
	(-2.742)	(-2.540)	(-2.745)	(-2.421)	(-2.544)	(-2.281)
other-own	-0.097	-0.097	-0.142	-0.142	-0.221	-0.221
	(-0.493)	(-0.497)	(-0.607)	(-0.655)	(-0.988)	(-1.023)
level	-0.543**	-0.543**	-0.594***	-0.594**	-0.612***	-0.612**
	(-2.426)	(-2.162)	(-2.705)	(-2.536)	(-2.782)	(-2.682)
ned	0.530	0.530	0.225	0.225	0.423	0.423
	(1.448)	(1.374)	(0.701)	(0.731)	(1.143)	(1.101)
multi	0.264***	0.264***	0.273***	0.273***	0.282***	0.282***
	(2.962)	(2.742)	(3.131)	(2.773)	(3.241)	(2.860)
insti	0.052	0.052	-0.064	-0.064	0.044	0.044
	(0.250)	(0.273)	(-0.330)	(-0.365)	(0.208)	(0.212)
lnnas	0.074***	0.074***	0.067***	0.067***	0.072***	0.072***
	(3.736)	(3.313)	(3.396)	(2.718)	(3.798)	(3.086)
Industry Cluster		Yes		Yes		Yes
Constant	0.763	0.763*	1.272***	1.272**	0.969*	0.969*
	(1.604)	(1.773)	(2.896)	(2.648)	(1.946)	(1.924)
F-test	3.370***	8.230***	3.580***	5.220***	3.480***	5.490***
Prob>f	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.254	0.254	0.296	0.296	0.309	0.309
Root MSE	0.377	0.377	0.369	0.369	0.367	0.367
Observations	146	146	144	144	144	144

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees.

2.5.3.2 Endogenous tests

Endogeneity is a major methodological concern for corporate governance and accounting research that rely on regression analysis to draw the causal inference (Abdallah et al., 2015; Chenhall and Moers, 2007). That is, the endogeneity is likely to occurre as a consequence of explaining how the explanatory variables is associated with a specified outcome. Specifically, the mathematical equations are based on theories to represent the relationship between a set of defined variables. Data are used to test these theories through the statistical analysis (Chenhall and Moers, 2007). Ideally, in regression analysis, the explanatory variables are supposed to be significantly associated with outcome variable, which provides support for the theoretically proposed causal relationship (Chenhall and Moers, 2007; Abdallah et al., 2015; Roberts and Whited, 2012). However, the model may include an endogenous explanatory variable that can lead to endogeneity. If endogeneity exists, the regression may produce a biased estimation. In essence, endogeneity can lead to biased and inconsistent estimators when testing the theoretical propositions, which may make inferences problematic and consequently reduce the reliability of the results that drawing from the conclusions. Therefore, during the analysis, it is important to understand how the theory and data can comply with the specification of the model, including the assumptions implied by separating the exogenous and endogenous variables (Chenhall and Moers, 2007; Coles et al., 2012).

In statistics, the endogeneity is defined as “a correlation between the explanatory variables and the error term in a regression” (Roberts and Whited, 2012: 6). The endogeneity then can be raised due to omitted variables and simultaneity. First, if there is omitted explanatory variables in the regression, the error term will be correlated with explanatory variables, which violates the basic assumption of ordinary least squares regression (OLS). Second, the endogeneity can also be caused by the dual correlations between dependent and explanatory variables, in which the explanatory variables can influence the dependent variable and in turn being influenced by the dependent variable (Chenhall and Moers, 2007; Abdallah et al., 2015). Such endogeneity can be addressed by using two-stage least squares regression (2SLS), which may require employing the instrumental variables. The instrumental variables are variables that are correlated with the explanatory variable but are not correlated with the error term (Chenhall and Moers, 2007; Diamond and Tolley, 2013; Badertscher, 2011; Greene, 2011).

This study concerns for the endogeneity biases, as the previous literature has found that managerial ownership and firm's performance outcomes affect each other. Moreover, there is a significant previous literature recognises that models containing managerial ownership variables may suffer from endogeneity; for example, Himmelberg et al. (1999), Weir et al. (2002), Kole (1996) and Coles et al. (2012). Therefore, this study tests for the possible endogenous selection of the percentage of executive ownership and firm performance (*roa*) in MBOs and third-party LBOs by adopting the approach used by Hermalin and Weisbach (1991), Ahmed and Duellman (2007) and Himmelberg et al. (1999).

The 2SLS regression is then used to address the endogeneity, which requires employing instrument variables in the analysis. According to Himmelberg et al. (1999), corporate governance is determined exogenously by the firm's contracting environment, such as share price volatility, regulation and the rules relating to the market for corporate control. Hence, this study employs CEO tenure and risk of volatility as the instruments. Moreover, the accounting and corporate governance literature suggest that the lagged value is able to be the instrument variable as it cannot be affected by the current value, which in turn can affect the current value (Larcker and Rusticus, 2010). In line with this argument, this study also employs the lagged values of the endogenous variables as instruments. Overall, it is assumed that the firm's performance (*roa*) is a function of executive ownership, CEO tenure,[2] the risk of volatility,[3] and the lagged *roa*.[4]. The Hausman test is then used to test the endogeneity in MBOs (p=0.235) and third-party LBOs (p=0.6235). The results suggest that the null hypothesis is not rejected and the endogeneity does not exist (p>0.05). Therefore, the results are not biased to the simultaneous selection of *roa* and executive ownership (see Table 2.11 in the Appendix). Moreover, to test the weakness of instruments, this study applies F-statistic. It is recognised that 2SLS can produce a biased estimation over the OLS when the instruments are weak (Hadri and Mikhail, 2014; Baum, 2006; Adkins and Hill, 2011). The results suggest that all the instruments are not weak.

2.5.3.3 Alternative measures of managerial ownership

So far, this study has used the percentage of the shareholding and the value of share options of top executives as a proxy for the degree of alignment between managers and shareholders. In this section, this study uses alternative measures of managerial ownership that examine how takeover resistance and bid premium vary with (1) the percentage of shareholding owned by the CEO, and (2) the pound value of the CEO's and executive managers' ownership.

As the key agent of the shareholder in charge of the firm's operations, the CEO is the primary person affecting management's actions to maximise shareholder wealth. Greater ownership of the firm may provide the CEO with incentives to take action to maximise premiums and protect shareholder interests (Ali-Ahmed, 2009; Baek et al., 2009; Mallin et al., 2005). To access the economic effect of CEO ownership on takeover resistance, this study repeats the exercise

[2] CEO tenure is measured as the number of years as CEO of the firm.
[3] The risk of volatility is measured as the annualised standard deviation of daily share returns.
[4] Lagged roa is measured as the two-year lagged value of return on asset (roa).

for MBOs and third-party LBOs.

In Table 2.13 in the Appendix, Models 55, 56, 61 and 62 present the results for the third-party LBO context, which are consistent with the findings in Table 2.4 (Models 7, 8, 11 and 12), where a higher managerial ownership may result in a high likelihood of takeover resistance in third-party LBOs. This result does not reject Hypothesis 2.5, which expects that, in third-party LBOs, higher ownership may provide managers with greater power to reject the takeover offers in order to protect their long-term job security and discretion (DeAngelo and DeAngelo, 1985). Moreover, Table 2.15 in the Appendix reports that CEO ownership is significantly positively related to takeover premiums in third-party LBOs. This result is also consistent with the findings in Table2.5. It suggests that ownership has aligned managers' interests with shareholders, where higher premiums can maximise shareholder wealth in third-party LBOs.

Although the percentage of ownership has been extensively used to measure the alignment of managers and shareholders, the pound value of managerial ownership is also used in studies such as Holderness et al. (1999) and Lafond and Roychowdhury (2008). This study examines whether the pound value of ownership exhibits a similar association to takeover resistance and bid premiums. Table 2.12 in the Appendix reports the results from estimating the relation between the value of executive and CEO ownership, and takeover resistance in MBOs. However, it is found that the coefficients are statistically insignificant. The coefficients of the takeover resistance for third-party LBOs are positive but insignificant for both the top executive and CEO pound value of ownership variables (see Table 2.13 in the Appendix). This study also analyses the effect of the pound value of executive ownership on takeover premiums in MBOs (Table 2.14). The results suggest that the findings are consistent when using alternative measurement in third-party LBOs. However, it is found that the value of managerial ownership is positive significant related to takeover premiums in MBOs. This might because both the takeover premiums and the value of managerial ownership are correlated with firms' share price, which may affect the results.

2.6 Conclusion

This study examined the impacts of managerial interests, including share ownership and options, on shareholder wealth protection prior to MBOs and third-party LBOs. Overall, this research is likely to have implications for the board of directors and shareholders to understand the changes of managerial motivations and reactions in different buyout settings. The different effects of managerial incentive schemes in MBOs and third-party LBOs imply that these settings are likely to provide managers with different incentives and thus affect their reactions towards takeovers. In particular, managers' direct involvement in MBOs is likely to provide them with incentives to purchase the firms at the lowest possible price, while in third-party LBOs, managers are likely to have strong incentives to protect their long-term job security, discretion, control and power within their firms (Hafzalla, 2009; Weir et al., 2005b).

Furthermore, this research may have implications for the board of directors and investors in understanding the effects of managerial incentives, including ownership and share options on shareholder wealth protection. This has further implication for the development of corporate governance. The different effects of managerial ownership and share options on takeover premiums imply that the different payoff structures of share ownership versus options may motivate managers to pursue different risk appetites, which drive their decision-making behaviours. This suggests that managers who paid with share options may prefer to take more risks in terms of opportunistic benefits, if they have nothing to lose but something to gain from a buyout. Moreover, this study implies that different with options, ownership can additionally provide managers with power to pursue their self-interest activities during the takeovers (Sanders, 2001; Sitkin and Weingart, 1995; Burns and Kedia, 2006).

In particular, the results suggested that the relationship between managerial ownership and takeover resistance was significantly positive in third-party LBOs. This implies that high levels of ownership can provide managers with greater power and influence on boards, which is helpful for them to pursue their own interests (DeAngelo and DeAngelo, 1985). Hence, managers with high levels of ownership are likely to resist buyout offers, which results in protecting their long-term job security and discretion within the firm. However, the results show that there is no significant association between managerial ownership and takeover resistance in MBOs. This might be because managers' involvement in MBOs can provide stronger incentives and influence for managers in making decisions, independent of their prior shareholding in the firm.

Moreover, this study suggested that, the levels of managerial share options were negatively related to takeover resistance in third-party LBOs. This result indicates that, since the options allow management to exercise them immediately after the takeover, high values of share options may motivate management to pursue additional returns from their exercise and thus lead to a lower likelihood of takeover resistance (Weir et al., 2005b; Renneboog et al., 2007; Sanders, 2001).

However, in MBOs, high levels of managerial share options were likely to increase takeover resistance from the board. This result further indicates that options could be an instrument for the board of directors to monitor management. Share options are more likely to exercise immediately after MBOs to increase managers' ownership in the firms rather than a cash-payment incentive. In this event, boards are likely to be more cautious about the MBO and tend to resist the takeovers.

In addition, this study found that the relation between managerial ownership and takeover premiums was significantly positive in third-party LBOs. This result indicates that, in third-party LBOs, managers with higher ownership are likely to accept offers with high premiums, as the premiums will increase their wealth after the buyout or the higher premiums may help them to stop a takeover offer (Song and Walkling, 1993; Lafond and Roychowdhury, 2008).

Nevertheless, the results suggested that managerial share options were negatively related to takeover premiums in both MBOs and third-party LBOs. This may indicate that managers have incentives to exercise their share options after third-party LBOs, which may reduce their incentives to drive up the takeover premiums. Although share options are also exercisable after MBOs, managers are more likely to exercise them to increase their shareholdings within the firms rather than a cash-payment. Hence, managers have less incentive to drive up premiums to increase their costs of takeovers.

Furthermore, the additional sensitivity tests indicate that these results are robust to alternative settings of LBOs and to alternative independent variable specifications, such as CEO ownership and the pound value of executive ownership and CEO ownership.

However, this research has some limitations. First, the time frame of this study is from 1997 to 2011, while the corporate governance information is limited to reports before 2006. The independent non-executives are not reported before 2006. Therefore, this study only control for the proportion of non-executives. The future study should investigate data after 2006 to provide a profound analysis.

Second, this study does not match the firm sizes and industries of MBOs with those of third-party LBOs, because the sample size of each setting is too small (MBOs: 124; third-party LBOs: 88). The matching exercise can dramatically reduce the sample size and the reliability of the study (Kline, 2015). In particular, artificially reduce the sample size can lead to Type II error, where the loss of information may reduce the statistical power of the analysis (Frazier et al., 2004; Fitzsimons, 2008; Kline, 2015; Freiman et al., 1978). Moreover, it may also lead to the opposite effect of the results, which is the Type I error (Irwin and McClelland, 2001; MacCallum et al., 2002; Roussos and Stout, 1996; Kline, 2015). Hence, instead of matching exercise, this research control for firm size and industry group in the analysis.

Third, this study measures the takeover resistance through the initial mood of the boards, which is a dummy variable that takes the value of 0 if the bid is friendly and 1 otherwise. However, this definition could not measure takeover resistance precisely. The target resistance is raising from the actions by target management and board potentially indicating dissatisfaction with the takeover offer. This may include any verbal statement indicating the offer is not supported or inadequate, definitive actions such as legal maneuvering or any restructuring, and initiating or actively participating in the cancellation of a proposed acquisition (Jennings and Mazzeo, 1993; Bradley et al., 1983; Dimopoulos and Sacchetto, 2014; Bates and Becher, 2015; Carline et al., 2016). Nevertheless, due to the sample is going private companies starting from 1997, which tend to have limited information about the deals, this study only measures resistance via the initial mood of the boards. Moreover, it is found that the sample sizes of hostile takeovers in third-party LBOs and MBOs are relatively small, which may affect the validity, power and robustness of the results. Nayak (2010) and Button et al. (2013) suggest that a smaller sample may not be able to provide sufficient power in detecting a real effect. The study may then turn out to be falsely negative and leading to a type II error. Therefore, the future study could use an alternative measure of takeover resistance and focuses on large sample size in the analysis.

Fourth, this study includes limited corporate governance variables in the analysis. The future research could include more corporate governance factors, such as the board qualification, expertise and other board characteristics in the analysis.

In summary, this chapter investigates the relationship between managerial equity ownership structure and takeover resistance/bid premiums in MBOs and third-party LBOs. The findings suggest that managers and shareholders are likely to have clear conflicts of interests in relation to the maximisation of shareholder wealth in MBOs and third-party LBOs. Managerial incentive schemes appear to have different effects on shareholder wealth protection in MBOs and third-party LBOs, as managers have played different roles in these settings. However, how could managers protect their private interests before the buyouts. Moreover, how and to what extent does the corporate governance mechanism protect the interests of shareholders before the buyouts become an interesting question.

It is recognised that, in MBOs, managers are the buyers, who tend to have strong incentives to purchase the firms with lowest possible price. The high extent of undervaluation may lead to more interests for managers after MBOs. However, as the future owners of firms, managers may also have concerns for firm's long-term interests, in order to protect their interests after the takeover. By contrast, in third-party LBOs, managers may have incentives to reduce the chance of firm's undervaluation and the possibility of taken over, in order to protect their long-term job security (Hafzalla, 2009).

Accounting conservatism usually indicates that bad news will be recognised as economic losses in a timelier manner than good news to be recognised as gains that are supposed to protect the long-term interests of shareholders. However, the conservative accounting approach tends to reduce the firm's current value (Lafond and Roychowdhury, 2008; Basu, 1997; Chan et al., 2009; Chen and Zhang, 2007). Therefore, prior to MBOs and third-party LBOs, managers may engage in different levels of accounting conservatism to manipulate the earnings and protect their interests in the buyouts (Beekes et al., 2004; Begley et al., 2003). The next chapter then aims to explore the influence of corporate governance on accounting conservatism prior to MBOs and third-party LBOs.

Chapter 3: Accounting Conservatism and Corporate Governance: Evidence from Leveraged Buyouts

3.1 Introduction

A leveraged buyout occurs when the equity of a publicly quoted company is purchased by private investors using a high percentage of debt (Fox and Marcus, 1992; Weir et al., 2005a). Since the early 1990s, there has been a significant increase in the number and value of leveraged buyouts in the UK (Weir et al., 2005a). During the years under study, from 1997 to 2011, firms going private generated sales worth £73 billion. As increasingly larger corporations were being targeted, as shown in Appendix Table 3.6, the average deal value rose from £57.3 million in 1997 to £90.8 million in 2011 and reached peak at £1.27 billion in 2006. The UK provides, after the US, the second largest leveraged buyout market in the world, making it possible to examine a large sample of buyouts (Geddes, 2011; Nash, 2011). Leveraged buyouts in the UK have been the subject of much academic interest (e.g. Weir et al., 2005b; Weir et al., 2005a; Weir and Wright, 2006; Wright, 1991; Renneboog et al., 2007), because buyouts are important mechanisms for corporate restructuring and business recovery creating new incentives for managers to engage in self-interested behaviours. Therefore, this study extends the literature on accounting conservatism by examining the effects of managerial incentives on conservatism in the financial reporting choices of firms preceding leveraged buyouts in the UK.

Accounting conservatism is usually perceived, possibly as it indicates that managers have adopted prudent attitudes towards the recognition of economic gains than losses, so that bad news is disclosed in a timelier manner than good news (Basu, 1997). Asymmetric verification due to conservatism has been hypothesised to facilitate efficient contracting between managers and shareholders under the separation of ownership and control (Lafond and Roychowdhury, 2008). Watts (2003a) and Ball (2001) propose that under conservative accounting regimes, managers who care about short-term earnings effects are less likely to exert efforts to overstate current-period earnings for the sake of private benefits. Moreover, accounting standards boards, such as FASB (Financial Accounting Standards Board), which advocates conservatism, further state that conservative accounting reporting is a prudent reaction to the uncertainties and risks of business activities (FASB, 1980; FASB, 2010). As the overstating of current earnings will be offset by an eventual decline in firm value when these overstatements reverse in the future, conservatism helps to address the issues of limited horizons that protects the long-term interests of shareholders (Lafond and Roychowdhury, 2008; Watts, 2003a).

Within the rules, managers can choose a degree to which they practise accounting conservatism. More conservative accounting often tends to be interpreted as a sign of a higher degree of managerial integrity (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010). However, because the asymmetric recognition of losses and gains underlying conservative accounting can directly affect the current value of a firm and managerial self-interests, managers may have different incentives for engaging in accounting conservatism, depending on whether they participate in leveraged buyouts or not. Hence this study has differentiated MBOs from third-party LBOs (Weir et al., 2005a).

As the purchasers will always seek the lowest possible purchase price, while selling shareholders seek the highest possible price, in the case of either MBOs or third-party LBOs, the price paid for the purchase will directly affect the profits accruing to both sides of the transactions. Accordingly, the interests of managers and shareholders may change when buyouts are imminent (Hafzalla, 2009). This makes the MBO setting an ideal context in which to examine the effects of managerial incentives on accounting conservatism for several reasons. First, management's direct involvement in the transaction generates clear incentives for them to engage in opportunistic disclosure behaviours in order to reduce the perceived value of their firm (Elitzur et al., 1998; Fox and Marcus, 1992; Hafzalla, 2009). Second, opportunistically selecting more bad news to disclose but delay the recognition of good news can be effective in managing shareholders' perception of firm value by increasing the information asymmetry between managers and outsiders (Hafzalla, 2009; Perry and Williams, 1994). Therefore, before MBOs, managers have strong incentives to apply more conservative accounting disclosure to manipulate earnings downwards and to reduce the possible purchase price (Beekes et al., 2004; Begley et al., 2003).

In addition, third-party LBO firms, where managers do not participate in the transactions, serve as an ideal comparison group for MBOs (Hafzalla, 2009). Generally, the market valuations of buyout targets are comparatively cheap relative to firms that remain in public (Weir et al., 2005b; Weir and Wright, 2006). This market undervaluation has made the companies become potential candidates for both third-party LBOs and MBOs. However, compared with MBOs, it is more difficult for managers to predict when a third-party LBO is likely to be made. Hence, before managers decide to initial an MBO, their incentives and disclosure behaviours are similar in both cases. But, if managers choose to participate in an MBO, their incentives will have significant changes. Managers' behaviours concerning information disclosure may be different from that of their peers in third-party LBOs afterwards. Since these two transactions are relatively similar, except for management participation, the comparison eliminates the general effects of leveraged buyouts on disclosure behaviours (Hafzalla, 2009).

In contrast to MBOs, managers' long-term job security is threatened prior to third-party LBOs, either because the outside buyers may change the firms' existing management team to improve the efficiency of monitoring and control, or the buyout firms may later be resold. Therefore, in order to minimise the risk of job loss, managers are likely to have strong incentives to apply less conservative accounting disclosure to manipulate earnings upwards to prevent their firm becoming the target of any third-party LBO (Weir et al., 2005b; Renneboog et al., 2007).

However, in either case, managers' opportunistic selection of information to disclose may conflict with the best interests of firms' shareholders. Corporate governance mechanisms are then placed to ensure that the assets of the firms are managed efficiently in the interests of shareholders, thus preventing the inappropriate expropriation of resources by managers (Shleifer and Vishny, 1997; Lara et al., 2009). Accordingly, good corporate governance leads to better controlling and effective motivation schemes, which is expected to restrict managers' self-interested behaviours in information disclosure (Lara et al., 2007). In particular, by effective controlling the behaviours of management, governance mechanisms include board directors, institutional shareholders and internal auditing are expected to ensure that managers are acting in the best interests of shareholders (Ahmed and Duellman, 2007; Beekes et al., 2004). Specifically, good governance control can reduce managers' opportunities to overstate gains or withhold information on expected losses, which push managers to adhere the spirit of conservatism more faithfully. In contrast, poor corporate governance weakens the companies' monitoring and control, and may enable greater managerial discretion to manipulate earnings (Lara et al., 2009; Ahmed and Duellman, 2007).

This study, therefore, examines three research questions. First, what are the differences between the degrees of conservatism prior to MBOs and third-party LBOs? This is important, because managers play a different role in MBO and third-party LBO deals. This difference may be due to different incentives for managers and therefore affect their behaviours. Comparing MBOs with third-party LBOs can provide direct insight in observing the changes of managerial behaviours.

Second, it provides additional insights in analysing: how does the degree of accounting conservatism change over time preceding MBOs and third-party LBOs? This is important because, in leveraged buyouts, buyers wish to pay the lowest possible purchase price, while selling shareholders wish to sell their shares for the highest possible price. The price paid for the buyouts will affect the interests accruing to managers and shareholders (Hafzalla, 2009). Comparing managers' disclosure behaviours over time in MBOs and third-party LBOs provides additional evidence on the extent to which the buyout event can affect managers' incentives and behaviours. Previous literature (e.g. Perry and Williams, 1994) suggest that managers often plan MBOs for a year or occasionally as much as two or three years prior to the public offer. This indicates that earnings could be manipulated by managers at least one annual report before the MBO offer is issued. On the other hand, as managers are more uncertain about the happening of a third-party LBO than an MBO, their behaviours concerning accounting conservatism prior to MBOs and third-party LBOs may differ in both degree and timing. This paper therefore examines the degree of accounting conservatism in the period of three years prior to leveraged buyouts.

Third, this study tests: what are the influences of corporate governance mechanisms that proxy for board control and the strength of managerial incentives on firms' financial reporting conservatism prior to MBOs and third-party LBOs? The period of interests is one year before the announcement of a leveraged buyout, because managers' behaviours of information disclosure may have more obvious change when it is closer to the announcement date of buyouts.

The findings suggest that managers are likely to behave more conservatively in MBO firms than third-party LBO firms. Moreover, the results show that the degree of accounting conservatism may change from less to more conservative for MBOs, but from more to less conservative for third-party LBOs. To measure governance control, this study includes board characteristics and ownership characteristics with regard to CEO duality, the fraction of non-executive members, managerial ownership, non-executive shareholdings, the existence of an audit committee and institutional shareholdings. It is documented that the selected corporate governance variables can significantly affect the degree of accounting conservatism.

Overall, this study contributes to the accounting and corporate governance literature in several ways. First, this study contributes to the accounting literature by providing direct empirical evidence on the effects of managerial incentives on the choice of information disclosure. The MBO setting has provided direct evidence on the links between managerial incentives and disclosure choice, as well as a unique opportunity to observe the change of the degree of accounting conservatism. Comparing the third-party LBOs with MBOs provides an additional insight in observing the changes in managerial disclosure choices as well as the changes to the transaction itself. This is because, contrary to managerial incentives around most events (such as the studies of listed firms, e.g. Jensen and Meckling, 1976; Lafond and Roychowdhury, 2008; Ahmed and Duellman, 2007) to increase firm value, the MBO setting provides specific incentives for managers to decrease firm value, which affects managers to disclose bad news in a more timely manner than good news (Hafzalla, 2009).

Second, this study also contributes to the mergers and acquisitions literature. Much of the buyout literature (Hafzalla, 2009; Weir et al., 2005a; Weir et al., 2005b) suggests that MBOs create conflicts of interests between managers and shareholders in relation to the maximisation of firm value. However, there is little evidence about the mechanisms that managers use to exploit their shareholders. This study provides direct evidence that managers can denigrate the firm value through more conservative accounting disclosure before the announcement of MBOs.

Third, this study aims to contribute to the corporate governance literature by providing additional insights in analysing how governance mechanisms influence managers' behaviour concerning information disclosure in MBO and third-party LBO settings. In MBOs, managers have clear incentives to engage in activities to depress the possible purchase price. By contrast, in third-party LBOs, managers have incentives to manipulate earnings upwards to reduce the possibility of takeover and protect their long-term job security. These activities are clearly conflict with the interests of shareholders. This study documents evidence that the independence of audit committees and institutional shareholdings can significantly affect managers' self-interested behaviours regarding information disclosure prior to MBOs. Moreover, the research finds that CEO duality, the proportion of non-executives, managerial ownership, institutional shareholdings and audit committee independence have significant effects on the degree of accounting conservatism prior to third-party LBOs.

Fourth, this study extends previous research of corporate governance and accounting conservatism, by using updated data from 1997 to 2011 in the UK.

A number of previous studies (e.g. Lara et al., 2009; Ahmed and Duellman, 2007) have examined the relationship between corporate governance and accounting conservatism in the US market, this research provides evidence for the extent to which the US findings can be generalised to a different governance and financial reporting regime. According to Beekes et al. (2004), Aguilera et al. (2006) and O'connell (2006), there are significant differences in the accounting and corporate governance environment between the UK and other countries, which make the UK market a specific setting. For example, compared to the US GAAP, the IFRS is less conservative, which increases the risk that income is overstated in companies' financial statements (Briginshaw, 2008; PricewaterhouseCoopers, 2012). However, UK firms usually have greater institutional ownership than US firms, meaning that they are more actively monitored. As institutional investors tend to have long-term investment horizons (Aguilera et al., 2006; Black and Coffee, 1994), they might pressure managers and boards to perform a more conservative accounting. Additionally, in contrast to US LBO transactions, UK deals have some specific characteristics that may affect managers' incentives concerning information disclosure. For instance, UK LBOs are less likely to be hostile, they tend to involve less debt finance and focus more on target growth opportunities; and they are more commonly financed by privately placed mezzanine rather than junk bonds (Renneboog et al., 2007; Toms and Wright, 2005).

The rest of this chapter is organised as follows. Section 3.2 discusses the theoretical framework and reviews relevant previous empirical research on accounting conservatism. Section 3.3 develops the hypotheses in the setting of third-party LBOs and MBOs. Section 3.4 introduces the sample and presents summary univariate statistics. Section 3.5 analyses and interprets the main findings, and Section 3.6 presents conclusions.

3.2 Literature Review

3.2.1 Accounting conservatism

Basu (1997: 4) recognises conservatism as an asymmetric timeliness of earnings that captures “accountants’ tendency to require a higher degree of verification for recognizing good news than bad news in financial statements”. Hence, conservative accounting is expected to protect the interests of long-term shareholders through requiring a prudent reaction towards uncertainty and risks of firm business (FASB, 1980; Weir et al., 2005a). However, conservatism tends to make firms appear less profitable, which might impact on the share price, if investors cannot recognise that firms are using conservative approaches to accounting (Chan et al., 2009; Chen and Zhang, 2007). As a consequence, under a more conservative accounting system, more bad news is voluntarily disclosed in the short run then recognised in a timely manner than good news, which may reduce firms’ earnings and its share prices. In contrast, when the company makes a less conservative disclosure, managers are opportunistically choosing to reduce the speed of recognising bad news, but recognise good news in a shorter time, which may increase firms’ earnings and share prices in the short-term (Hafzalla, 2009).

Managers may engage in more or less conservative accounting either because of board and institutional investors’ pressure (e.g. Ahmed and Duellman, 2007; Lara et al., 2009; Wang, 2006) or shareholders’ demand to manage inefficient corporate governance (e.g. LaFond and Watts, 2008; Bushman and Smith, 2001; Christie and Zimmerman, 1994). The complementary perspective, suggests that managers have incentives to report accounting information for their own private benefits rather than the interests of shareholders (Christie and Zimmerman, 1994; Healy, 1985; Warfield et al., 1995; Leuz et al., 2003). It is recognised that the published financial statements are an important source of information for managers because accounting numbers are widely used in their compensation contracts (Beekes et al., 2004). Since then, managers may have incentives to withhold from reporting any information that would adversely affect their compensation. In other words, earning related pay creates incentives for managers to manipulating earnings upwards which in turn motivate the managers to disclose good news as gains in a timelier manner than recognise bad news as losses (Watts and Zimmerman, 1986; Beekes et al., 2004). Beekes et al. (2004: 51) suggest that "there is natural tendency for managers to emphasise available good news for their own bonus and promotional prospects". Therefore, the higher levels of earning related pay may push managers to exercise less conservative accounting disclosure in order to maximise their own interests through the immediate recognition of good news as gains. A stronger governance structure may result in an effective control and a better alignment of management, which will favour a more conservative accounting information disclosure (Lara et al., 2009; Chi et al., 2009; Lara et al., 2007). In contrast, boards dominated by insiders or boards with weak monitoring and control incentives are likely to apply less conservative accounting (Ahmed and Duellman, 2007; Wang, 2006).

The substitutive perspective, on the other hand, treats conservatism as a mechanism to capture the agency problems and facilitate efficient contracting between managers and shareholders in the presence of a less solid governance structure (Bushman and Smith, 2001; Christie and Zimmerman, 1994; Watts and Zimmerman, 1986). Watts (2003a) proposes that information asymmetry between managers and other contracting parties could lead managers to use accounting information for the advantage of their own interests. By requiring a higher verification for recognising gains than losses, conservatism decreases managers' ability and incentives to overstate earnings, which further reduces the occurrence of moral hazard problems (Beekes et al., 2004; Lara et al., 2009). Another argument for conservatism facilitating governance, noted by (Ball, 2001), suggests that conservatism plays the role of monitoring and control of firms' investment policies. By requiring more timely recognition of bad news than good news, managers are not able to defer the losses' recognition to the future (Ball and Shivakumar, 2005) and manipulate financial reports upwards (Guay and Verrecchia, 2006) that provide disincentives for managers to undertake poorly performing investments. In addition, Ball and Shivakumar (2005) further suggest that conservatism can quickly trigger debt covenant violations that allow lenders to restrict managers' actions, and thereby increase the efficiency of corporate governance.

3.2.2 The influence of corporate governance

The agency conflicts between managers and shareholders may motivate managers to pursue objectives that differ from those of the owners (Jensen and Meckling, 1976). Managers are then likely to act in their own best interests when opportunities arise, usually at the expense of shareholders (Florackis and Ozkan, 2009). For example, managers are more likely to engage in activities such as shirking their duties, manipulating performance measures and paying themselves excessive salaries and perquisites. The agency conflicts cannot be eliminated completely, because it is too costly to fully enforce shareholder–management contracts (Fama and Jensen, 1983; Jensen and Meckling, 1976). Jensen and Meckling (1976) argue that residual losses arise because the costs of fully enforcing principal–agent contracts would far outweigh the benefits derived from doing so. Therefore, in a world with incomplete contracts, corporate governance mechanisms (such as managerial ownership, board directors, institutional shareholders, internal auditing, etc.) are implemented to mitigate agency conflicts by efficient bonding and control of managerial behaviours (Ahmed and Duellman, 2007; Lara et al., 2009).

With regard to the effects of managerial ownership on managers' incentives, previous studies identify two types of effects: the alignment and the entrenchment. Managerial ownership can align the objectives of shareholders with managers because managers then bear a part of the costs for their actions (Berle and Means, 1932; Jensen and Meckling, 1976). Consistent with this argument, Fama and Jensen (1983) and Morck et al. (1988b) show, theoretically and empirically, that higher managerial ownership generates greater incentives for them to perform in the interests of shareholders. However, the literature (e.g. Florackis and Ozkan, 2009; Mueller and Spitz‑Oener, 2006; Shleifer and Vishny, 1997) provides theoretical evidence that large managerial ownership may signify greater entrenchment, because a high ownership gives the owner-managers the power to disregard the interests of other shareholders and makes it difficult for them to control the behaviours of managers. In turn, managers with high ownership are less likely to be disciplined when they engage in activities that serve their own interests but conflict with those of other shareholders'.

In the context of a third-party LBO, it is expected that the different levels of managerial ownership will provide managers with different incentives in information disclosure. On the one hand, the effective incentive schemes in relation to managerial ownership can generate a great alignment of interests between shareholders and managers. From this point, larger managerial shareholdings are expected to provide managers with stronger incentives to act in line with the interests of other shareholders. This suggests that, as managers and shareholders have fewer conflicts of interest, corporate performance increases and opportunistic managerial behaviour decreases (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010). Thereby, the equity-aligned managers are less likely to apply more conservative accounting disclosure, because it can deliberately cut firms' perceived value via a delay in the recognition of good news as gains, rather than bad news as losses, which act against the maximisation of shareholder wealth (Ahmed and Duellman, 2007; Basu, 1997). However, since the poorly aligned managers will have fewer incentives to perform in the interests of shareholders (Renneboog et al., 2007; Weir et al., 2005b), their behaviours are often disciplined through an effective corporate monitoring and control system which may pressure managers to be more conservative in information disclosure.

On the other hand, ownership may also have entrenchment effects, in that managers with larger shareholdings are likely to have greater control over firms, and therefore can more easily get away with acting in their own interests rather than the interests of other shareholders (Morck et al., 1988b). Since the prediction of a third-party LBO is difficult, managers are likely to be more prudent in accounting reporting when they have larger shareholdings within the firm. Consequently, managerial ownership may have a non-monotonic relation with accounting conservatism.

Consistent with the entrenchment effects, in the context of MBOs, larger shareholdings are expected to provide managers with greater power to engage in self-interested activities. Therefore, managers may apply more conservative accounting disclosure so as to reduce the content of information disclosure to keep managers have an informational advantage over other shareholders and to lower the possible purchase price (Morck et al., 1988b; Hafzalla, 2009).

Moreover, corporate governance mechanisms, including boards of directors, institutional shareholders and internal auditing have played central roles in monitoring and controlling the behaviour of managers, which reduce the agency conflicts between managers and shareholders (Beekes et al., 2004; Lara et al., 2007). Directors are given the power to hire and fire managers, determine managers' compensation and provide advice and outside expertise for managers on proposed strategies (Adams and Ferreira, 2007; Grinstein and

Tolkowsky, 2004; Raheja, 2005). However, since inside directors' behaviours are usually controlled by top managers such as CEOs, the task of monitoring management falls mainly on non-executive members. Existing empirical evidence (Ajinkya et al., 2005; Byrd and Hickman, 1992; Peasnell et al., 2005; Rosenstein and Wyatt, 1990; Weisbach, 1988) generally supports that outside directors play an important part in protecting shareholders' wealth in situations where the interests of managers and owners are inconsistent. In addition, by requiring high quality and transparency of financial statements, institutional shareholders and audit committees can push directors to exert more effective control on and monitoring of managerial behaviour (Lara et al., 2007; Ajinkya et al., 2005; Klein, 2002a). Thus, effective governance control and monitoring are important to limit the potential for suboptimal managerial behaviours.

3.2.3 Previous literature

Existing research has addressed the link between board control and monitoring, and financial reporting quality has focused primarily on the issues of earnings management. For example, Peasnell et al. (2000), Klein (2002a) and Bowen et al. (2008) provide evidence that boards with a higher proportion of outside directors are less likely to engage in income-increasing earnings management. Beasley (1996), Dechow et al. (1996) and Francis et al. (2005) suggest that the incidence of financial statement fraud is lower for firms where there is a higher proportion of outside directors.

A number of recent studies (e.g. Beekes et al., 2004; Lafond and Roychowdhury, 2008; Lara et al., 2009; Lara et al., 2007; Ahmed and Duellman, 2007; Shuto and Takada, 2010) have sought to investigate the link between corporate governance mechanisms and accounting conservatism. Beekes et al. (2004) test the influence of outside directors on monitoring and controlling the behaviours of management in financial reporting (proxied by earnings timeliness and conservatism) for the UK listed non-financial firms from 1993 to 1995. The finding suggests that firms with a high proportion of non-executives are likely to engage in more conservative accounting with regard to the recognition of bad news. Ahmed and Duellman (2007) examines the relationship between board composition and accounting conservatism of the S&P 500 over the year 1999 to 2001. Specifically, they find robust evidence of a negative relation between the proportion of inside directors and conservatism, while a positive relation between outside directors' ownership and accounting conservatism.

Moreover, Lara et al. (2007) examines the association between the board of directors' characteristics and accounting conservatism of Spanish list firms for the period 1997 to 2002. They suggest that firms, where the CEO has lower influence over the function of the board, tend to apply a high degree of accounting conservatism. The influence of the CEO over the board is measured by the index of combining characteristics of board size, the proportion of non-executives, proportion of independent directors, CEO duality, board meeting, the existence of audit /nomination/remuneration committee and executive committee. Lara et al. (2009) focus on the influence of corporate governance provisions, such as board size, CEO duality, outside director ownership and board meetings, on firms' accounting conservatism using US sample during 1992 to 2003. They find that firms with strong corporate governance are more likely to engage in more conservative accounting disclosure.

In addition, Lafond and Roychowdhury (2008) and Shuto and Takada (2010) examine the relationship between managerial ownership and accounting conservatism based on US and Japanese market respectively. They suggest that conservatism is one potential mechanism to address the agency problems. They find that as managerial ownership declines, the severity of agency problem may increase, which also increase the demand for accounting conservatism.

3.3 Hypotheses Development

3.3.1 The role of conservatism in third-party LBOs

In third-party LBOs, public companies are taken private by a small group of outside investors (Fox and Marcus, 1992; Weir et al., 2005b; Weir and Wright, 2006). The direct involvement of outsiders leads to a great uncertainty for managers' job security and their discretion, which ultimately intensifies the incentives for management to engage in opportunistic activities to prevent the potential of any third-party buyouts.

It is known that the only purpose of the acquirers is to extract the maximum profits from their investments (Hafzalla, 2009). Consequently, in most cases, outside investors would like to continue to hire the targets' managers in firms after the buyouts, because they are more familiar with the firms' operations (Renneboog et al., 2007). However, managers' discretion will be constrained after third-party LBOs. This is because professional private equity investors tend to be more active in monitoring and participating in the firms' operations, in order to increase their benefits from firms' actual profitability and dividend payments after the buyouts (Hafzalla, 2009; Weir et al., 2005a; Weir et al., 2005b). Moreover, it is also known that the benefits of outside investors might derive from the re-sale of firms in the future (Hafzalla, 2009; Weir et al., 2005b). Hence, if the bought-out firms plan to relist in the next few years, managers in third-party LBOs may not keep their jobs for a long time, but are threatened by the risk of being fired (Hafzalla, 2009). On the other hand, previous literature (e.g. Weir et al., 2005b; Weir and Wright, 2006) has suggested that, compared to firms that remain public, leveraged buyout targets have a relatively low market value. This undervaluation of the targets may derive from poor decisions of the incumbent management (Weir et al., 2005b; Renneboog et al., 2007). Consequently, outside buyers may make changes to the firm's existing management after buyout, in order to improve the firm's governance as well as its performance (Weir et al., 2005b).

Therefore, it is expected that, before third-party LBOs, managers are likely to apply less conservative (i.e. more aggressive) accounting disclosure to protect their power of control and long-term job security. This is because less conservative (i.e. more aggressive) accounting delays the consequence of reporting a loss for the firm's current performance, which helps managers manipulate earnings upwards (Lafond and Roychowdhury, 2008). Reducing the likelihood of the firm's undervaluation is then expected to be an effective way to avoid the incidence of third-party LBOs (Weir et al., 2005b; Weir and Wright, 2006). In addition, as managers may leave the firm or hold a lower level of ownership after a third-party LBO, less conservative (i.e. more aggressive) accounting may have less impact on the profits of management (Francis and Martin, 2010).

However, compared with MBOs, it is hard for managers to know exactly when a third-party offer is likely to be made; they are only able to predict its potential possibility by identifying some specific signals or characteristics (such as a firm's undervaluation) (Renneboog et al., 2007). Hence, it is difficult to know when does the firm is under the threats of third-party LBOs. Under this situation, less conservative (i.e. more aggressive) accounting disclosure does not benefit the interests of long-term shareholders. This is because any increase from overstating current earnings can be offset by an eventual decline in firm value (Lafond and Roychowdhury, 2008). As the prediction of third-party LBOs is difficult, shareholders tend to be more prudent in earnings manipulation, so as to avoid overpaying the incompetent management. Consequently, before third-party LBOs, managers and shareholders may have a conflict of interest; that is, managers have incentives to apply less conservative accounting to prevent third-party buyouts to keep their power and ensure their long-term job security, while this is not always in the best interests of shareholders. Accordingly, the third-party-LBO setting becomes an ideal setting to compare managerial incentives and the effectiveness of corporate governance mechanisms within the setting of MBOs.

3.3.2 The role of conservatism in MBOs

The most obvious difference between third-party LBOs and MBOs is the involvement of management. Managers' choice to participate in the transactions may be because of hostile or unwanted third-party LBOs of their firm (Shleifer and Vishny, 1987; Fox and Marcus, 1992; Renneboog et al., 2007). Moreover, Hafzalla (2009) suggests that managers' pre-buyout shareholdings, their ability to procure funding and their risk appetite could contribute to the decision to undertake MBOs. On the other hand, third-party LBOs where management are excluded from the transactions can occur when outside buyers want to make changes to the targets' current management team, or they want to enhance their control power within the firms after the takeovers (Hafzalla, 2009). Regardless of who participates in the transactions, MBOs and third-party LBOs tend to be used as an avenue for corporate restructuring and business recovery. As long as firms that are candidates for an MBO are also candidates for third-party LBOs, comparing these two groups of buyouts is appropriate and are ideal settings to examine the accounting information disclosure choice of management (Hafzalla, 2009; Renneboog et al., 2007).

An MBO is the purchase of all the outstanding equity of the firm by incumbent management, so that the current management is likely to remain in post after the buyout (Weir et al., 2005a; Weir et al., 2005b; Wright, 1991). The essential characteristic of MBOs is that the management of the target company "is on both sides of the table, acting on behalf of the shareholders to determine whether a sale is in their interest and to seek the best possible price, all the while acting in their own proprietary interest as purchasers" (Lowenstein, 1985: 732). As management have better information than anybody else involved in the transaction, they are likely to do better as buyers rather than sellers. Consequently, there is a conflict of interests between management and shareholders, because managers can directly benefit from the transactions at the expense of the shareholders (Hafzalla, 2009). A similar dilemma faced Stefano Pessina with the MBO offer to Alliance Boots. He does not manage the firm, but he is the founder of the business, and has a position as a large shareholder and member of the board. Despite the fact that Pessina said he would not be involved in any further discussions about the KKR approach, his involvement apparently affected the buyout process (Moore, 2012).

Management's direct involvement in MBO transactions generates a conflict of interests between the firm's managers, who want to pay the lowest possible purchase price, and the shareholders, who want to sell their shareholdings for the highest possible price (Hafzalla, 2009; Renneboog et al., 2007; Weir and Wright, 2006). More conservative accounting disclosure can reduce the incidence of overstatements and cut the current firm value by delaying the recognition of good news as gains rather than bad news as losses (Ahmed and Duellman, 2007; Basu, 1997; Lafond and Roychowdhury, 2008). Beekes et al. (2004) suggest that managers can successfully manage the firm's value by manipulating the timeliness of the recognition of good or bad news. Hence, prior to MBOs, managers are likely to choose more conservative accounting disclosure, to manipulate the firm's value downwards and to depress their possible purchase price (Hafzalla, 2009; Lafond and Roychowdhury, 2008). According to the arguments for third-party LBOs and MBOs, this study makes hypotheses that:

$H_{3.1a}$: Managers are likely to engage in conservative accounting disclosure prior to MBOs.

$H_{3.1b}$: Managers are likely to engage in more conservative accounting prior to MBOs than prior to third-party LBOs.

However, the degree of accounting conservatism may change over time. Before managers decide to take over the firms themselves, they may have incentives to overstate the value they create to obtain a larger earnings-based bonus (Lafond and Roychowdhury, 2008). Specifically, since financial reports are the primary sources of information to evaluate managerial performance, managers may have disincentives to embrace conservatism faithfully but to seek to offset the downward bias for opportunistic reasons. For example, Watts (2003a) highlight that, as accounting numbers are widely used in management compensation contracts, firms' managers in a situation without accounting conservatism may be able to achieve large earnings-based bonuses through overstating earnings. Weisbach (1988) further suggests that the negative association between financial performance and managerial turnover has created powerful incentives for managers to manipulate reported earnings to further their own interest. Moreover, preventing any competing bid from third-party buyers is also the main task for managers before they initial an MBO. Less conservative (i.e. more aggressive) accounting seeking to increase the current firm's value may reduce the risk and possibility that outside buyers to take over the firm (Ahmed and Duellman, 2007; Lafond and Roychowdhury, 2008). Consequently, the degree of accounting conservatism may change over time prior to MBOs.

On the other hand, managers feel their long-term job security is threatened prior to third-party LBOs (Weir et al., 2005b; Renneboog et al., 2007), which provides strong incentives for managers to prevent being taken over by other outside buyers. Hence, managers are motivated to apply less conservative (i.e. more aggressive) accounting disclosure to a higher extent, to deliberately increase the difficulty of third-party LBOs. However, compared with MBOs, it is hard for managers to know when a third-party LBO is likely to be made; they can only predict it because of some signals (such as undervaluation) (Renneboog et al., 2007). The persistence of less conservative (i.e. more aggressive) accounting disclosure may not fulfil the interests of long-term shareholders, nor the managers themselves. This is because any declared increase in earnings from an overstatement will be offset by an eventual decline in the future (Lafond and Roychowdhury, 2008). Persistently overstating earnings will cause the firm's share price to drop considerably when these overstatements are reversed. Then, the company is likely to suffer takeover threats as the low share price will attract outside investors for an LBO. Shareholders are also more prudent in earnings manipulation in order to avoid overpaying the management. Moreover, persistently overstating earnings may result in poor quality reporting, which is bad for managers' reputations. Managers are less likely to take such actions unless they bring commensurate increases in returns, because these activities may result in higher costs to their own human capital (Francis et al., 2008; Hirshleifer, 1993). Accordingly, it is hypothesised that:

$H_{3.2}$: Before MBOs, the degree of accounting conservatism change over time, from less conservative (i.e. more aggressive) to more conservative.

$H_{3.3}$: Before third-party LBOs, the degree of accounting conservatism change over time, from more conservative to less conservative (i.e. more aggressive).

3.3.3 The impacts of corporate governance mechanisms on accounting conservatism

3.3.3.1 Board characteristics

The board of directors plays a central role of control and monitoring when performing their duties regarding shareholder wealth protection (Ball et al., 2000; Beekes et al., 2004). Both roles imply that the board need to verify information in order to perform their duties. The accounting and financial reporting systems are critical sources of verifiable information that is useful in evaluating the behaviour of management (Ahmed and Duellman, 2007; Bushman and Smith, 2001). Conservative accounting is an important characteristic for the accounting system that reflects managers' behaviours concerning information disclosure (Ahmed and Duellman, 2007; Basu, 1997). Lara et al. (2009) find evidence from a US sample that firms with strong (weak) governance exhibited higher (lower) degrees of conditional accounting conservatism. Therefore, examining the relation between board characteristics and accounting conservatism is interesting.

3.3.3.1.1 CEO duality

The separation of the position of CEO and chairman is the proxy for the influence and power of the CEO (Ahmed and Duellman, 2007; Hermalin and Weisbach, 2001; Baliga et al., 1996). Jensen (1993) argues that CEO duality facilitates the CEO effectively controlling information available to other board members. Cornett et al. (2008) support that CEO duality gives the CEO a concentrated power and position in decision-making. In turn, it is expected that in firms where the CEO has less influence over the board, directors will be more disciplined in disclosing accounting information in the interests of shareholders.

As the prediction of third-party LBOs is difficult, managers and shareholders may have a conflict of interests. That is, if managers want to avoid the firm being taken over so as to adopt less conservative accounting, this is not always in the best interests of shareholders (Lafond and Roychowdhury, 2008). Duality is able to furnish CEOs with power and influence to control the disclosure of accounting information for the sake of their own interests. In line with this, CEOs are able to adopt less conservative accounting disclosure prior to third-party LBOs to avoid being taken over and to maintain their job security and power within the firm.

However, before MBOs, managers are more likely to purchase the company at the lowest possible price (Hafzalla, 2009). Hence, if CEO duality gives CEOs power and influence to control firms' accounting disclosure, managers are likely to apply more conservative accounting before MBOs to manipulate earnings downwards in order to maximise their own interests within a buyout (Ahmed and Duellman, 2007; Beekes et al., 2004). Accordingly, it is hypothesised that:

$H_{3.4a}$: CEO duality is negatively related to accounting conservatism prior to third-party LBOs.

$H_{3.4b}$: CEO duality is positively related to accounting conservatism prior to MBOs.

3.3.3.1.2 Non-executive directors[5]

Non-executive directors have a fiduciary duty towards shareholders to scrutinise the performance of management in meeting agreed goals and objectives (FRC, 2012). Accordingly, non-executives are viewed as a

[5] To alleviate concerns about potential misspecification, this study controls for board size.

governance mechanism to supervise and control the behaviour of managers. Previous research (e.g. Ajinkya et al., 2005) in this area has found that non-executive directors positively influence board decisions aimed at enhancing shareholder interests. Consistent with this argument, Dechow et al. (1996) and Beasley (1996) document a negative association between non-executive directors and the likelihood of financial fraud. The previous work of Lara et al. (2007) and Ajinkya et al. (2005) in studying information disclosure suggests that non-executive directors can mitigate managerial self-interest behaviours by directly reviewing the disclosure policy and earnings releases. In line with this, the Cadbury Report (1992) further suggests that boards should have at least three non-executive directors. However, an alternative view suggests that non-executive directors may be ineffective. Patton and Baker (1987) and Gilson and Kraakman (1991) argue that, in practice, non-executive directors may usually exert little or no real control as they lack the time, expertise and information to challenge the efficiency of management. Following the method Beekes et al. (2004), this study measures this variable as the fraction of non-executive directors on the board.

As discussed before, prior to third-party LBOs, less conservative accounting disclosure may not fulfil the interests of shareholders (Lafond and Roychowdhury, 2008). Therefore, if non-executive directors are able to control managers' behaviours so that they perform in the interests of shareholders, firms that have a greater proportion of non-executive directors are less likely to experience less conservative accounting before a buyout.

However, prior to MBOs, more conservative accounting disclosure may decrease firm value as well as share prices, which harms the interests of shareholders, since more bad news is recognised as losses in a timely manner than good news as gains. Hence, if non-executive directors are helpful in control managers' disclosure behaviour to perform in the interests of shareholders, a higher proportion of non-executives may be negatively associated with more conservative disclosure. According to the above arguments, it is hypothesised that:

$H_{3.5a}$: The proportion of non-executive members is positively related to accounting conservatism prior to third-party LBOs.

$H_{3.5b}$: The proportion of non-executive members is negatively related to accounting conservatism prior to MBOs.

3.3.3.1.3 Audit committee independence

The audit committee has oversight of the process of the firm's financial reporting, including the financial statements, disclosures in regulatory filings and earnings releases (Krishnan and Visvanathan, 2008). It meets regularly with the firm's outside auditors and internal financial managers to review the integrity of the firm's financial statements, and the effectiveness of company's internal financial controls and audit processes (Klein, 2002b; FRC, 2012; Klein, 2002a). Overall, the existing literature has suggested that the audit committee has played the role of arbiter to weight and broker divergent views between managers and shareholders to ultimately produce a balanced and accurate report (Klein, 2002a). Moreover, audit committee members with accounting financial expertise are able to better control the quality of financial reporting through their knowledge, job expectations, economic incentives and reputation (Krishnan and Visvanathan, 2008). Therefore, it is expected that shareholders' interests may be better protected if audit committee members can effectively perform their duties of corporate supervision and control. The independence of audit committees becomes the key factor that affects the performance of duties of their members, because such committees can function effectively only if all members are free from managerial influence (Klein, 2002a). Follow the definition of Klein (2002a), this study defines an audit committee as independent only if all members are outside directors.

As discussed, since less conservative accounting does not benefit shareholders' interests in the long-term, more independent audit committees are helpful to discipline managers' self-interested behaviours, and therefore reduce the probability that managers will apply less conservative accounting disclosure prior to third-party LBOs.

In contrast, prior to MBOs, audit committee independence may negatively associate with more conservative accounting. This is because, prior to MBOs, managers have strong incentives to hide information via more conservative disclosure, in order to increase their profits through the MBOs. Independent audit committee members have the best ability to identify and control managers' self-interested behaviours (Krishnan and Visvanathan, 2008; Klein, 2002a). According to these arguments, it is hypothesised that:

$H_{3.6a}$: Audit committee independence is positively related to accounting conservatism prior to third-party LBOs.

$H_{3.6b}$: Audit committee independence is negatively related to accounting conservatism prior to MBOs.

3.3.3.2 Ownership and shareholdings

3.3.3.2.1 Managerial ownership

The ultimate effects of managerial ownership on agency problems such as the implication of financial reporting conservatism are determined by a trade-off between alignment and entrenchment effects (Short and Keasey, 1999). Agency theory suggests that greater managerial shareholdings generate greater alignment of interests between shareholders and management, which mitigates agency problems between the two parties (Jensen and Meckling, 1976). Therefore, the alignment effect of ownership predicts that managers with larger shareholdings are less likely to expropriate wealth from shareholders, because the wealth of managers is also closely tied to firm value. In contrast, low levels of managerial ownership may generate greater agency costs (Lafond and Roychowdhury, 2008; Jensen and Meckling, 1976; Wang, 2006).

On the other hand, at certain levels, high managerial ownership stakes may signify greater managerial entrenchment. The entrenchment effect suggests that high ownership provides managers with greater control over firms. It is possible that managers with high levels of ownership are less likely to be disciplined when they engage in self-interested actions rather than pursuing shareholders' goal (Lafond and Roychowdhury, 2008). This allows managers to undertake a specific disclosure of accounting information to enrich themselves at the expense of the company or other shareholders' wealth (Shleifer and Vishny, 1997; Lafond and Roychowdhury, 2008). Consequently, considering these two motivations among managers, it is expected that the relation between the level of managerial ownership and their application of accounting is non-monotonic.

As discussed, managers and shareholders may have a conflict of interests prior to third-party LBOs; that is to say, managers have strong incentives to keep the firm from being taken over so as to adopt a less conservative accounting disclosure, but this is not always in the best interests of the other shareholders (Weir et al., 2005b; Weir and Wright, 2006). According to incentive alignment effects, as a greater level of ownership better aligns the interests of managers and outside shareholders, managers may have disincentives to act opportunistically, which helps to improve the firm's performance (Lafond and Roychowdhury, 2008; Shuto and Takada, 2010). Therefore, managers with a higher ownership may be less likely to apply accounting disclosure more conservatively, because it can deliberately cut the firm's perceived value, via timely recognition of bad news as losses while deferring the recognition of good news as gains (Ahmed and Duellman, 2007; Basu, 1997). This undervaluation further increases the risks of an under-priced takeover by outside investors, which may act against the maximisation of shareholder wealth. In contrast, poorly aligned managers may have stronger incentives to perform in line with their own interests rather than those of other shareholders (Weir et al., 2005b; Renneboog et al., 2007). Consequently, managers have incentives to reduce the risks that the firm is being undervalued and taken over, as their compensation will correlated with firm performance and their long-term job security and discretion will be threatened after a buyout (Hafzalla, 2009; Weir et al., 2005b; Beekes et al., 2004). But, a lower degree of ownership may give managers less power on the board, which makes it easier for other board members, who represent the interests of shareholders, to monitor and control them (Lasfer, 2006; Johnson et al., 1993; Peasnell et al., 2003). Hence, managers who are less aligned with shareholders are likely to apply more conservative accounting disclosure due to the impacts of corporate monitoring and control.

On the other hand, at certain levels, managerial ownership may result in managerial entrenchment. Then, managers are more likely to engage in opportunistic behaviours to serve their own interests, since they are less likely to be disciplined. Therefore, managers may apply more conservatism in reporting when they have higher levels of ownership. This is because it is difficult to predict the occurrence of third-party LBOs. Any overstatement of earnings via less conservative reporting will be offset by an eventual decline in the firm's value when these overstatements are reversed in the future (Morck et al., 1988b; Shuto and Takada, 2010). However, this activity may attract outside investors for LBOs, because companies are likely to have a low value once they have withheld good news but released bad news in a timely manner. Considering the influence of the need to attract outside investors for third-party LBOs and potential mitigating effects, it is expected that managerial ownership may have a non-monotonic relation with accounting conservatism. This study therefore makes the hypothesis that:

$H_{3.7a}$: There is a non-linear relationship between managerial ownership and accounting conservatism prior to third-party LBOs.

On the other hand, it has long been recognised that higher levels of ownership can also provide managers with greater power and incentives to engage in activities that satisfy their own interests, but usually at the expenses of other investors (Fama and Jensen, 1983; Shleifer and Vishny, 1987; St-Pierre et al., 1996). That is to say, managers have influence and power to choose the most favourable manner for them to disclose information when their levels of ownership are high. By recognising bad news in a timely manner but delaying or stopping the release of good news, conservative accounting can effectively depress the value placed in the firm’s current performance (Basu, 1997).

Prior to MBOs, higher ownership provides managers with greater power and incentives to apply more conservative accounting so as to lower the purchase price, as well as to increase their own benefits after the buyout. This is because managers’ direct involvement in the transactions has caused them to have a longer horizon and focus more on their interests rather than other investors’ after an MBO. More conservative accounting disclosure can help managers manipulate earnings downwards and depress the possible purchase price for MBOs. Reducing the content of information disclosure can help managers to keep an informational advantage over other shareholders or outside competing bidders (Hafzalla, 2009). Therefore, it is expected that higher managerial ownership provides managers with power and incentives to apply more conservative information disclosure before MBOs. Accordingly, it is hypothesised that:

$H_{3.7b}$: Managerial ownership is positively related to accounting conservatism prior to MBOs.

3.3.3.2.2 Non-executive shareholdings

As discussed above, non-executive directors have a fiduciary duty towards shareholders to control the behaviours of management in meeting the interests of shareholders (Ahmed and Duellman, 2007; Jensen, 1993). However, non-executive directors will not have sufficiently strong incentives and intentions to perform their duties of control if they have little economic affiliation within the firm (Fama, 1980; Vafeas, 2005; Jensen, 1993). Agency theory suggests that the distributions of shareholdings may provide incentives and abilities for non-executive directors to supervise and control management behaviours (Jensen and Meckling, 1976). Previous literature (e.g. Beasley, 1996) suggests that higher non-executive ownership is related to lower likelihood of financial fraud. Accordingly, higher non-executive ownership is expected to enhance the incentives of non-executive directors to fulfil their function of governance control.

As discussed before, since it is difficult to predict the occurrence of third-party LBOs, in the long term perspective shareholders' interests can be harmed via a less conservative approach to accounting disclosure (Lafond and Roychowdhury, 2008). Since higher levels of ownership provide the ability and incentives for non-executive directors to fulfil their function of corporate control to discipline managers' opportunistic behaviours, firms with higher non-executive ownership are less likely to apply less conservative (i.e. more aggressive) accounting prior to a third-party LBO. In line with this, prior to an MBO, higher non-executive ownership may better discipline the behaviours of management and reduce the chances that managers will apply more conservative disclosure to advantage their own interests from a reduced valuation of the firm. Accordingly, this study hypothesises that:

$H_{3.8a}$: Non-executive ownership is positively related to accounting conservatism prior to third-party LBOs.

$H_{3.8b}$: Non-executive ownership is negatively related to accounting conservatism prior to MBOs.

3.3.3.2.3 Institutional shareholdings

As outside investors, institutional shareholders desire and demand more specific, unbiased and accurate disclosure of information regarding the firm's performance (Ajinkya et al., 2005). Prior literature (e.g. Healy et al., 1999; Bushee and Noe, 2000) suggests that institutions prefer to buy shares in firms that have a better degree of disclosure. High levels of shareholdings provide institutional shareholders with a strong incentive to control corporate information disclosure, because they possess greater interests within the firm and enjoy greater power and influence to push the boards to take corrective actions (Shleifer and Vishny, 1986). Consistent with this argument, Jarrell and Poulsen (1987) and Brickley et al. (1988) document that institutional shareholders are likely to vote against harmful actions that reduce shareholder wealth. Higher levels of institutional shareholding provides institutions with incentives and power to push and influence the boards and management to take actions that secure their interests within the firms (Bhojraj and Sengupta, 2003; Ahmed and Duellman, 2007). Accordingly, concentrated shareholdings causes institutional investors to have longer investment horizons, hence stronger power to push the board and management to against the implications of less conservative accounting (Brickley et al., 1988; Ramalingegowda and Yu, 2012). The board of directors may being worried that aggressive accounting may be detected by institutional investors, which might increase the perceived investment risk for institutional investors. Consequently, this study hypothesises that:

$H_{3.9a}$: Institutional shareholding is positively related to accounting conservatism prior to third-party LBOs.

$H_{3.9b}$: Institutional shareholding is positively related to accounting conservatism prior to MBOs.

3.4 Research Design and Sample Selection

3.4.1 Measurements of accounting conservatism

Conservatism represents the principle that the accountants should have prudent reactions in financial accounting and reporting (FASB, 1980). Accounting standards in most countries have advocated conservatism in some form. Examples include *Accounting Standards Board (ASB) No.18, Accounting Policies* (2000), which suggests that the principle of prudence requires that the accounting policies take account of uncertainties when accountants recognise and measure the firm’s assets, liabilities, gains, losses and changes to shareholders’ funds. Accordingly, appropriate accounting policies will require that the companies have more confirmatory evidence and reliability of measurement in recognising the existence of assets or gains than recognising liabilities or losses. Financial Accountant Standards Board (FASB), *Statement* *of Financial Accounting Standards No.5: Accounting for Contingencies* (1975) advocates conservatism which requires that loss contingencies are to be accrued once they are probable and reasonably estimated, but gain contingencies to be delayed until they are realised.

The accounting literature identifies two types of accounting conservatism: unconditional and conditional conservatism. Unconditional conservatism is an ex ante or news-independent conservatism. It reflects the systematic understatement of book values of equity and net assets that are applied prior to (or independently of) related news releases (Ahmed and Henry, 2012; Manganaris et al., 2015). For example, unconditional conservatism may be related to the implementation of accelerated depreciation of long-lived tangible assets or amortisation of assets, or the immediate expensing of R&D expenditure and advertising costs (Chan et al., 2009; Ahmed and Henry, 2012). The implication of unconditional conservatism is expected to be strongly related to firms' taxation considerations and regulation/political reasons (Qiang, 2007; Lara et al., 2009). Ahmed and Henry (2012) suggest that unconditional conservatism that has the outcome of accelerated depreciation also lowers the present value of taxation payments. Watts and Zimmerman (1978) argue that firms are likely to lower their public profile and avoid political scrutiny by choosing accounting methods that minimise their reported earnings.

On the other hand, conditional conservatism is interpreted as news-dependent or ex post conservatism, which requires stricter verification for recognising good news than bad news, resulting in asymmetric sensitivity to economic gains and losses (Basu, 1997). Basu (2005), Ball and Shivakumar (2005) and Qiang (2007) identify that contracting efficiency drives conditional conservatism. Ahmed and Henry (2012) and Guay and Verrecchia (2006) suggest that firms' shareholders would desire conditional conservatism as it assists them in making correct judgements and investment decisions. However, in practice, there will always be a tendency towards the application of accounting conservatism. Chan et al. (2009) suggest that conditional conservatism is associated with a higher degree of managerial discretion, because managers can decide the timing and amount of asset write-down or restructuring charges.

This study, therefore, examines the relationship between board characteristics and conditional conservatism by comparing firms which have experienced MBOs against those which have experienced third-party LBOs. Conditional accounting conservatism is measured based on the following models.

3.4.1.1 Conditional conservatism based on *Basu (1997)*

Accounting conservatism is measured initially using Basu’s (1997) model. Basu (1997) defines conservatism as the asymmetry in reporting earnings timeliness with respect to negative returns (bad news) as compared with positive returns (good news). In an efficient market, share returns incorporate all the information from the market in a timely fashion, and thus are a valid proxy for economic shares to value (Basu, 1997; Dietrich et al., 2007; Ball et al., 2013b). The rationale for specifying accounting income is due to it being a sensitive barometer of financial reporting in general. Since income statement variables are structurally correlated with changes of variables on the balance sheet, income statement timeliness thus is an indicator of financial reporting timeliness (Ball et al., 2013a). Then, in a piecewise linear regression of accounting income on fiscal-period share return, the incremental coefficient on negative share return is assumed to be a valid measure for asymmetric timeliness in recognition of losses (Ball et al., 2013b). This news-dependent conservatism that gives rise to asymmetric timeliness in recognising earnings is termed as ‘conditional conservatism’ (Beaver and Ryan, 2005; Ball and Shivakumar, 2005). Many studies (e.g. Ball et al., 2000; Givoly and Hayn, 2000; Beekes et al., 2004; Krishnan and Visvanathan, 2008; Lafond and Roychowdhury, 2008; Lobo and Zhou, 2006; Yunos et al., 2010; Ahmed and Henry, 2012) have reported that the asymmetric timeliness coefficient is associated with contracting cost-related items and other items predicted to be associated with conditional conservatism, consistent with it being a reliable conditional conservatism measure. Consequently, this study uses Basu's regression as follows:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 r_{i,t} + \alpha_3 r_{i,t} * dr_{i,t} + \varepsilon \qquad (3.1)$$

Where $x_{i,t}$ is the earnings per share (EPS) before extraordinary items for firm *i* in fiscal year *t*; $p_{i,t-1}$ is firm i's price per share at the beginning of the fiscal year *t*; $r_{i,t}$ is the stock return on firm *i* from nine months before fiscal year-end *t* to three months after fiscal year-end *t*; $dr_{i,t}$ is a dummy variable equal to 1 if $r_{i,t}$ is negative, and equal to 0 otherwise. Here, the coefficient α_2 measures the levels of asymmetric timeliness of conservatism with respect to positive returns (or good news); the α_3 measures the levels of asymmetric timeliness of conservatism with respect to negative returns (or bad news).

Basu's model is the most widely used empirical measure of condition conservatism (Callen and Segal, 2013). The timely accounting recognition of bad news (as losses) rather than good news (as gains) has provided fresh insight into understanding the role of conservatism in efficient contracting with the firm (Ball and Shivakumar, 2005). However, there are grounds to question the validity of Basu's coefficient as an indicator of conditional conservatism. In particular, Dietrich et al. (2007) argue that Basu's approach may produce biased results due to earnings driving returns. They also argue that partitioning share return and earnings data by the sign of the share return may produce biased inferences. Bagnoli and Watts (2005), Givoly et al. (2007) and Gigler and Hemmer (2001) suggest that share returns are not equivalent to non-earnings information, and usually reflect good and bad news differentially, depending on firms' disclosure policies. Givoly et al. (2007) and Ball et al. (2013a) argue that Basu's model is criticised because it fails to include some important controls for issues such as information environment, disclosure policies and some risk factors, which may lead to incorrect results. However, many previous studies such as Dhole (2010), Ettredge et al. (2012) and Ball et al. (2013b) have presented strong support for Basu's (1997) experimental methodology that helps to reduce the concerns about its validity.

Moreover, there have been a number of studies that suggest Basu's asymmetric timeliness coefficient is flawed as a proxy for conditional conservatism. Hsu et al. (2012) claim that Basu's coefficient may reflect factors not directly related to conservatism, and that this might adversely affect its validity as an indicator of conditional conservatism. Roychowdhury and Watts (2007), Dietrich et al. (2007) and Patatoukas and Thomas (2011) suggest that Basu's coefficient is not a valid measure of conditional conservatism because it is unduly affected by variables, such as market-to-book ratio. Ball et al. (2013b) propose that Basu's coefficient derives from an interaction between asymmetrically conservative accounting rules and practices and underlying economic characteristics. Moreover, Khan and Watts (2009) and Callen and Segal (2013) suggest that Basu's measure does not provide a rigorous measure of the degree of conditional conservatism. For these reasons, this study uses alternative measures of conditional conservatism to validate the robustness of inferences drawn with Basu's approach. Consequently, this study applies Khan and Watts's (2009) and Ball and Shivakumar (2005) models as robust tests for conditional conservatism.

***3.4.1.2 Firm-specific asymmetric timeliness test of conservatism by** Khan and Watts (2009)*

Basu's measure of conservatism is estimated either for an industry-year, by using a cross-section of firms in the industry, or for an individual firm, by using a time-series of firm-years. However, both estimation methods have limitations. The industry-year measure obscures the cross-sectional variation of firms' conservatism by assuming that all firms in the industry are homogeneous. The individual firm measure obscures timing of changes of the firm's conservatism by assuming that the firm's operating characteristics are stationary. Many changes affecting firms' financial reporting conservatism are likely both time- and firm-specific (Khan and Watts, 2009; Ahmed and Duellman, 2013). Khan and Watts (2009) develop a firm-specific estimation of the timeliness of good news (G-score) and bad news (C-score). The theory of conservatism in Watts (2003a) suggests that conservatism varies with contracts, litigation, taxation and regulation. These four factors vary with the firm's set of investment opportunities. For example, firms with more conservative accounting are likely to have fewer accounting-based compensation contracts, a higher probability of litigation and lower taxable earnings, and are more likely to be unregulated (Khan and Watts, 2009). Therefore, Khan and Watts (2009) modify Basu's (1997) model by capturing a set of the firm's characteristics – the market-to-book ratio, size and leverage – that are commonly used as proxies for the firm's investment opportunity. The G-score and C-score are estimated as follows:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 \mathrm{r} + \alpha_3 r_{i,t} * dr_{i,t} + \varepsilon \tag{3.2}$$

$$G - score_{i,t} = \alpha_2 = \delta_0 + \delta_1 mv_{i,t} + \delta_2 mtb_{i,t} + \delta_3 level_{i,t} + \varepsilon \tag{3.3}$$

$$C - score_{i,t} = \alpha_3 = \theta_0 + \theta_1 mv_{i,t} + \theta_2 mtb_{i,t} + \theta_3 level_{i,t} + \varepsilon \tag{3.4}$$

Where $mv_{i,t}$ is the log of the market value of the equity, $mtb_{i,t}$ is the market value of the equity divided by the book value of the equity, and $level_{i,t}$ is the total debt divided by the total assets. Replacing α_2 and α_3 from equation (3.3) and (3.4) into regression (3.2) yields:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + r_{i,t} * \left(\delta_0 + \delta_1 mv_{i,t} + \delta_2 mtb_{i,t} + \delta_3 level_{i,t}\right) + r_{i,t} * dr_{i,t} * \left(\theta_0 + \theta_1 mv_{i,t} + \theta_2 mtb_{i,t} + \theta_3 level_{i,t}\right) + (\mu_0 + \mu_1 mv_{i,t} + \mu_2 mtb_{i,t} + \mu_3 level_{i,t} + \mu_4 dr_{i,t} * mv_{i,t} + \mu_5 dr_{i,t} * mtb_{i,t} + \mu_6 dr_{i,t} * level_{i,t}) + \varepsilon \qquad (3.5)$$

However, Khan and Watts' (2009) C-score model may have some limitations. First, Dhole (2010) suggests that firm-specific conservatism is not a pure measure for conditional conservatism. It is recognised that the firm-specific conditional conservatism is likely to be influenced by reporting requirements imposed by the specific conditions of firm, industry and the accounting principles. Moreover, firm-specific conservatism may also reflect the way of managers to interpret the accounting principles. Therefore, to some extent, the metric of firm-specific accounting conservatism may not only reflect the levels of conditional conservatism, but also capture aspects of unconditional conservatism (Dhole, 2010). Compare with Khan and Watts' (2009) C-score model, Basu-based (1997) metric model only focuses on conditional accounting conservatism. As the basic assumption of this study suggests that managers tend to engage in different levels of accounting conservatism to protect their interests, this research concerns for conditional conservatism rather than unconditional conservatism.

Second, Lara et al. (2011) suggest that the C-score model has modified the Basu's (1997) model by additionally capturing the firm's characteristics of size, market-to-book value and leverage. However, these three variables are also proxies for risk, which may lead to the C-score being a proxy for these three risk factors. Third, in Khan and Watts' (2009) model, the C-score (bad news) and G-score (good news) are calculated separately. Hence, the research can only test the influence of corporate governance on the levels of asymmetric timeliness of conservatism with either the respect to positive returns (G-score or good news) or with respect to negative returns (C-score or bad news) through separate regression models. In other words, the research may fail to test the influence of corporate governance on accounting conservatism with respect to bad and good news at the same time. Therefore, this study uses the both measures of Khan and Watts' (2009) C-score and Basu (1997) in the analysis.

3.4.1.3 Accruals-based test of conservatism by *Ball and Shivakumar (2005)*

Another measure of conservatism is based on the approach of Ball and Shivakumar (2005), who use regressions based on accruals and contemporaneous cash flows. Basu (1997) suggests that earnings are the sum of cash flow and accruals. The unrealised losses only reduce the current earnings but do not impact on current cash flows, while unrealised gains will not affect current earnings and cash flows. Consequently, the sensitivities of earnings and cash flow to bad news are greater than to good news (Basu, 1997; Ball and Shivakumar, 2005). This study tests the asymmetry in accruals in the model of Ball and Shivakumar (2005):

$$\mathrm{accr}_{i,t} = \gamma_0 + \gamma_1 dcfo_{i,t} + \gamma_2 cfo_{i,t} + \gamma_3 dcfo_{i,t} * cfo_{i,t} + \varepsilon \tag{3.6}$$

Where *accr*$_{i,t}$ denotes annual total accruals in year *t*, standardised by beginning total assets. Accruals are defined as income before extraordinary items. Cash flow from operations. *cfo* $_{i,t}$ denotes the cash flow from operations in year *t*, standardised by total assets at the end of *t−1*. $dcfo_{i,t}$ is a dummy variable which takes the value of 1 if the $cfo_{i,t}$ is negative, and 0 otherwise. It predicts a negative coefficient for cash flow γ_2 and a positive incremental coefficient γ_3 for negative cash flows.

Lara et al. (2009) suggest that the accruals-based model presents the advantages of not relying on market measures, which may reduce the effects due to market inefficiencies. However, I believe that as cash flow and accruals are parts of earnings, the accruals-based model may have an endogeneity problem.

3.4.2 Corporate governance mechanisms

The executive managers are the key agents of the shareholders in charge of the firms' operational strategies and policies. This study uses two proxies of CEO ownership and top executive ownership to measure managerial incentives in relation to accounting conservatism. According to agency theory, greater levels of managerial shareholding may lead to greater goal congruence between managers and shareholders (Jensen and Meckling, 1976). The degree to which the interests of managers are collectively aligned with shareholders' interests, therefore, is also likely to affect the implementation of accounting conservatism during buyouts (Ahmed and Duellman, 2007). Therefore, two proxies for managerial ownership are used. CEO ownership (ceoown) is defined as the number of shares held by the CEO divided by the total number of outstanding shares. Executive ownership (exeown) is defined analogously.

This study uses five governance characteristics that focus on the efficiency of corporate control: (i) CEO duality (*dual*) is a dummy variable that takes a value of 1 if the positions of CEO and chairman of the board are occupied by the same person, 0 otherwise; (ii) the fraction of non-executive directors on boards (*ned*); (iii) audit committee independence (*auditn*) is a dummy variable that takes a value of 1 if all members are outside directors, 0 otherwise; (iv) non-executive ownership (*nedown*) is the percentage of shares held by non-executives; (v) institutional shareholdings *(insti*) are the percentage of shareholdings of institutional investors.

3.4.3 Control variables

In an experiment, it is necessary not only to identify the dependent and independent variables, but also the control variables. It is recognised that the independent variables are the inputs that can cause the dependent variable (Sproull, 2002). The independent variables include the elements or characteristics that can reflect the scope of the research. However, the control variables are usually referred to as constant variables. It is supposed to affect the relationship between the independent and dependent variables, by eliminating or holding the variable constant. During the analysis, the control variable is used to reduce the effects of confound variables on an experiment. (Sproull, 2002; Frankfort-Nachmias and Leon-Guerrero, 2014; Spector and Brannick, 2011; Becker, 2005). In other words, the control variables are factors that can be used to reduce error terms and increase statistical power (Schwab, 2013).

This study controls for the firm size based on the size effects hypothesis. Large firms are likely to face large political costs that may induce managers to be more conservative in financial reporting (Watts and Zimmerman, 1978). However, large firms usually have less information asymmetry, as they produce more public information which, in turn, reduces the demand of shareholders for conservatism (LaFond and Watts, 2008). Moreover, large firms usually have some aggregative projects which can lead to incorrect inferences that reduce the extent of conservative accounting reporting (Givoly et al., 2007). Therefore, firm size may affect the exercise of accounting conservatism. This study controls firm size (*size*) by including the natural logarithm of the firm's total assets as an explanatory variable.

This study includes leverage (*level*) which is measured as the total debt divided by the total assets as a control variable. Firms with higher leverage tend to have greater conflicts between bondholders and shareholders, which in turn affect the contractual demand for conservative accounting. Ahmed et al. (2002) suggest that conservatism can mitigate the conflicts between bondholders and shareholders over dividend policy and reduce the cost of debt. Furthermore, high leverage may imply that lenders have strengthened the supervision of debt covenant violation (Press and Weintrop, 1990). In line with this, lenders will put pressure on managers to employ more conservative accounting practices (Zhang, 2004).

This research controls for market-to-book value (*mtb*) as a proxy of firms' growth opportunities. Roychowdhury and Watts (2007) suggest that low *mtb* indicates the scarcity of growth opportunities. When a company has low *mtb*, managers are tempted to inflate the firm's accounting numbers and maintain the appearance of consistent growth, because growth opportunities indicate the current and future performance of the firm (Summers and Sweeney, 1998). Firms with low growth opportunities may signal financial distress and depress security prices, which provides managers with stronger incentives to avoid recognising economic losses, and thereby apply less conservative accounting disclosure. However, an alternative view (e.g. Ball et al., 2000; Khan and Watts, 2009; Watts, 2003a; Watts, 2003b; Huijgen and Lubberink, 2005) suggests that low growth opportunity firms are likely to face higher expected litigation costs than high growth opportunity firms. Higher expected litigation costs may further motivate managers and auditors to be more conservative in preparing financial statements (Kothari et al., 2009). This is because, if managers are likely to withhold bad news from investors, firms may suffer even greater losses and lawsuits may be triggered when this bad news is revealed. Litigation plays a role of deterrence rather than the incentive to offset moral hazard and adverse selection (Watts, 2003a). The possibility of severe litigation costs will make managers to be more prudent in exercising their discretion to recognise accounting earnings. Consistent with previous studies (e.g.Khan and Watts, 2009), this study defines *mtb* as market value of equity divided by book value of equity, measure at the end of the fiscal year.

This study controls for board size (*boar*) based on the view that by allowing directors to specialise, a large board can lead to a more effective control over a firm's management. For example, Klein (2002b) suggests that a larger board results in fewer committee assignments per director, enabling directors to specialise, which improves the efficiency of monitoring. Moreover, resource dependence theory also suggests that the board of directors is a provision of resources for advice, counsel, legitimacy, communicating information and use of external connections, which could be thought of as the strength of a particular firm (Hillman and Dalziel, 2003; Hillman et al., 2009; Pfeffer, 2003). Consequently, adding more directors to serve on the board can expand the resources directors bring to it, which effectively improves the quality of corporate control (Hillman and Dalziel, 2003). However, large board size can also negatively affect communication within the board, and give non-executive directors an incentive to 'free ride' (John and Senbet, 1998; Jensen, 1993). In this sense, each board member will rely on the other members to monitor management, which affects the effectiveness of board control (Hermalin and Weisbach, 2001). As a consequence, this research follows the standard procedure to control for board size. Consistent with prior studies (e.g. Ahmed and Duellman, 2007), this study measure board size as the natural logarithm of the total number of board directors.[6]

This study controls for a firm's undervaluation, because buyout targets tend to experience low share prices on the market relative to firms that remain public (Weir et al., 2005b; Weir and Wright, 2006). As discussed before, managers may have different reactions towards firms' undervaluation prior to third-party LBOs and MBOs (Hafzalla, 2009). Specifically, prior to third-party LBOs, managers may try to reduce undervaluation by applying less conservative accounting disclosure, either to prevent being taken over or to increase the possible selling price (Hafzalla, 2009; Weir et al., 2005a; Weir et al., 2005b). This is because a low price is always the main factor in attracting the interests of outside investors. Managers are likely to lose their long-term job security and discretion within the firm once it is taken over by any third-party investors.

In contrast, prior to an MBO, managers are likely to use this undervaluation to decrease the firm's purchase price. Consequently, exercising more conservative accounting tends to make firms appear less profitable, which may reduce the possible purchase price (Dechow et al., 1996; Weir et al., 2005b; Hafzalla, 2009). Following the approach of Alford (1992), Bondt and Thaler (1985) and Francis et al. (2005), this study uses industry-adjusted price earnings (*pe*) to measure the extent of the target firm's undervaluation. Firms with a comparatively low price earnings ratio to their industry peers are expected to be undervalued. This is because investors are excessively pessimistic over lower levels of earnings or bad news. If future earnings turn out to be better than expected, the price is considered to be undervalued (Bondt and Thaler, 1985).

[6] As a robust test, this study employs another method to measure board size (BSIZE: the total number of board directors on the board).

3.4.4 Empirical model for tests using Basu (1997) conservatism measure

Using the following empirical model, this study tests the associations between conservatism and six board characteristics, by considering the five control variables discussed above:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 r_{i,t} + \alpha_3 r_{i,t} * dr_{i,t} + \alpha_4 dual + \alpha_5 dr_{i,t} * dual + \alpha_6 r_{i,t} * dual + \alpha_7 r_{i,t} * dr_{i,t} * dual + \alpha_8 ned + \alpha_9 dr_{i,t} * ned + \alpha_{10} r_{i,t} * ned + \alpha_{11} r_{i,t} * dr_{i,t} * ned + \alpha_{12} auditn + \alpha_{13} dr_{i,t} * auditn + \alpha_{14} r_{i,t} * auditn + \alpha_{15} r_{i,t} * dr_{i,t} * auditn + \alpha_{16} managerial\ \ ownership + \alpha_{17} dr_{i,t} * managerial\ \ ownership + \alpha_{18} r_{i,t} * managerial\ \ ownership + \alpha_{19} r_{i,t} * dr_{i,t} * managerial\ \ ownership + \alpha_{20} nedown + \alpha_{21} dr_{i,t} * nedown + \alpha_{22} r_{i,t} * nedown + \alpha_{23} r_{i,t} * dr_{i,t} * nedown + \alpha_{24} insti + \alpha_{25} dr_{i,t} * insti + \alpha_{26} r_{i,t} * insti + \alpha_{27} r_{i,t} * dr_{i,t} * insti + \alpha_{28} level + \alpha_{29} dr_{i,t} * level + \alpha_{30} r_{i,t} * level + \alpha_{31} r_{i,t} * dr_{i,t} * level + \alpha_{32} mtb + \alpha_{33} dr_{i,t} * mtb + \alpha_{34} r_{i,t} * mtb + \alpha_{35} r_{i,t} * dr_{i,t} * mtb + \alpha_{36} size + \alpha_{37} dr_{i,t} * size + \alpha_{38} r_{i,t} * size + \alpha_{39} r_{i,t} * dr_{i,t} * size + \alpha_{40} pe + \alpha_{41} dr_{i,t} * pe + \alpha_{42} r_{i,t} * pe + \alpha_{43} r_{i,t} * dr_{i,t} * pe + \alpha_{44} boar + \alpha_{45} dr_{i,t} * boar + \alpha_{46} r_{i,t} * boar + \alpha_{47} r_{i,t} * dr_{i,t} * boar + \varepsilon \quad (3.7)$$

Where independent variables include: CEO duality (*dual*); non-executive directors (*ned*); audit committee independence (*auditn*); managerial ownership (*ceoown*, *exeown*); non-executive shareholding (*nedown*); and institutional shareholding (*insti*). The control variables include firm size (*size*); leverage (*level*); market-to-book value (*mtb*); price earnings ratio (*pe*); and board size (*boar*).

In Regression 3.7, the coefficient of α_2 measures earnings' timeliness with respect to good news, and α_3 measures the asymmetric timeliness with respect to bad news. In order to test the effects of corporate governance variables on conservative accounting disclosure, this study constructs the regression model by using the interaction effects of governance variables with the indicators of good and bad news. The coefficient of $\alpha_{6,10,14,18,22,26}$ measures the association of α_2 (good news) with independent variables dual, *ned, auditn, managerial ownership, nedown, and insti* respectively; $\alpha_{7,11,15,19,23,27}$ measures the association of α_3 (bad news) with independent variables *dual, ned, auditn, managerial ownership, nedown, and insti* respectively.

3.4.5 Sample and data

The sample of this study consists of all the complete leveraged buyout transactions of UK public firms that took place in the London Share Exchange during 1997−2011 for which full data are available. LBOs are defined as public-to-private transactions in which listed companies were taken over by financial institutions, by the executive directors or another individual blockholder (Weir et al., 2005a). The data is restricted to leveraged buyouts (Thomson One Acquisition Techniques code *(ATC #12)* for UK public companies that are going private *(ATC #11)* only. The initial sample includes 100 third-party LBOs and 145 MBOs during 1997–2011 (see Table 3.7 in the Appendix). After removing those involving financial firms (24 MBOs and 12 third-party LBOs), the final sample consists of 88 third-party LBO and 124 MBO deals. The sample excludes non-UK firms and financial services companies because they are subject to a different set of financial structures, regulatory disclosure requirements and corporate governance systems. To be included, conservatism proxies for the three years preceding LBOs, and complete governance and financial data at the last year-end before the announcement of the buyout are required.

All data is taken from four sources. Deal information and firms' annual reports were collected from the Nexis UK-Lexis database, the Thomson One Banker database and Thomson Research. DataStream was used to access the accounting and financial information. All the corporate governance information was collected by hand from the companies' annual reports.

Table 3.1 Variable names

Variables	Definitions
Dependent variables:	
Earnings per share/price (epsp#)	EPS before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Total accruals (accrb#)	(Δinventory+Δdebtors+Δother current assets-Δcreditors-Δother current liabilities-depreciation)/total assets at the beginning of year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
C-score (cscore)	C-score is linear functions of firm specific characteristics include firm size, market to book value and leverage in Khan and Watts (2009), at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
G-Score (gscore)	G-score is linear functions of firm specific characteristics include firm size, market to book value and leverage, in Khan and Watts (2009), at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Independent variables:	
Cash flow from operation (cfo#)	Cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Negative cash flow from operation (dcfo#)	Dummy variable equal to 1 if CFO is negative, 0 otherwise at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Cash flow from operation * Negative cash flow from operation (dcfocfo#)	Cash flow from operation * Negative cash flow from operation at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Share returns (r#)	Share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Negative returns (dr#)	Dummy variable coded 1 if share return (R#) is negative, 0 otherwise at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Share return * Negative returns (drr#)	Share return * Negative returns at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Audit committee independence (auditn#)	Audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year # (#=1 denote the year Y-1)
CEO ownership (ceoown#)	CEO share ownership as a percentage of the total number of outstanding shares at year # (#=1 denote the year Y-1)
CEO ownership (ceoown#^2)	The square of the CEO share ownership as a percentage of the total number of outstanding shares at year # (#=1 denote the year Y-1)
CEO duality (dual#)	Dummy variable coded 1 if the CEO is also the chairman of the board, 0 otherwise at year # (#=1 denote the year Y-1)
Executive ownership (exeown#)	Executive share ownership as a percentage of the total number of outstanding shares at year # (#=1 denote the year Y-1)

Executive ownership (exeown#^2)	The square of the executive share ownership as a percentage of the total number of outstanding shares at year # (#=1 denote the year Y-1)
Institutional shareholdings (insti#)	Total common shares held by institutional investors divided by total common shares outstanding at year # (#=1 denote the year Y-1)
Non-executive directors (ned#)	Number of non-executive directors divided by the total number of board directors at year # (#=1 denote the year Y-1)
Non-executive shareholdings (nedown#)	Total common shares held by non-executive directors divided by total common shares outstanding at year # (#=1 denote the year Y-1)
Control variables:	
Board size (boar#)	Natural logarithm of the number of board directors at year # (#=1 denote the year Y-1)
Board size (bsize#)	Number of board directors on the board at year # (#=1 denote the year Y-1)
Firm size (size#)	Natural logarithm of firms' total sales at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Leverage ratio (level#)	Total debts divided by total assets at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Market to book value (mtb#)	Market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3)
Price earnings ratio (pea#)	The industry-adjusted price earnings ratio at year # (#=1 denote the year Y-1)

3.5 Results

3.5.1 Descriptive statistics

Tables 3.7 and 3.8 in the Appendix report the descriptive statistics of the variables used in the tests of accounting conservatism and the tests of the association between conservatism and governance in MBO and third-party LBO transactions. Panels A in Tables 3.7 and 3.8 in the Appendix contain the variables used in the Basu (1997), Ball and Shivakumar (2005) and Khan and Watts (2009) regressions, which use asymmetric timeliness of bad and good news as a measure of conservatism. As most leveraged buyouts take about a year or occasionally as much as two or three years to execute (Perry and Williams, 1994), this study performs the analysis of the differences in the degree of accounting conservatism within three years before a leveraged buyout announcement (labelled Y−1, Y−2, Y−3). Panels B in Tables 3.7 and 3.8 in the Appendix contain the governance and financial variables for one year before the announcement of the transactions.

Table 3.2 summarises the results in Panels B of Tables 3.7 and 3.8 in the Appendix for the governance and financial variables. The descriptive statistics of the sample for MBO firms (N=117) and third-party LBO firms (N=80) in the table reports the mean, median, and the number of observations, as well as t-tests on whether the differences between the two types of transactions are significant. Panel A of Table 3.2 reports the summary statistics of dummy variable for firms in the sample indicate that 28.2% of the MBO firms have a chairman of the board who is also the current CEO, which is significantly higher than it in third-party LBO firms (11.3%). This is consistent with the findings in Weir and Wright (2006), who report that MBO firms have a greater incidence of duality. They suggest that managers involved in MBO transactions often display stronger leadership, which might lead to a high incidence of CEO duality. In

71.8% of MBO firms and 90% of third-party LBO firms, the audit committees are wholly composed of non-executive directors (*auditn*). The difference is statistically significantly at 1% level.

Table 3.2 Descriptive statistics for board characteristics and control variables on MBO deals and third-party LBO deals in year Y−1

	MBOs				***third-party LBOs***				***Significance tests***	
Panel A:	*Observations*	*Value*	*Percent*	*Cum.*	*Observations*	*Value*	*Percent*	*Cum*	*z*	*p > |z|*
		0	71.8	71.8		0	88.7	88.7		
dual1	117	1	28.2	100	80	1	11.3	100	2.900***	(0.004)
		0	28.2	28.2		0	10	10		
auditn1	117	1	71.8	100	80	1	90	100	-3.153***	(0.002)

	MBOs			***third-party LBOs***			***Significance tests***	
Panel B:	*Observations*	*Mean*	*Median*	*Observations*	*Mean*	*Median*	*t*	*p > |t|*
ned1	117	0.444	0.429	80	0.532	0.556	-4.495***	(0.000)
ceoown1	117	0.123	0.035	80	0.061	0.006	2.844***	(0.005)
ceoown1^2	117	0.045	0.001	80	0.016	0.000	2.276**	(0.024)
exeown1	117	0.157	0.066	80	0.071	0.013	3.448***	(0.001)
exeown1^2	117	0.062	0.004	80	0.021	0.000	2.854***	(0.005)
nedown1	117	0.055	0.003	80	0.036	0.002	1.211	(0.227)
insti1	117	0.354	0.321	80	0.369	0.370	-0.515	(0.607)
size1	117	17.865	17.802	80	18.413	18.465	-2.413**	(0.017)
level1	117	0.170	0.144	80	0.252	0.230	-3.190***	(0.002)
mtb1	117	2.262	1.225	80	0.826	1.655	1.203	(0.231)
pe1	117	-3.829	-5.280	80	0.700	-3.185	-0.682	(0.496)
boar1	117	1.768	1.792	80	1.881	1.946	-3.113***	(0.002)

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp1: eps before extraordinary item/price at the beginning of year y-1. r1: share returns from 9 months before year 1 end to three months after the year end. dr1: dummy variable coded 1 if share return (r1) is negative, 0 otherwise at year y-1. drr1: share return (r1) * negative returns (dr1) at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1. boar1: natural logarithm of the number of board directors at year y-1.

Moreover, Panel B of Table 3.2 reports the summary statistics of continuous variables for MBOs and third-party LBOs. Of the MBO firms, 44.4% of the directors are non-executives (*ned*). The corresponding percentage of non-executive board members (*ned*) in third-party LBO firms is 53.2%. MBOs tend to have significant lower proportion of non-executives on boards than third-party LBOs. The mean ownership by the CEO is 12.3% in MBOs and 6.1% in third-party LBOs, while the average shareholding of all top executives is 15.7% in MBOs and 7.1% in third-party LBOs. The relatively high values of managerial ownership in the MBO sample are most likely due to the fact that managers are the initiators of the buyouts. Institutional investors own approximately 34.8% of the share in MBO firms and 36% in third-party LBO firms. The non-executives, on average, hold approximately 5.5% ownership in the MBO sample and 3.6% ownership in the third-party LBO sample. As previous research into listed firms by Ahmed and Duellman (2007) finds that outside directors' ownership is about 1.4% in US listed firms during 1999–2001, and Ozkan (2011) reports that UK non-executive directors hold about 2% ownership during 1999–2005, this suggests that buyout firms may have a comparatively large non-executive ownership. This result further indicates that non-executive directors in the leveraged buyout sample may have stronger incentives to protect the interests of shareholders, because a higher level of ownership strengthens their alignment of interests.

In comparison, the means of firm size (*size*), leverage (*level*), and board size (*boar*) are 17.865 (18.413), 0.17 (0.252), and 1.768 (1.881) for MBO firms (third-party LBO firms), respectively. The results indicate that, on average, managers in MBOs are likely to take over firms of smaller size and with lower debt levels. Fox and Marcus (1992) and Hafzalla (2009) suggest that it would be easy for managers to raise funds when the target firms are smaller and have lower debt levels. Moreover, it suggests that MBO targets have smaller board sizes. This is because it may be easier for management to negotiate with smaller boards and persuade them to accept an MBO offer. The average market-to-book value (*mtb*) in MBO firms is 2.262, which indicates that buyout targets have high growth opportunities, while the average *mtb* in third-party LBO firms is 0.826, which indicates that these firms experience a low growth opportunity. This provides further explanation that managers in third-party LBO firms have an incentive to hide bad news from investors due to the low growth opportunity, which may signal financial distress and depressed security prices. In addition, although the average industry-adjusted price earnings ratios (*pe*) are −3.829 for the MBO sample and 0.7 for the third-party LBO sample, the medians of the *pe* ratios are −5.28 and −3.185, respectively. The negative *pe* suggests that buyout targets have smaller price earnings ratios than the industry average, indicating that buyout firms are likely to be undervalued relative to their peer listed companies.

Comparing MBO and third-party LBO firms with regard to these variables yields mixed results. Overall, MBO firms have significantly larger CEO influence and power than third-party LBO firms, based on CEO duality (*dual*) and managerial ownership (*ceoown; exeown*). On the other hand, third-party LBO firms often have significantly stronger boards than MBO firms, because the high levels of non-executives and audit committee independence could provide effective monitoring and control to mitigate managers' self-interested behaviours.

Moreover, compared with MBO firms, third-party LBO firms are significantly larger (*size*) and have larger boards (*boar*), as well as higher leverage ratios (*level*). This is not surprising, because MBO firms tend to be smaller than third-party LBO firms (Weir and Wright, 2006; Weir et al., 2005b). One constraint to the execution of an MBO is that the managers are likely to find it more difficult to raise finance for large firms than for small ones (Hafzalla, 2009). MBO and third-party LBO firms appear to have no significant difference in terms of institutional shareholding (*insti*), non-executive ownership (*nedown*), growth opportunity (*mtb*), and price earnings ratio (*pe*).

3.5.2 Correlation

Tables 3.9 and 3.10 in the Appendix report the Pearson correlation matrix between conservatism measures and governance and control variables in MBOs and third-party LBOs, respectively. The conservatism regression models based on Basu (1997), Ball and Shivakumar (2005), and Khan and Watts (2009) contain many interaction variables. There is a good chance that those variables will be highly correlated. Robinson and Schumacker (2009), Allison (2012), Hayes (2013) and Cohen et al. (2013) suggest that the high correlations of interaction variables can be greatly reduced by 'centring' or 'standardising' the variables. However, the p-value for these interaction variables will be exactly the same, regardless of whether or not they are centred. Moreover, all the results for the other variables including the R-square will be the same in either case. So the multicollinearity has no adverse consequences (Allison, 2012). Therefore, since the p-value for interaction variables is not affected by multicollinearity (Allison, 2012), which is consistent with previous research on accounting conservatism (e.g. Ahmed and Duellman, 2013; Beekes et al., 2004; Lara et al., 2009; Lara et al., 2007), this study ignores the multicollinearity of the interaction variables and then reports the Spearman correlation matrix without interaction variables.

As expected, CEO ownership and executive ownership are highly correlated, with a correlation coefficient of 0.926 and 0.984 in the MBO sample and the third-party LBO sample, respectively. The correlations among other dependent, independent and control variables are less than 0.5 in both the MBO sample and the third-party LBO sample. Earnings before extraordinary items (epsp) is positively correlated with share return (*r*) and negatively correlated with the negative return indicator (*dr*), indicating that reported earnings reflect at least a portion of the information revealed in share returns.

3.5.3 Primary results

3.5.3.1 Conservatism measure

Khan and Watts' (2009) C-score model measures the firm-specific accounting conservatism which is assumed to be the primary approach to testing the degree of accounting conservatism. However, this model may have limitations, because the firm-specific conservatism is not a pure measure for conditional conservatism, but may also capture aspects of unconditional conservatism (Dhole, 2010). Dhole (2010) suggests that the firm-specific conditional conservatism is influenced by reporting requirements imposed by the specific conditions of firm, industry and the accounting principles. Compare with C-score model, Basu's (1997) model focuses only on conditional accounting conservatism, while it does not express the degree of conservatism at firm-year level (Khan and Watts, 2009). Hence, this study also employs Basu's (1997) model in the analysis.

Tables 3.12 to 3.14 in the Appendix calculate and report the asymmetric timeliness of bad (C-score) and good news (G-score) on a firm-specific level based on Khan and Watts (2009) model. In particular, Table 3.12 in Appendix reports the regressions to estimate C-score and G-score. The R-squares in estimate C-score are 0.25 and 0.98 in MBOs and third-party LBOs at year Y-1, 0.11 and 0.66 in MBOs and third-party LBOs at year Y-2, and 0.84 and 0.49 in MBOs and third-party LBOs at year Y-3. These are at acceptable levels, as previous study (e.g. Khan and Watts, 2009) reports that the adjust R-square in the equation to estimate C-score and G-score is 0.24.

Table 3.13, Panels A and B in the Appendix report the descriptive statistics of the G-score (good news) and C-score (bad news) for the MBO sample and the third-party LBO sample in different time periods. In general, Table 3.13 reports that the mean value of C-score (bad news) is 0.254 in MBOs, where a higher C-score indicates a high levels of accounting conservatism. This is consistent with Hypothesis 3.1a that managers are likely to engage in more conservative accounting prior to MBOs. Moreover, comparing the mean and median of the C-score (G-score) suggests that the C-score and G-score distributions are not skewed in MBOs and third-party LBOs in years Y−1, Y−2, and Y−3. The first quartile (*p25*) of the C-score is positive, suggesting that conservatism is a widespread feature of financial reporting in years Y−1 and Y−3 in MBOs, and in years Y−2 and Y−3 in third-party LBOs.

Table 3.14 in the Appendix shows that the Pearson correlations between the C-score and G-score are negative in years Y−1 and Y−2 in MBOs and in year Y−3 in third-party LBOs. This implies that timeliness of bad news recognition (high C-score) is associated with deferring the recognition of good news (low G-score). This is consistent with the argument of LaFond and Watts (2008) that higher asymmetric timeliness (incremental timeliness of bad news over good news) partly stems from lesser timeliness of good news. Hence, the C-score can be used to measure a firm's degree of accounting conservatism.

In addition, Table 3.3 reports the t-tests for the C-score by comparing MBOs to third-party LBOs across years preceding the announcement of buyouts. Panel A reports the differential accounting reporting of MBO firms and third-party LBO firms from the significance tests of C-scores. As reported, MBO firms have significantly higher C-score than third-party LBO firms in year Y−1, and significantly lower C-score in year Y−2. This suggests that, for MBO firms, managers' direct involvement creates strong incentives for them to decrease the firm's value and then decrease their possible purchase price through applying a more conservative accounting disclosure (Hafzalla, 2009).

However, due to concerns about job losses or future restrictions, a third-party LBO may ultimately intensify managers' incentives to reduce the risks of the firm's undervaluation and prevent a third-party buyout via less conservative (i.e. more aggressive) accounting disclosure. This is because, after a third-party LBO, the new owners may make changes to the ineffective management of the target firm, in order to maximise their interests through improved firm governance and performance (Renneboog et al., 2007). Moreover, new owners are likely to benefit from the resale of the firm in the future (Hafzalla, 2009; Weir et al., 2005b). However, these activities may directly affect managers' long-term job security and their discretion within the firm (Weir et al., 2005a; Weir et al., 2005b). This is consistent with Hypothesis 3.1b, that MBO firms are likely to apply more conservative accounting than third-party LBO firms one year before the buyout is announced. Comparing third-party LBOs with MBOs provides direct evidence that managers have different incentives in these settings, which further affect their choices about information disclosure differently.

Moreover, the average values of the C-score are −0.271 (0.254) and 0.0657 (−6.558) for MBO and third-party LBO firms in year Y−2 (Y−1). This result supports the theoretical inference and indicates that when managers do not participate in an MBO, they may have strong incentives to apply low levels of conservative (i.e. high levels of aggressive) disclosure to protect their own interests from the firm's increased performance (Lafond and Roychowdhury, 2008).

Furthermore, this result may also suggest that when there is no potential threat of a third-party LBO, managers may have incentives to apply high levels of conservative accounting. This is because the overstatements will be offset by an eventual decline in the future; persistently less conservative (i.e. more aggressive) accounting disclosure may hurt earnings in the long-term view. In addition, a significant reversal of overstatements may imply a poor quality of financial report. Such poor quality financial reporting is bad for managers' reputation and may even affect their job security, especially when the company is taken over by other firms. In turn, managers are less likely to take actions that result in poor quality reporting in order to protect their reputations (unless such actions bring commensurately increased interests in returns) (Francis et al., 2008; Hirshleifer, 1993). Francis et al. (2008) and Hirshleifer (1993) suggest that reputable managers are likely to avoid such actions, as they may have more to lose in terms of their own human capital (e.g. reputation). Therefore, due to the concern over their reputation and their own interests, it is necessary to test whether the degree of accounting conservatism may change over time.

Table 3.3 Information disclosure descriptive statistics on MBO deals and third-party LBO deals in years Y−1, Y−2, and Y−3, based on Khan & Watts's (2009) model

Panel A: C-Score (Bad news) compare MBOs with third-party LBOs

	MBOs		***third-party LBOs***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
Y-1	119	0.254	87	-6.558	92.712***	(0.000)
Y-2	118	-0.271	83	0.657	-7.587***	(0.000)
Y-3	113	0.371	74	0.328	0.876	(0.383)

Panel B: C-Score (Bad news) compare year Y-1 with Y-2

	Y-1		***Y-2***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	118	0.254	113	-0.302	7.062***	(0.000)
third-party LBOs	81	-6.551	70	0.654	-55.812***	(0.000)

Panel C: C-Score (Bad news) compare year Y-1 with Y-3

	Y-1		***Y-3***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	118	0.254	110	0.365	-2.280**	(0.024)
third-party LBOs	81	-6.551	68	0.310	-71.283***	(0.000)

Panel D: C-Score (Bad news) compare year Y-2 with Y-3

	Y-2		***Y-3***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	113	-0.302	110	0.365	-7.425***	(0.000)
third-party LBOs	70	0.654	68	0.310	3.192***	(0.002)

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in Khan and Watts (2009), at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in Khan and Watts (2009), at year # (#=1,2,3 denote the year Y-1, Y-2, Y-3).

Turning to the question of how the degree of conservatism changes over time prior to a buyout, Panels B, C and D of Table 3.3 report the significance tests of the C-score by comparing its differences in years Y−1, Y−2, and Y−3, in both the MBO sample and the third-party LBO sample. The results in Panel B show that MBO firms are likely to apply more conservative accounting in year Y−1 than year Y−2. Initially, the changes of the degree of accounting conservatism across years indicate that an MBO could provide managers with significantly stronger incentives to behave opportunistically in recognising gains versus losses one year before the announcement of a buyout. This is consistent with previous studies (e.g. Perry and Williams, 1994) that managers often plan MBOs for a year or occasionally as much as two or three years prior to the public offer. Besides, it provides further evidence that managers' choice to participate in transactions makes them focus on their own interests, especially those after the buyouts (Hafzalla, 2009; Lafond and Roychowdhury, 2008). Managers involved in MBO transactions are trying to pay the lowest possible purchase price. Therefore, they may choose to disclose accounting information more conservatively to reduce the perceived value of the firm when they initiate an MBO offer (Hafzalla, 2009).

Moreover, since managers have to undertake the costs of overstatements when these overstated earnings are reversed after an MBO, more conservative accounting disclosure reduces the incidence of overstatements, which is in the interests of managers (Lafond and Roychowdhury, 2008). However, as discussed previously, before managers initiate an MBO offer, they may have incentives to apply a less conservative accounting disclosure, either to overstate the value they create to obtain a larger earning-based bonus or to prevent any competing bid from third-party buyers (Lafond and Roychowdhury, 2008). Therefore, this is consistent with Hypothesis 3.2 that, prior to MBOs, the degree of accounting conservatism changes over time, from less conservative (i.e. more aggressive) to more conservative.

In addition, the results in Panels C and D of Table 3.3 show that managers are likely to be more conservative in year Y−3 than in years Y−2 and Y−1. These results may indicate a mean reversion such that, before managers initiate an MBO, they are less likely to implement less conservative (i.e. more aggressive) disclosure persistently. As overstatements from current earnings will be offset through an ultimate decline in the firm's value, persistent less conservative (i.e.

more aggressive) accounting financial information may result in poor quality reporting. Because managers who currently have good reputations are likely to avoid taking actions that result in higher costs to their own human capital (unless such actions bring commensurate increases in returns), they are less likely to persistently apply more aggressive accounting disclosure (Francis et al., 2008; Hirshleifer, 1993). Therefore, this result further supports the proposal that managers' disclosure behaviours will vary over time depending up their own interests within the firm.

Conversely, the results in Panels B, C, and D of Table 3.3 report that third-party LBO firms have a significantly higher C-score in year Y−2 or Y−3 than in year Y−1. This indicates a mean reversion in that managers are likely to reduce the possibility of the firm's undervaluation and decrease its risk of being taken over, by applying less conservative (i.e. more aggressive) accounting disclosure (Hafzalla, 2009; Weir et al., 2005b; Dechow et al., 1996). As the prediction of third-party LBOs is difficult, it may simply be impossible to carry out more aggressive accounting disclosure over long periods. Managers are likely to avoid taking such action, because the persistence of less conservative (i.e. more aggressive) accounting disclosure may result in poor quality accounting reporting that is harmful for managers' reputation (Francis et al., 2008; Hirshleifer, 1993). Therefore, the degree of accounting conservatism may vary over time prior to third-party LBOs. This is consistent with Hypothesis 3.3, that managers may change the degree of accounting conservatism from more to less conservative (i.e. more aggressive).

In addition, the results of the t-tests in Panels B and C of Table 3.3 show that the third-party LBO sample has a much larger coefficient than the MBO sample. This suggests that firms are likely to make more obvious changes in accounting information disclosure when they are faced with a third-party LBO rather than a MBO. Third-party LBOs are special events that may sometimes push managers to make disclosure choices that are bad for shareholders but good for the managers. This provides further evidence for the analysis of managerial incentives in third-party LBOs that the threat of long-term job security and discretion will significantly affect managers' behaviour regarding disclosure.

Moreover, Table 3.11 in the Appendix reports the results of the ordinary least squares regressions using the standard Basu (1997) model to estimate the timeliness of earnings. It is found that the R-squares for the accounting conservatism measure based on Basu (1997) model are 0.2 and 0.118 for MBOs and third-party LBOs at year Y-1, 0.02 and 0.11 for MBOs and third-party LBOs at year Y-2, and 0.04 and 0.13 for MBOs and third-party LBOs at year Y-3. These are at an acceptable level, as previous literature (e.g. Lara et al., 2009; Basu, 1997) reports that the R-squares for the estimation of accounting conservatism are range from 0.07 and 0.13.

Table 3.4 summarises the results of the estimation for firms' conditional conservatism in Appendix Table 3.11. The regressions are based on the standard Basu (1997) model, which examine the timeliness of good (*r#*) versus bad news (*drr#*)[7] for the MBO sample and the third-party LBO sample in years Y−1, Y−2 and Y−3 respectively. In general, the main parameter of interest in Model 1, the coefficient of *drr* (bad news), is statistically significant at the 5% level and has a predicted positive sign in year Y−1. This is consistent with Hypothesis 3.1a, that MBO firms are likely to disclose information conservatively before the announcement of an MBO. This result suggests that managers' participation in buyouts has made them focus on their own interests to decrease the possible purchase price (Hafzalla, 2009; Lafond and Roychowdhury, 2008). Conservatism is in the interests of managers prior to an MBO, because more conservative disclosure is helpful in reducing firms'

[7] r#: Negative share return in year #; drr#: Negative share return in year # (#=1,2,3 denote the years Y-1, Y-2, Y-3).

perceived value (Hafzalla, 2009). The coefficients of *r* (good news) and *drr* (bad news) for MBO firms are insignificant in years Y−2 and Y−3, indicating that asymmetric timeliness of earnings is not obvious in this time period. This result supports the findings in previous studies (e.g. Perry and Williams, 1994) that managers' decisions whether to conduct an MBO or the point at which they start achievably working towards it often take no longer than a year.

In Table 3.4, Models 4 and 6 are significant at $p<0.05$. The coefficients of *drr*[8] (negative share returns) for third-party LBO sample are positively significant in years Y−1 and Y−3, which implies that third-party LBO firms tend to disclose bad news in a timely manner over the period. This further suggests that third-party LBO firms are likely to apply conservative accounting disclosure in years Y−1 and Y−3. In other words, conservative accounting reporting is less likely to continue to be used over the testing period before a third-party LBO. This means that there might have a mean-reversion, the degree of accounting conservatism may change according to managers' incentives over time preceding the announcement of buyouts.

[8] drr#: Negative share return in year # (#=1,2,3 denote the years Y-1, Y-2, Y-3).

Table 3.4 Summary of Table 3.11 in the Appendix – Results from cross-sectional regressions of beginning of period price deflated earnings on contemporaneous annual returns based on the Basu (1997) model

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 r_{i,t} + \alpha_3 r_{i,t} * dr_{i,t} + \varepsilon$$

		MBOs				*third-party LBOs*		
		Y-1	*Y-2*	*Y-3*		*Y-1*	*Y-2*	*Y-3*
		Model1	Model2	Model3		Model4	Model5	Model6
Variables	Expected sign	epsp1	epsp2	epsp3	Expected sign	epsp1	epsp2	epsp3
dr1		+				+*		
r1	-	+			+	+		
drr1	+	+**			-	+*		
dr2			+				+	
r2	-/+		+		-/+		-	
drr2	+/-		+		+/-		+**	
dr3				+				-
r3	+			+	-			-
drr3	-			+	+			+**
F-test		+***	+	+		+**	+	+**

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3).

3.5.3.2 Accounting conservatism and board characteristics

Equation (3.7) in section 3.4.4 examines the association between six corporate governance variables, including CEO duality (*dual*), audit committee independence (*auditn*), non-executive ownership (*nedown*), managerial ownership (*ceoown/exeown*), non-executives (*ned*), institutional shareholding (*insti*), and accounting conservatism in MBO firms and third-party LBO firms one year before the announcement of a buyout. The results are presented in Table 3.15 of the Appendix.

In Table 3.15 of the Appendix, the research finds that the R-square in examining the influence of corporate governance on accounting conservatism are 0.51 and 0.92 in MBOs and third-party LBOs. This is an acceptable level. The previous literature (e.g. Beekes et al., 2004) examines the link between board composition and accounting conservatism and reported the R-square are 0.15. Lara et al. (2007) report that the R-square in examining the effects of corporate governance on accounting conservatism is 0.15. Lafond and Roychowdhury (2008) find that the R-square for the effects managerial ownership on accounting conservatism is 0.34. Shuto and Takada (2010) identify that the R-square is 0.13 in the relation between managerial ownership and accounting conservatism.

Table 3.5 summarises the results from the estimations in Table 3.15, focusing on the sign and statistical significance of the coefficients of the corporate governance variables only. Models 13 and 14 present the results of MBO firms using ownership by CEO and all top executive managers respectively, while Models 15 and 16 run the same tests for third-party LBO firms. As discussed earlier, prior to MBOs, less conservative accounting is likely to function in the interests of shareholders, as managers are likely to make firms appear less valuable to reduce the value of the takeover (Weir et al., 2005b; Weir and Wright, 2006). However, prior to third-party LBOs, more conservative accounting tends to protect the long-term interests of shareholders, because the prediction of third-party LBOs is difficult (Weir and Wright, 2006; Hafzalla, 2009). It is found that the high level of CEO duality (*dual*), audit committee independence (*auditn*) and non-executive ownership (*nedown*) may allow managers to apply less conservative (i.e. more aggressive) accounting disclosure prior to a third-party LBO. Higher percentages of non-executive directors (*ned*), managerial ownership, and institutional shareholding (*insti*) may lead to more conservative disclosure before a third-party LBO.

However, compared with third-party LBO firms, corporate governance mechanisms, including CEO duality (*dual*), non-executive ownership (*nedown*), managerial ownership (*ceoown/exeown*), and non-executives (*ned*) do not have significant effects on managers' choice of a conservative approach in MBO firms. For MBO companies, audit committee independence (*auditn*) is significantly negative correlated with conservatism, while institutional ownership (*insti*) is significantly positive correlated with conservatism.

Concentrating first on third-party LBO firms, Models 15 and 16 report that CEO duality has a significantly negative relation with bad news (*r* dr*dual*) but a significantly positive relation with good news (*r* dual*). The results suggest that third-party LBO firms with CEO duality are likely to have greater asymmetry in recognising bad news as losses, rather than good news as gains. That is to say, such firms are likely to recognise good news as gains in a timely manner, but delay the recognition of bad news as losses. Therefore, this is consistent with Hypothesis 3.4a that CEO duality may result in firms applying less conservative (i.e. more aggressive) accounting prior to the announcement of third-party LBOs. This indicates that, prior to a third-party LBO, duality could enable CEOs with the power to control firms' information disclosure for the sake of their long-term job security and control power within the firm.

In Model 16, the coefficient of *r* dr*ned* (bad news) is positive and significant, indicating that third-party LBO firms with a higher proportion of non-executive directors on the board will recognise bad news in a more timely manner. This does not reject Hypothesis 3.5a, that a higher proportion of non-executive directors on the board may effectively control managers' behaviours and encourages them to apply more conservative accounting disclosure prior to a third-party LBO. This is consistent with the findings of Beekes et al. (2004), which suggest that a higher proportion of non-executive directors are helpful in controlling the disclosure behaviour of management to act in the interests of shareholders prior to third-party LBOs.

Table 3.5 The summary results of Table 3.15 in the Appendix - Relation between asymmetric timeliness (accounting conservatism) and board characteristics in year Y−1. Dependent variable: EPS before extraordinary item divided by the price at the beginning of year Basu (1997) model

	MBOs			***third-party LBOs***		
		Model13	Model14		Model15	Model16
Variables	*Expected Sign*	*epsp1*	*epsp1*	*Expected Sign*	*epsp1*	*epsp1*
rdual1	-	-	-	+	+***	+***
drrdual1	+	+	+	-	-***	-***
rned1	+	+	+	-	+	+
drrned1	-	+	+	+	+	+*
rauditn1	+	+	+	-	+***	+***
drrauditn1	-	-*	-*	+	-***	-***
rceoown1	-	-				
drrceoown1	+	+				
rexeown1	-		-			
drrexeown1	+		+			
rceoown1^2				-	-***	
drrceoown1^2				+	+***	
rexeown1^2				-		-***
drrexeown1^2				+		+***
rnedown1	+	+	+	-	+***	+***
drrnedown1	-	-	+	+	-***	-***
rinsti1	-	-***	-***	-	-*	-**
drrinsti1	+	+**	+**	+	+*	+**
F-test		+***	+***		+***	+***

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp1: eps before extraordinary item/price at the beginning of year y-1. r1: share returns from 9 months before year 1 end to three months after the year 1 end, 1 (1=1,2,3 denote the year y-1, y-2, y-3). dr1: dummy variable coded 1 if share return (r1) is negative, 0 otherwise at year y-1. drr1: share return (r1) * negative returns (dr1) at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

The coefficient for audit committee independence on bad news (*r* dr*auditn*) is negative and significant at the 1% level, which suggests that before third-party LBOs, there is greater deferral of bad news recognition when firms' audit committees consist wholly of non-executives. Further, the coefficient on good news (*r*auditn*) is significantly positive, indicating that as audit committees become more independent, it is likely that the recognition of good news on earnings will be timely in third-party LBO firms. Then, audit committee independence is negatively associated with accounting conservatism prior to third-party LBOs. Surprisingly, the result is inconsistent with the expectation in Hypothesis 3.6a. This might be because the third-party LBOs are more difficult to predict. The non-executives might unable aware of the potential conflicts of interests between managers and shareholders prior to third-party LBOs. The audit committee independence may not be effectively working on protecting the shareholder interests preceding a third-party LBO. Moreover, this result may be consistent with the substitution effect; as independent audit committees can closely monitor and control managers' behaviours within firms, firms with a highly independent audit committee are less likely to require more conservative practices (Yunos et al., 2010).

This research tests the possibility of a non-linear relationship between managerial ownership and accounting conservatism in all samples but only finds significant results in the third-party LBO sample. Primarily, this study employs CEO ownership to test its effects on accounting conservatism, because CEOs are the key agents of the firm and are in charge of business operations (Lafond and Roychowdhury, 2008). In Model 15, the coefficient for CEO ownership on bad news (*r* dr*ceoown*^2) and good news (*r*ceoown*^2) are significantly positive and negative respectively. This indicates that there is a 'U-shaped' relationship between managerial ownership and accounting conservatism prior to third-party LBOs. These results are consistent with Hypothesis 3.7a, that the relationship between CEO ownership and accounting conservatism is significantly negative for low levels of CEO ownership but positive for high levels. Thus, this result verifies the inference that at low levels, due to the effects of incentives, greater managerial ownership better aligns managerial and shareholder interests. Then, managers have a disincentive to act opportunistically. Therefore, managers with a higher ownership stake are less likely to apply higher conservatism practices, because they can deliberately cut firms' perceived value, which is harmful to shareholders' interests (Ahmed and Duellman, 2007; Basu, 1997).

In contrast, managers whose interests are less aligned with shareholders may have stronger incentives to protect their own interests rather than those of other shareholders (Weir et al., 2005b; Renneboog et al., 2007). But, a low level of ownership does not provide managers with strong control power over the board. Then, prior to third-party LBOs, managers whose interests are less aligned with shareholders may be easily monitored and controlled by other board members to apply more conservative disclosure in the interests of long-term shareholders (Lasfer, 2006; Johnson et al., 1993; Peasnell et al., 2003).

Moreover, this result provides evidence that at high levels, due to the effects of entrenchment, large shareholdings provide managers with greater control over firms. Hence, managers are more likely to looking out for their own interests but less likely to be disciplined. Managers are likely to apply higher levels of conservatism in financial reporting when they have higher ownership. This is because the prediction of a third-party LBO is difficult. Overstated earnings arising via less conservative reporting will be offset by an eventual decline in firm value when these overstatements are reversed in the future (Morck et al., 1988b; Shuto and Takada, 2010).

To access the economic significance of the effect of managerial ownership on asymmetric timeliness of earnings, note that in Model 16, this study alternatively tests executive ownership (*exeown*). The results indicate that for third-party LBO firms, the relationship between managerial ownership and accounting conservatism is consistent when using CEO ownership and executive ownership.

In third-party LBOs, the coefficients for non-executive ownership on bad news (*r*dr*nedown*) and good news (*r*nedown*) are negative and positive respectively at a significance level of 1%. This is contrary to the expectations in Hypothesis 3.8a. It suggests that an increased level of non-executive ownership does not have any incentive effects that encourage non-executives to support a higher degree of conservatism. However, this finding may be consistent with the substitution effect, that as firms are closely monitored by non-executive directors, non-executives are less likely to require higher conservatism practices (Yunos et al., 2010).

In third-party LBOs, the coefficients for institutional ownership on bad news (*r*dr*insti*) and good news (*r*insti*) are significantly positive and negative as predicted. The results indicate that, as institutional ownership increases, firms are likely to apply more conservative accounting. This evidence has confirmed Hypothesis 3.9a, that the concentration of shareholding has caused institutional investors to have longer investment horizons, and hence made them have a greater incentive to push the board and management apply for conservative accounting (Brickley et al., 1988; Ramalingegowda and Yu, 2012). In turn, higher ownership may provide institutional shareholders with strong power and influence to pressure the board to take actions that secure their long-term interests within the firms (Shleifer and Vishny, 1986; Bhojraj and Sengupta, 2003; Ahmed and Duellman, 2007).

In the MBO sample, the coefficient for audit committee independence on bad news (*r* dr*auditn)* is negative and significant at the 10% level. As non-executives may able aware of potential conflicts of interests between managers and shareholders prior to MBOs, more independent audit committee are likely to support less conservative accounting to protect the interests of shareholders. The result confirms the expectation (Hypothesis 3.6b) that a more independent audit committee will better constrain managers' opportunistic disclosure behaviours to avoid them deliberately cutting firms' perceived value, by requiring them to recognise bad news in a less timely manner in MBO transactions. This result is consistent with the existing literature (Klein, 2002b; Klein, 2002a) showing that audit committees have played the role of arbiter to produce a balanced and accurate report. In order to reduce the possibility that firms are undervalued, more independent audit committees are likely to support less conservative accounting disclosure prior to MBOs. This also suggests that the temptation to manipulate earnings might be more obvious to see in MBOs than in third-party LBOs.

Moreover, the coefficient for institutional ownership on bad news (r*dr*insti)/good news (r*insti) are positive/negative with a p-value<0.05/0.01 in MBO setting. These results are consistent with Hypothesis 3.9b, suggesting that greater institutional ownership is associated with more conservative accounting disclosure. This indicates that concentrated ownership can cause institutional investors to have longer investment horizons, which further provides them with incentives and power to push the boards to take actions to protect their long-term interests within the firm (Brickley et al., 1988; Ramalingegowda and Yu, 2012).

However, in contrast to the findings on third-party LBO firms, CEO duality (*dual*), the proportion of non-executives (*ned*), managerial ownership (*ceoown/exeown*) and non-executive shareholdings (*nedown*) have insignificant effects on firms' choice of accounting conservatism in the MBO sample. The insignificant relations between CEO duality (*dual*), managerial ownership (*ceoown/exeown*) and conservatism indicate that managers' involvement in MBOs can provide them with stronger incentives that affect their behaviours of information disclosure, independent of their duality and prior shares in the firm.

Moreover, no evidence is found that the higher proportion of non-executives (*ned*) and the distribution of non-executive ownership (*nedown*) in MBO firms can effectively discipline managers' behaviours. This may indicate that these governance mechanisms have failed to effective monitoring and control managers' opportunistic behaviours prior to MBOs. This is consistent with Patton and Baker (1987) and Gilson and Kraakman (1991) that, in practice, non-executive directors may perform little or no real control over management's behaviour, because they lack the time, expertise and information to challenge the efficiency of management.

The different findings of the effects of corporate governance on accounting conservatism in MBOs and third-party LBOs may indicate that it is more difficult for governance mechanisms to control managers' opportunistic behaviours in MBOs than in third-party deals. This might be because of the unique characteristics of accounting conservatism that are to the benefit of the long-term interests of shareholders. Therefore, although conservative accounting may harm the interests of current shareholders during the takeover, it may be more difficult for the other board of directors to challenge the decision of managers to apply a more conservative accounting disclosure.

Turning to control variables, the effects of leverage (*level*), market-to-book value (*mtb*), price earnings ratio (*pe*) and board size (*boar*) on firms' choice of conservatism are different in MBO firms and third-party LBO firms. The significantly positive coefficient on *r*dr*level* and significantly negative coefficient on *r*level* in the third-party LBO sample indicate that firms with greater leverage (*level*) are likely to perform more conservatively. This finding is consistent with the nature of asymmetric payoffs to debtholders (Ahmed et al., 2002; Press and Weintrop, 1990; Zhang, 2000; Lafond and Roychowdhury, 2008).

The coefficient on *r*dr*mtb* in the MBO sample confirms the negative relation between accounting conservatism and market-to-book value (*mtb*), as documented in previous studies (Lafond and Roychowdhury, 2008; Roychowdhury and Watts, 2007). The coefficient on *r*dr*pe* is negatively significant, which implies that there is less timeliness in earnings with respect to bad news in firms with a higher extent of undervaluation. This may be because managers are likely to reduce the possibility of competing bids when they are planning to initial an MBO.

3.5.4 Additional analysis

Tables 3.16 to 3.20 in the Appendix contain a number of additional robustness tests. First, Tables 3.16 and 3.17 report the results of testing firms' information asymmetry and the difference of conservatism between MBO and third-party LBO across certain years utilising Ball and Shivakumar (2005) model and Banker et al. (2012) modified-C-score model. Second, Table 3.18 repeats the tests of the relationships between corporate governance variables and conservatism, based on Khan and Watts (2009) model. Third, Tables 3.19 and 3.20 use an alternative measure of board size in analysing the relationship between corporate governance characteristics and conservatism to test whether the measure of board size affects the results.

As Ball and Shivakumar (2005) point out, losses are likely be recognised in a timely manner through unrealised accruals, while gains are recognised with a less timeliness on a cash basis. To test the robustness of the results, this study also examines accounting conservatism prior to MBOs and third-party LBOs using Ball and Shivakumar (2005) model. Table 3.16 in the Appendix reports the results of regressions used to estimate the asymmetric timeliness coefficient for the MBO sample and the third-party LBO sample, in years Y−1, Y−2, and Y−3. The results are consistent with the findings in Table 3.4 (full results can be found in Table 3.11 in the Appendix) that managers' direct involvement appears to provide them with strong incentives to behave opportunistically. The coefficient for bad news on *dcfo*cfo* in Ball and Shivakumar (2005) model is also statistically positive significant at year Y−1 in the MBO sample. Further, the coefficient for good news on *cfo* is significantly negative in the MBO sample but significantly positive in the third-party LBO sample in year Y−1. This implies that managers are likely to apply more conservative accounting disclosure before they initiate MBOs, but less conservative disclosure before the announcement of third-party LBOs. Consistent with the findings in Table 3.4 (the full results can be found in Table 3.11 in the Appendix), the models also show that the coefficient for bad news (good news) on *dcfo*cfo* (*cfo*) is significantly negative (negative) in MBO firms in year Y−3, but positive (negative) in third-party LBO firms in year Y−2, which further indicates that the degree of accounting conservatism may change over time.

Table 3.17 in the Appendix further presents the results of significant tests for the modified-C-score (Banker et al., 2012) by comparing the MBO sample and the third-party LBO sample in years Y−1, Y−2, and Y−3. The results are consistent with the findings in Table 3.7, that MBO firms have a lower C-score in year Y−3 but a higher one in year Y−1. This further indicates that managers in the MBO sample are likely to change the degree of accounting conservatism from less conservative (i.e. more aggressive) to more conservative. Moreover, this is consistent with the findings in Khan and Watts (2009) model that MBO firms are likely to apply more conservative accounting disclosure than third-party LBO firms before a buyout is announced. The results show that MBO firms have a higher C-score than third-party LBO firms in year Y−1, but the t-test is negatively insignificant. In year Y−3, MBO firms have a significantly lower C-score than third-party LBO firms.

Appendix Table 3.18 reports the results of regressions used to test the effects of board characteristics on accounting conservatism (C-score). Consistent with the findings in Table 3.5 (the full results can be found in Table 3.15 in the Appendix), managerial ownership for CEO and executive directors has a non-monotonic relationship with conservatism (C-score) in the third-party LBO sample. The coefficient of managerial ownership is statistically significant at the 10% level. Furthermore, third-party LBO firms with higher institutional ownership are more conservative in recognising good news rather than bad news. The coefficient of institutional ownership in the third-party LBO sample is statistically more significant than the corresponding coefficient in Table 3.5 (the full results can be found in Table 3.15 in the Appendix). Moreover, the results for duality, non-executive directors and audit committee independence on conservatism (C-score) are consistent with the previous findings. These results further indicate that duality could provide managers with the power to behave opportunistically, but non-executive directors and audit committees are used to monitor and control the management's behaviours prior to third-party LBOs.

In order to test whether the measure of board size[9] will affect the results, Appendix Table 3.19 reports the results of replicating the tests in Table 3.5 (the full results can be found in Table 3.15 in the Appendix) with alternative measure of board size, which is measured as the total number of directors on the board. The results are significant and consistent with the previous findings. The

[9] In the main tests, board size is measured as the natural logarithm of the number of the board of directors on the boards. In the robustness tests, board size is alternatively measured as the total number of the board of directors on boards.

coefficient of *dr*r*dual* indicates that duality could provide managers with power to behave opportunistically, which motivates them to disclose information less conservatively (i.e. more aggressively) in third-party LBOs. Moreover, there is a significantly negative association between audit committee independence and accounting conservatism with respect to bad news in both the MBO sample and the third-party LBO sample, as the coefficient of *dr*r*auditn* indicates. The results also indicate that there is a non-linear relation between managerial ownership and conservatism. Non-executive ownership has a significantly negative association with conservatism in third-party LBOs. However, firms with higher institutional ownership are likely to behave more conservatively, both in the MBO sample and the third-party LBO sample.

Appendix Table 3.20 reports the regression of replicating the tests in Appendix Table 3.18 but substituting the measurement of board size[10], which is measured as the total number of directors on the board. It is found that the results are consistent with the previous findings. The results indicate that managerial ownership has a non-linear relation with conservatism, while institutional ownership is significantly positively related with conservatism in the third-party LBO sample.

3.6 Conclusion

This research examined accounting conservatism and its relationship with corporate governance prior to third-party LBO and MBO transactions in the UK market. Specifically, it tested three research questions: (i) What are the differences in the degrees of conservatism prior to third-party LBO and MBO transactions? (ii) How does the degree of conservatism change over time

[10] In the main tests, board size is measured as the natural logarithm of the number of the board of directors on the boards. In the robustness tests, board size is alternatively measured as the total number of the board of directors on boards.

preceding third-party LBO and MBO transactions? (iii) What are the influences of corporate governance mechanisms, including CEO duality (*dual*), the proportion of non-executives (*ned*), audit committee independence (*auditn*), managerial ownership (*ceoown/exeown*), non-executive shareholding (*nedown*) and institutional shareholding (*insti*) on firms' financial reporting conservatism prior to the announcement of third-party LBOs and MBOs?

Overall, relating to the first question, this study found evidence that MBO firms and third-party LBO firms were likely to have significantly different degrees of accounting conservatism at one year before the announcement of the buyouts. These findings have implications for the board of directors and shareholders in understanding the opportunistic behaviours of management preceding LBOs, and regulating and developing the accounting disclosure. In particular, this result provides direct evidence of the relationship between managerial incentives and accounting information disclosure choice. For MBO firms, managers' direct involvement has generated clear incentives for them to engage in opportunistic disclosure behaviours to reduce the possible purchase price (Elitzur et al., 1998; Fox and Marcus, 1992; Hafzalla, 2009). More conservative accounting disclosure may possibly reduce the perceived value of the firm by delaying the recognition of good news as economic gains but opportunistically selecting bad news to be disclosed (Hafzalla, 2009; Perry and Williams, 1994).

However, the findings imply that managers may have strong incentives to apply less conservative (i.e. more aggressive) accounting disclosure prior to third-party LBOs than prior to MBOs to manipulate earnings and prevent takeovers. This is because undervaluation may attract outside investors for third-party LBOs (Hafzalla, 2009; Weir et al., 2005b). Third-party LBOs may threaten managers' long-term job security and their discretion, because the new owners are likely to displace ineffective management to maximise their interest through improved firm governance and performance (Renneboog et al., 2007). Moreover, new owners may also obtain benefits from the resale of the firm in the future (Hafzalla, 2009; Weir et al., 2005b; Weir and Wright, 2006). Hence, this study implies that managers' different motivations in MBOs and third-party LBOs will cause them to make different choices when disclosing accounting information.

Moreover, by testing the question two, this research found that managers were likely to change the degree of accounting conservatism over time preceding MBOs and third-party LBOs. The findings have implications for the board of directors and shareholders to understand the extent to which the buyout event could affect managers' incentives and behaviours. Moreover, it has implication for understanding the application of accounting conservatism prior to MBOs and third-party LBOs. In particular, the research found that managers' direct involvement in MBO transactions has generated incentives for managers to reduce the firm's value by applying more conservative accounting disclosure (Hafzalla, 2009). However, before managers decide to initiate MBOs, they may have incentives to overstate the firm's value to obtain a larger earnings-based bonus and to prevent the occurrence of any third-party LBO (Lafond and Roychowdhury, 2008; Ahmed and Duellman, 2007). Hence, the degree of accounting conservatism changes over time, from less conservative (i.e. more aggressive) to more conservative.

On the other hand, since the prediction for third-party LBO is difficult, managers will not apply less conservative (i.e. more aggressive) accounting disclosure persistently. As overstatements will be offset by an eventual decline (Lafond and Roychowdhury, 2008), companies may suffer takeover threats once the overstatements are reversed. Because persistent aggressive accounting disclosure may result in a poor quality of reporting, managers are likely to avoid such actions that result in higher costs to their own human capital (unless such actions bring commensurate increases in returns) (Francis et al., 2008). Therefore, third-party LBOs will change the degree of conservatism from more conservative to less. Moreover, third-party LBO firms have a much larger coefficient than MBOs when running significance tests over several years. This indicates that third-party LBO firms make more obvious changes in accounting information disclosure than do MBO firms.

Furthermore, relating to the third question, the results for the effects of corporate governance on conservatism suggested that at the one-year point before the announcement of an MBO or third-party LBO, board characteristics including the proportion of non-executive directors and institutional shareholdings had positive effects, while CEO duality, non-executive shareholdings and audit committee independence had negative effects in restricting managers' self-interested disclosure behaviours.

This study then has implications for the understanding of the effects of corporate governance regarding the managerial incentive and board control and monitoring on shareholder wealth protection. It then has implication for regulate and develop the corporate governance systems. Specifically, with regard to the effects of managers' ownership on their incentives, this study identified alignment and entrenchment effects. In the third-party LBO sample, managerial ownership including the CEO and executives had a non-monotonic relationship with accounting conservatism. Managers whose interests align with shareholders are less likely to apply more conservative accounting disclosure, because this can deliberately cut the firm's value, which acts against the maximisation of shareholder wealth. However, as managers whose interests align poorly with shareholders may have a greater conflict of interests with them (Renneboog et al., 2007; Weir et al., 2005b), their behaviours are often restrained through an effective corporate monitoring and control system. As the prediction for third-party LBO is difficult, effective corporate governance mechanisms may further pressure managers to behave conservatively. Instead, due to entrenchment effects, higher levels of ownership may motivate managers to engage in conservative accounting disclosure. As overstatements will be offset by reversals and the firm's value will eventually decline, greater levels of ownership may make managers take on more of the costs of overstatements (Morck et al., 1988b; Shuto and Takada, 2010).

Moreover, the research found that CEO duality has positive effects for managers to apply less conservative (i.e. more aggressive) accounting disclosure, prior to a third-party LBO. This implies that duality gives CEOs a concentrated power and position that enable them to behave opportunistically prior to third-party LBOs (Cornett et al., 2008). Additionally, the results also indicate that ownership has disincentives for non-executives in applying accounting conservatism prior to a third-party LBO. However, the research found that institutional shareholdings and the proportion of non-executives are positive correlated with accounting conservatism prior to third-party LBOs. This implies that institutional shareholders and non-executives are effectively in monitoring and control managers' opportunistic behaviours before third-party LBOs. In particular, a concentrated shareholding by institutional investors provides them with a longer investment horizon that motivates them to push boards apply for conservative accounting disclosure (Brickley et al., 1988; Ramalingegowda and Yu, 2012; Bhojraj and Sengupta, 2003; Ahmed and Duellman, 2007).

Furthermore, the research found that audit committee independence was negatively related to accounting conservatism prior to MBOs and third-party LBOs. This implies that audit committees can effectively supervise managers' disclosure behaviours in the MBO sample, but are ineffective in constraining managers' self-interested disclosure behaviours in the third-party LBO sample. This might because the non-executives may be aware of potential conflicts of interests prior to MBOs, whereas third-party LBOs are more difficult to predict. Hence, the audit committee independence may less effectively in protecting the interests of shareholders prior to third-party LBOs than prior to MBOs (Brickley et al., 1988; Ramalingegowda and Yu, 2012). Thus, the results provide additional evidence that effective corporate governance mechanisms are expected to result in better control and motivation to prevent managers' self-interested behaviours (Lara et al., 2007).

However, this research has some limitations. First, it is based on the assumption that managers do not change during the period in question. The degree of accounting conservatism will be different when the previous managers leave.

Second, the sample of this study mainly focused on the successful LBOs in the market, while there are more unsuccessful buyouts in the market that are not observed. Managers' behaviours of accounting information disclosure and the impact of corporate governance may be different in these settings. The future research could extend the study in unsuccessful group to figure out to what extend does the findings of this research can be applied in the other setting.

Third, the time span for this research covers the period from 1997 to 2011. However, before 2006, the independent non-executives are not reported in the annual reports. Hence this research focused on non-executives instead. Nevertheless, some non-executive directors may have additional relationships with the firm which cause them to be subject to pressure by managers (e.g. as family members or suppliers) (FRC, 2012). Therefore, the findings of the research may have bias. The future study should focus on data after 2006 to provide additional analysis.

Fourth, due to data limitations, this study did not match the size of MBO firms with third-party LBO firms in the analysis. It is found that the sample size of MBOs and third-party LBOs are 124 and 88 in the study. The matching exercise will dramatically reduce the sample size of the study, which may result in misinterpretations and affect the reliability of the results (Kline, 2015). Specifically, artificially reduce the sample size may result in loss of information and reduction of statistical power, which may lead to Type II error (Frazier et al., 2004; Fitzsimons, 2008; Kline, 2015; Freiman et al., 1978). Moreover, it may lead to the opposite effect, which is a Type I error (Irwin and McClelland, 2001; MacCallum et al., 2002; Roussos and Stout, 1996; Kline, 2015). Therefore, instead of matching the two groups, this study used firm size as a control in the analysis.

Overall, the first empirical chapter examines the influence managerial incentive schemes on shareholder wealth protection in MBOs and third-party LBOs. The results suggest that buyouts are likely to provide strong incentives for managers to engage in self-interests activities. However, the research finds that there is no significant relationship between board structures and shareholder wealth protection (in this study it is the takeover premiums). The inclusive findings of the impact of board structures on the performance outcomes are not unusually (e.g. Yermack, 1996; Hermalin and Weisbach, 1991; Bøhren and Strøm, 2010; Klein, 1998; Belkhir, 2009; Pacini et al., 2008; Bliss, 2011; Brickley et al., 1997). This inconsistency is puzzling as it may indicate that research fails to model the impact of boards on shareholder wealth protection correctly.

It is recognised that the overall impact of the board it determined by its structures as well as its effectiveness. In particular, board structures are the makeup of the board, which are able to affect the ability of board members to corporate and collaborate with each other. Board effectiveness, instead, is mainly concerned with the outcomes of the tasks, which usually occurs when the directors have fulfilled their responsibilities. It encapsulates directors' knowledge, experience, expertise and ability in performing their roles (Cornforth, 2001; Payne et al., 2009; Forbes and Milliken, 1999; Kirkpatrick et al., 2015; Levrau and Van den Berghe, 2007; Nicholson and Kiel, 2004). Conflating board structures with board effectiveness can result to misleading (Bedard et al., 2004; Jackling and Johl, 2009; Kang et al., 2007). However, it is found that most previous studies tend to ignore this issue or draw on fairly poor proxies, such as board structures (Kang et al., 2007; Jackling and Johl, 2009; Bedard et al., 2004). Thereby, the next chapter aims to investigate the effects of the board by distinguishing board structures from board effectiveness. It is suggested that correctly model the impact of boards has significant implications for shareholders and institutional investors to oversee the directors' behaviours. Moreover, it has implication for the development of corporate governance system, not only at the firm but also at market level.

Lim (2011) suggests that effective boards are likely to demand the managers to adopt conservative accounting to protect the long-term interests of shareholders. Moreover, the second empirical study suggests that boards are able to adjust the approach of accounting conservatism to protect the interests of shareholders. The research finds that effective boards tend to push the managers to engage in less conservative accounting prior to MBOs, possibly to avoid the managers to deliberately cut the firm value. It is also found that as the prediction of third-party LBOs is difficult, effective boards are likely to push the management to engage in more conservative accounting, in order to protect the long-term interests of shareholders. Therefore, accounting conservatism does not merely reflect a general accounting approach, but a reasonable measure of board effectiveness. The next chapter is purposed to examine the influence of board structures and board effectiveness on takeover premiums in MBOs and third-party LBOs by employing accounting conservatism as a measure of board effectiveness.

Chapter 4: Board Effectiveness, Board Structures and Takeover Premiums: Evidence from Leveraged Buyouts

4.1 Introduction

The first empirical study (Chapter 2) investigated the relationship between board structures and takeover premiums in third-party LBOs and MBOs. The findings of that chapter suggest that there is no empirical evidence to support the relation between board structures and takeover premiums. Specifically, it is found that the proportion of non-executive directors on boards is not significantly associated with takeover premiums in both third-party LBO and MBO cases. Inconclusive findings of the impact of board structures on performance outcomes are not unusual, even if the research uses the same proxy for firm performance. For example, early works by Rosenstein and Wyatt (1990), Krivogorsky (2006) and Lefort and Urzúa (2008) report that the proportion of outside directors is positively related to firm performance, as measured by Tobin's Q, market-to-book ratio and return on assets. However, Yermack (1996), Agrawal and Knoeber (1996), Bhagat and Black (2001), and Coles et al. (2008) find a significantly negative relationship between board independence and firm value measured by Tobin's Q. Furthermore, there are several other studies (e.g. Hermalin and Weisbach, 1991; Mehran, 1995; Klein, 1998; Bøhren and Strøm, 2010), which all report that there is no significant correlation between board independence and various measures of corporate performance, such as Tobin's Q and return on assets. Inconsistent results also exist in investigating the impact of board size (e.g. Yermack, 1996; Eisenberg et al., 1998; Belkhir, 2009; Pacini et al., 2008) and CEO duality (e.g. Baliga et al., 1996; Bliss, 2011; Brickley et al., 1997; Elsayed, 2007) on firm performance.

However, these inconsistences are puzzling/concerning as they may indicate that research fails to model the impact of boards on performance outcomes correctly. In order to carry out their tasks, boards of directors are required to cooperate with each other, e.g. by sharing their experiences and perspectives, and discussing and mutually agreeing on decisions (Levrau and Van den Berghe, 2007; Forbes and Milliken, 1999). The overall impact of the boards is expected to be determined by their structure as well as their qualifications and experiences, their engagement, integrity and the ability of directors to work together effectively (Cornforth, 2001; Hermalin and Weisbach, 2001; Roberts et al., 2005; Payne et al., 2009; Kirkpatrick et al., 2015).

Board structures related to board size, the proportion of executives and (independent) non-executives on boards, and CEO duality are likely to affect the ability of board members to cooperate and collaborate with each other, and thereby affect board effectiveness. Board effectiveness encapsulates the ability, expertise, experience, social skills, engagement and integrity of board of directors in performing their roles of control, service and strategy (Cornforth, 2001; Payne et al., 2009; Forbes and Milliken, 1999; Kirkpatrick et al., 2015). However, these factors are difficult to measure empirically. Prior research tends either to ignore these issues or draw on fairly poor proxies, such as using board structures (Kang et al., 2007; Jackling and Johl, 2009; Bedard et al., 2004), directors' age (Carter et al., 2003), gender (Bear et al., 2010; Levi et al., 2014) and academic qualifications (Custódio and Metzger, 2014; Hashim and Abdul Rahman, 2011; Krishnan and Visvanathan, 2009) as proxies. Although, in the previous literature, board structures are sometimes conflated with board effectiveness, board structures are essentially different from board effectiveness and cannot replace its impact. Failure to find consistent results in the relationship between board structures and performance outcomes might be related to missing variables, which indicate that the research should take into account directors' ability, qualifications and their way of their working together.

The study of board characteristics is used to justify or reject the best practice recommendations or the legal rules of governing the structures of boards. It is also a means to inform, in particular, the institutional investors about the directors' voting behaviours in general meetings. How to correctly model the impact of boards then has significant implications for the effectiveness of corporate governance systems, not only at firm but also at market level. This research, therefore, aims to improve the understanding of the link between board structures, board effectiveness and performance outcomes (in this case, takeover premiums). Specifically, this study examines the following research questions: (1) What is the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs? (2) By taking into account the potential interrelationships between board structures and board effectiveness, this study further explores are there any mediating or moderating effects of board structures and board effectiveness, which affect takeover premiums in third-party LBOs and MBOs?

The existing literature reveals that there are multiple roles of the board of directors. Regarding agency theory, the board of directors has a primary role to monitor management who are expected to carry out their duty to serve in the best interests of the owners of the firm (Jensen and Meckling, 1976; Fama and Jensen, 1983). From a resource-dependence perspective, the board of directors is supposed to be a valuable source of knowledge and expertise to provide advice and counsel to the organisation (Rindova, 1999; Pugliese et al., 2009; Carpenter and Westphal, 2001; Pfeffer and Salancik, 1978).

Takeover premiums are those that shareholders receive for selling their shares, which reflect the target shareholder wealth gains of the takeover. Board effectiveness, which encapsulates the directors' ability, knowledge, experience, skills, engagement and integrity, is likely to affect how well directors discharge their duties and responsibilities, which is expected to affect the level of the takeover premium. Board members with relevant experience, knowledge and skills are likely to have superior capability of monitoring and counsel, which will productively assist management in making decisions that protect shareholder wealth (Sánchez et al., 2015; Tuggle et al., 2010). In particular, Wan and Ong (2005), Kroll et al. (2008), Lichtenstein et al. (2011) and Sánchez et al. (2015) argue that the knowledge, expertise, experience, skills and integrity of the directors are the boards' resources that can shape and frame their views and approaches to decision-making. A wider range of directors' knowledge, experience, expertise and skills allows them to undertake more in-depth analysis and discussion that can produce competitive advantages in monitoring and management. Carpenter and Westphal (2001) and Hillman and Dalziel (2003) further indicate that the relevant experience, skills, expertise and knowledge could allow the board of directors to have a better understanding of the firm's inner workings that contribute to their effectiveness of monitoring and management. In facing a buyout offer, directors who have more relevant knowledge, expertise, experience and skills are able to offer superior counsel concerning takeover prospects and better monitoring of opportunistic management behaviours. More effective boards are expected to benefit the interests of shareholders and lead to higher takeover premiums.

Previous studies concerning boards of directors have examined the influence of directors' knowledge, expertise and skills on firms' performance outcomes. Zona and Zattoni (2007) examine the influence of directors' knowledge and efforts on firm performance in Italy. They find that board effort norms and use of knowledge and skills are positively related to board monitoring and service task performance. Moreover, Agrawal and Chadha (2005) examine US listed firms and find that with financial expertise are valuable in providing independent directors' oversight of firms' financial reporting, which is negatively associated with the probability of restating earnings. Defond et al. (2005) examine the market reaction to the announcement of newly appointed outside directors to audit committees prior to the Sarbanes–Oxley Act. They find that the appointment of accounting financial experts on to audit committees is positively related to firms' cumulative abnormal returns. They suggest that directors' accounting-based financial skills could improve the audit committee's monitoring ability to ensure high-quality financial reporting that helps channel expertise towards enhancing shareholder wealth. Besides, De Villiers et al. (2011) test the effects of legal experts on US companies and find a significant positive relationship between the number of legal experts on boards and firms' environmental performance.

Board structures related to board size, the proportion of non-executives and CEO duality tend to influence the ability of directors to cooperate and collaborate, which is expected to affect the takeover premiums. As discussed in the first empirical study (Chapter 2), previous research indeed finds mixed evidence on the impact of board structures on shareholder wealth protection. For example, by examining US listed firms, Yermack (1996) finds board size is statistically significantly negatively related to firm performance as measured by Tobin’s Q. Eisenberg et al. (1998) also discovers a negative relationship between board size and return on assets in a sample of small- and medium-sized Finnish firms. Cheng (2008) finds that board size is negatively related to performance outcomes such as return on assets, market value of firms and Tobin’s Q in the sample of S&P. However, Dalton et al. (1999) and Pearce and Zahra (1992) discover a positive association between board size and firm performance and suggest that a board with more members could help the shareholders to protect their wealth.

Moreover, Rosenstein and Wyatt (1990), Rosenstein and Wyatt (1997) and Jaggi et al. (2009) uncover a positive relationship between the proportion of outside directors and the interests of shareholders. However, Agrawal and Knoeber (1996) and Klein (1998) find that a high proportion of independent directors perform worse in shareholder wealth protection.

In addition, empirical studies (e.g. Lee, 2009; Goyal and Park, 2002; Bassett et al., 2007) discover that CEO duality is negatively related to firm performance. However, Baliga et al. (1996), Brickley et al. (1997) and Bliss (2011) document that CEO duality does not have a significant impact on shareholder wealth protection.

Board structure is not a substitute mechanism to board effectiveness. There may, nevertheless, be a potential link between the two. On the one hand, board structures may affect board effectiveness by defining the conditions within which the board of directors can effectively bring their experience, expertise, knowledge, engagement, integrity and social skills together. Board structures are likely to affect the ability of the board to cooperate and draw on their skills, experience and expertise. In particular, an effective board structure may facilitate cooperation and collaboration among board members to allow them to fully use their abilities to work together. However, an ineffective board structure may hamper the ability of the board to carry out its duties.

The number of directors on the board is expected to affect board effectiveness. Pfeffer (1973) and Pearce and Zahra (1992) argue that large boards can facilitate board effectiveness by providing a large pool of expertise and resources for organisations. Klein (2002b), Pacini et al. (2008) and Belkhir (2009) further indicate that large boards can broaden the variety of backgrounds and bring a greater breadth of experience, expertise and social skills to the board, which enhances effectiveness. Goodstein et al. (1994) and Belkhir (2009) support the idea that boards with more members may facilitate effectiveness, because large boards enable the directors to have more specialised knowledge and skills in dealing with issues. Moreover, Gertner and Kaplan (1996) and Larmou and Vafeas (2010) suggest that the workload can be better allocated among a larger number of directors. Small board size may lead to a greater workload for individual directors, which may reduce board effectiveness, as the time commitment required may exceed that available for individual directors.

However, the opposite view argues that increased board size can significantly inhibit the board's ability to make decisions. Lipton and Lorsch (1992), Jensen (1993) and Yermack (1996) argue that large boards are less cohesive and have more difficulty communicating and coordinating action due to the large number of potential interactions among group members. Pearce and Zahra (1992) suggest that a board consisting of more directors is likely to have a broader set of backgrounds and experiences that may result in more conflicts of views and approaches to problem solving, which may hamper the effectiveness of the board. A board consisting of fewer directors may encourage the engagement of individual directors and possibly reduce occurrence of free-rider problems; this may facilitate board effectiveness (Lehn et al., 2009; Harris and Raviv, 2008).

In addition, the proportion of non-executive directors on the board is expected to affect its effectiveness positively by improving its ability to monitor and control. Fama and Jensen (1983), Baysinger and Butler (1985), Buchholtz and Ribbens (1994) and Cotter et al. (1997) argue that a high percentage of non-executives on the board can benefit monitoring by increasing the directors' independence and objectivity in decision-making. They explain that, as the outsiders, the non-executives are less tied to the firm or its executive managers, who may be more successful in fulfilling the function of monitoring and control the activities of management. The high proportion of non-executives on the board can increase the power of non-executive directors in decision-making, giving them the possibility to outvote executive directors when they behave opportunistically. For example, Ajinkya et al. (2005) and Lara et al. (2007) find that a high proportion of non-executives is negatively related to managers' earning manipulations.

However, a high proportion of non-executives may hamper the board's ability to monitor. Patton and Baker (1987) and Gilson and Kraakman (1991) argue that, in practice, outside directors may usually perform little or no real monitoring as they lack the time, expertise and information to challenge the efficiency of management. Wan and Ong (2005) and Levrau and Van den Berghe (2007) support the idea that a high proportion of non-executives may hamper communication and collaboration within the board, because the outsiders may lack the knowledge and acquaintance with insiders.

Furthermore, duality could give the CEO concentrated power and position in decision-making, which would be expected to reduce the board's effectiveness in monitoring and exercising control over the CEO's self-interested activities (Cornforth, 2001; Elsaid and Davidson, 2009). Jensen (1993) argues that internal control may fail when the firm's CEO also holds the position of board chairman, because the duality gives the CEO more control and power, which may lead to the board failing to perform its function to fully evaluate CEO performance. Duality could limit the board's ability of monitoring and control over CEO, since the concentrated power and position of the CEO allows them to pursue their self-interests (Rechner and Dalton, 1991; Kim et al., 2009; Desai et al., 2003). Also, Baliga et al. (1996), Goyal and Park (2002) and Bliss (2011) indicate that duality may make the CEO hard to challenge, which may lead to a lower level of effort and usage of knowledge and skills on the part of the board.

On the other hand, board effectiveness may also have an influence on the structure of the board. Nadler and Tushman (1980) and Nicholson and Kiel (2004) suggest that from a long-term perspective, patterns of past activity, behaviour and effectiveness of the board may affect current board structures. Directors' past ability, knowledge, skills, experience and expertise of work will affect who will be on the board and how the board functions.

Furthermore, Hermalin and Weisbach (1998) argue that board structures are the functions of the bargaining process between the CEO and the rest of the board. In particular, the board is likely to make the decision on whether to replace the current CEO. The CEO and the rest of the board then negotiate on the composition of the board (Arthur, 2001; Hermalin and Weisbach, 1998). The CEO and board's bargaining positions and power in these negotiations are expected to come from their ability. A CEO may have a relatively low level of knowledge, expertise, experience, skills and poor ability, implying that substitutes are more widely available (Arthur, 2001). Moreover, a low level of board effectiveness is associated with a lack of ability by the board to exercise monitoring and control over management, which may result in a change of board structure (Hermalin and Weisbach, 1998). Since the CEO and board's power could be the function of their ability to carry out particular work, board structures depend on directors' ability, effectiveness and performance. For example, the CEO's perceived ability is relatively low when they perform poorly, which may increase the likelihood that the board will replace them. Alternatively, low effectiveness of boards reduces their bargaining ability and power, which may lead to a change in board structure (Arthur, 2001; Hermalin and Weisbach, 1998).

Moreover, previous studies have often mixed and conflated board structures with board effectiveness. For example, the empirical works of Hermalin and Weisbach (1991), Bange and Mazzeo (2004), Peasnell et al. (2005), Levrau and Van den Berghe (2007), Lee (2008), He et al. (2009) and Gonzalez and André (2014) use board structures such as board size, the proportion of outside directors and CEO duality as proxies for board effectiveness. However, in essence, board structure is different from board effectiveness. Structures are likely to affect the effectiveness of boards by defining the conditions within which the directors can bring their experience, expertise and knowledge together (e.g. Jensen, 1993; Yermack, 1996; Cheng, 2008). Therefore, in order to test for completion, this study also considers the potential effects of board effectiveness on board structures. Taking into account the interrelationship between board structures and board effectiveness, this study models the impact of boards on takeover premiums by testing the moderating/mediating effects of board structures and board effectiveness.

In general, moderating effect[11] is indicated by the interaction of independent (*X*) and moderator (*Mo*). It illustrates the conditions under which the association between independent (*X*) and outcome (*Y*) is enhanced, reduced, or directionally changed due to the moderator (*Mo*) (Fairchild and McQuillin, 2010). Whereas, mediating effect[12] explains a causal link between independent (*X*), mediators (*Me*) and outcome variables (*Y*) (Baron and Kenny, 1986). In the model, the independent variable (*X*) is expected to influence an outcome variable (*Y*) through the mediator (*Me*) (Rose et al., 2004; Fairchild and MacKinnon, 2009; Hayes, 2013; Ro, 2012; Kenny, 2008).

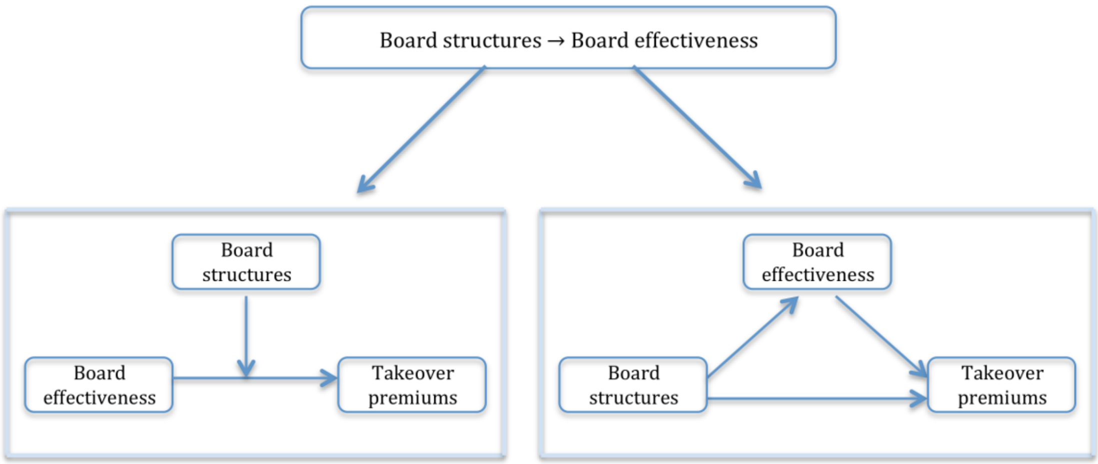
This study distils and tests hypotheses derived from four models of the impact of boards on takeover premiums, by taking into account the interrelationship between board structures and board effectiveness (Figures 4.1 and 4.2). In particular, under the circumstance that board structures may affect board effectiveness, this study first tests the moderating effects of board structures in relationship to board effectiveness and takeover premiums. As moderator, board structures are expected to interact with board effectiveness to contribute to takeover premiums. The structural characteristics of the board, such as its size, the proportion of non-executives and CEO duality are likely to explain the conditions under which the directors can effectively bring their skills, experience, expertise and knowledge together to contribute to maximising shareholder wealth. Therefore, this study makes the hypothesis that the impact of board effectiveness on takeover premiums is affected by board structures.

[11] More details are explained in Appendix 4.105.

[12] More details are explained in Appendix 4.105.

Moreover, taking into account the causal chain that board effectiveness is likely to be affected by board structures and to impact on takeover premiums, this study additionally tests the mediating effects of board effectiveness in relationship to board structures and takeover premiums. In the model, board effectiveness is the intermediary variable through which board structures are able to influence the level of takeover premiums. Directors' skills, experience, expertise and knowledge, as well as their engagement and integrity, are used to explain whether and to what degree board structures may affect takeover premiums. Hence, this study makes the hypothesis that board effectiveness mediates the relationship between board structures and takeover premiums.

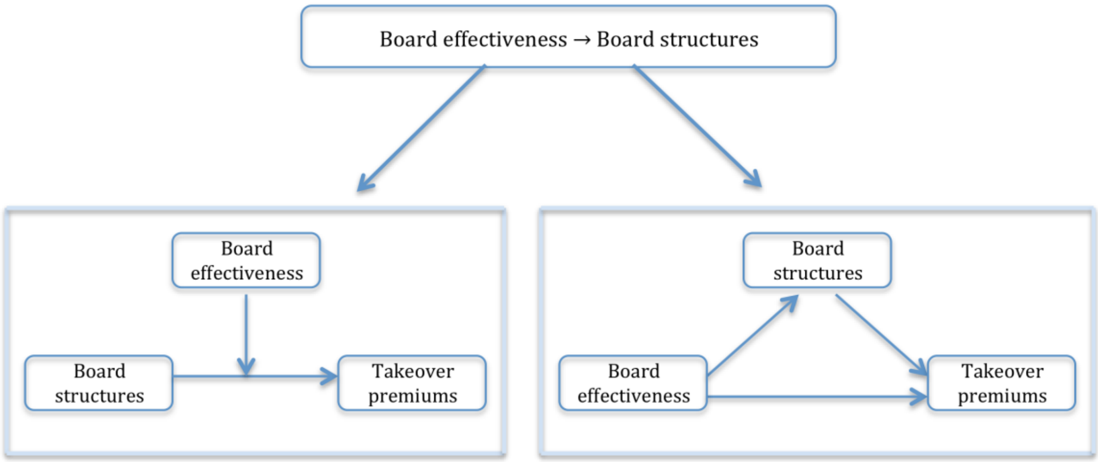
Figure 4.1 Research models under board structures affect board effectiveness



Under the circumstance that board effectiveness may affect board structures, this study further tests the moderating effects of board effectiveness in relationship to board structures and takeover premiums. As moderator, the levels of board effectiveness illustrate the conditions under which the association between board structures and takeover premiums is enhanced, reduced, or changed in direction. Directors' skills, experience and expertise are expected to explain the conditions under which board structures may affect the level of takeover premiums. Hence, this study makes the hypothesis that the impact of board structures on takeover premiums is affected by board effectiveness.

Moreover, this research considers how the impact of board structures on takeover premiums might be mediated by board effectiveness, as the experience and social skills of directors are likely to mediate, i.e. either to enhance or reduce the impact of board structures. As mediator, board structures explain whether or to what degree an association occurs between board effectiveness and takeover premiums. From that point, the directors' skills, experience, expertise and knowledge are expected to contribute to the level of takeover premiums through the appropriate makeup of the board. Thereby, it is hypothesised that board structures mediate the relationship between board effectiveness and takeover premiums.

Figure 4.2 Research models under board effectiveness affect board structures



This study uses both the approach of multiple regression analysis and structural equation modelling (SEM) in analysing the moderating and mediating effects. The multiple regression approach is a general statistical technique to explore the cause-effect relationships. However, this approach has some limitations. For example, in the moderating analysis, it is difficult to distinguish independent (*X*) from the moderator (*Mo*) by using multiple regression analysis (Ro, 2012; Cohen et al., 2013). Moreover, in multiple regression analysis, the interaction term may generate compound measurement errors that can underestimate the interaction effect and dramatically reduce the reliability of the results (Aguinis et al., 2001; Jaccard and Wan, 1996).

The SEM is suggested to be an alternative method because this approach is able to control the measurement errors and minimise the problem of underestimation (Holmbeck, 1997; Hoyle and Smith, 1994; Hoyle, 2014). Moreover, in SEM, a multiple group approach can be used to detecting the moderating effects when the moderator is categorical. Under the approach, the independent (*X*) is able to distinguish from the moderator (*Mo*). Additionally, SEM is able to detect a more complex relationship, which has been widely used in mediation analysis (Hox and Bechger, 1998). However, SEM approach also has some limitations, such as SEM is a large sample technique (Kline, 2015; Tomarken and Waller, 2005). The sample of this study includes 76 third-party LBOs and 108 MBOs, which is less the minimum requirement of 200 (Kline, 2015). Nevertheless, this sample size meets the less ideal sample size to the parameter is 10:1 (Jackson, 2003). Furthermore, when independent (*X*) and moderator (*Mo*) are continuous variables, the SEM approach requires to convert continuous variables into categorical, while this may lead to loss of information (Type II error) and opposite effect (Type I error) (Frazier et al., 2004; Fitzsimons, 2008; Irwin and McClelland, 2001; MacCallum et al., 2002). Therefore, by considering the strength and weakness of the both approach, this study employs both the two approaches to analyse the mediating and moderating effects. It is expected that the multiple regression can provide more reliable results when the moderators (*Mo*) are continuous variables, while the SEM is more reliable when moderators (*Mo*) are categorical. Besides, the mediation results in SEM are more reliable.

In this study, board structures are distinguished from board effectiveness. Board structures are defined as the makeup of the board, which can be recognised through board size, the proportion of non-executives on boards and CEO–chairman duality. In contrast, board effectiveness is mainly concerned with the outcomes of the tasks, which occurs when the directors have fulfilled their roles of control, service and strategy (Nicholson and Kiel, 2004; Levrau and Van den Berghe, 2007). Specifically, the previous studies (e.g. Hackman et al., 1975; Forbes and Milliken, 1999; Lemieux - Charles et al., 2002) have emphasised two attributes of board effectiveness – board performance and the ability of directors to work together over time. However, the proxy for board effectiveness is still the subject of considerable debate in empirical studies. Existing studies use various techniques to proxy board effectiveness. Behavioural studies try to create or directly observe such measures. For example, Levrau and Van den Berghe (2007) suggest using behavioural or attitudinal measures of board effectiveness, including cohesiveness, debate and conflict norms. Although their deliberations are extensive and informative, no empirical data are tested. Wan and Ong (2005) and Zona and Zattoni (2007) use an interview and survey approach to capture data for board effectiveness. They examine the effectiveness of boards from behavioural-based measures including their norms of effort, their conflict in cognitive, affective processes and the usage of their skills and knowledge. Furthermore, Pahuja (2011) collects data on board effectiveness via a survey of executive directors in charge of the functions of the board and board committees, the structure of the board, and access to information, general support, compensation and liability.

Since such behavioural measures either rely on the integrity and self-awareness of the people surveyed or are constructed based on a limited number of firms, most empirical studies of boards of directors suggest the use of a proxy for board effectiveness by one of its determinants. Typically, the unobservable 'board effectiveness' is replaced with some characteristics of the board, such as directors' tenure, social network ties and academic qualifications (Custódio and Metzger, 2014; Hashim and Abdul Rahman, 2011; Brenner and Schwalbach, 2009; Kim, 2005; Anderson et al., 2004; Kang et al., 2007). However, these proxies are inevitably noisy because there are too many possible determinants of board effectiveness. Empirically, it is impossible to include them all. There will always be some determinants/characteristics that are not being considered during the analysis. The researchers then have to choose which characteristics may be used as a proxy for board effectiveness and which may not, which severely limits the analysis and the understanding of important relationships with effectiveness. Thereby, this study attempts to employ an alternative measure of board effectiveness in order to study it comprehensively.

Conservatism in accounting indicates that firms are more cautious about publishing good news than bad news (Basu, 1997; Watts, 2006). A cautious approach to financial reporting is proposed to protect the long-term interests of shareholders. Prior research (e.g. LaFond and Watts, 2008; Watts, 2003a; Ahmed and Duellman, 2011) has examined the incentives of managers and suggests that in listing firms with more conservative accounting disclosure, managers are expected to have less opportunity to manipulate earnings upwards to improve their performance-related bonus, which protects the interests of shareholders. Ball and Shivakumar (2005), Francis and Martin (2010) and Ahmed and Duellman (2011) indicate that accounting conservatism is associated with more profitable investments by firms. As conservative accounting causes economic losses from poorly performing projects to be recognised quickly, more conservative accounting reduces the risk of investment in negative NPV projects (Francis and Martin, 2010; Watts, 2003a; Ball and Shivakumar, 2005). Research by Watts (2003a), Ball and Shivakumar (2005) and Lim (2011) further suggests that firms with more conservative accounting have a comparatively low probability of corporate bankruptcy, possibly because problems are likely to be discovered sooner, so that remedial actions can be taken earlier.

Moreover, Lim (2011: 1010) suggests that “an effective board is likely to demand that managers adopt conservative accounting practices to prevent overcompensation, to reduce litigation risks and to reduce the probability and magnitude of corporate collapses”. It is assumed that more knowledgeable and experienced directors are likely to favour accounting conservatism to prevent overcompensation, reduce the probability of corporate collapses and protect the long-term interests of shareholders (Krishnan and Visvanathan, 2007; Dhaliwal et al., 2010). Xie et al. (2003: 295) suggest that board members’ “financial sophistication may be important factors in constraining the propensity of managers to engage in earnings management”. Fadzil and Ismail (2014) also support that directors with better social skills are more likely to be able to cooperate positively in order to influence management to effectively implement accounting conservatism. An effective board is likely to have more integrity in financial reporting and may voluntarily opt for a more conservative approach to accounting (Iatridis, 2011; Lim, 2011).

A previous study by Krishnan and Visvanathan (2007) finds that greater accounting financial expertise of the audit committee enhances accounting conservatism. They reason that this is probably due to a better monitoring capability, driven by the directors' knowledge, job requirements and incentives to protect their reputation capital. In addition, Fadzil and Ismail (2014) examine the relationship between financial expertise among boards of directors and accounting conservatism and suggest that boards with a high proportion of financial expertise are likely to practice more conservative disclosure over accounting financial reports. This finding is consistent with the notion that directors' expertise may affect the ability of the board to monitor management and provide a high level of quality of financial reports, either to make financial information more transparent or to limit manipulation. Moreover, Lara et al. (2007) and Lara et al. (2009) also find that board effectiveness which reflects the directors' monitoring effort is positively associated with conservative accounting.

The second empirical study (Chapter 3) into accounting conservatism prior to MBOs and third-party LBOs suggested that boards are able to adjust their approach to accounting to protect shareholder interests. The research finds that firms tend to engage in less conservative accounting prior to an MBO, possibly to avoid shareholders' exploitation by managers who might have incentives to make the firms appear less valuable to reduce the value of the takeover, and thereby exploit existing shareholders who do not participate in the takeover (Weir et al., 2005b; Weir and Wright, 2006). Effective boards are likely to have better control and monitoring over management that constrain managers from engaging in more conservative accounting disclosure prior to an MBO. Ineffective boards, however, tend to provide managers with more opportunities to practice more conservative accounting prior to an MBO, as the directors are less likely to protect the interests of shareholders (Weir and Wright, 2006;

Hafzalla, 2009).

By contrast, prior to third-party LBOs, which are less predictable, firms are likely to engage in more conservative accounting than firms involved in MBOs, possibly to avoid overcompensating managers for unrealistic valuations of the firms and to protect the long-term interests of shareholders (Weir et al., 2005b; Weir and Wright, 2006; Hafzalla, 2009). Effective boards are likely to constrain managers from engaging in aggressive accounting (i.e. less conservative accounting) prior to third-party LBOs, as they are able to provide better monitoring and control to protect the interests of shareholders (Weir and Wright, 2006; Hafzalla, 2009). However, an ineffective board tends to provide opportunities for managers to engage in aggressive accounting (i.e. less conservative accounting) prior to a third-party LBO, within which managers might have incentives to make the firm appear much more valuable in order to meet share price-related performance targets and avoid undervaluation that might trigger a takeover (Weir et al., 2005b; Weir and Wright, 2006; Hafzalla, 2009).

The second empirical study (Chapter 3) also indicates that board structures affect board effectiveness, as better board structures are able to enhance the board's ability to protect shareholder wealth, which is associated with more conservative accounting prior to a third-party LBO. In particular, it is found that, prior to a third-party LBO, the proportion of non-executives on the board is positively and significantly associated with the degree of accounting conservatism. This confirms that a high proportion of non-executives can facilitate the effectiveness of board monitoring (Roberts et al., 2005; Rosenstein and Wyatt, 1990).

Moreover, the result suggests that CEO duality is significantly negatively related to conservative accounting prior to a third-party LBO. This may be because duality facilitates the CEO's power and thereby their ability to engage in opportunist behaviours. Duality is then expected to be harmful to the effectiveness of the board, as CEO–chairman duality may increase the difficulty of monitoring management by other board members (Baliga et al., 1996;

Elsayed, 2007) and may even lower the use of knowledge and skills in the board (Baliga et al., 1996; Bliss, 2011).

Furthermore, this research indicates that board structures affect board effectiveness, as better board structures facilitate boards' ability to protect shareholder wealth, which is associated with less conservative accounting prior to an MBO. Specifically, it is found that audit committee independence is negatively associated with conservative accounting prior to an MBO. This confirms that the independence of the audit committee increases the integrity of firms' financial reporting, which contributes to the effectiveness of monitoring (Klein, 2002b; Klein, 2002a).

Therefore, it is suggested that accounting conservatism does not merely reflect a general approach to accounting which boards tend to take, but a reasonable measure of board effectiveness. Accounting conservatism can reflect the extent to which the board of directors have the ability, knowledge, expertise, experience, skills and integrity to carry out their duties that is attributed to the effectiveness of the board of directors. Firms can improve the effectiveness of the board in affecting the degree of accounting conservatism.

However, prior research does suggest that board structures may impact on the degree of accounting conservatism (e.g. Ahmed and Duellman, 2011; Ball and Shivakumar, 2005; Lara et al., 2009), so this measure is not a particularly 'pure' measure of board effectiveness. Because of this, it is necessary to consider alternative proxies for board effectiveness. Vandenberg et al. (1999), Forbes and Milliken (1999), Finkelstein and Mooney (2003) and Payne et al. (2009) suggest that key attributes of board effectiveness include sufficient knowledge, information, engagement, integrity and social skills. Board tenure refers to the length of service of the directors. Directors with long tenures within firms may confer their expert power through the cumulative knowledge, information and experience of the firm, and the increased familiarity with the firm's resources and methods of operation (Finkelstein, 1992; Alderfer, 1986; Westphal and Zajac, 1995). Peasnell et al. (2005) suggest that the existence of outside directors with longer tenures may imply that directors are more competent in undertaking their responsibilities. However, Vafeas (2003) and Canavan et al. (2004) suggest that long-serving directors may lose independence and could rob the board of critical expertise. Hence, this study uses board tenure as an alternative proxy for board effectiveness to test for the robustness of the results.

Moreover, directors' financial expertise can provide them with knowledge and information to monitor and constrain managers' irregularities in financial reporting (Krishnan and Visvanathan, 2009). A high proportion of financial expertise on boards tends to indicate that the boards have a high level of integrity in financial reporting that functions effectively to protect the interests of shareholders (Payne et al., 2009; Krishnan and Visvanathan, 2009). However, acquirers are likely to pay lower premiums when target firms have high-quality financial reports, as they can bid more closely to the target's reserve price (McNichols and Stubben, 2014). Therefore, the proportion of financial expertise on boards is also used as an alternative proxy for board effectiveness.

This study uses the regression model and the structural equation model to test the hypotheses based on the above argument. It is found that the relationship between board effectiveness and level of takeover premiums is negatively influenced by or moderated by board size in MBOs. Moreover, this research finds evidence for the existence of moderating effects by board effectiveness on the relationship between CEO duality and takeover premiums in MBOs. It illustrates that high levels of board effectiveness are associated with high premiums when firms do not have CEO duality relative to low levels of board effectiveness and receive low premiums when CEO duality exists.

The findings of this study aim to contribute to corporate governance and mergers and acquisitions literature. First, the study enriches empirical research on the impacts of boards of directors on performance outcomes. In the existing literature concerning boards, studies have primarily focused on the impacts of board structures, but have failed to find conclusive results. This study contributes to the literature by investigating the mediating/moderating effects of board structures and board effectiveness on takeover premiums in third-party LBO and MBO settings.

Second, on the methodological front, this study extends the measure of board effectiveness to accounting conservatism rather than board structures and financial expertise. The key attributes of board effectiveness include the directors' expertise, experience, engagement, integrity and social skills (Cornforth, 2001; Payne et al., 2009; Forbes and Milliken, 1999). However, these factors are difficult to measure in empirical analysis. Prior studies have either ignored these issues or drawn on fairly poor proxies for board effectiveness, such as those regarding board structures (Kang et al., 2007; Jackling and Johl, 2009; Bedard et al., 2004) as well as directors' age, tenure, gender and academic qualifications (Anderson et al., 2004; Westphal and Zajac, 1995; Peasnell et al., 2005). Moreover, some research (e.g. Wan and Ong, 2005; Pahuja, 2011; van der Walt and Ingley, 2000) tends to limit board effectiveness in directors' effort norms, cohesiveness, and the usage of their skills and knowledge.

This study develops a new measure of board effectiveness, which is the degree of accounting conservatism. Nicholson and Kiel (2004) suggest that board effectiveness is likely to occur when the directors have fulfilled their responsibilities. Accounting conservatism is proposed to be a new measure for board effectiveness, as a cautious approach to financial reporting is seen to protect the long-term interests of shareholders (Lafond and Roychowdhury, 2008; Watts, 2003a; Ahmed and Duellman, 2011). Moreover, the degree of accounting conservatism often reflects the directors' knowledge, expertise, engagement and integrity to carry out their responsibilities. The analysis of accounting conservatism prior to third-party LBOs and MBOs also indicates that boards are able to adjust their approach to accounting to protect shareholder interests. Therefore, accounting conservatism is assumed to be a measure of board effectiveness.

Third, buyouts present a unique opportunity to investigate the implications of board structures and effectiveness, as the transactions generate a clear conflict of interest between the firms' managers and their shareholders (Weir et al., 2005a; Hafzalla, 2009). This study contributes to the literature by extending the study of boards of directors in a new setting.

The remainder of this chapter proceeds as follows. Section 4.2 presents the methodology and the hypotheses. Section 4.3 discusses the summary univariate statistics, the main results and robustness tests. Section 4.4 presents the conclusion.

4.2 Methodology

4.2.1 Sample and data

The sample of this study consists of the complete leveraged buyout transactions of UK listed firms that took place on the London Stock Exchange during 1997 to 2011 for which full data were available. LBOs are public-to-private transactions where listed firms are taken over by private financial institutions, executive directors or individual investors and large-block shareholders (Weir et al., 2005b; Weir and Wright, 2006). The data was restricted to leveraged buyouts (Thomson One Acquisition Techniques code (ATC) #12) for UK public companies that went private (ATC #11) between Jan 1st January 1997 and 31st December 2011. The initial sample consisted of 100 third-party LBOs and 145 MBOs. Financial services companies (12 third-party LBOs and 24 MBOs) and non-UK companies were eliminated from the sample, since they were subject to a different set of financial structures, regulatory disclosure requirements and corporate governance systems. The final sample consists of 76 third-party LBO and 108 MBO deals with full data available.

All data is taken from four sources. The deal information and the firms' annual reports were collected from the Thomson One Banker database, Thomson Research and the Nexis UK-Lexis database. All the corporate governance information was hand collected from companies' annual reports. The accounting and financial data were collected from DataStream.

4.2.2 Method of analysis

As previously discussed, this study analyses the moderating or mediating effects of board structures and board effectiveness on takeover premiums based on the following research models:

(1). Moderating analysis:

$$prem_{i,t} = \alpha_0 + \alpha_1 Board\ structures_{i,t} + \alpha_2 Board\ effectiveness_{i,t} + \alpha_3 Control\ variables\ 1_{\ i,t} + \varepsilon \quad (4.1)$$

$$prem_{i,t} = \alpha_0 + \alpha_1 Board\ structures_{i,t} + \alpha_2 Board\ effectiveness_{i,t} + \alpha_3 Board\ structures_{i,t} * Board\ effectiveness_{i,t} + \alpha_4 Control\ variables\ 1_{i,t} + \varepsilon \quad (4.2)$$

(2). Mediating analysis – mediating effects of board structures:

$$prem_{i,t} = \beta_0 + \beta_1 Board\ effectiveness_{i,t} + \beta_2 Control\ variables\ 1_{i,t} + \varepsilon \quad (4.3)$$

$$Board\ structures_{i,t} = \beta_0 + \beta_1 Board\ effectiveness_{i,t} + \beta_2 Control\ variables\ 2_{i,t} + \varepsilon \quad (4.4)$$

$$prem_{i,t} = \beta_0 + \beta_1 Board\ effectiveness_{i,t} + \beta_2 Board\ structures_{i,t} + \beta_3 Control\ variables\ 1_{i,t} + \varepsilon \quad (4.5)$$

(3). Mediating analysis – mediating effects of board effectiveness:

$$prem_{i,t} = \gamma_0 + \gamma_1 Board\ structures_{i,t} + \gamma_2 Control\ variables\ 1_{i,t} + \varepsilon \quad (4.6)$$

$$Board\ effectiveness_{i,t} = \gamma_0 + \gamma_1 Board\ structures_{i,t} + \gamma_2 Control\ variables\ 2_{i,t} + \varepsilon \quad (4.7)$$

$$prem_{i,t} = \gamma_0 + \gamma_1 Board\ structures_{i,t} + \gamma_2 Board\ effectiveness_{i,t} + \gamma_3 Control\ variables\ 1_{i,t} + \varepsilon \quad (4.8)$$

Regression analysis and structural equation modelling (SEM) are the most commonly used multivariate techniques for testing the moderating and mediating effects in the model (Kim et al., 2001; Ro, 2012). However, each of these statistical techniques has certain characteristics that determine its applicability for the analysis. Understanding the techniques and their characteristics are essential when selecting the most appropriate approach to the data.

4.2.2.1 Multiple regression approach

The multiple regression approach is a general statistical technique to explore and model the relationship between two or more variables. It is widely used to identify and evaluate the cause–effect relationships between independent and outcome variables. More specifically, regression analysis can help one to understand which independent variables are related to the dependent variables, and to explore the forms of these relationships (Tabachnick and Fidell, 2013). The OLS estimation is the most commonly used method to carry out regression analysis. Estimates in the multiple regression approach are based on coefficients that minimise the error sum of squares (Muthén and Muthén, 1998).

Multiple regression analysis is an excellent tool to predict variance in a continuous dependent variable, based on linear combinations of continuous, dichotomous or dummy independent variables (Ro, 2012). It allows the researcher to control for many other factors that simultaneously affect the dependent variable (Wooldridge, 2015). It also works in small data sets (Kuiper, 2008; Freund et al., 2006). However, there are some limitations when using the multiple regression approach.

First, in moderation analysis, the interaction terms (*X**Mo*) are added to the regression model to measure the joint effect of the independent (*X*) and moderator (*Mo*) variables (i.e. $Y = \alpha_0 + \alpha_1 X + \alpha_2 Mo + \alpha_3 X * Mo + \varepsilon$). However, the creation of the interaction term can lead to the independent and moderator variables generating compound measurement errors that dramatically reduce the reliability of the interaction term, particularly when the measurement error in the independent and moderator increases (Aguinis et al., 2001; Jaccard and Wan, 1996). In turn, the low reliability of the interaction term can reduce the power of the test (Frazier et al., 2004), thus resulting in an underestimation of the moderating effects (Holmbeck, 1997). Therefore, due to the increase in measurement errors of the independent and moderator variables, regression analysis could underestimate the size of the effect of the interaction term (Holmbeck, 1997; Jaccard and Wan, 1996). SEM is suggested as an alternative test method, because the measurement errors in SEM can be controlled, thus minimising the problem of underestimation (Holmbeck, 1997; Hoyle and Smith, 1994). However, when the independent and moderator variables are continuous latent variables with multiple indicators, SEM is more complicated for testing interactions due to multiple interaction term indicators. It is suggested that the continuous moderator should turn into a categorical variable and then a multi-group approach should be used (Ro, 2012).

Second, in the regression model, there is no distinction between a moderator (*Mo*) and an independent (*X*) variable (see Equation 4.2 in section 4.2.2). In moderation analysis, a moderator (*Mo*) interacts with the independent variable (*X*) so that the relationship between independent (*X*) and outcome (*Y*) variables depends on the level or value of the moderator (*Mo*) (Ro, 2012). However, from the regression equation, this conditional relationship is symmetrical (Cohen et al., 2013). It can also be assumed that the relationship between moderator (*Mo*) and outcome (*Y*) variables depends on the level or value of the independent (*X*) variable. In other words, the regression model for Variable A which moderates the relationship between Variable B and Variable C (i.e. $C_Y = \alpha_0 + \alpha_1 B_X + \alpha_2 A_{Mo} + \alpha_3 B_X * A_{Mo} + \varepsilon$), and the regression model for Variable B which moderates the relationship between Variable A and Variable C (i.e. $C_Y = \alpha_0 + \alpha_1 A_X + \alpha_2 B_{Mo} + \alpha_3 A_X * B_{Mo} + \varepsilon$) are the same. This means that if the regression analysis finds a moderating effect, it is difficult to know whether the moderator is Variable A or B. Therefore, the multi-group approach of SEM is suggested to be followed.

4.2.2.2 Structural equation modelling (SEM)

Structural equation models are a powerful statistical modelling technique that allows complex relationships between one or more independent and outcome variables (Hox and Bechger, 1998). They usually have two parts: a measurement model and a structural model. Simply, a measurement model is analogous to a confirmatory factor analysis, which is essential to examine the relationship between indicators and latent variables. The structural model is used to represent the pattern of variation and/or correlation among the constructs (e.g. among observed variables, among latent variables or between observed and latent variables) (Hoyle, 2014). SEM usually consists of many regression equations. Each equation in a structural equation model is much like a standard linear regression model. SEM is capable of simultaneously examining a set of interrelated dependence relationships among constructs (Amorim et al., 2010; Hoyle, 2014).

In particular, SEM is an analytical tool for moderating and mediating analysis, which is often based on the maximum likelihood method – an estimation method that chooses the set of parameter values with the highest probability of generating the sample observations (Valluzzi et al., 2003). Although multiple regression analysis is useful for testing moderating and mediating effects, SEM has some advantages over regression in investigating these effects. First, in SEM, the multiple group approach is used to detecting the moderating effects when the moderator is categorical. Compare with multiple regression analysis, SEM is able to distinguish independent (*X*) from the moderator (*Mo*) (Ro, 2012).

Second, SEM is particularly useful when the study has multiple indicators for the unobserved (or latent) variables under investigation (Pedhazur, 1997; Holmbeck, 1997). SEM is able to link observed indicators to latent variables that provide separate estimates of relations among latent variables and their manifest indicators (Tomarken and Waller, 2005; Valluzzi et al., 2003).

Third, SEM allows the researchers to investigate more complicated models, which may include multiple mediators, moderators and dependent variables (Hoyle and Smith, 1994). Bollen (2014) suggests that SEM enables researchers to characterise real-world processes better than simple correlation-based models via the complicated causal networks among variables. Iacobucci et al. (2007) and Zhao et al. (2010) suggest that simultaneously fitting components of models in SEM is more efficient for the analysis of mediating effects than the multiple regression approach that offering three regression pieces.

Fourth, SEM not only allows the analyst to make quantitative estimates of model parameters but also to estimate the goodness of fit of the data to the model. Although there is a wide variety of criteria (fitting indexes) to assess how well the data fit the model, there is no general agreement about the appropriateness of the tests (Mehdi Karimimalayer and Anuar, 2012). The key fitting indexes are presented below:

The likelihood-ratio chi-square (χ^2) is the most basic model test statistic. Technically, the chi-square (χ^2) statistic compares whether the actual data and the theoretical structure of the model are different from each other; therefore, the chi-square (χ^2) test should be insignificant when indicating a good model fit (Munro, 2005; Kline, 2015; Blunch, 2012). However, the chi-square (χ^2) test is likely to have a number of limitations in its use. For example, some analysts such as Hayduk et al. (2007) and Yuan et al. (2005) suggest that the value of the chi-square (χ^2) can be affected by the particular pattern and severity of non-normality, so that the model fit appears either worse or better than it really is. Moreover, Kline (2015) argues that the chi-square (χ^2) test has limitations, where high correlations among observed variables generally lead to a high value of the chi-square (χ^2) for incorrect models. Jöreskog and Sörbom (1989), Kim et al. (2001) and Mehdi Karimimalayer and Anuar (2012) do not recommend the chi-square (χ^2), because it is highly related to the volume of the sample, and a small sample decreases the quality of the chi-square (χ^2).

Due to the restrictiveness of the chi-square (χ^2), alternative indices are employed to assess the model fit. One example of a statistic that reduces the sensitivity of the chi-square (χ^2) model to the sample size, the ratio of χ^2 to the degrees of freedom, is sometimes examined. Although there is no consensus regarding an acceptable ratio for this index, Hair (1995), Hair (1998) and Hair et al. (2013) suggest that the ratio of χ^2 to the degrees of freedom should be between 1 and 2. Chin and Todd (1995) recommend that a ratio of the chi-square (χ^2) to the degrees of freedom smaller than 3:1 is acceptable.

In addition, the goodness of fit (GFI) is an absolute fit index for an alternative use of the chi-square (χ^2) that estimates the proportion of variances or covariance in the sample data explained by the model (Kline, 2015; Gefen et al., 2000). That is to say, the GFI estimates how much better the structural model fits compared with no model at all (Jöreskog, 2004). The range of values for goodness of fit (GFI) is generally between 0 and 1, where 1 indicates the best fit (Kline, 2015; Mehdi Karimimalayer and Anuar, 2012). The goodness of fit index (GFI) is acceptable for amounts more than 0.09 (Mehdi Karimimalayer and Anuar, 2012; Hair et al., 2010). A general formula is:

$$GFI = 1 - \frac{C_{residual}}{C_{total}} \tag{4.9}$$

Where $C_{resdual}$ and C_{total} estimate, respectively, the residual and total variability in the sample covariance matrix (Jöreskog, 2004). However, a limitation of the goodness of fit (GFI) is that this index may vary with the size of the sample (Kline, 2015). The study by Marsh et al. (1988) finds that mean values of goodness of fit (GFI) tend to increase along with the sample size. Kline (2015) suggests that the value of goodness of fit (GFI) may sometimes fall outside the range 0 to 1. A GFI greater than 1 can be found with just identified models or with over identified modes where the chi-square(χ^2) is close to 0, and values of GFI less than 0 are most likely to be found in small samples or when the model fit is very poor.

The Bentler & Bonett comparative fit index (CFI) is an incremental fit index that measures the relative improvement in the fit of the hypothesised model over that of a baseline model, typically an independence model (Kline, 2015). The range value of this index is between 0 and 1, where a value of CFI close to 1 indicates a better fit. The CFI is acceptable for amounts greater than 0.09 (Mehdi Karimimalayer and Anuar, 2012; Hair et al., 2010). The formula is:

$$CFI = 1 - \frac{\chi_M^2 - df_M}{\chi_B^2 - df_B} \tag{4.10}$$

Where χ_M^2 and df_M are the chi-square and the degree of freedom of the hypothesised model respectively; and χ_B^2 and df_B are the chi-square and the degree of freedom of the baseline model respectively (Kline, 2015). This index is one of the most popular fit indices, as it is less affected by sample size than other tests (Fan et al., 1999).

However, the CFI is often criticised when the baseline model is independent. The independence model is the default baseline model, which assumes all relationships among measured variables are zero. In practice, the assumption of zero covariance among the observed variables in the independent model is improbable in most studies. Therefore, the finding of an improved fit of the hypothesised model over the corresponding independence model is not very impressive (Kline, 2015).

The root mean square residual (RMR) is an absolute fit index that is used to measure the differences between the observed and predicted covariances, based on the residual (Kline, 2011). The perfect model fit is indicated by an RMR equal to zero, and a large RMR value indicates a poorly fitting model. However, as the RMR is computed with unstandardised variables, if the scales of these observed variables are all different, it is difficult to interpret a given value of the RMR (Kline 2015). Therefore, the standardised root mean square residual (SRMR) is computed. Values for the SRMR range from 0 to 1, where a value of 0 indicates a perfect model fit. Hu and Bentler (1999) suggest that values of SRMR less than 0.08 are deemed acceptable (SRMR ≤0.08). Similarly, Kline (2015) suggests that an SRMR higher than 0.1 indicates a poor fit. However, it must be noted that the SRMR will be lower when there is a large sample size (Hooper et al., 2008).

The root mean square error of approximation (RMSEA) is an absolute fit index, which indicates the badness of fit where a value of zero indicates the best fit (Kline, 2015). Specifically, if $\chi_M^2 \leq df_M$, then RMSEA=0, but this result does not necessarily mean a perfect fit. For models where $\chi_M^2 > df_M$, the value is calculated by the formula:

$$RMSEA = \sqrt{\frac{\chi_M^2 - df_M}{df_M(N-1)}} \qquad (4.11)$$

Where χ_M^2 is the chi-square of the hypothesised model and df_M is the degree of freedom of the hypothesised model. The original threshold from Browne and Cudeck (1993) suggest that RMSEA ≤ 0.05 may indicate a good fit. They also suggest that an RMSEA in the range of 0.05 to 0.1 is considered as an indication of fair fit and RMSEA ≥ 0.1 may indicate a serious problem. MacCallum et al. (1996) suggest that an RMSEA in the range of 0.08 to 0.1 provides a mediocre fit and values below 0.08 show a good fit.

However, RMSEA has some limitations. First, the interpretation of RMSEA and the lower and upper bounds of its confidence interval requires that this statistic follows non-central chi-square distributions. The studies by of Olsson et al. (2004) and Yuan (2005) suggest that the empirical distributions often do not typically follow non-central chi-square distributions, and they therefore question the generality of thresholds for RMSEA. Second, Breivik and Olsson (2001) suggest that RMSEA may favour larger models over smaller ones. This is because smaller models are likely to have relatively fewer degrees of freedom than larger models that may increase the value of RMSEA. Therefore, RMSEA tends to impose a harsher requirement for smaller models to satisfy the threshold criteria.

SEM techniques may also have some limitations in an analysis. First, SEM is only rarely used to test interaction hypotheses (i.e. moderating effects) (Tomarken and Waller, 2005). Although the multiple-group approach is a valuable SEM strategy for testing moderating effects, it has limitations when both independent (*X*) and moderator (*Mo*) are continuous variables (Tomarken and Waller, 2005; Ro, 2012).

Moreover, the specification and estimation of a SEM model with latent variable interactions are associated with potential problems and complexities. Researchers have to test the latent interaction effects by computing all possible products of the measured indicators and creating indicators of latent interaction variables. To avoid complications, researchers have to convert the continuous moderator (*Mo*) into a categorical variable and then use the multi-group approach (Tomarken and Waller, 2005; Ro, 2012). However, this artificial grouping may result in loss of information and reduction in power to detect interaction effects, which is a Type II error (Frazier et al., 2004; Fitzsimons, 2008). Furthermore, the artificial dichotomising of two continuous variables (independent (*X*) and moderator (*Mo*)) may result in the opposite effect and spurious main and interaction effects, which is a Type I error (Irwin and McClelland, 2001; MacCallum et al., 2002).

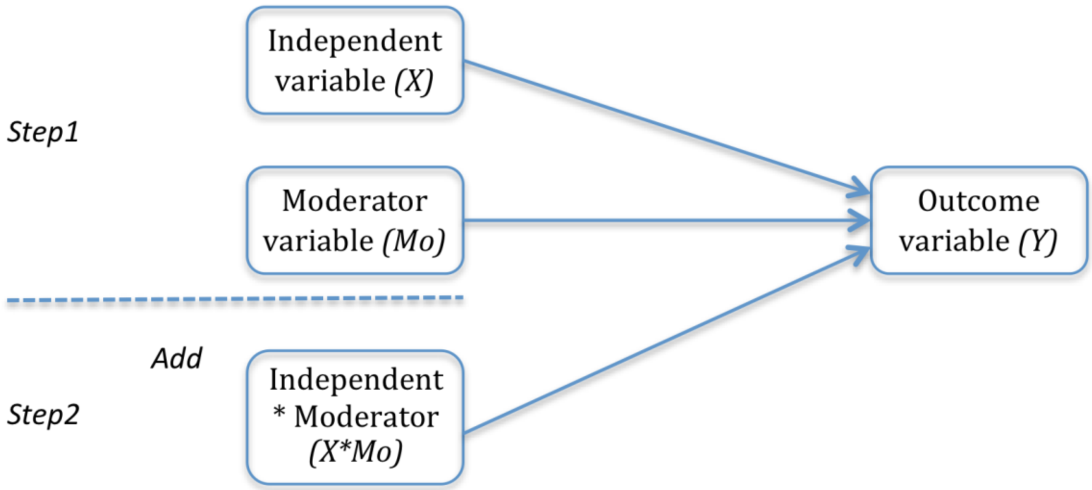
Third, although attempts have been made to accommodate smaller sample analysis (e.g. Nevitt and Hancock, 2004), it is still generally true that SEM is a large sample technique (Kline, 2015; Tomarken and Waller, 2005). Jackson (2003) suggests that the ideal sample size-to-parameters ratio should be 20:1. A less ideal sample size-to-parameter ratio should be 10:1. Kline (2015) suggests that the ‘typical’ sample size in studies that use the SEM approach is about 200. Failure to meet this requirement may mean that the SEM approach is untenable, because the maximum likelihood does not perform well in the presence of small samples (Kline, 2015). Kenny (2014) also suggests that small sample sizes may result in a Type I error. Considering the strengths and limitations of the multiple regression and SEM approaches, this study uses both approaches in examining the moderation and mediating effects of board structures and board effectiveness in the third-party LBO and MBO samples.

4.2.3 Statistical strategies for testing moderating effects

Moderator variables can exist at the continuous and categorical level (Baron and Kenny, 1986; Ro, 2012). Depending on the type of moderator variables, different statistical analyses are used to measure and test the moderating effects. This study uses two types of statistical strategies in testing the moderating effects of board structures and board effectiveness on takeover premiums, which are multiple regression analysis and SEM (Baron and Kenny, 1986; Ro, 2012).

4.2.3.1 Multiple regression approach

Figure 4.3 Statistical model of moderation effects – Multiple regression approach



4.2.3.1.1 Continuous moderator variables

When independent and moderator variables are continuous scales, multiple regression analysis is used to test moderating effects. Figure 4.3 depicts the multiple regression approach for moderating effects as a path diagram. A moderating effect is an interaction effect, which represents a joint effect of the independent (*X*) and moderator (*Mo*) variables. Sometimes researchers (e.g. Appel et al., 2011; O'Donnell et al., 2006; Tiggemann, 1997) have tested the moderating effects by using a single model in which the interaction terms are entered with independent and moderator variables simultaneously. However, in this case, the main effects of the independent and moderator variables on the outcome variable (*Y*) cannot be seen, unless the interaction term is entered in a separate step (Ro, 2012). Thus, the usual procedure is to use the multi-step regression approach to test the moderating effects.

The procedure for the regression approach to testing moderating effects consists of two steps (see Figure 4.3). In the first step of the regression, the independent variable (*X*) and the moderator (*Mo*) are entered into the regression equation to test their main effects on the outcome variable (*Y*). In order to test the moderating effects, the independent variable (*X*) and/or the moderator (*Mo*) do not have to be significant to affect the outcome variable (*Y*). In the second step, an interaction term, the product of the independent and moderator variables (*X*Mo*), is added into the equation. A t-test of the regression coefficient associated with the interaction term (*X*Mo*) is one way to determine whether there is a statistical moderating effect. If the coefficient of the interaction term (*X*Mo*) explains a statistically significant amount of variance in the outcome variable (*Y*), it could be argued that a moderating effect exists (Baron and Kenny, 1986; Ro, 2012; Hayes, 2013). In lieu of the t-test, one can also evaluate the moderating effects according to the significance of the change in R squared ($\triangle R^2$) for the models with and without the interaction term added model (Aiken et al., 1991; Ro, 2012). The $\triangle R^2$ test is distributed as an F-statistic.

4.2.3.1.2 Categorical moderator variables

When the independent variable is continuous and the moderator is a categorical variable, the first step is to code the categorical variable. Similarly to the above procedure, the next step is to test the main effects of the independent variable (*X*) and the moderator (*Mo*) on the outcome variable (*Y*). The product of the independent and moderator variable (*X*Mo*) needs to be created for each level of the code variable. Then, the independent (*X*), the moderator (*Mo*) and their product term are entered into the model to test for moderating effects. Depending on the value of the moderator variable, several different regression slopes, rather than just one, represent the association between the independent (*X*) and the outcome (*Y*) variables (Ro, 2012).

4.2.3.1.1 Regression analysis

To illustrate the impact of the moderator at different levels, simple regression equations are then required to solve for each level of the moderator variables. Several steps are required to interpret the significant moderating effects at each level. First, the study has to calculate the low, medium and high levels for the independent (*X*) and moderator (*Mo*) variables which are usually defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for medium levels and the 67th to the maximum for high levels (Osborne, 2012). Simple regression equations are then solved for each level of the moderator. The regression lines obtained for low, medium and high values of the moderators are then plotted to determine whether there is a decreasing, enhancing or situation-specific effect of the moderator (Holmbeck, 1997; Cohen et al., 2013; Aldwin and Werner, 2012).

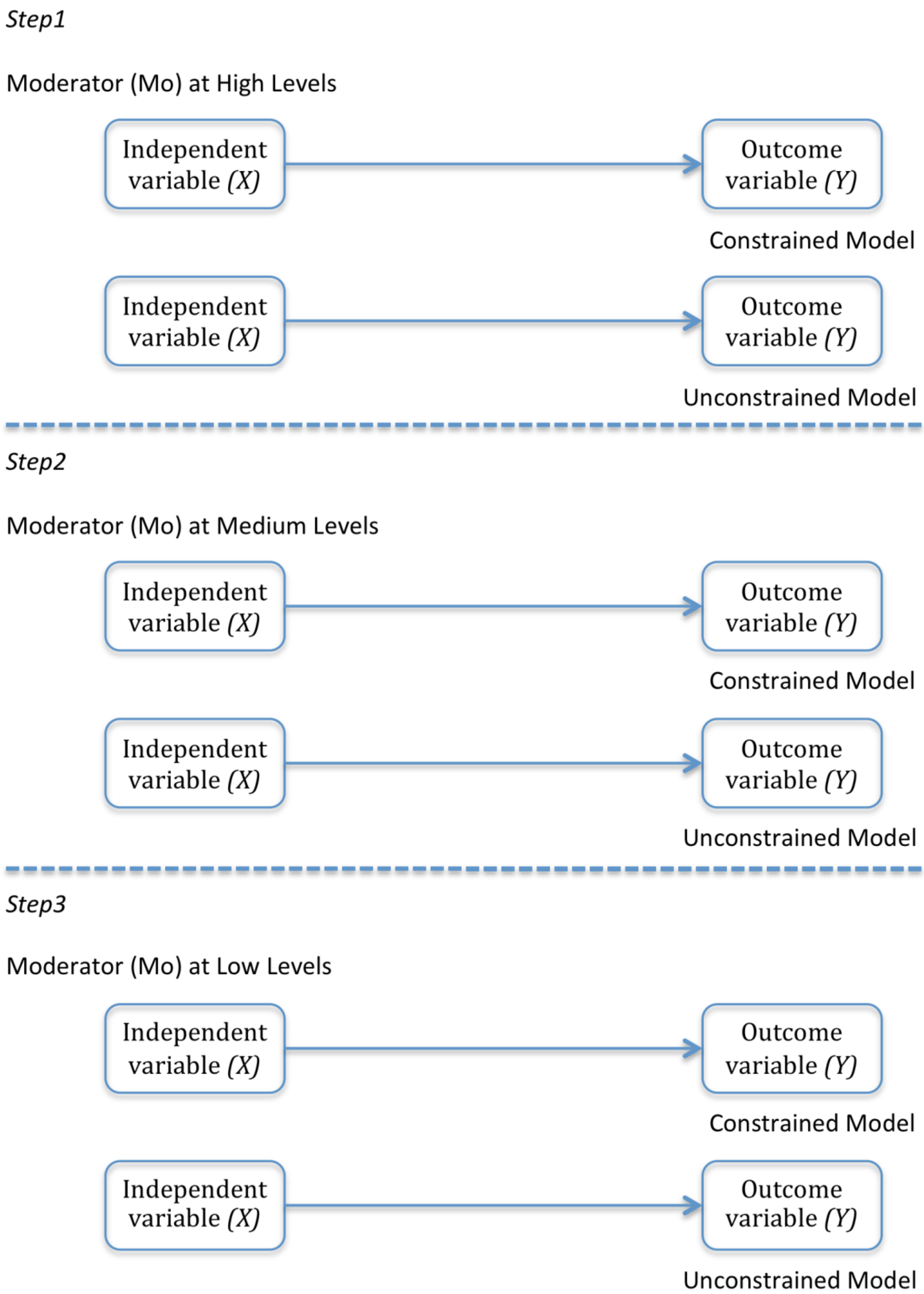
Moreover, given the manner in which the interaction term (*X*Mo*) is created, the independent and moderator variables are likely to be highly correlated with the interaction term. This might cause a multicollinearity problem, which may lead to 'bouncing betas', whereby the direction of the beta terms may switch from previously positive to negative relationships or vice versa (Cohen et al., 2013). Previous studies (e.g. Frazier et al., 2004; Cohen et al., 2013; Hayes, 2013; Kim and Dong-Ku, 1999; Aho, 2013) recommend that the predictor and moderator variables, which are measured on a continuous scale, should be centred or standardised to reduce the problems associated with multicollinearity among the variables in the moderation analysis.

This study applies the approach of standardising (subtracting the sample mean then divided by standard deviation) continuous independent and moderator variables, as doing so makes it easier to plot significant moderating effects (Cohen, 2003). Moreover, standardisation is easy to create within standard statistical packages. Therefore, this study standardises the proxies for board structures including board size (*bsize*), the proportion of non-executives on the board (*ned*), as well as the proxy for board effectiveness – the levels of accounting conservatism (*cscore*) – in the regression approach to test moderating effects.

4.2.3.1 Structural equation modelling (SEM)

When the moderator is categorical, particularly dichotomous, a straightforward multi-group approach is to be used to test the moderating effects in the SEM strategy (Ro, 2012). However, when the independent (*X*) and moderator (*Mo*) are continuous variables, the SEM strategy can test moderating effects by turning the continuous moderator (*Mo*) into a categorical variable (Ro, 2012). Hence, the low, medium and high levels for moderator (*Mo*) variables are calculated, by defining the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for medium levels and the 67th to the maximum for high levels (Osborne, 2012).

Figure 4.4 Statistical model of moderation effects – SEM approach



A multi-group approach is used to model moderating effects in an SEM strategy in which the relation between the independent and the outcome variables is estimated separately for the multi-groups (Ro, 2012; Baron and Kenny, 1986). Specifically, to test for the presence of moderating effects, the overall fit of the model is assessed under the conditions (1) when the relationship between the independent (*X*) and outcome (*Y*) variables is equal for moderator (*Mo*) (constrained model: an assumption without interaction effects) and (2) when the relationship between the independent (*X*) and outcome (*Y*) variables can vary by moderator (*Mo*) (unconstrained model: an assumption of interaction effects) (see Figure 4.4). Two models are compared, and if there is a significant improvement in the model fit, it would indicate that the moderating effect is present (Han et al., 2009; Ro, 2012). To conduct the multi-group analysis, an SEM is run by adding the hypothesised paths between variables. The specific path across groups is then assessed to compare the particular parameter difference. In particular, the nested models are compared with the baseline model, each with a specific parameter constraint between groups, by using a chi-square difference test (Han et al., 2009).

4.2.4 Statistical strategies for testing mediating effects

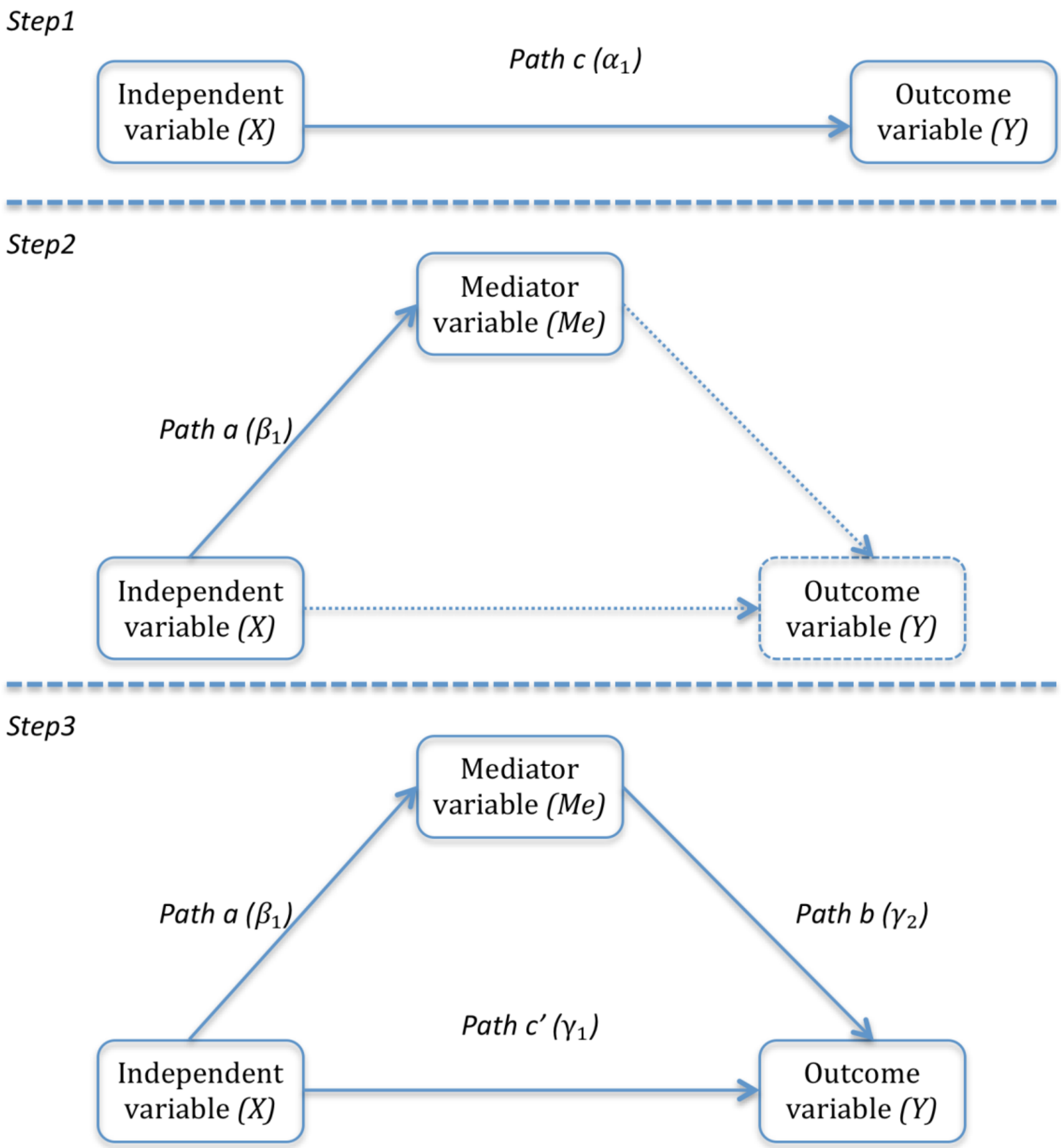
The mediation analysis implies a causal chain where the independent variable (*X*) is likely to affect the mediator (*Me*), which in turn affect the outcome variable (*Y*). Both the multiple regression and SEM approaches are able to test the mediating effects.

4.2.4.1 Multiple regression approach

Path analysis is a series of regression equations that track the direct and indirect pathways between predictor (including independent (*X*) and mediator (*Me*) variables) and outcome variables (*Y*). According to Baron and Kenny (1986), four conditions can be tested with three regression models in mediation analysis (see Figure 4.5). In the first regression, the significance of the path from the independent variable (*X*) to the outcome variable (*Y*) is examined.

However, previous studies Kenny (2008), Kenny et al. (1998) and Zhao et al. (2010) argue that this first step is not required, because there might be a chance that when direct and indirect effects are opposite in sign, the first step may not be met, but mediation still exists. Shrout and Bolger (2002) suggest that the inclusion of the first step is based on the argument whether the independent variable (*X*) is temporally distal or proximal to the outcome variable (*Y*). Therefore, they recommend skipping the first step when the independent variable (*X*) is distal, as such studies often lack power to detect the direct relationship between independent (*X*) and outcome (*Y*) variables. In the second regression model, the significance of the path from the independent variable (*X*) to the mediator variable (*Me*) is tested. In the third regression model, the independent variable (*X*) and the mediator variable (*Me*) are simultaneously entered into the model with the outcomes variable (*Y*) (*X, Me→ Y*) (Baron and Kenny, 1986; Kim et al., 2001). Two conditions must be met here, if mediating effects exist: (1) the mediator (*Me*) is significantly related to the outcome variable (*Y*) after controlling for the effect of the independent (*X*) variable on the outcome (*Y*) variable and (2) comparing the difference of the effect of the independent variable (*X*) and outcome variable (*Y*) when the model includes the mediator (*Me*) and when it does not (Baron and Kenny, 1986; Ro, 2012). If the relation between the independent variable (*X*) and the outcome variable (*Y*) is significantly smaller when the model contains the mediator (*Me*) than when it does not, but is still greater than zero, it is called a partial mediation. If the relation between the independent variable (*X*) and the outcome variable (*Y*) is zero when taking into account the mediator (*Me*), this is called complete (full) mediation (Baron and Kenny, 1986).

Figure 4.5 Statistical model of mediation effects – Multiple regression approach



To test the significance of the mediating effect (the difference between paths c and c'), Sobel's (1982) z-test is one of the most well-known methods, where $Z = \beta_1 * \gamma_2 / S_{\beta_1 \gamma_2}$. Specifically, β_1 is the coefficient for the independent variable (*X*) in predicting the mediator (*Me*); γ_2 is the coefficient for the mediator (*Me*) in predicting the outcome variable (*Y*) when the controlling independent variable (*X*) is in the model; $S_{\beta_1 \gamma_2} = \sqrt{\beta_1^2 * S_{\gamma_2}^2 + \gamma_2^2 * S_{\beta_1}^2}$ is the variance of the $\beta_1 * \gamma_2$ coefficient; S_{β_1} is the variance of the β_1 coefficient; and S_{γ_2} is the variance of the γ_2 coefficient (Fairchild and McQuillin, 2010; Fairchild and MacKinnon, 2009). However, Sobel's z-test has a limitation, which is that it requires the sampling distribution of the indirect effect to be normal (Ro, 2012). When the sample size is small or medium, there might be a non-normal sample distribution of the indirect effect, and therefore Sobel's z-test may not be appropriate (MacKinnon et al., 1995).

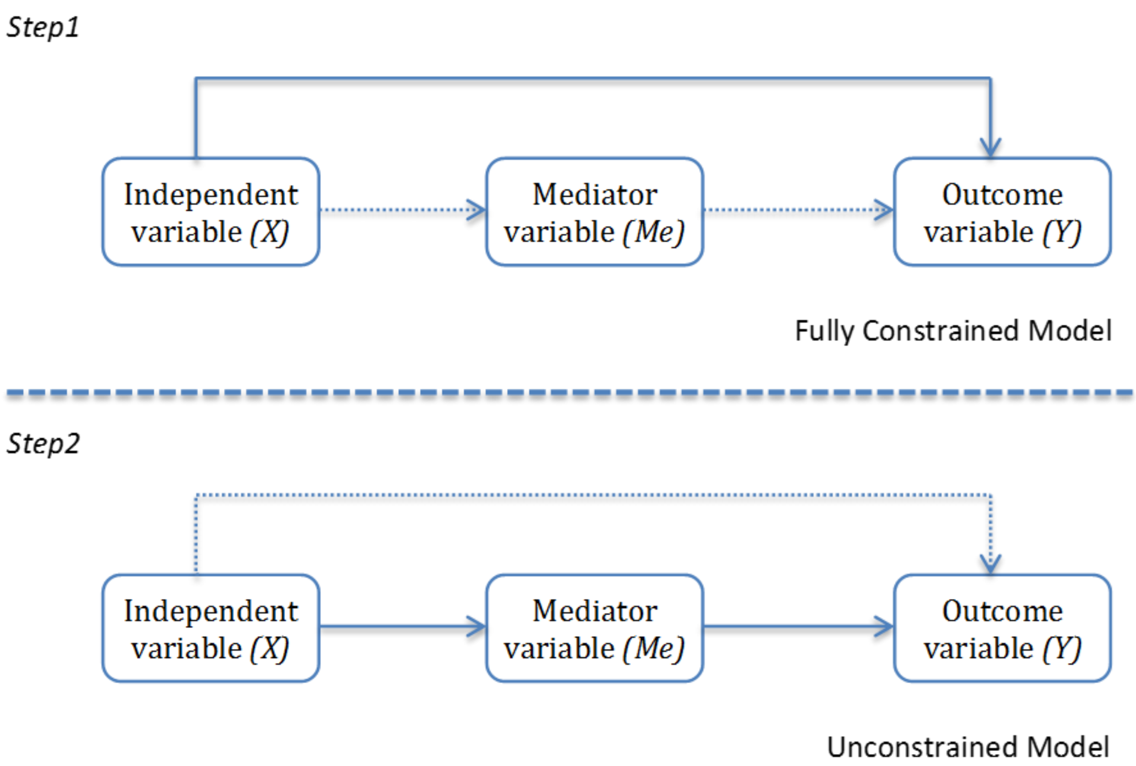
Recently, an alternative procedure, the bootstrapping procedure, has been suggested to replace Sobel's z-test in testing the significance of the mediating effect (Cheung and Lau, 2008; Hayes, 2009; Shrout and Bolger, 2002). The bootstrapping approach is based on repeatedly resampling during analysis (Hayes, 2009; Shrout and Bolger, 2002). The coefficients β_1 and γ_2 are estimated from this resampled data set and the product of the path coefficient is recorded (MacKinnon et al., 2007; Hayes, 2009).

4.2.4.2 Structural equation modelling (SEM)

SEM strategies are an alternative approach to test mediating effects which are based on maximum likelihood analysis (Ro, 2012; Kim et al., 2001). The logic for testing a mediating effect in SEM is similar to that in the regression approach. First, the study should assess the fit of the direct effect of the independent (*X*)→ outcome (*Y*) model. Assuming an adequate fit, it then tests the fit of the independent (*X*)→ mediator (*Me*)→ outcome (*Y*) model. If the overall model provides an adequate fit, the independent (*X*)→ mediator (*Me*) path and the mediator (*Me*)→ outcome (*Y*) path coefficients are examined (Ro, 2012).

However, Holmbeck (1997) suggests that it is relatively common only to test the significance of an indirect pathway in mediation analysis when using the SEM approach.

Figure 4.6 Statistical model of mediation effects – SEM approach



To test the significance of the mediated effect, the fit of the independent (*X*)→ mediator (*Me*)→ outcome (*Y*) model is tested under two conditions: (1) when the independent (*X*)→ outcome (*Y*) path is constrained to zero (which means the path is not estimated), and (2) when the independent (*X*)→ outcome (*Y*) path is not constrained (see Figure 4.6) (Holmbeck, 1997; Kim et al., 2001). The modification index for the constrained path provides a guide to decide whether the path should be included or deleted (generally, a modification index value of < 2 means that to add the path would not significantly improve the overall fit of the model) (Kim et al., 2001). The mediating effect is present if the independent (*X*)→ outcome (*Y*) path of the constrained model does not improve the fit. This means that the independent (*X*)→ outcome (*Y*) path is reduced to non-significant (i.e. it does not improve the fit of the model) when the mediator

(Me) is included in the model. However, if the independent (X)→ outcome (Y) path remains significant even when the mediator (Me) is included in the model, the mediating effect cannot be assumed (Holmbeck, 1997; Kim et al., 2001). Finally, Sobel's z-test and bootstrapping are suggested to explicitly test the relative size of the mediated path (independent (X)→ mediator (Me)→ outcome (Y)) versus the direct path (independent (X)→ outcome (Y)) (Iacobucci et al., 2007). If the size of the mediated path is significantly greater than that of the direct path, then it is assumed that there is a significant mediating effect (Ro, 2012).

4.2.5 Hypotheses

4.2.5.1 Moderation effects

In this study, the moderation analysis is used to explain the condition under which the relationship between board effectiveness (or board structures) and takeover premiums occurs. As previous research (e.g. Yermack, 1996; Hermalin and Weisbach, 1991; Bøhren and Strøm, 2010; Klein, 1998; Belkhir, 2009; Pacini et al., 2008; Bliss, 2011; Brickley et al., 1997) has found inconsistent relationships between board effectiveness (or board structures) and takeover premiums, this study makes hypotheses that this relationship might be strengthened or weakened by the moderators of board structures (or board effectiveness).

In the first place, this study tests the moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBOs and MBOs. It is expected that good board structures can provide better opportunities or conditions for directors to work together that are able to enhance the impact of board effectiveness encapsulates directors' knowledge, expertise and expertise on shareholder wealth maximisation.

Specifically, large board size is expected to provide large pool or opportunities for directors that enable them to have variety backgrounds, greater breadth of experience, expertise and resources to be more effective to contribute to the shareholder wealth protection (Klein, 2002b; Pacini et al., 2008; Belkhir, 2009; Goodstein et al., 1994). Moreover, Gertner and Kaplan (1996) and Larmou and Vafeas (2010) suggest that board with large size can lead to less workload for individual directors that provide good opportunities and conditions for the board of directors to better utilise their knowledge, ability and resources to effectively protect the shareholder wealth. However, the opposite view suggests that smaller boards are able to provide opportunities or conditions for directors to better communicate and coordinate with each other that may enhance the shareholder wealth (Lehn et al., 2009; Harris and Raviv, 2008; Lipton and Lorsch, 1992; Jensen, 1993). Therefore, board effectiveness is expected to better contribute to the shareholder wealth protection when the board is better structured. Accordingly, it is hypothesised that:

$H_{4.1a}$: The board size moderates the relationship between board effectiveness and takeover premiums in a third-party LBO setting such that the relationship is more positive when the board size is small than when it is large.

$H_{4.1b}$: The board size moderates the relationship between board effectiveness and takeover premiums in an MBO setting such that the relationship is more positive when the board size is small than when it is large.

Moreover, the large proportion of non-executives are expected to offer more opportunities for the board of directors to provide effective monitoring and control that can better contribute to the shareholder wealth protection (Baysinger and Butler, 1985; Buchholtz and Ribbens, 1994; Cotter et al., 1997; Ajinkya et al., 2005; Lara et al., 2007; Guo and Masulis, 2015). However, Patton and Baker (1987), Gilson and Kraakman (1991) and Zattoni and Cuomo (2010) suggest that non-executives may lack time, information and expertise, which provide poorly conditions and opportunities for directors to challenge the decision of management. This may reduce the efficiency of board control and monitoring that deteriorate the interests of shareholders. Besides, as the non-executives may lack knowledge and acquaintance with insiders, the large proportion of non-executives may provide poorly conditions for directors' communication and collaboration that may hamper the shareholder wealth

(Wan and Ong, 2005; Levrau and Van den Berghe, 2007). Hence, this study makes hypotheses that:

$H_{4.2a}$: The proportion of non-executives on the board moderates the relationship between board effectiveness and takeover premiums in a third-party LBO setting such that the relationship is more positive when the proportion of non-executives is high than when it is low.

$H_{4.2b}$: The proportion of non-executives on the board moderates the relationship between board effectiveness and takeover premiums in an MBO setting such that the relationship is more positive when the proportion of non-executives is high than when it is low.

Furthermore, duality may enable CEOs to have more concentrated power and position, which offering poor conditions or situations for board monitoring and control that may hamper the shareholder wealth maximisation (Cornforth, 2001; Elsaid and Davidson, 2009). Additionally, the concentrated power and position of CEOs may provide opportunities for them to engage in self-interested activities rather than protecting the interests of shareholders (Rechner and Dalton, 1991; Kim et al., 2009; Desai et al., 2003). Therefore, this study makes hypotheses that:

$H_{4.3a}$: CEO duality moderates the relationship between board effectiveness and takeover premiums in a third-party LBO setting such that the relationship is more negative when firms have CEO duality rather than a separate CEO and chairman.

$H_{4.3b}$: CEO duality moderates the relationship between board effectiveness and takeover premiums in an MBO setting such that the relationship is more negative when firms have CEO duality rather than a separate CEO and chairman.

In the second place, this study examines the moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBOs and MBOs. Previous studies (e.g. Yermack, 1996; Eisenberg et al., 1998; Belkhir, 2009; Pacini et al., 2008; Baliga et al., 1996; Bliss, 2011; Elsayed, 2007; Klein, 1998; Bøhren and Strøm, 2010; Hermalin and Weisbach, 1991) have found an inconsistent relationship between board structures and performance outcomes. High levels of board effectiveness may indicate that boards have more knowledge, expertise, experience and skills, which is expected to provide better opportunities or conditions for directors to facilitate the association between board structures and shareholder wealth protection. Therefore, board structures include board size, the proportion of non-executives and CEO duality are expected to better contribute to the shareholder wealth protection when the board has high levels of effectiveness. Consequently, this study makes the following hypotheses that:

$H_{4.4a}$: Board effectiveness moderates the relationship between board size and takeover premiums in a third-party LBO setting such that the relationship is more negative when board effectiveness is high than when it is low.

$H_{4.4b}$: Board effectiveness moderates the relationship between board size and takeover premiums in an MBO setting such that the relationship is more negative when board effectiveness is high than when it is low.

$H_{4.5a}$: Board effectiveness moderates the relationship between the proportion of non-executives on the board and takeover premiums in a third-party LBO setting such that the relationship is more positive when board effectiveness is high than when it is low.

$H_{4.5b}$: Board effectiveness moderates the relationship between the proportion of non-executives on the board and takeover premiums in an MBO setting such that the relationship is more positive when board effectiveness is high than when it is low.

$H_{4.6a}$: Board effectiveness moderates the relationship between CEO duality and takeover premiums in a third-party LBO setting such that the relationship is more negative when board effectiveness is high than when it is low.

$H_{4.6b}$: Board effectiveness moderates the relationship between CEO duality and takeover premiums in an MBO setting such that the relationship is more negative when board effectiveness is high than when it is low.

4.2.5.1 Mediation effects

In contrast, mediation analysis usually concerns with the mechanisms that how and why the board structures (or board effectiveness) could affect the takeover premiums. In another word, board effectiveness (or board structures) is supposed to explain the relationship between board structures (or board effectiveness) and takeover premiums. Therefore, this research makes hypotheses that board structures (or board effectiveness) could affect the takeover premiums through the mediator of board effectiveness (or board structures).

First, this study tests the mediating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBOs and MBOs. It is expected that good board structures can improve the shareholder wealth due to the enhanced board effectiveness. In particular, good board structures enhance the effectiveness of board by enriching the directors' knowledge, expertise and expertise, and enhancing their abilities of monitoring, control, communication, collaboration and corporation. The high levels of board effectiveness such as effective control and monitoring, better corporation and collaboration and directors' enriched knowledge, expertise and experience are likely to contribute to the increase of shareholder wealth.

Previous studies (Pfeffer, 1973; Pearce and Zahra, 1992; Klein, 2002b; Pacini et al., 2008; Belkhir, 2009) suggest that large boards can improve the effectiveness of boards by broadening the backgrounds and bring more experience, expertise and skilled directors to the boards. Gertner and Kaplan (1996) and Larmou and Vafeas (2010) suggest that large boards can reduce the workload for individual directors, which can improve the effectiveness of boards, as the directors are likely to have less time commitment requirement. However, Lipton and Lorsch (1992), Jensen (1993), Yermack (1996), Lehn et al. (2009) and Harris and Raviv (2008) argue that boards with more members may have communication and coordination problems that hamper the board effectiveness.

Whereas the levels of board effectiveness, which encapsulates directors' knowledge, experience, expertise, skills, engagement and integrity, is expected to affect the ability of directors in discharging their responsibilities that can contribute to the size of takeover premiums. Wan and Ong (2005), Kroll et al. (2008), Lichtenstein et al. (2011), Tuggle et al. (2010) and Sánchez et al. (2015) suggest that the relevant experience, knowledge and skills can improve directors' capability of monitoring and counsel, which are helpful in protecting the shareholder wealth. Therefore, board size may affect the takeover premiums through board effectiveness. This research then makes the following hypotheses:

$H_{4.7a}$: Board effectiveness mediates the relationship between board size and takeover premiums in a third-party LBO setting.

$H_{4.7b}$: Board effectiveness mediates the relationship between board size and takeover premiums in an MBO setting.

In addition, the high proportion of non-executives can enhance directors' independence and objectivity in decision-making and improve the boards' ability of monitoring that contribute to the effectiveness of boards (Buchholtz and Ribbens, 1994; Ajinkya et al., 2005; Lara et al., 2007; Guo and Masulis, 2015). However, Wan and Ong (2005), Levrau and Van den Berghe (2007) and Zattoni and Cuomo (2010) suggest that a high proportion of non-executives may hamper the communication and collaboration within boards that deteriorate the board effectiveness. Moreover, as discussed before, board effectiveness encapsulates directors' experience, knowledge and skills is likely to affect their ability of monitoring that are able to affect the shareholder wealth (Wan and Ong, 2005; Kroll et al., 2008; Lichtenstein et al., 2011; Tuggle et al., 2010). Hence, this study makes hypotheses that:

$H_{4.8a}$: Board effectiveness mediates the relationship between the proportion of non-executives on the board and takeover premiums in a third-party LBO setting.

$H_{4.8b}$: Board effectiveness mediates the relationship between the proportion of non-executives on the board and takeover premiums in an MBO setting.

In addition, duality may provide CEOs with more concentrated power and position that may enable greater managerial opportunistic activities and hamper the effectiveness of board monitoring (Cornforth, 2001; Elsaid and Davidson, 2009; Rechner and Dalton, 1991; Kim et al., 2009; Desai et al., 2003). Besides, as discussed, high levels of board effectiveness may indicate effective monitoring that is able to protect the shareholder wealth (Wan and Ong, 2005; Kroll et al., 2008; Lichtenstein et al., 2011; Tuggle et al., 2010). Therefore, this study makes hypotheses that:

$H_{4.9a}$: Board effectiveness mediates the relationship between CEO duality and takeover premiums in a third-party LBO setting.

$H_{4.9b}$: Board effectiveness mediates the relationship between CEO duality and takeover premiums in an MBO setting.

Second, this study examines the mediating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBOs and MBOs. It is expected that board effectiveness can affect the takeover premiums through the structure of board. Previous studies (e.g. Nadler and Tushman, 1980; Nicholson and Kiel, 2004; Lehn et al., 2009; Linck et al., 2008; Boone et al., 2007) suggest that from a long-term perspective, the past activity, behaviour and effectiveness of the boards are likely to affect their current structures. For example, low levels of board effectiveness are associated with the poor ability of board monitoring and control, which may lead to the directors to be replaced. Furthermore, Hermalin and Weisbach (1998) and Arthur (2001) indicate that board structures are the functions of the bargaining between the CEO and the other board of directors. The CEO and the rest of board of directors' ability, experience, expertise and skills are likely to affect their bargaining positions and power in the negotiation, which may result in the change of board structures.

Moreover, previous studies find that board structures related to board size, the proportion of non-executives and CEO duality are likely to affect the cooperation and collaboration among directors, which is expected to affect the performance outcomes. For example, Yermack (1996), Eisenberg et al. (1998), Cheng (2008) and Kumar and Singh (2013) find a significant negative relationship between board size and firm performance. However, Dalton et al. (1999), Pearce and Zahra (1992), Larmou and Vafeas (2010) and Shukeri et al. (2012) suggest that a board with more members is positively associated with shareholders wealth protection. Furthermore, Rosenstein and Wyatt (1990), Rosenstein and Wyatt (1997) and Jaggi et al. (2009) find that a high proportion of non-executives can improve shareholder wealth, while. Agrawal and Knoeber (1996), Klein (1998) and Guo and Kga (2012) find a negative relationship between the two. In addition, empirical studies (e.g. Lee, 2009; Goyal and Park, 2002; Bassett et al., 2007) report a negative relationship between CEO duality and firm performance. However, Baliga et al. (1996), Brickley et al. (1997) and Bliss (2011) document that the impact of CEO duality on shareholder wealth protection is not significant. Therefore, this research makes the following hypotheses that:

$H_{4.10a}$: Board size mediates the relationship between board effectiveness and takeover premiums in a third-party LBO setting.

$H_{4.10b}$: Board size mediates the relationship between board effectiveness and takeover premiums in an MBO setting.

$H_{4.11a}$: The proportion of non-executives on the board mediates the relationship between board effectiveness and takeover premiums in a third-party LBO setting.

$H_{4.11b}$: The proportion of non-executives on the board mediates the relationship between board effectiveness and takeover premiums in an MBO setting.

$H_{4.12a}$: CEO duality mediates the relationship between board effectiveness and takeover premiums in a third-party LBO setting.

$H_{4.12b}$: CEO duality mediates the relationship between board effectiveness and takeover premiums in an MBO setting.

Table 4.1 The summary table of Hypotheses

	Mo/Me	Moderation Analysis	Mediation Analysis
Hypotheses	Board structures	• H4.1a: Board size moderates the relationship between board effectiveness and takeover premiums in third-party LBOs • H4.1b: Board size moderates the relationship between board effectiveness and takeover premiums in MBOs	• H4.7a: Board size mediates the relationship between board effectiveness and takeover premiums in third-party LBOs • H4.7b: Board size mediates the relationship between board effectiveness and takeover premiums in MBOs
		• H4.2a: The proportion of non-executives on the board moderates the relationship between board effectiveness and takeover premiums in third-party LBOs H4.2b: The proportion of non-executives on the board moderates the relationship between board effectiveness and takeover premiums in MBOs	• H4.8a: The proportion of non-executives on the board mediates the relationship between board effectiveness and takeover premiums in third-party LBOs • H4.8b: The proportion of non-executives on the board mediates the relationship between board effectiveness and takeover premiums in MBOs
		• H4.3a: CEO duality moderates the relationship between board effectiveness and takeover premiums in third-party LBOs • H4.3b: CEO duality moderates the relationship between board effectiveness and takeover premiums in MBOs	• H4.9a: CEO duality mediates the relationship between board effectiveness and takeover premiums in third-party LBOs • H4.9b: CEO duality mediates the relationship between board effectiveness and takeover premiums in MBOs
	Board effectiveness	• H4.4a: Board effectiveness moderates the relationship between board size and takeover premiums in third-party LBOs • H4.4b: Board effectiveness moderates the relationship between board size and takeover premiums in MBOs	• H4.10a: Board effectiveness mediates the relationship between board size and takeover premiums in third-party LBOs • H4.10b: Board effectiveness mediates the relationship between board size and takeover premiums in MBOs
		• H4.5a: Board effectiveness moderates the relationship between the proportion of non-executives on the board and takeover premiums in third-party LBOs • H4.5b: Board effectiveness moderates the relationship between the proportion of non-executives on the board and takeover premiums in MBOs	• H4.11a: Board effectiveness mediates the relationship between the proportion of non-executives on the board and takeover premiums in third-party LBOs • H4.11b: Board effectiveness mediates the relationship between the proportion of non-executives on the board and takeover premiums in MBOs
		• H4.6a: Board effectiveness moderates the relationship between CEO duality and takeover premiums in third-party LBOs • H4.6b: Board effectiveness moderates the relationship between CEO duality and takeover premiums in MBOs	• H4.12a: Board effectiveness mediates the relationship between CEO duality and takeover premiums in third-party LBOs • H4.12b: Board effectiveness mediates the relationship between CEO duality and takeover premiums in MBOs

4.2.6 Measurement

4.2.6.1 Dependent variable

Takeover premiums (*prem*) are the premiums that shareholders may receive from selling their shares within a takeover transaction (Buchholtz and Ribbens, 1994). They may reflect the gains in shareholder wealth from the takeover transactions, where a high takeover premium indicates greater gains in shareholder wealth and vice versa. Takeover premiums are calculated by the percentage increase in the share price of the target firm in the time frame from four weeks before the announcement of the buyout to the final offer price. Following its definition in Thomson One Banker:

$$Premium = \frac{(Offer\ \ price - Share\ \ price\ \ 4\ \ )}{Share\ \ price\ \ 4} \tag{4.16}$$

Where the offer price is the final offer price to the targets, share price 4 is the share price four weeks before the announcement of the takeover.

4.2.6.2 Independent, moderator and mediator variable

Board structures are the makeup of the boards that are measured through the proxies of board size (*bsize*), the proportion of non-executive directors on boards (*ned*) and CEO–chairman duality (*dual*). Board size (*bsize*) is measured as the total number of directors on the board. The proportion of non-executive directors on the board (*ned*) is measured by dividing the number of non-executive directors by the total number of directors on the board. CEO–chairman duality (*dual*) is a dummy variable that equals 1 if the position of CEO and chairman of the boards are occupied by the same person, and is 0 otherwise.

Moreover, in order to test the moderating effects of board structures in the relationship between board effectiveness and takeover premiums by using the multi-group approach in a SEM strategy, this study converts the continuous variables of board size (*bsize*) and the proportion of non-executives (*ned*) to categorical variables. Specifically, Jensen (1993), Yermack (1996), Harris and Raviv (2008) and Lehn et al. (2009) suggest that small boards can improve the cooperation and communication among board of directors and further reduce the free-rider problems that are helpful in protecting shareholder wealth. However, a board size that is too small is negatively associated with boards' ability to protect shareholder wealth. This is because the smaller board may increase individual directors' workload. A board that is too small may not able to handle the workload, as the time commitment required may greatly exceed the time individual directors have available (Gertner and Kaplan, 1996; Larmou and Vafeas, 2010). According to Jensen (1993), Johnson et al. (1996) and Hermalin and Weisbach (2001), a board size that is too large negatively affects communication between board members, which can inhibit the effectiveness of the board. Therefore, this study converts the board size continuous variable (*bsize*) into a categorical variable with three groups: low, medium, and high levels. According to the approach as noted in Osborne (2012), low-level board size is defined as the minimum to the 33rd percentiles, coded as 1; medium-level as the 34th to 66th percentiles, coded as 2; and high-level as the 67th to the maximum, coded as 3.

Furthermore, Dechow et al. (1996), Cotter et al. (1997), Ajinkya et al. (2005), Lara et al. (2007) and Guo and Masulis (2015) suggest that a high proportion of non-executive directors can improve a board's ability to supervise and control management behaviours, which positively influences the board's decisions regarding shareholder wealth protection. However, an extremely high proportion of non-executives on boards may be harmful to the interests of shareholders, as non-executive directors usually lack the time and information to challenge the decisions of management (Patton and Baker, 1987; Gilson and Kraakman, 1991; Zattoni and Cuomo, 2010). Additionally, an extremely low proportion of non-executives on boards may be negatively associated with shareholder wealth protection because the non-executives may lack the power to challenge the decisions made by the managers. Hence, this study transforms the proportion of non-executives on boards (*ned*) continuous variables into a categorical variable. Similarly, the proportion of non-executives on boards (*ned*) is grouped into three levels, divided at the 33rd and the 66.7th percentiles, to give low, medium and high groups.

Accounting conservatism is used to measure the level of board effectiveness, where in a third-party LBO context, more conservative accounting, and in an MBO context, less conservative accounting are expected to indicate a high level of board effectiveness. Based on the C-score model of Khan and Watts (2009), the levels of accounting conservatism are estimated at firm-specific levels. Hence, C-score (*cscore*) is the proxy of board effectiveness. As stated in empirical study two (Chapter 3), Khan and Watts's (2009) C-score is estimated as follows:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 r_{i,t} + \alpha_3 r_{i,t} * dr_{i,t} + \varepsilon \tag{4.13}$$

$$G - score_{i,t} = \alpha_2 = \delta_0 + \delta_1 mv_{i,t} + \delta_2 mtb_{i,t} + \delta_3 level_{i,t} + \varepsilon \tag{4.14}$$

$$C - score_{i,t} = \alpha_3 = \theta_0 + \theta_1 mv_{i,t} + \theta_2 mtb_{i,t} + \theta_3 level_{i,t} + \varepsilon \tag{4.15}$$

Where $x_{i,t}$ is the earnings per share (*eps*) before extraordinary items for firm *i* in fiscal year *t*; $p_{i,t-1}$ is firm i's price per share at the beginning of the fiscal year *t*; $r_{i,t}$ is the share return on firm *i* from nine months before fiscal year-end *t* to three months after fiscal year-end *t*; $dr_{i,t}$ is a dummy variable equal to 1 if $r_{i,t}$ is negative, and equal to 0 otherwise. Here, the coefficient α_2 measures the levels of asymmetric timeliness of conservatism with respect to positive returns (or good news); the α_3 measures the levels of asymmetric timeliness of conservatism with respect to negative returns (or bad news); $mv_{i,t}$ is the logarithm of the market value of the equity; $mtb_{i,t}$ is the market value of the equity divided by the book value of equity; and $level_{i,t}$ is the total debt divided by the total assets. Replacing α_2 and α_3 from Equations 4.14 and 4.15 into Regression 4.20 yields:

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + r_{i,t} * (\delta_0 + \delta_1 mv_{i,t} + \delta_2 mtb_{i,t} + \delta_3 level_{i,t}) + r_{i,t} * dr_{i,t} * (\theta_0 + \theta_1 mv_{i,t} + \theta_2 mtb_{i,t} + \theta_3 level_{i,t}) + (\mu_0 + \mu_1 mv_{i,t} + \mu_2 mtb_{i,t} + \mu_3 level_{i,t} + \mu_4 dr_{i,t} * mv_{i,t} + \mu_5 dr_{i,t} * mtb_{i,t} + \mu_6 dr_{i,t} * level_{i,t}) + \varepsilon \quad (4.16)$$

Moreover, in order to test the moderating effects of board effectiveness in the relationship between board structures and takeover premiums by using the multi-group approach in a SEM strategy, this study transforms the accounting conservatism (*cscore*) continuous variable into a categorical variable. Hence, accounting conservatism (*cscore*) is grouped into two levels, divided at the 50th percentile to give low and high groups.

4.2.6.3 Control variable

4.2.6.3.1 Control variables expected to impact on takeover premiums

This study controls for the firm size. Firm size (*size*) is measured by the natural logarithm of a firm's total assets (e.g. Anderson and Reeb, 2003; Maury, 2006; Zona, 2015). Morck et al. (1988a), Cotter et al. (1997), and Bauguess et al. (2009) suggest that firm size is likely to affect the level of takeover premiums, because the acquisition of large firms is usually difficult as it requires high magnitudes of credit to finance the transactions. Hence, firm size is negatively associated with the level of takeover premiums. Moreover, they argue that as the expected synergies from the acquisition of large firms are usually uncertain, lower premiums are usually paid. In addition, large firms tend to be subjected to lower managerial ownership, which may accept lower premiums (Morck et al., 1988a; Cotter et al., 1997; Bauguess et al., 2009; Buchholtz and Ribbens, 1994; Shrivastava, 1986). Therefore, firm size may affect the level of takeover premiums.

This study controls for firm performance (*roa*) which is measured by return on asset (e.g. Core et al., 1999; Maury, 2006; Hitt et al., 1997). Return on asset is calculated by dividing the net income by the total assets. Better firm performance may indicate firms are likely to have effective boards (Hackman et al., 1975; Nicholson and Kiel, 2004; Forbes and Milliken, 1999). Effective boards can facilitate the shareholder wealth protection that may associate with high takeover premiums. However, Jensen and Meckling (1976) and Hartzell et al. (2004) suggest that the ex-ante firm performance is likely to affect the level of takeover premiums, as a better firm performance may result in fewer available takeover gains and target returns for acquirers, who may reduce offer premiums.

This study also controls for board ownership (*bown*). Board ownership is the percentage of shares owned by the board of directors (e.g. Al Farooque et al., 2007; Ferris et al., 2003). According to agency theory, high levels of ownership by the board of directors are purposed to lead to greater incentives for directors to be involved with and pursue common interests with shareholders (Buchholtz and Ribbens, 1994; Jensen and Meckling, 1976; Carline et al., 2011). Hence, higher board ownership tends to be positively associated with the level of takeover premiums.

This study controls for audit independence (*lnnas*) in investigating the impacts of boards on takeover premiums. Audit independence is measured as the natural logarithm of the non-audit fees paid to the incumbent auditor (e.g. Bugeja, 2011; Defond et al., 2002). Audit independence is positively associated with the level of takeover premiums because the high degree of reliance on and confidence in the financial information will positively affect the evaluation of the target firm, for which the bidders may pay higher premiums (Weir et al., 2005a; Fox and Marcus, 1992; Lowenstein, 1985). Therefore, when the target firm has a high degree of audit independence, the bidders' valuation of the firm may be higher, which may result in higher takeover premiums paid. However, the opposite view suggests audit independence tends to improve the quality of accounting information. Acquirer can value the firms with greater precision when the targets have high quality accounting information, which may make their bidding more effectively and ultimately pay less for acquisition (McNichols and Stubben, 2009).

This study includes the leverage (*level*) as a control variable in investigating the impacts of boards on the level of takeover premiums. Leverage is measured as the total debts divided by the total assets (e.g. Anderson et al., 2003; Cassar and Holmes, 2003; Ahangar, 2011). Leverage is associated with the level of takeover premiums, as the debt may work to bind the management to act in the interests of shareholders. Fox and Marcus (1992), Jensen (1986a), Jensen (1986b), Williamson (1988) and Renneboog et al. (2007) suggest that the issuing of debt establishes a covenant between creditors and debtors that increases monitoring from the external debtors of interest payments, the liquidity of the business and the redeployability of assets. However, an LBO is usually financed with a high percentage of debt (typically 85%–90%) (Hafzalla, 2009; Renneboog et al., 2007; Jensen, 1986a; Jensen, 1986b). Consequently, if the target firm has high leverage before a buyout, it will be more difficult for acquirers to issue new debt for the target, which may further reduce the premiums they can offer.

Free cash flow is often used to achieve the self-interested objectives of managers rather than to maximise shareholder wealth. However, after an LBO, it is initially used to pay off debt (Weir et al., 2005a; Weir and Wright, 2006; Fox and Marcus, 1992). Free cash flow is one of the determinants of an LBO, as it could provide financial support to ensure the firm’s ability to pay its debts (Renneboog et al., 2007; Toms and Wright, 2005). Therefore, this study controls for free cash flow (*fcf*) in investigating the impacts of boards on takeover premiums in LBO transactions. Free cash flow is measured as the funds from operations after subtraction of the capital expenditure and cash dividends, divided by the firm’s total assets (e.g. Renneboog et al., 2007).

This study controls for firms’ undervaluation (*pe*). Weir et al. (2005b) and Weir and Wright (2006) suggest that buyout targets are likely to have lower share prices in the market compared with firms that remain public. Firms’ perceived undervaluation is one of the significant reasons for LBOs (Weir et al., 2005b; Weir and Wright, 2006). In order to investigate the effects of boards on takeover premiums in LBO transactions, this study controls for firms’ undervaluation. Following the approach of Alford (1992), Bondt and Thaler (1985) and Francis et al. (2005), a firm's undervaluation is measured as the industry-adjusted price earnings ratio. Firms with comparatively low price earnings ratios than their industry peers are likely to be undervalued.

4.2.6.3.2 Control variables expected to impact on board effectiveness and board structures

Firm size is likely to affect board effectiveness. Large firms are often more complex and likely to generate more work for supervision, which therefore may lead large firms to establish larger boards to deal with the workload. As larger firms tend to be more visible, they may also be under more pressure to comply with best practice recommendations, e.g. on the proportion of non-executives and CEO–chairman duality. Larger firms may find it easier to attract better directors but they may also be more difficult to supervise and control (Himmelberg et al., 1999). Therefore, according to the approach of Anderson and Reeb (2003), Maury (2006) and Zona (2015), this study controls for firm size (*size*), which is measured by the natural logarithm of firms' total assets.

The performance of a firm is a potential indicator for board effectiveness, where firms performing better are likely to have more effective boards, and vice versa (Hackman et al., 1975; Nicholson and Kiel, 2004; Forbes and Milliken, 1999). In addition, the historical performance of firms tends to affect current board structures, where poor performance can lead to the board of directors being fired (Hermalin and Weisbach, 1988). Hence, this study includes firm performance and follows the approach of Hitt et al. (1997), Core et al. (1999) and Maury (2006) that measures firm performance as return on asset (*roa*).[13]

Board ownership is likely to affect board effectiveness, as ownership can provide directors with incentives to perform their roles. In addition, board ownership is able to affect the board structures, since ownership can provide directors with power when they are negotiating board structure (Hermalin and Weisbach, 1988). Hence, this study follows the approach of Ferris et al. (2003)

[13] See section 4.2.6.3.1., where return on asset = net income/total assets.

and Al Farooque et al. (2007), and controls for board ownership (*bown*), which is measured as the percentage of shareholdings owned by the board of directors.

In order to investigate the relationship between board structures and board effectiveness, this study controls for firms' audit quality. Audit quality is expected to affect board effectiveness, as high-quality audits may limit the ability of managers to behave opportunistically, which, in turn, improves the effectiveness of board monitoring (Becker et al., 1998). Moreover, audit quality may affect board structure, as poor audit quality may result in a financial scandal that leads to a change in the board structure (Becker et al., 1998; Francis et al., 1999). In the study, Firm's audit quality is measured through the proxy of big4. *Big4* is a dummy variable, which is coded as 1 if the firm's auditor is one of the big six, five or four companies,[14] and otherwise as 0. Larger offices of big 4 auditors are predicted to provide higher quality audits due to greater in-house experience, reputation and their sheer size can provide more robust training programs and standardised audit methodologies (Lawrence et al., 2011; Francis and Yu, 2009; Dopuch and Simunic, 1980; Liti, 2014; Smith, 2008). However, this measure may have limitations because the most of the listed companies may hire big 4 audit companies. For example, big 4 account for about 70 per cent of audits of MBO firms and 87 per cent of audits of third-party LBO firms. This may reduce the ability of the proxy to measure the real audit quality of the company.

This study also controls for CEO change (*ceoch*) which is coded as 1 if the new CEO has been appointed in the year prior to the takeover bid, and otherwise as 0. A newly appointed CEO may improve board effectiveness by bringing more skills, experience and expertise to the board (Weisbach, 1988; Wu, 2004). Moreover, Mace (1986) and Vancil (1987) suggest that the CEO plays an

[14] In this study, big4 is a dummy variable that is used to measure the audit quality of firms. Big4 denotes the top six (after 1989) or five (after 1998) or four (after 2002) audit companies of the world. In 1998, Price Waterhouse merged with Coopers & Lybrand to form PricewaterhouseCoopers. Ernst and Young, Deloitte, PricewaterhouseCoopers, KPMG and Arthur Andersen together made up the big five. However, after 2002, Arthur Andersen was dropped from this list after the Enron scandal. The big five became the big four (Smith, 2008; Liti, 2014).

important role in choosing the members of the board of directors. Hermalin and Weisbach (1988) and Raheja (2005) suggest that succession is one of the major concerns for a CEO. They suggest that, towards the end of a CEO's tenure, more executive directors should be added to the board to compete for the succession. Some of the executives may leave the firm when they feel they do not have any chance of becoming the next CEO. Moreover, at the beginning of a new CEO's tenure, a number of executives who failed in the competition to become CEO may leave the firm, as they will not have another chance to do so in the short term. Also, the new CEO may wish to fill board vacancies with non-executives who can offer them more advice and consultation, and provide more effective monitoring (Hermalin and Weisbach, 1988; Farrell and Whidbee, 2002; Daily and Dalton, 1995). Therefore, a change of CEO is likely to be associated with board structure.

This study controls for sales growth (*sg*) which is defined as the percentage increase of sales from two years before the announcement of a takeover to one year before the announcement of a takeover (e.g. Short and Keasey, 1999; Bushman et al., 2004; Fan et al., 2007; Borisova et al., 2012). Firms' growth prospects are likely to be associated with board effectiveness, as higher growth prospects may require the board of directors have more skills, experience and expertise in performing their roles (Brush et al., 2000). Moreover, firms' growth prospects are related to board structures, because a poorly performing board of directors may be fired and more skilled directors appointed (Bhagat and Black, 2001).

Table 4.2 Variable names

Variables	Definitions
Board structures measures:	
Board size (bsize)	The total number of the board of directors
Non-executives (ned)	The proportion of non-executives on the board
CEO duality (dual)	Duality: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0
sta bsize	Standardised value for board size
sta ned	Standardised value for non-executives
cat bsize	Continuous variable bsize is converted to categorical variable which is defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and the 67th to the maximum for high levels
cat ned	Continuous variable ned is converted to categorical variable which is defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and the 67th to the maximum for high levels
Board effectiveness measures:	
cscore	Denotes for the levels of accounting conservatism, which is calculated via Khan & Watts (2009) model
sta cscore	Standardised value for c-score
cat cscore	Continuous variable cscore is converted to categorical variable which is defined as the minimum to 50th percentiles for low levels and the 51th to the maximum for high levels
Financial expertise (fe)	An alternative measure for board effectiveness, which is measured by the percentage of financial expertise on boards
Board tenure (btenure)	An alternative measure for board effectiveness, which is measured by the average tenure for board of directors
sta fe	Standardised value for the proportion of finanicla expertise on board
sta btenure	Standardise value for board tenure
cat fe	Continuous variable fe is converted to categorical variable which is defined as the minimum to 50th percentiles for low levels and the 51th to the maximum for high levels
cat btenure	Continuous variable btenure is converted to categorical variable which is defined as the minimum to 50th percentiles for low levels and the 51th to the maximum for high levels
Dependent variable:	
Takeover premiums (prem)	Takeover premiums 4 weeks before the takeover announcement, which is calculated by the percentage increase in the stock price of the target firms for the time frame of four weeks before the announcement of the buyout to the final offer price.
Interaction terms:	
sta bsize *sta cscore	Interaction of standardised board size and standardised cscore
sta ned *sta cscore	Interaction of standardised ned and standardised cscore

duality *sta cscore	Interaction of CEO duality and standardised cscore
Control variables:	
Firm size (size)	Ln total assets
Firm performance (roa)	Return on assets
Board ownership (bown)	Board ownership
Audit independence (lnnas)	Ln non-audit fees
Leverage (level)	Total debts divided by total assets
Free cash flows (fcf)	Free cash flow is calculated by the funds from operation minus capital expenditure and cash dividend deflated by total assets
Price-earnings ratio (pea)	Price-earnings ratio
big4	Dummy variable, does firms' audit belongs to big five or four audit firms
CEO change (ceoch)	Dummy variable, change equals to 1, otherwise 0
Sales growth (sg)	Sales growth

4.2.7 Empirical models for tests

4.2.7.1 Moderating tests

Using the following empirical models, this study tests the moderating effects of board structures in the relationship between board effectiveness and level of takeover premiums by considering the control variables discussed above. However, as the moderating effects are represented as an interaction term of independent (*X*) and moderator (*Mo*) variables in a multiple regression approach, these regression models can also be used to test the moderating effects of board effectiveness in the relationship between board structure and level of takeover premiums.

Step1:

$$prem_{i,t} = \alpha_0 + \alpha_1 Board\ \ structures_{i,t} + \alpha_2 cscore_{i,t} + \alpha_3 size_{i,t} + \alpha_4 roa_{i,t} + \alpha_5 bown_{i,t} + \alpha_6 lnnas_{i,t} + \alpha_7 level_{i,t} + \alpha_8 fcf_{i,t} + \alpha_9 pe_{i,t} + \varepsilon \quad (4.17)$$

Step2:

$$prem_{i,t} = \alpha_0 + \alpha_1 Board\ \ structures_{i,t} + \alpha_2 cscore_{i,t} + \alpha_3 Board\ \ structures_{i,t} * cscore_{i,t} + \alpha_4 size_{i,t} + \alpha_5 roa_{i,t} + \alpha_6 bown_{i,t} + \alpha_7 lnnas_{i,t} + \alpha_8 level_{i,t} + \alpha_9 fcf_{i,t} + \alpha_{10} pe_{i,t} + \varepsilon \quad (4.18)$$

Where prem denotes the takeover premium; board structures are measured through board size (*bsize*), the proportion of non-executives on the board (*ned*) and CEO–chairman duality (*dual*); cscore denotes the level of accounting conservatism; *board structures*cscore* is the interaction term of board structures and board effectiveness; *size* denotes the firm size; *roa* denotes firm performance; *bown* denotes board ownership; *lnnas* denotes audit independence; level denotes leverage; *fcf* denotes the free cash flow of the firm; and *pe* denotes the price earnings ratio, which indicates undervaluation of firms.

4.2.7.2 Mediating tests

Using the following empirical models, this study tests the mediating effects of board structures in the relationship between board effectiveness and level of takeover premiums by considering the control variables discussed above:

$$prem_{i,t} = \beta_0+\beta_1 cscore_{i,t} + \beta_2 size_{i,t} + \beta_3 roa_{i,t} + \beta_4 bown_{i,t} + \beta_5 lnnas_{i,t} + \beta_6 level_{i,t} + \beta_7 fcf_{i,t} + \beta_8 pe_{i,t} + \varepsilon \quad (4.19)$$

$$Board\ \ structures_{i,t} = \beta_0+\beta_1 cscore_{i,t} + \beta_2 size_{i,t} + \beta_3 roa_{i,t} + \beta_4 bown_{i,t} + \beta_5 big4_{i,t} + \beta_6 ceoch_{i,t} + \beta_7 sg_{i,t} + \varepsilon \quad (4.20)$$

$$prem_{i,t} = \beta_0+\beta_1 cscore_{i,t} + \beta_2 Board\ \ structures_{i,t} + \beta_3 size_{i,t} + \beta_4 roa_{i,t} + \beta_5 bown_{i,t} + \beta_6 lnnas_{i,t} + \beta_7 level_{i,t} + \beta_8 fcf_{i,t} + \beta_9 pe_{i,t} + \varepsilon \quad (4.21)$$

Where *prem* denotes the takeover premium; board structures are measured through board size (*bsize*), the proportion of non-executives on the board (*ned*) and CEO–chairman duality (*dual*); *cscore* denotes the level of accounting conservatism; *size* denotes firm size; *roa* denotes firm performance; *bown* denotes board ownership; lnnas denotes audit independence; *level* denotes leverage; *fcf* denotes the free cash flow of the firm; *pe* denotes the price earnings ratio, which indicates undervaluation of firms; *big4* denotes audit quality; *ceoch* denotes a change in CEO; and *sg* denotes the firm's sales growth.

Using the following empirical models, this study tests the mediating effects of board effectiveness in the relationship between board structure and level of takeover premiums, by considering the control variables discussed above:

$$prem_{i,t} = \gamma_0+\beta_1 Board\ \ structures_{i,t} + \gamma_2 size_{i,t} + \gamma_3 roa_{i,t} + \gamma_4 bown_{i,t} + \gamma_5 lnnas_{i,t} + \gamma_6 level_{i,t} + \gamma_7 fcf_{i,t} + \gamma_8 pe_{i,t} + \varepsilon \quad (4.22)$$

$$cscore_{i,t} = \gamma_0 + \gamma_1 Board\ \ structures_{i,t} + \gamma_2 size_{i,t} + \gamma_3 roa_{i,t} + \gamma_4 bown_{i,t} + \gamma_5 big4_{i,t} + \gamma_6 ceoch_{i,t} + \gamma_7 sg_{i,t} + \varepsilon \quad (4.23)$$

$$prem_{i,t} = \gamma_0 + \gamma_1 Board\ \ structures_{i,t} + \gamma_2 cscore_{i,t} + \gamma_3 size_{i,t} + \gamma_4 roa_{i,t} + \gamma_5 bown_{i,t} + \gamma_6 lnnas_{i,t} + \gamma_7 level_{i,t} + \gamma_8 fcf_{i,t} + \gamma_9 pe_{i,t} + \varepsilon \quad (4.24)$$

Where *prem* denotes the takeover premium; board structures are measured through board size (*bsize*), the proportion of non-executives on the board (*ned*) and CEO–chairman duality (dual); *cscore* denotes the level of accounting conservatism; *size* denotes firm size; *roa* denotes firm performance; *bown* denotes board ownership; *lnnas* denotes audit independence; *level* denotes leverage; *fcf* denotes the free cash flow of the firm; *pe* denotes the price earnings ratio, which indicates undervaluation of firms; big4 denotes audit quality; *ceoch* denotes a change in CEO; and *sg* denotes the firm's sales growth.

4.2.7.3 Robustness tests

Endogeneity is a major methodological concern for corporate governance and accounting research that rely on regression analysis of the causal link between the explanatory and outcome variables (Abdallah et al., 2015; Chenhall and Moers, 2007). Ideally, the regression analysis is supposed to be used to find a significant relationship between the explanatory and outcome variables to provide support for the theoretically proposed causal relationship (Chenhall and Moers, 2007; Abdallah et al., 2015; Roberts and Whited, 2012). However, the model may include an endogenous explanatory variable that can lead to endogeneity and affect the reliability of the estimation. Therefore, it is important to understand how the theory and data can comply with the specification of the model, including identifying the endogenous variables (Chenhall and Moers, 2007; Coles et al., 2012).

In statistics, the endogeneity expresses "a correlation between the explanatory variables and the error term in a regression", which may arise either because of to the omitted variables or simultaneity (Roberts and Whited, 2012: 6). Under the first situation, the omitted variable may lead to the error term to be correlated with explanatory variables, which violates the basic assumption of OLS. Under the second situation, the endogeneity is raised due to the explanatory variables and outcome variable are likely to affect each other simultaneously (Chenhall and Moers, 2007; Abdallah et al., 2015). The endogeneity can be addressed by using 2SLS, which requires the employment of the instrumental variables. It is supposed that the instrumental variables are required to correlate with the explanatory variable but not correlate to the error term (Chenhall and Moers, 2007; Diamond and Tolley, 2013; Badertscher, 2011; Greene, 2011).

This study concerns for the endogeneity biases, as the previous literature has found that board structures can influence board effectiveness (e.g. Klein, 2002b; Pacini et al., 2008; Belkhir, 2009; Goodstein et al., 1994; Larmou and Vafeas, 2010; Pearce and Zahra, 1992; Lehn et al., 2009; Levrau and Van den Berghe, 2007; Bliss, 2011), and, in turn, can also be influenced by board effectiveness (e.g. Nadler and Tushman, 1980; Nicholson and Kiel, 2004; Hermalin and Weisbach, 1998; Arthur, 2001). Therefore, this study tests for the possible endogenous selection of the board structures and board effectiveness in MBOs and third-party LBOs.

The 2SLS regression is then used to address the endogeneity. The instrumental variables are generated to predict the values of the endogenous variables (Larcker and Rusticus, 2010). The accounting and corporate governance literature suggest that the lagged value is able to be the instrument variable as it can affect the current value but not vice versa (Larcker and Rusticus, 2010; Badertscher, 2011; Greene, 2011). In line with this argument, this study employs the lagged values of board structures and board effectiveness as instruments. In particular, the instruments for the interaction terms are the products of lagged values of board structures and board effectiveness. Moreover, the F-statistic is used to test for the weakness of instruments, as the 2SLS may produce a bias estimation over OLS approach when the instruments are weak (Hadri and Mikhail, 2014; Baum, 2006; Adkins and Hill, 2011). Valid instruments must be highly correlated with the explanatory variables, but uncorrelated with the error term (Badertscher, 2011; Greene, 2011). The Hausman tests are then used to check for the endogeneity. The null hypothesis is rejected when the p-value is less than 0.05, then the endogeneity presents (Diamond and Tolley, 2013; Baum, 2006; Adkins and Hill, 2011).

Furthermore, in order to test the robustness of the results, this study uses both multiple regression and SEM in moderation and mediation analysis. The robustness test of this study is also implemented by using alternative measures of board effectiveness, including board tenure and the proportion of financial experts on the board.

4.3 Findings and Analysis

4.3.1 Descriptive statistics

Table 4.3 is the summary table of descriptive statistics of Tables 4.22 and 4.23 in the Appendix and reports the mean, median and standard deviation of all variables for the 76 third-party LBOs and 106 MBOs in the sample. In particular, Panel A of Table 4.3 presents the results of t-tests on whether the differences in the continuous variables of board structures, board effectiveness and takeover premiums between the two types of leveraged buyouts are significant. On average, third-party LBO targets have approximately seven directors (*bsize*) and MBO targets have approximately six directors on the board. The difference is statistically significant at the 1% level. This indicates that third-party LBO firms tend to have larger boards than MBO firms. Lipton and Lorsch (1992), Jensen (1993) and Yermack (1996) suggest that large boards may lead to less cohesion, communication and coordination among board members, indicating a worse corporate governance. Hence, MBO firms are likely to have better corporate governance than third-party LBO firms.

Moreover, the research finds that there is a significantly lower proportion of non-executive directors (*ned*) (44.5%) in MBO firms compared to third-party LBO firms (53.6%). Fama and Jensen (1983), Baysinger and Butler (1985), Buchholtz and Ribbens (1994) and Cotter et al. (1997) suggest that a high percentage of non-executives can increase board independence, which benefits board monitoring of opportunistic managerial behaviours. Therefore, this indicates that the boards in third-party LBO firms may have more effective monitoring than in MBO firms.

The C-score represents the level of accounting conservatism, which is used to measure boards' effectiveness in firms. As discussed earlier, effective boards are expected to demand more conservative accounting prior to third-party LBOs, either to avoid over-compensating managers for unrealistic firm valuations or to protect the long-term interests of shareholders (Weir et al., 2005b; Weir and Wright, 2006). In contrast, preceding MBOs, effective boards are likely to demand less conservative accounting to avoid shareholder exploitation by managers who may have incentives to make firms appear less valuable, and thereby exploit the interests of current shareholders (Weir et al., 2005b; Weir and Wright, 2006; Hafzalla, 2009). Hence, less conservative accounting tends to indicate a lower level of board effectiveness in the third-party LBO context, but a higher level of board effectiveness in the MBO context. The C-score value for third-party LBO firms is −6.532, compared to 0.256 for MBO firms, which is significant at the 1% level. This implies that MBO firms are likely to apply more conservative accounting than third-party LBO firms. This is consistent with the argument that managerial incentives are different in MBOs and third-party LBOs, which may affect their behaviours towards accounting information disclosure during buyout transactions.

The mean value of takeover premiums is 35.8% (median value 30%) for third-party LBO firms and mean 41.5% (median value 39.7%) for MBO firms. However, the null hypothesis, that the difference in takeover premiums between MBO and third-party LBO firms is zero, cannot be rejected at conventional significance levels. This suggests that there is no evidence that takeover premiums differ between third-party LBOs and MBOs, despite the divergent interests of managers in the two cases.

Table 4.3 The summary table of descriptive statistics for MBOs and third-party LBOs

Panel A:	**MBO**				**third-party LBO**				**significance tests**	
variables	**N**	**mean**	**median**	**sd**	**N**	**mean**	**median**	**sd**	***t-test***	***p>|t|***
prem	106	0.415	0.397	0.314	76	0.358	0.3	0.468	0.989	0.162
bsize	106	6.142	6	1.576	76	6.763	7	1.574	-2.626***	0.005
ned	106	0.445	0.429	0.148	76	0.536	0.563	0.118	-4.469***	0.000
cscore	106	0.256	0.288	0.247	76	-6.532	-6.597	0.766	85.332***	0.000

Panel B:	**MBO**				**third-party LBO**				**significance tests**	
variables	**N**	**value**	**percent**	**cum.**	**N**	**value**	**percent**	**cum.**	***z-test***	***p>|z|***
dual	106	0	71.7	71.7	76	0	89.47	89.47	2.910***	0.002
		1	28.3	100		1	10.53	100		
big4	106	0	30.19	30.19	76	0	13.16	13.16	-2.689***	0.004
		1	69.81	100		1	86.84	100		
ceoch	106	0	91.51	91.51	76	0	93.42	93.42	0.477	0.317
		1	8.49	100		1	6.58	100		

Panel C:	**MBO**				**third-party LBO**				**significance tests**	
variables	**N**	**mean**	**median**	**sd**	**N**	**mean**	**median**	**sd**	***t-test***	***p>|t|***
size (£000)	106	133,181.600	54,727.500	363,045	76	546,444.900	104,704.500	1,532,222	-2.677***	0.004
roa	106	0.048	0.062	0.141	76	0.018	0.051	0.147	1.396*	0.082
bown	106	0.2	0.11	0.213	76	0.102	0.029	0.143	3.478***	0.000
lnnas (£000)	106	131.008	65.500	196.270	76	324.263	107	607.481	-3.063***	0.001
level	106	0.504	0.492	0.185	76	0.589	0.552	0.242	-2.693***	0.004
fcf	106	-0.008	0.015	0.137	76	-0.011	0.009	0.11	0.203	0.420
pe	106	-3.314	-4.425	16.923	76	1.407	-3.025	70.768	-0.662	0.255
sg	105	0.394	0.039	2.292	76	0.237	0.085	0.757	0.575	0.283

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Size (£000): Firm size is measured using the total assets of firms. Size: ln total assets in year Y-1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas (£000): The audit independence is measured using the non-audit fees of firms. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow, defined as the funds from operations minus capital expenditure and cash dividends divided by total assets in year Y-1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Panel B of Table 4.3 reports the z-tests on whether the differences of the dummy variables of board characteristics between MBOs and third-party LBOs are significant. Among the sample of MBO firms, 28.3% have one person serving as both chair and CEO (*dual*), compared with only 10.5% of the third-party LBO target firms. The difference is statistically significant at the 1% level. Cornforth (2001) and Elsaid and Davidson (2009) suggest that CEO duality may indicate worse corporate governance, as it may give the CEO a concentrated power and position in decision-making. Goyal and Park (2002), Kim et al. (2009) and Bliss (2011) argue that CEO duality could deteriorate the board's ability to monitor and exercise control over the CEO. Hence, this may imply that there are more powerful CEOs and poorer board monitoring in MBO firms than in third-party LBO firms.

Moreover, the research finds that, on average, 69.8% of auditors in MBO firms belong to the big six, five or four audit companies (*big4*),[15] which is significantly lower than that in third-party LBO firms (86.8%). This may indicate that third-party LBO firms are likely to have a higher audit quality than MBO firms, as 'big four' auditors tend to deliver high-quality audits (Becker et al., 1998). As high-quality audits can limit managers' ability to behave opportunistically, which, in turn, improves the effectiveness of board monitoring, third-party LBO firms tend to have more effective board monitoring than MBO firms (Becker et al., 1998). Moreover, this may imply that MBO firms are more likely to make changes to the board structure than third-party LBO firms, because poor quality audits may lead to a financial scandal within the firm that results in the board structure changing (Becker et al., 1998; Francis et al., 1999).

Furthermore, it is reported that the proportion of CEO changes for MBO firms is 8.5%, compared to 6.6% for third-party LBO firms. However, this difference is not statistically significant. This may indicate that there is no evidence that CEO change differ between MBOs and third-party LBOs.

Panel C of Table 4.3 examines the control variables of target firm characteristics. On average, the total assets of MBOs are £133,181.6 thousand, which is

[15] In this study, big4 is a dummy variable that is used to measure the audit quality of firms. Big4 denotes the top six (after 1989) or five (after 1998) or four (after 2002) audit companies of the world. In 1998, Price Waterhouse merged with Coopers & Lybrand to form PricewaterhouseCoopers. Ernst and Young, Deloitte, PricewaterhouseCoopers, KPMG and Arthur Andersen together make the big five. However, in 2002, Arthur Andersen was dropped from this list after the Enron scandal. The big five became the big four (Liti, S., 2014; Smith, J. L., 2008).

significantly lower than that in third-party LBOs, (£546,444.9 thousand). This indicates that third-party LBO firms are likely to be larger than MBO firms. As the expected synergies of buyouts for large firms are usually uncertain, which may lead to lower premiums being paid, this result might also imply that third-party LBO firms may achieve lower premiums than MBO firms (Cotter et al., 1997; Bauguess et al., 2009; Buchholtz and Ribbens, 1994; Shrivastava, 1986). Himmelberg et al. (1999) suggest that large firms tend to have more complex jobs and more work to be supervised, which requires larger boards to deal with the workload. Himmelberg et al. (1999) argue that large firms may be under more pressure to comply with best practice recommendations of corporate governance. Therefore, this indicates that third-party LBO firms may have larger boards, a higher proportion of non-executives and, more often, a separate CEO and chairman than MBO firms.

The average value of firm performance (*roa*) for MBO firms is 0.048, which is significantly higher than that in third-party LBO firms (0.018). This may indicate that third-party LBO firms can achieve lower premiums than MBO firms, since a better performance by the firm may be associated with a higher level of board effectiveness, which may facilitate shareholder wealth protection (Hackman et al., 1975; Nicholson and Kiel, 2004; Forbes and Milliken, 1999).

Moreover, the study finds that board ownership (*bown*) is 20% in MBO firms, compared to 10.2% in firms that are involved in third-party LBOs. Board ownership is significantly higher in MBOs than third-party LBOs. As board ownership can lead to greater incentives for directors to be involved in activities to protect shareholders' interests, the findings may indicate that MBO firms are likely to achieve higher takeover premiums than third-party LBO firms (Buchholtz and Ribbens, 1994; Jensen and Meckling, 1976; Carline et al., 2011).

Furthermore, the findings suggest that the non-audit fees in MBO firms are £131,008, which is significantly lower than that in third-party LBO firms (£324,263). This indicates that the MBO firms are likely to have a higher level of audit independence than third-party LBO firms. As audit independence can increase the reliance on and confidence in firms' financial information, which may positively affect the effectiveness of monitoring over management and the evaluation of target firms, MBO firms tend to achieve higher takeover premiums than third-party LBO firms (Weir et al., 2005a; Fox and Marcus, 1992; Lowenstein, 1985).

In addition, the leverage ratio (*level*) is at 0.504 for targets of MBO offers, compared to 0.589 for targets of third-party LBO offers. MBO firms are likely to have significantly lower leverage ratios than third-party LBO firms. This might imply that MBO targets can achieve higher premiums than third-party LBO targets. This is because LBOs require a high percentage of debts (85–90%) (Hafzalla, 2009; Renneboog et al., 2007; Jensen, 1986a; Jensen, 1986b). It will be more difficult for acquirers to issue new debt for LBOs when the target firms have higher leverage ratios, which may therefore reduce the acquirers' offer premiums.

The panel C, Table 4.3, also examines other characteristics of firms. Regarding free cash flow (*fcf*), price earnings ratio (*pe*) and sales growth (*sg*), the data suggests that there are no significant differences between MBO and third-party LBO target firms. This implies that buyout targets are likely to have similar characteristics, such as their free cash flow, price earnings ratio and sales growth. It also indicates that these characteristics can cause the firms to be the targets of both third-party LBOs and MBOs.

In summary, on average, target firms that receive MBO offers have smaller boards of directors, a lower proportion of non-executives on the board and are more likely to have one person being both CEO and board chairman than those receiving third-party LBO offers. MBO firms have a significantly smaller firm size, a lower leverage ratio and are less likely to employ the big 6, 5 or 4 audit firms than third-party LBO firms. However, MBO firms are likely to perform better, have higher board ownership and greater audit independence compared to third-party LBO firms.

4.3.2 Correlations

Tables 4.24 and 4.25 in the Appendix report the Pearson correlation matrices between board structures, board effectiveness, takeover premiums and control variables for third-party LBOs and MBOs. Given the manner in which the interaction terms are created (product terms of independent variables and moderators) in moderating analysis, this research also reports the correlation matrices including standardised variables (*sta cscore, stab size and sta ned*) and interaction terms (*sta bsize*sta cscore, sta ned*sta cscore and sta dual*sta cscore*) in third-party LBOs and MBOs. Standardisation is achieved by subtracting the sample mean from the respective variable, then dividing by its standard deviation (Cohen, 2003).

The findings suggest that the correlations between board structure variables (*sta bsize, sta ned and dua*l), board effectiveness (*sta cscore*) and control variables (*size, roa, bown, lnnas, level, fcf, pe, big4, ceoch and sg*) are below 0.7 in MBOs and third-party LBOs. Tabachnick and Fidell (2007) and Tabachnick and Fidell (2013) indicate that the correlations below 0.7 should not have multicollinearity problems during regression analysis. Moreover, this study applies the VIF test (see Appendix, Tables 4.26 to 4.33 (VIF)). The VIF test is used to verify that the results are not distorted by multicollinearity. The maximum VIF found within the models is far below the commonly used rule of thumb cut-off of 10 (Cohen et al., 2013), indicating that multicollinearity is not an issue in the analysis.

4.3.3 Multiple regression analysis

4.3.3.1 Moderation analysis

First, this study uses the multiple regression approach to analyse the moderating and mediating effects of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs. In the models, board effectiveness is measured as the level of accounting conservatism, which is calculated through Khan and Watts's (2009) C-score model. As discussed before, more conservative accounting is expected to indicate a high level of board effectiveness in the third-party LBO setting, but a low level of board effectiveness in the MBO setting. Board structures are measured using the proxies of board size, the proportion of non-executives and CEO duality. In order to check the robustness of the results, this study uses different combinations of board size, the proportion of non-executives and CEO duality. Initially, the effects of these are tested individually. Then, this study runs an analysis by combining two of the proxies of board structures in the model. Finally, all three proxies of board structures are put in the same model to run the analysis. However, as in multiple regression analysis, the interaction terms cannot clearly differentiate independent variables from moderator variables, so this study further tests the moderating effects of board structures and board effectiveness using the multi-group approach in SEM, which will be discussed in section 4.3.5.

Table 4.4 reports the results of the relationship between the proportion of non-executives on boards and takeover premiums for third-party LBOs and MBOs in empirical study 1 (Chapter 2). The results suggest that there is no significant relationship between the proportion of non-executives (*ned*) and the level of takeover premiums in both third-party LBOs and MBOs. This may indicate that the research should look beyond board structures to better understand the impact of boards on performance outcomes.

Table 4.4 The results of relationship between the proportion of non-executives on board and takeover premiums for third-party LBOs and MBOs in empirical study 1 (Chapter 2)

	Dependent Variable=prem							
	MBO				*Third-party LBO*			
Variables	*Model1*	*Model2*	*Model3*	*Model4*	*Model5*	*Model6*	*Model7*	*Model8*
ned	-0.044	-0.044	-0.181	-0.181	0.353	0.353	-0.141	-0.141
	(-0.114)	(-0.130)	(-0.518)	(-0.560)	(0.695)	(0.745)	(-0.249)	(-0.252)
exeown	0.010	0.010			1.234***	1.234***		
	(0.031)	(0.034)			(3.035)	(3.182)		
exeso			-0.027*	-0.027			-0.026***	-0.026***
			(-1.830)	(-1.564)			(-2.874)	(-2.930)
size	-0.110**	-0.110**	-0.095**	-0.095**	-0.044	-0.044	-0.041	-0.041
	(-2.292)	(-2.516)	(-2.143)	(-2.309)	(-1.229)	(-1.139)	(-1.134)	(-1.099)
roa	0.041	0.041	0.003	0.003	-2.654***	-2.654***	-2.737***	-2.737***
	(0.100)	(0.113)	(0.008)	(0.009)	(-5.460)	(-6.065)	(-5.214)	(-5.511)
other-own	0.197	0.197	0.001	0.001	-1.165***	-1.165**	-0.589	-0.589
	(0.893)	(1.028)	(0.003)	(0.004)	(-2.719)	(-2.564)	(-1.124)	(-1.125)
level	-0.036	-0.036	-0.015	-0.015	-0.959***	-0.959***	-1.058***	-1.058***
	(-0.119)	(-0.099)	(-0.047)	(-0.044)	(-3.022)	(-3.267)	(-3.473)	(-3.800)
multi	0.133	0.133	0.131	0.131	0.222**	0.222***	0.236**	0.236**
	(1.361)	(1.580)	(1.531)	(1.587)	(2.387)	(2.758)	(2.332)	(2.484)
insti	0.051	0.051	0.062	0.062	0.447	0.447	0.239	0.239
	(0.253)	(0.286)	(0.303)	(0.329)	(1.312)	(1.527)	(0.695)	(0.732)
lnnas	0.122**	0.122**	0.111***	0.111**	0.083***	0.083***	0.067**	0.067**
	(2.569)	(2.655)	(2.682)	(2.574)	(3.127)	(3.100)	(2.612)	(2.412)
pe	0.002	0.002	0.002	0.002	-0.004***	-0.004***	-0.005***	-0.005***
	(1.275)	(1.151)	(1.418)	(1.267)	(-3.568)	(-3.562)	(-4.648)	(-4.733)
fcf	0.073	0.073	-0.021	-0.021	-0.042	-0.042	0.295	0.295
	(0.224)	(0.232)	(-0.069)	(-0.064)	(-0.077)	(-0.085)	(0.491)	(0.533)
Industry Cluster		Yes		Yes		Yes		Yes
Constant	0.992	0.992	1.225*	1.225*	0.251	0.251	1.083*	1.083*
	(1.561)	(1.692)	(1.881)	(1.893)	(0.366)	(0.340)	(1.910)	(1.890)
F-test	1.450	8.100***	1.700*	2.400**	21.460***	33.370***	19.110***	22.350***
Prob>f	0.168	0.000	0.090	0.027	0.000	0.000	0.000	0.000
R-squared	0.253	0.253	0.324	0.324	0.568	0.568	0.563	0.563
Observations	84	84	82	82	62	62	62	62

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Prem: takeover premium of the offer price to the target closing share price four weeks prior to the original announcement date. Ned: percentage of non-executive directors on the board. Exeown: percentage of executive shareholding. Exeso: logarithm of the valuation of executive share options with Black-Scholes' (1973) model. Pe: price earnings ratio calculated by adjusting the target's PE ratio by subtracting the industry median PE, and also using the two-digit industry classification benchmark (ICB-code) sort. Fcf: free cash flow, defined as the funds from operations minus capital expenditure and cash dividends divided by total assets. Ro: firm's return on assets. Size: natural logarithm of the market value. Other-own: common shares held by the target firm's board directors other than the CEO. Level: total debt divided by total assets. Multi: dummy variable that takes a value of 1 if there is more than one simultaneous bidder for the target and is otherwise 0. Insti: total amount of common shares held by institutional investors divided by the total amount of common outstanding shares, where the shareholding is in excess of 3%. Lnnas: natural logarithm of the non-audit fees.

Tables 4.5 and 4.6 report the two-step regression approach for moderation analysis in third-party LBOs. In order to reduce the problems associated with multicollinearity among the variables in moderation analysis, the models include the standardised values of board effectiveness (*sta cscore*), board structures (i.e. *sta bsize, sta ned and dual*) and their interaction terms (i.e. *sta bsize*sta cscore, sta ned*sta cscore and dual*sta score*).

Table 4.5 shows the results of the constrained model (an assumption of no interaction effects) in third-party LBOs. Model LO1 tests the effects of other variables, excluding board structures and board effectiveness, in third-party LBOs. In the model, the level of audit independence (*lnnas*) and leverage (*level*) are negatively related to takeover premiums in third-party LBOs. These results are consistent in all the models in Tables 4.5 and 4.6. This indicates that audit independence can improve the quality of accounting information, which may make the acquirers bid more effectively and ultimately reduce their payments (McNichols and Stubben, 2009). Moreover, as LBOs require a high percentage debt, usually of 85%–90%, it will be more difficult for acquirers to issue new debt when targets have high leverage, which may reduce the premiums they offer (Hafzalla, 2009; Renneboog et al., 2007; Jensen, 1986a; Jensen, 1986b).

Models LO2 to LO8 test the impact of board structures on takeover premiums in third-party LBOs with all the possible combinations of board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (dual). Consistent with the findings in empirical study 1 (Chapter 2), board structures are not significantly correlated with takeover premiums in third-party LBOs. Model LO9 tests the impact of board effectiveness (*sta cscore*) on takeover premiums in third-party LBOs. The result suggests that there is no significant relationship between board effectiveness and takeover premiums in third-party LBOs.

Table 4.5 The regression approach for moderation analysis: Step 1: the constrained model (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)

	lo1	lo2	lo3	lo4	lo5	lo6	lo7	lo8	lo9	lo10	lo11	lo12	lo13	lo14	lo15	lo16
Variables	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem	prem
Sta cscore									0.051	0.048	0.067	0.052	0.063	0.048	0.068	0.064
									(0.646)	(0.599)	(0.836)	(0.641)	(0.786)	(0.595)	(0.833)	(0.783)
Sta bsize		-0.022			-0.027	-0.022		-0.027		-0.016			-0.020	-0.016		-0.020
		(-0.376)			(-0.466)	(-0.371)		(-0.461)		(-0.273)			(-0.345)	(-0.268)		(-0.338)
Sta ned			-0.048		-0.050		-0.049	-0.051			-0.057		-0.058		-0.057	-0.058
			(-0.745)		(-0.770)		(-0.755)	(-0.780)			(-0.847)		(-0.856)		(-0.862)	(-0.871)
dual				-0.019		-0.018	-0.024	-0.024				-0.024		-0.023	-0.032	-0.031
				(-0.138)		(-0.132)	(-0.173)	(-0.168)				(-0.170)		(-0.164)	(-0.221)	(-0.214)
size	-0.051	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	-0.040	-0.036	-0.032	-0.039	-0.028	-0.036	-0.032	-0.028
	(-1.214)	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(-0.779)	(-0.681)	(-0.633)	(-0.771)	(-0.532)	(-0.675)	(-0.624)	(-0.525)
roa	-1.101	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	-1.146	-1.125	-1.235	-1.151	-1.211	-1.130	-1.242	-1.218
	(-1.189)	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(-1.217)	(-1.197)	(-1.268)	(-1.213)	(-1.246)	(-1.193)	(-1.271)	(-1.248)
bown	0.163	0.185	0.109	0.163	0.134	0.185	0.109	0.134	0.193	0.208	0.140	0.194	0.157	0.208	0.140	0.157
	(0.362)	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(0.421)	(0.435)	(0.296)	(0.419)	(0.322)	(0.433)	(0.294)	(0.320)
lnnas	0.134***	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***	0.140***	0.140***	0.135***	0.140***	0.136***	0.141***	0.135***	0.136***
	(2.829)	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)	(3.072)	(3.050)	(3.050)	(3.048)	(3.032)	(3.026)	(3.023)	(3.004)
level	-0.371*	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*	-0.383**	-0.378*	-0.367*	-0.381*	-0.361*	-0.376*	-0.364*	-0.358*
	(-1.972)	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)	(-2.014)	(-1.960)	(-1.863)	(-1.967)	(-1.800)	(-1.915)	(-1.811)	(-1.751)
fcf	0.812	0.735	0.828	0.815	0.734	0.738	0.831	0.737	0.913	0.849	0.963	0.918	0.884	0.854	0.969	0.891
	(0.839)	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)	(0.855)	(0.804)	(0.878)	(0.854)	(0.817)	(0.803)	(0.879)	(0.819)
pe	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)	(0.346)	(0.348)	(0.221)	(0.340)	(0.225)	(0.342)	(0.214)	(0.218)
Constant	0.886	0.776	0.854	0.888	0.717	0.778	0.856	0.720	0.650	0.583	0.539	0.649	0.454	0.584	0.537	0.453
	(1.234)	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(0.733)	(0.610)	(0.599)	(0.727)	(0.475)	(0.605)	(0.592)	(0.470)
Observations	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.188	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.192	0.192	0.202	0.192	0.203	0.193	0.202	0.203

F-test	1.895	1.653	1.864	1.672	1.643	1.482	1.911	1.713	1.984	1.763	2.139	1.736	1.923	1.560	2.020	1.822
Prob>F	0.084	0.127	0.081	0.121	0.121	0.173	0.065	0.097	0.062	0.092	0.038	0.098	0.058	0.139	0.045	0.068

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y−1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y−1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1.

In addition, Models LO10 to LO16 add board effectiveness and board structures to these models. In these, all the possible combinations of board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (dual) are used to test the effects of board structures. The results suggest that the main effects of board effectiveness and board structures, including board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (*dual*), do not have significant effects on takeover premiums (*prem*) in third-party LBOs. This is consistent with the findings in Models LO2 to LO9.

In Step 2, the interaction terms – the products of board structures and board effectiveness, which represent moderating effects – are added to the models. Table 4.6 shows the results of unconstrained models (an assumption of interaction effects) in third-party LBOs through Models LO17 to LO23. However, the results reveal that the coefficients corresponding to board structures and board effectiveness (i.e. *sta bsize*sta cscore, sta ned*sta cscore and dual*sta cscore*) are not statistically significant where the p-values are above 0.1. Therefore, moderating effects may not exist in third-party LBOs. Hypotheses 4.1a, 4.2a, 4.3a, 4.4a, 4.5a and 4.6a are clearly rejected.

Table 4.6 The regression approach for moderation analysis: Step 2: the unconstrained model (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)

Variables	lo17 prem	lo18 prem	lo19 prem	lo20 prem	lo21 prem	lo22 prem	lo23 prem
sta cscore	0.055	0.028	0.061	0.031	0.060	0.028	0.029
	(0.673)	(0.342)	(0.739)	(0.351)	(0.716)	(0.338)	(0.323)
sta bsize	-0.029			-0.037	-0.029		-0.037
	(-0.457)			(-0.588)	(-0.438)		(-0.573)
sta ned		-0.056		-0.048		-0.049	-0.044
		(-0.815)		(-0.697)		(-0.669)	(-0.611)
dual			-0.022		0.004	-0.065	-0.040
			(-0.155)		(0.029)	(-0.420)	(-0.252)
*sta bsize *sta cscore*	-0.127			-0.100	-0.124		-0.085
	(-1.269)			(-0.968)	(-1.210)		(-0.761)
*sta ned *sta cscore*		0.074		0.065		0.107	0.091
		(0.844)		(0.696)		(0.878)	(0.679)
*dual *sta cscore*			-0.095		-0.055	-0.163	-0.122
			(-0.696)		(-0.390)	(-0.761)	(-0.517)
size	-0.048	-0.038	-0.040	-0.042	-0.047	-0.041	-0.043
	(-0.884)	(-0.770)	(-0.765)	(-0.802)	(-0.866)	(-0.822)	(-0.802)
roa	-1.040	-1.216	-1.149	-1.106	-1.041	-1.210	-1.109
	(-1.151)	(-1.281)	(-1.205)	(-1.215)	(-1.127)	(-1.303)	(-1.218)
bown	0.223	0.108	0.217	0.156	0.236	0.143	0.178
	(0.462)	(0.233)	(0.461)	(0.320)	(0.478)	(0.293)	(0.352)
lnnas	0.150***	0.133***	0.140***	0.141***	0.149***	0.131***	0.139***
	(3.252)	(2.979)	(3.007)	(3.091)	(3.141)	(2.866)	(2.868)
level	-0.436**	-0.374*	-0.344	-0.413**	-0.413*	-0.310	-0.358*
	(-2.379)	(-1.825)	(-1.586)	(-2.118)	(-1.947)	(-1.462)	(-1.722)
fcf	0.692	0.953	0.907	0.720	0.690	0.937	0.721
	(0.690)	(0.878)	(0.842)	(0.712)	(0.677)	(0.873)	(0.710)
pe	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.369)	(0.135)	(0.317)	(0.186)	(0.349)	(0.049)	(0.115)
Constant	0.752	0.664	0.629	0.689	0.738	0.694	0.686
	(0.782)	(0.753)	(0.698)	(0.726)	(0.759)	(0.773)	(0.713)
Observations	76	76	76	76	76	76	76
F-test	2.100	1.890	2.870	2.030	2.650	3.370	2.978
Prob>F	0.037	0.063	0.005	0.036	0.006	0.001	0.002
R-squared	0.208	0.209	0.194	0.220	0.209	0.214	0.223
∆R-squared	0.016	0.007	0.002	0.017	0.016	0.012	0.02

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums four weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on the board in year Y−1. Dual: dummy variable equal to 1 when the firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y−1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y−1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1.

Tables 4.7 and 4.8 report the two-step multiple regression approach for moderation analysis in MBOs. Table 4.7 shows the results of the constrained models in MBOs, where the interaction terms are not added. Model MO1 reports the results of the impact of other variables, excluding board structures and board effectiveness, in MBOs. The results suggest that the level of audit independence (*lnnas*) is negatively related to takeover premiums in MBOs. However, this result is not consistent significant when including board size (*sta bsize*) and the proportion of non-executives (*sta ned*) in the models in Tables 4.7 and 4.8. This may be because these factors are the extraneous variables that might affect the consistency of the effects of audit independence.

Following the approach for third-party LBOs, Models MO2 to MO8 test the impact of board structures on takeover premiums in MBOs with all the possible combinations of board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (*dual*). The results suggest that there is no significant relationship between board structures and takeover premiums in MBOs, which is consist with the findings in empirical study 1 (Chapter 2). Moreover, the finding in Model MO9 suggests that board effectiveness (*sta cscore*) does not significantly impact the level of takeover premiums in MBOs.

Table 4.7 The regression approach for moderation analysis: Step 1: the constrained model (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)

Variables	mo1 prem	mo2 prem	mo3 prem	mo4 prem	mo5 prem	mo6 prem	mo7 prem	mo8 prem	mo9 prem	mo10 prem	mo11 prem	mo12 prem	mo13 prem	mo14 prem	mo15 prem	mo16 prem
Sta cscore									0.033	0.033	0.031	0.031	0.031	0.031	0.031	0.031
									(1.565)	(1.528)	(1.541)	(1.543)	(1.489)	(1.524)	(1.521)	(1.484)
Sta bsize		0.002			-0.000	0.011		0.009		0.003			0.001	0.011		0.010
		(0.050)			(-0.009)	(0.227)		(0.184)		(0.070)			(0.019)	(0.239)		(0.205)
Sta ned			-0.018		-0.018		-0.011	-0.009			-0.015		-0.015		-0.009	-0.007
			(-0.627)		(-0.638)		(-0.397)	(-0.340)			(-0.542)		(-0.545)		(-0.316)	(-0.250)
dual				0.068		0.074	0.063	0.068				0.066		0.071	0.061	0.067
				(1.032)		(0.944)	(0.987)	(0.876)				(0.994)		(0.919)	(0.963)	(0.867)
size	-0.026	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	-0.033	-0.033	-0.030	-0.030	-0.030	-0.033	-0.028	-0.031
	(-0.956)	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(-1.114)	(-0.927)	(-1.038)	(-1.039)	(-0.837)	(-0.915)	(-0.992)	(-0.852)
roa	-0.378	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	-0.286	-0.286	-0.292	-0.288	-0.292	-0.286	-0.292	-0.289
	(-1.424)	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(-0.986)	(-0.961)	(-1.004)	(-0.980)	(-0.974)	(-0.953)	(-0.989)	(-0.952)
bown	0.074	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.067	0.064	0.050	0.070	0.049	0.060	0.060	0.054
	(0.547)	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(0.492)	(0.462)	(0.346)	(0.512)	(0.337)	(0.432)	(0.420)	(0.372)
lnnas	0.053*	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053	0.053*	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053
	(1.677)	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)	(1.687)	(1.540)	(1.649)	(1.742)	(1.519)	(1.563)	(1.711)	(1.550)
level	0.247	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*	0.320*	0.317*	0.318*	0.350*	0.318*	0.345*	0.348*	0.344*
	(1.514)	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)	(1.737)	(1.840)	(1.732)	(1.811)	(1.842)	(1.888)	(1.792)	(1.863)
fcf	-0.255	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247	-0.287	-0.286*	-0.309	-0.269	-0.309	-0.263	-0.282	-0.274
	(-1.483)	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)	(-1.644)	(-1.672)	(-1.561)	(-1.542)	(-1.601)	(-1.548)	(-1.443)	(-1.454)
pe	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.671)	(-0.645)	(-0.598)	(-0.667)	(-0.583)	(-0.624)	(-0.619)	(-0.592)	(-0.620)	(-0.594)	(-0.561)	(-0.619)	(-0.544)	(-0.577)	(-0.582)	(-0.554)
Constant	0.541	0.554	0.496	0.447	0.494	0.503	0.427	0.477	0.612	0.629	0.570	0.518	0.575	0.578	0.501	0.557
	(1.234)	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(1.336)	(1.023)	(1.269)	(1.174)	(0.939)	(0.981)	(1.137)	(0.924)
Observations	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106

R-squared	0.137	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.146	0.146	0.148	0.154	0.148	0.155	0.155	0.156
F-test	3.492	3.107	3.003	3.256	2.724	2.962	2.834	2.641	3.576	3.201	3.119	3.341	2.838	3.055	2.953	2.752
Prob>F	0.002	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.001	0.002	0.002	0.001	0.004	0.002	0.003	0.004

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y−1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y−1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: In (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1.

Moreover, Models MO10 to MO16 test the main effects of board effectiveness and board structures with all the possible combinations of board size, the proportion of non-executives and CEO duality. The results suggest that board effectiveness (*sta cscore*) and board structures, including board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (dual), do not have significant effects on takeover premiums (*prem*) in the MBO sample. This may indicate that the main effects of the primary predictors do not fully characterise the relation between board structures, board effectiveness and takeover premiums in MBOs. Instead, moderating effects are considered to be a potential explanation for this relationship.

Table 4.8 (Models MO17 to MO23) reports the unconstrained model, where the interaction terms – the products of the board effectiveness and board structure (i.e. *sta bsize*sta cscore, sta ned*sta score and dual*sta cscore*), which represent moderating effects – are added to the models. In Model MO17, the regression coefficient associated with the interactive effect of board effectiveness and board size (*stab bsize*sta cscore*) is significant at an alpha level of 0.1 ($\alpha_3 = 0.074, t = 1.845$) (in MBOs, a lower C-score represents high levels of board effectiveness). Moreover, Model MO21 tests the moderating effects using the product term of board size and board effectiveness (*sta bsize*sta cscore*) as well as the product term of CEO duality and board effectiveness (*dual*sta cscore*). Consistent with the results in Model MO17, the coefficient corresponding to the interactive effect of board size and board effectiveness (*sta bsize*sta cscore*) in MBOs is positively significant at the 0.1 level ($\alpha_3 = 0.09, t = 1.936$). Furthermore, Model MO23 tests the moderating effects using the product term of board size and board effectiveness (*sta bsize*sta cscore*), the proportion of non-executives and board effectiveness (*sta ned*sta cscore*) as well as the product term of CEO duality and board effectiveness (*dual*sta cscore*). Consistent with the findings of Models MO17 and MO21, the coefficient associated with the interaction of board size and board effectiveness (*sta bsize*sta cscore*) is positively significant at the 0.1 level ($\alpha_3 = 0.084, t = 1.818$).

The significant findings suggest that the magnitude of board effectiveness (in MBOs, a lower C-score represents a high level of board effectiveness) on the level of takeover premiums is negatively influenced by, or moderated by, the size of the board (i.e. there is significant moderation). Meanwhile, this could also indicate that the effects of board size on takeover premiums are negatively influenced by, or moderated by, board effectiveness (in MBOs, a lower C-score represents a high level of board effectiveness).[16]

[16] As the interaction terms cannot clearly differentiate independent variables from moderator variables, the significant coefficient of interaction terms may indicate either board structures (board effectiveness) are moderators or independent variables. Due to this limitation, this study further tests the moderating effects of board structures and board effectiveness using the multi-group approach in SEM, which will be discussed in section 4.3.5.

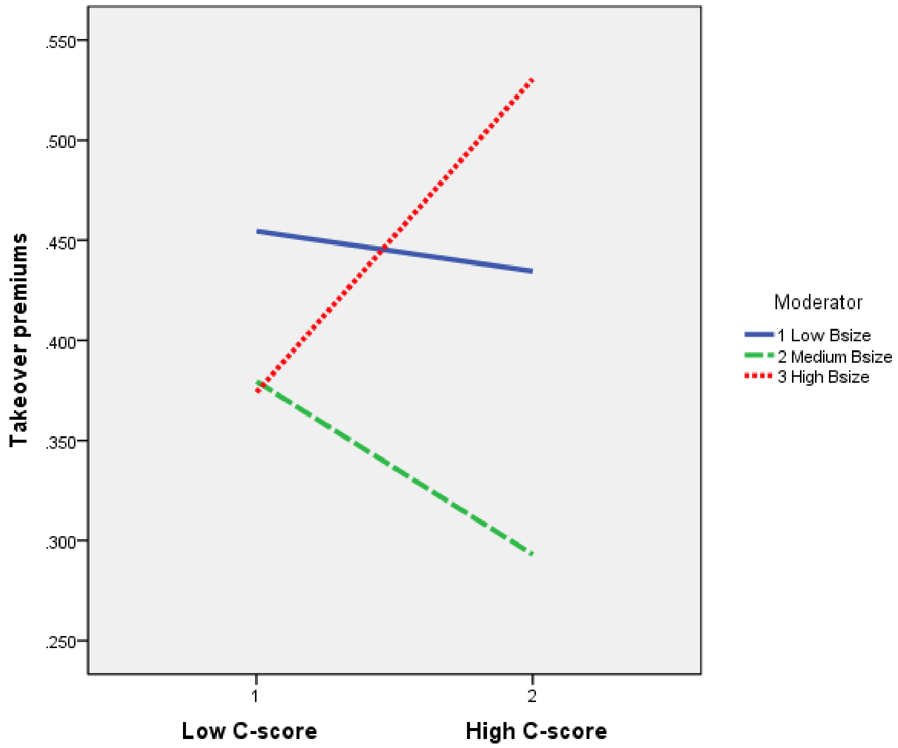
Table 4.8 The regression approach for moderation analysis: Step 2: the unconstrained model (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)

Variables	mo17 prem	mo18 prem	mo19 prem	mo20 prem	mo21 prem	mo22 prem	mo23 prem
sta cscore	0.034*	0.069*	0.035*	0.063	0.038**	0.059	0.050
	(1.740)	(1.736)	(1.811)	(1.537)	(2.090)	(1.485)	(1.257)
sta bsize	-0.011			-0.009	-0.005		-0.004
	(-0.295)			(-0.223)	(-0.128)		(-0.099)
sta ned		-0.001		-0.003		0.001	-0.000
		(-0.029)		(-0.087)		(0.039)	(-0.014)
dual			0.013		0.011	0.018	0.014
			(0.210)		(0.164)	(0.295)	(0.196)
*sta bsize *sta cscore*	0.074*			0.061	0.090*		0.084*
	(1.845)			(1.634)	(1.936)		(1.818)
*sta ned *sta cscore*		-0.098		-0.079		-0.065	-0.033
		(-1.210)		(-0.952)		(-0.755)	(-0.388)
*dual *sta cscore*			0.292		0.336*	0.248	0.311
			(1.601)		(1.730)	(1.312)	(1.573)
size	-0.036	-0.035	-0.037	-0.037	-0.044	-0.038	-0.044
	(-0.973)	(-1.200)	(-1.229)	(-0.981)	(-1.163)	(-1.240)	(-1.105)
roa	-0.255	-0.252	-0.188	-0.233	-0.133	-0.179	-0.133
	(-0.847)	(-0.848)	(-0.593)	(-0.748)	(-0.401)	(-0.561)	(-0.393)
bown	0.061	0.050	0.093	0.046	0.083	0.080	0.076
	(0.434)	(0.348)	(0.685)	(0.311)	(0.597)	(0.560)	(0.518)
lnnas	0.053	0.053	0.063**	0.052	0.062*	0.061*	0.061*
	(1.526)	(1.643)	(2.020)	(1.488)	(1.862)	(1.917)	(1.790)
level	0.327*	0.351*	0.458**	0.351*	0.481**	0.461**	0.480**
	(1.898)	(1.856)	(2.020)	(1.961)	(2.229)	(2.024)	(2.190)
fcf	-0.294	-0.347*	-0.263	-0.344*	-0.265	-0.302	-0.286
	(-1.658)	(-1.690)	(-1.477)	(-1.675)	(-1.457)	(-1.467)	(-1.395)
pe	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.651)	(-0.733)	(-0.497)	(-0.730)	(-0.510)	(-0.582)	(-0.547)
Constant	0.667	0.637	0.548	0.676	0.664	0.569	0.668
	(1.068)	(1.392)	(1.217)	(1.057)	(1.104)	(1.241)	(1.056)
Observations	106	106	106	106	106	106	106
F-test	3.460***	3.150***	3.570***	3.030***	3.320***	3.000***	2.848
Prob>F	0.000	0.002	0.000	0.001	0.001	0.001	0.001
R-squared	0.155	0.155	0.167	0.161	0.180	0.171	0.181
△R-squared	0.009	0.007	0.013	0.013	0.025	0.016	0.025

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums four weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on the board in year Y−1. Dual: dummy variable equal to 1 when the firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y−1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y−1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1.

For a direct and visual presentation of the moderating effect, following the suggestion of Aiken et al. (1991), a simple slope analysis is conducted to aid the interpretation of the interaction effects. Figure 4.7 illustrates that MBO firms with smaller boards tend to achieve higher takeover premiums, both for effective and comparatively ineffective boards, with the premiums achieved by more effective boards being noticeably higher. In particular, takeover premiums for firms with medium-sized boards are noticeably lower than for firms with smaller boards, and, as above, lower board effectiveness also tends to lead to lower takeover premiums. However, for large boards, less effective boards actually lead to higher takeover premiums. This counterintuitive finding may be related to communication problems and greater divergence of interests in larger, ineffective boards, where the delay in making a decision might increase the pressure on bidders to increase the value of their offer in order to expedite the decision making (Lipton and Lorsch, 1992; Jensen, 1993; Lehn et al., 2009). In contrast, board size appears to affect the work of more effective boards very negatively, which may suggest that the communication problems associated with large boards may inhibit the collaboration and decision-making ability of boards with otherwise effective directors. This means that a comparatively quick decision-making process may be at the expense of constructive discussion and protracted negotiations, which might otherwise incentivise bidders to increase their offer price (Lipton and Lorsch, 1992; Yermack, 1996; Harris and Raviv, 2008).

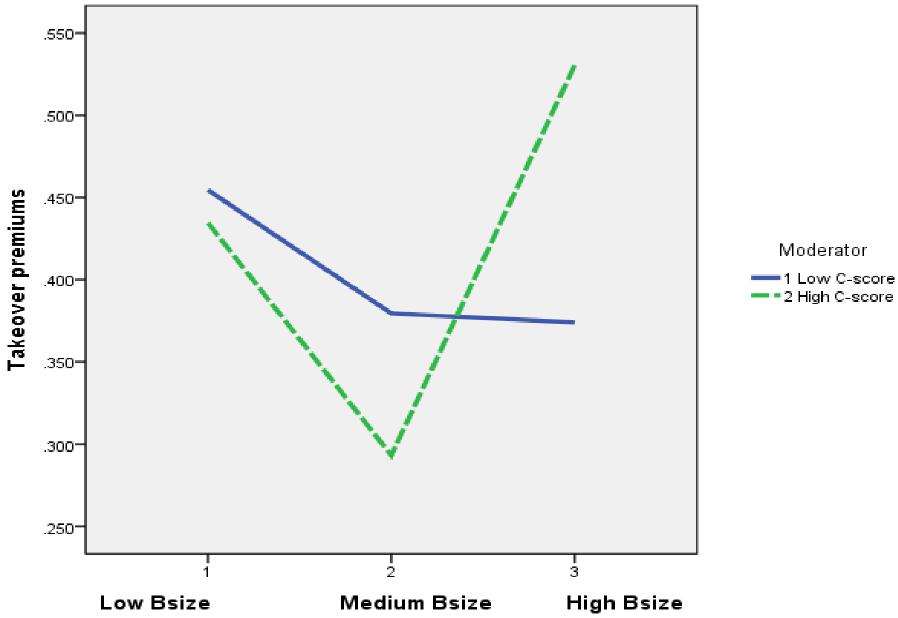
Figure 4.7 Board size and board effectiveness interaction for takeover premiums in MBO deals: takeover premiums across board size
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Bsize: the total number of board of directors.
High Bsize: is the 67^{th} to the maximum of board size.
Medium Bsize: is the 34^{th} to 66^{th} percentiles of board size.
Low Bsize: is the minimum to 33^{rd} percentiles of board size.

Figure 4.8 illustrates that, in MBOs, boards with high effectiveness (low C-score) the takeover premium tends to deteriorate with increasing board size. Similarly, for comparatively less effective boards, an increase in board size initially reduces the takeover premium achieved even further, as board size increases from small to medium size. However, when boards are particularly large, the takeover premium for firms with less effective boards increases noticeably, even above the premium paid to MBO firms with small effective boards. As indicated above, one potential reason for this counterintuitive finding may be that communication problems and greater divergence of interests in larger, ineffective boards, may delay decision making. Thereby, this may inadvertently increase the pressure on bidders to increase the value of their offer in order to expedite the decision making, given the time limits imposed on takeover offers (Lipton and Lorsch, 1992; Jensen, 1993; Lehn et al., 2009). This may imply that low levels of board effectiveness are associated with poor board monitoring and control, which may deteriorate the benefits of easy communication and coordination taking by smaller boards (Arthur, 2001; Hermalin and Weisbach, 1998). Therefore, levels of board effectiveness can facilitate or hamper shareholder wealth.

Figure 4.8 Board size and board effectiveness interaction for takeover premiums in MBO deals – takeover premiums across the levels of board effectiveness
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Bsize: the total number of board of directors.
High Bsize: is the 67th to the maximum of board size.
Medium Bsize: is the 34th to 66th percentiles of board size.
Low Bsize: is the minimum to 33rd percentiles of board size.

However, the findings suggest that the results are inconsistent. Model MO20 finds that there is no moderating effect where the coefficient associated with the interaction term of board size and board effectiveness (*sta bsize**sta cscore*) is not significant at conventional significance levels. This is because the models may suffer from omitted variable bias or might include extraneous variables. Omitted variable bias occurs when a model excludes one or more important factors, which leads to the regression model being underspecified. Technically, the expected values of partial regression coefficients may be affected by the omitted variables, which may lead to an inaccurate estimation of the relationship between independent and dependent variables (Hsiao, 2003; Mukherjee et al., 2013; Lewis, 2012). Moreover, the inclusion of extraneous variables indicates that the model controls for additional extraneous noise or junk variables. Indeed, the inclusion of extraneous variables cannot improve data analysis results, but can significantly degrade them (Pearson, 2005; Pedhazur and Schmelkin, 2013). The value of R-squared is the statistical measure of how close the data are fitted to the regression model. In general, the higher R-squared, the better the model may fit the observations. Low R-squared values would indicate that the dependent variables are not well explained by their predictors (Mora, 2012). The value of R-squared for Model MO20 is 0.161, which is lower than in Models MO21 (0.18) and MO23 (0.181). This indicates that the results in Models MO21 and MO23 might be slightly more reliable than MO20.

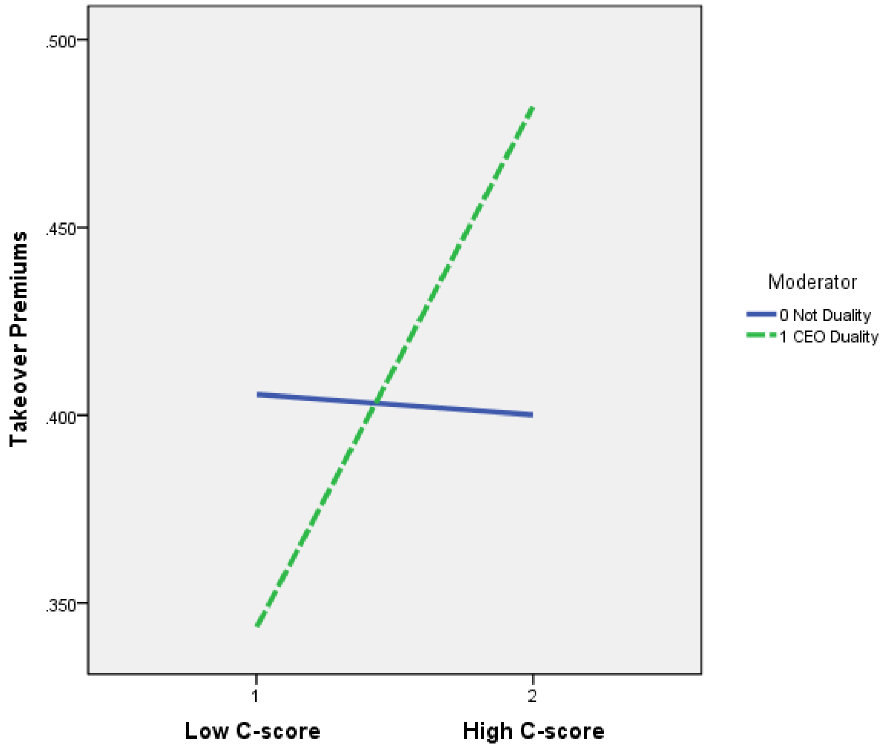
In addition, Model MO21 finds that the regression coefficient associate with the interaction term of CEO duality and board effectiveness (*dual*sta cscore*)[17] is significant at the 0.1 level ($\alpha_3 = 0.336, t = 1.73$). This finding may suggest that the relation between board effectiveness (in MBOs, a lower C-score represents a high level of board effectiveness) and takeover premiums is negatively influenced by, or moderated by, CEO duality. Therefore, this is consistent with hypothesis 4.3b, that, in MBOs, high levels of board effectiveness (a low C-score) have a greater positive impact on shareholder wealth gains, which may result in higher takeover premiums, when firms have a separate CEO and chairman, rather than the CEO also being the chairman.

Figure 4.9 shows a plot of the interaction for CEO duality and board effectiveness (*dual*sta cscore*) and illustrates that MBO firms without CEO

[17] As the interaction terms cannot clearly differentiate independent variables from moderator variables, the significant coefficient of interaction terms may indicate that board structures (board effectiveness) are either moderators or independent variables. Due to this limitation, this study further tests the moderating effects of board structures and board effectiveness using the multi-group approach in SEM, which will be discussed in section 4.3.5.

duality tend to achieve higher takeover premiums with an effective board than with an ineffective one. Takeover premiums for firms with CEO duality are noticeably lower than those without it under high levels of board effectiveness (low C-score). However, it is surprising that CEOs with duality demonstrate higher takeover premiums relative to those firms that have separate positions for the CEO and the chairman under low levels of board effectiveness (high C-score). This might be related to the fact that, in ineffective boards, duality provides the CEO with more concentrated power on the board and a strong desire to accomplish an MBO quickly, where a strong competitive advantage might be at the expense of a higher offer price (Cornforth, 2001; Elsaid and Davidson, 2009; Kim et al., 2009).

Figure 4.9 CEO duality and board effectiveness interaction for takeover premiums in MBO deals – takeover premiums across CEO duality
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)

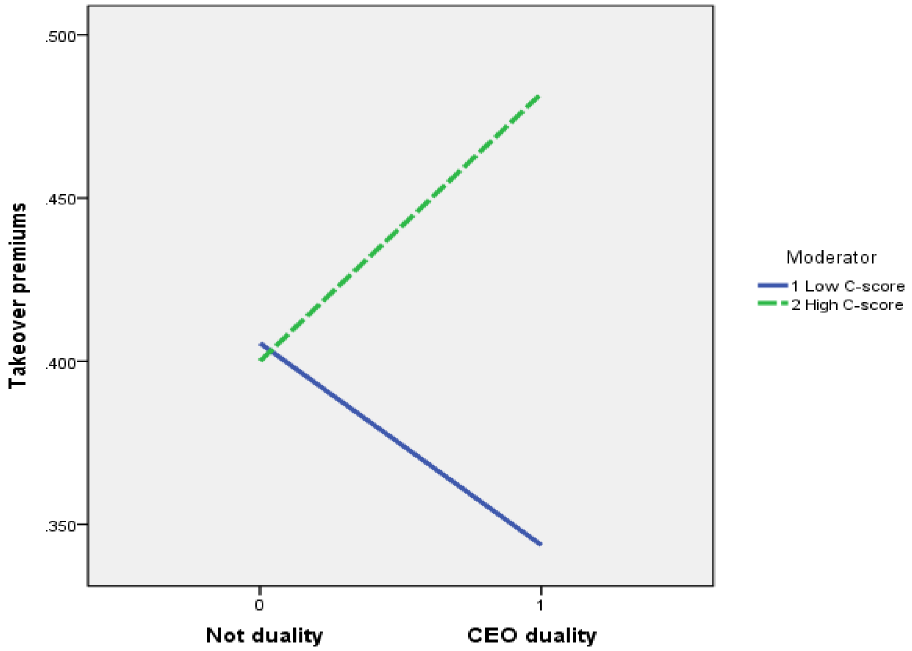


High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Not Duality: represents the separate position of CEO and chairman.
CEO Duality: represents that firm's CEO and chairman is the same person.

Furthermore, this result could indicate that the effect of CEO duality on takeover premiums is negatively influenced by, or moderated by, board effectiveness (in MBOs, a lower C-score represents a high level of board effectiveness).

Figure 4.10 illustrates that the takeover premiums achieved for MBO firms without CEO duality are similar both for more and less effective boards. This may indicate that in companies whose boards are not characterised by CEO duality, board effectiveness appears to have little influence on takeover premiums. When CEO duality exists in more effective boards, MBO firms appear to have lower takeover premiums, since this is in the interests of the managers but not the shareholders. However, surprisingly, under CEO duality, MBO firms with high board effectiveness (a low C-score) tend to receive lower takeover premiums than firms with low board effectiveness (a high C-score). As indicated above, one potential reason for this counterintuitive finding might be that, in ineffective boards, the powerful CEO tends to have a strong desire to accomplish the MBOs quickly, and may incentivise bidders to increase their offer price (Arthur, 2001; Hermalin and Weisbach, 1998; Cornforth, 2001; Elsaid and Davidson, 2009; Kim et al., 2009). Thus, the results are consistent with Hypothesis 4.6b, that, in MBOs, CEO duality has a greater negative impact on takeover premiums when the board is characterised by comparatively higher levels of effectiveness.

Figure 4.10 CEO duality and board effectiveness interaction for takeover premiums in MBO deals – takeover premiums across the levels of board effectiveness
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Not Duality: represents the separate position of CEO and chairman.
CEO Duality: represents that firm's CEO and chairman is the same person.

However, the findings are rather inconsistent. In Models MO19 and MO22, the research finds that the interaction term of CEO duality and board effectiveness (*dual*sta cscore*) is not statistically significant at conventional significance levels. As discussed earlier, this inconsistent result may be related to the problem that the models might suffer from omitted variable bias or the inclusion of extraneous variables. Omitted variable bias indicates that the model has excluded important factors which may lead to an inaccurate estimation of the relationship between independent and dependent variables (Hsiao, 2003; Mukherjee et al., 2013; Lewis, 2012). Moreover, there is a risk of the presence of extraneous variables – in particular, confounding extraneous variables – which increases error variance and could result in the incorrect estimation of the relationship between the independent and dependent variables (Pearson, 2005; Pedhazur and Schmelkin, 2013). As companies allocated to third party LBOs and MBOs are not randomly assigned, but potentially targeted due to the quality of their board and management (as e.g. evidenced in their undervaluation), it is impossible to take account of this problem methodologically within the sample available. While all models might be affected by problems related to omitted variable bias and extraneous variables, the impact of the problems is expected to vary depending on the model configuration. Mora (2012) suggests that higher R-squared values would indicate that the dependent variables are better explained by its predictors. The study finds that the R-squared values in MO19 (0.167) and MO22 (0.171) are lower than in MO21 (0.18). This implies that the results in Model MO21 may be slightly more reliable than MO19 and MO22.

Also, Models MO18, MO20, MO22 and MO23 test for moderating effects, including the product term of the proportion of non-executives and board effectiveness (*sta ned*sta cscore*). However, the findings suggest that the hypotheses do not hold, as there are insignificant coefficients corresponding to the interactive effects of this term.

During the analysis, it is found that the R-squares of the models are range from 0.19 to 0.22 in third-party LBOs and from 0.14 to 0.18 in MBOs. These are expected to be at an acceptable range. Previous study Bange and Mazzeo (2004) examine the relationship between board characteristics and takeover premiums and report that the adjusted R-squares are range from 0.032 to 0.04. Kroll et al. (2008) explore the association between the interaction effects of corporate governance and board experience with acquisition performance, and report the adjusted R-squares are range from 0.39 and 0.45.

4.3.3.2 Mediation analysis

Tables 4.9 and 4.10 report the results of mediation analysis in third-party LBOs using the multiple regression approach. Specifically, Table 4.9 reports the analysis of the mediating effects of board effectiveness on the relationship between board structures and takeover premiums (BS→BE→premiums) in third-party LBOs. Following the approach of Baron and Kenny (1986), three criteria need to be satisfied in order to determine a mediator. First (Step 1), board structures are required to have a significant relationship with takeover premiums (BS→premiums). However, the results suggest that board structures, including board size (*sta bsize*), the proportion of non-executives (*sta ned*) and CEO duality (*dual*), are not significantly correlated to takeover premiums in third-party LBOs (see Model LE1 to LE7). As discussed in the methodology, although the research frequently requires that there is a significant direct association between an independent variable and outcome variables, previous studies by Kenny et al. (1998), Shrout and Bolger (2002), Kenny (2008) and Zhao et al. (2010) argue that the first step should be skipped. They suggest that the opposite signs of direct and indirect effects may mean there is still mediation, despite the fact that the requirements of Step 1 are not met.

Table 4.9 The regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals*:*
LE1–LE7 test the effects of board structures on takeover premiums (BS→ premiums); LE8–LE14 test the effects of board structures on board effectiveness (BS→ BE); LE15-LE21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
	Le1	Le2	Le3	Le4	Le5	Le6	Le7	Le8	Le9	Le10	Le11	Le12	Le13	Le14	Le15	Le16	Le17	Le18	Le19	Le20	Le21
Variables	prem	prem	prem	prem	prem	prem	prem	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	prem	prem	prem	prem	prem	prem	prem
Sta bsize	-0.022			-0.027	-0.022		-0.027	-0.015			0.000	-0.015		0.001	-0.016			-0.020	-0.016		-0.020
	(-0.376)			(-0.466)	(-0.371)		(-0.461)	(-0.172)			(0.005)	(-0.167)		(0.010)	(-0.273)			(-0.345)	(-0.268)		(-0.338)
Sta ned		-0.048		-0.050		-0.049	-0.051		0.138**		0.138**		0.140**	0.140**		-0.057		-0.058		-0.057	-0.058
		(-0.745)		(-0.770)		(-0.755)	(-0.780)		(2.153)		(2.161)		(2.134)	(2.139)		(-0.847)		(-0.856)		(-0.862)	(-0.871)
dual			-0.019		-0.018	-0.024	-0.024			0.106		0.106	0.118	0.118			-0.024		-0.023	-0.032	-0.031
			(-0.138)		(-0.132)	(-0.173)	(-0.168)			(0.397)		(0.393)	(0.475)	(0.472)			(-0.170)		(-0.164)	(-0.221)	(-0.214)
Sta cscore															0.048	0.067	0.052	0.063	0.048	0.068	0.064
															(0.599)	(0.836)	(0.641)	(0.786)	(0.595)	(0.833)	(0.783)
size	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	-0.256***	-0.263***	-0.261***	-0.263***	-0.256***	-0.263***	-0.263***	-0.036	-0.032	-0.039	-0.028	-0.036	-0.032	-0.028
	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(-4.213)	(-5.812)	(-5.545)	(-4.373)	(-4.163)	(-5.758)	(-4.322)	(-0.681)	(-0.633)	(-0.771)	(-0.532)	(-0.675)	(-0.624)	(-0.525)
roa	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	-0.109	0.053	-0.094	0.053	-0.100	0.064	0.065	-1.125	-1.235	-1.151	-1.211	-1.130	-1.242	-1.218
	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(-0.113)	(0.053)	(-0.094)	(0.055)	(-0.102)	(0.064)	(0.066)	(-1.197)	(-1.268)	(-1.213)	(-1.246)	(-1.193)	(-1.271)	(-1.248)
bown	0.185	0.109	0.163	0.134	0.185	0.109	0.134	-0.354	-0.229	-0.375	-0.230	-0.355	-0.229	-0.230	0.208	0.140	0.194	0.157	0.208	0.140	0.157
	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(-0.710)	(-0.447)	(-0.714)	(-0.473)	(-0.716)	(-0.449)	(-0.477)	(0.435)	(0.296)	(0.419)	(0.322)	(0.433)	(0.294)	(0.320)
lnnas	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***								0.140***	0.135***	0.140***	0.136***	0.141***	0.135***	0.136***
	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)								(3.050)	(3.050)	(3.048)	(3.032)	(3.026)	(3.023)	(3.004)
level	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*								-0.378*	-0.367*	-0.381*	-0.361*	-0.376*	-0.364*	-0.358*
	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)								(-1.960)	(-1.863)	(-1.967)	(-1.800)	(-1.915)	(-1.811)	(-1.751)
fcf	0.735	0.828	0.815	0.734	0.738	0.831	0.737								0.849	0.963	0.918	0.884	0.854	0.969	0.891
	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)								(0.804)	(0.878)	(0.854)	(0.817)	(0.803)	(0.879)	(0.819)
pe	0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)								(0.348)	(0.221)	(0.340)	(0.225)	(0.342)	(0.214)	(0.218)
big4								0.083	0.071	0.092	0.071	0.083	0.071	0.071							
								(0.369)	(0.372)	(0.452)	(0.326)	(0.361)	(0.363)	(0.319)							
ceoch								-0.255	-0.305	-0.271	-0.305	-0.264	-0.315	-0.315							
								(-0.454)	(-0.564)	(-0.491)	(-0.570)	(-0.483)	(-0.598)	(-0.606)							
sg								-0.011	-0.019	-0.008	-0.019	-0.008	-0.016	-0.016							

								(-0.182)	(-0.312)	(-0.125)	(-0.310)	(-0.123)	(-0.245)	(-0.243)							
Constant	0.776	0.854	0.888	0.717	0.778	0.856	0.720	4.722***	4.842***	4.799***	4.844***	4.711***	4.827***	4.832***	0.583	0.539	0.649	0.454	0.584	0.537	0.453
	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(4.390)	(5.888)	(5.495)	(4.616)	(4.317)	(5.802)	(4.540)	(0.610)	(0.599)	(0.727)	(0.475)	(0.605)	(0.592)	(0.470)
Observations	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.317	0.343	0.319	0.343	0.319	0.345	0.345	0.192	0.202	0.192	0.203	0.193	0.202	0.203
F-test	1.653	1.864	1.672	1.643	1.482	1.911	1.713	7.898	9.303	7.908	8.169	6.985	8.266	7.340	1.763	2.139	1.736	1.923	1.560	2.020	1.822
Prob>F	0.127	0.081	0.121	0.121	0.173	0.065	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092	0.038	0.098	0.058	0.139	0.045	0.068

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Second (Step 2), this study examines the relationship between board structures and board effectiveness in third-party LBOs (BS→BE). In Models LE8 to LE14, the results suggest that the proportion of non-executives (*sta ned*) is significantly positively related to board effectiveness, but board size (*sta bsize*) and CEO duality (dual) are not significantly correlated with board effectiveness in third-party LBOs (a high C-score indicates a high level of board effectiveness in third-party LBOs). The significant results indicate that a high proportion of non-executive directors can enhance board independence, monitoring and control, which benefit the effectiveness of the board (Fama and Jensen, 1983; Baysinger and Butler, 1985; Buchholtz and Ribbens, 1994; Cotter et al., 1997).

Third (Step 3), the study investigates the relationship between board effectiveness and takeover premiums in third-party LBOs (BS, BE→premiums). However, the findings suggest that there is no significant relationship between board effectiveness (*sta cscore*) and takeover premiums (*prem*) in third-party LBOs. Therefore, this may indicate that there are no mediating effects of board effectiveness in the relationship between board structures and takeover premiums in third-party LBOs. Hypotheses 4.7a, 4.8a and 4.9a are therefore rejected.

Table 4.10 The regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals*:*
LE22 tests the effects of board effectiveness on takeover premiums (BE→ premiums); LE23–LE25 test the effects of board effectiveness on board structures (BE→ BS); LE26–LE32 test the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BE, BS→ premiums***						
Variables	Le22 prem	Le23 Sta bsize	Le24 Sta ned	Le25 dual	Le26 prem	Le27 prem	Le28 prem	Le29 prem	Le30 prem	Le31 prem	Le32 prem
Sta cscore	0.051	-0.025	0.277**	0.027	0.048	0.067	0.052	0.063	0.048	0.068	0.064
	(0.646)	(-0.174)	(2.314)	(0.407)	(0.599)	(0.836)	(0.641)	(0.786)	(0.595)	(0.833)	(0.783)
Sta bsize					-0.016			-0.020	-0.016		-0.020
					(-0.273)			(-0.345)	(-0.268)		(-0.338)
Sta ned						-0.057		-0.058		-0.057	-0.058
						(-0.847)		(-0.856)		(-0.862)	(-0.871)
dual							-0.024		-0.023	-0.032	-0.031
							(-0.170)		(-0.164)	(-0.221)	(-0.214)
size	-0.040	0.328***	0.085	0.006	-0.036	-0.032	-0.039	-0.028	-0.036	-0.032	-0.028
	(-0.779)	(4.391)	(1.041)	(0.201)	(-0.681)	(-0.633)	(-0.771)	(-0.532)	(-0.675)	(-0.624)	(-0.525)
roa	-1.146	-0.389	-1.097	-0.084	-1.125	-1.235	-1.151	-1.211	-1.130	-1.242	-1.218
	(-1.217)	(-0.479)	(-1.431)	(-0.251)	(-1.197)	(-1.268)	(-1.213)	(-1.246)	(-1.193)	(-1.271)	(-1.248)
bown	0.193	1.300*	-0.941	0.020	0.208	0.140	0.194	0.157	0.208	0.140	0.157
	(0.421)	(1.766)	(-1.062)	(0.078)	(0.435)	(0.296)	(0.419)	(0.322)	(0.433)	(0.294)	(0.320)
lnnas	0.140***				0.140***	0.135***	0.140***	0.136***	0.141***	0.135***	0.136***
	(3.072)				(3.050)	(3.050)	(3.048)	(3.032)	(3.026)	(3.023)	(3.004)
level	-0.383**				-0.378*	-0.367*	-0.381*	-0.361*	-0.376*	-0.364*	-0.358*
	(-2.014)				(-1.960)	(-1.863)	(-1.967)	(-1.800)	(-1.915)	(-1.811)	(-1.751)
fcf	0.913				0.849	0.963	0.918	0.884	0.854	0.969	0.891
	(0.855)				(0.804)	(0.878)	(0.854)	(0.817)	(0.803)	(0.879)	(0.819)
pe	0.000				0.000	0.000	0.000	0.000	0.000	0.000	0.000

	(0.346)				(0.348)	(0.221)	(0.340)	(0.225)	(0.342)	(0.214)	(0.218)
big4		-0.574*	0.124	-0.001							
		(-1.669)	(0.432)	(-0.007)							
ceoch		0.454*	0.380	0.087							
		(1.929)	(1.347)	(0.433)							
sg		-0.001	0.064	-0.029							
		(-0.010)	(0.657)	(-1.287)							
Constant	0.650	-5.758***	-1.548	-0.005	0.583	0.539	0.649	0.454	0.584	0.537	0.453
	(0.733)	(-4.276)	(-0.996)	(-0.009)	(0.610)	(0.599)	(0.727)	(0.475)	(0.605)	(0.592)	(0.470)
Observations	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.192	0.278	0.128	0.017	0.192	0.202	0.192	0.203	0.193	0.202	0.203
F-test	1.984	4.931	2.134	0.468	1.763	2.139	1.736	1.923	1.560	2.020	1.822
Prob>F	0.062	0.000	0.051	0.855	0.092	0.038	0.098	0.058	0.139	0.045	0.068

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

In addition, Table 4.10 reports the analysis of mediating effects of board structures in the relationship between board effectiveness and takeover premiums in third-party LBOs. According to the approach of Baron and Kenny (1986), the research examines the relationship between board effectiveness and takeover premiums (BE→premiums), the relationship between board effectiveness and board structures (BE→BS) and the relationship between board structures and takeover premiums (BE, BS→premiums) separately. The results show that there is no significant relationship between board effectiveness (*sta cscore*) (high C-score indicates high levels of board effectiveness in third-party LBOs) and takeover premiums (*prem*) in third-party LBOs. Moreover, the research finds that board effectiveness (*sta cscore*) is significantly positively related to the proportion of non-executives (*sta ned*), but there are no significant relationships between board effectiveness, board size (*sta bsize*) and CEO duality (*dual*) in third-party LBOs. This may indicate that an effective board would prefer to put more non-executives on the board as this may enhance their monitoring and control of management (Hermalin and Weisbach, 1998). Furthermore, the results suggest that there is no significant relationship between board structures and takeover premiums in third-party LBOs. Therefore, it is concluded that there are no mediating effects of board structures in the relationship between board effectiveness and takeover premiums in third-party LBOs. Hypotheses 4.10a, 4.11a and 4.12a are therefore rejected.

Tables 4.11 and 4.12 report the results for the multiple regression approach of mediation analysis in the MBO sample. Table 4.11 examines the mediating effects of board effectiveness in the relationship between board structures and takeover premiums (BS→BE→premiums) in MBOs. Following the approach of Baron and Kenny (1986), this research first examines the relationship between board structures and takeover premiums (BS→premiums). As the results show in Table 4.11, board structures, including board size, the proportion of non-executives and CEO duality are not significantly related to takeover premiums in MBOs.

Table 4.11 The regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structure and takeover premiums in MBO deals*:*
ME1–ME7 test the effects of board structures on takeover premiums (BS→ premiums); ME8–ME14 test the effects of board structures on board effectiveness (BS→ BE); ME15-ME21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(in the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
	Me1	Me2	Me3	Me4	Me5	Me6	Me7	Me8	Me9	Me10	Me11	Me12	Me13	Me14	Me15	Me16	Me17	Me18	Me19	Me20	Me21
Variables	prem	prem	prem	prem	prem	prem	prem	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	prem	prem	prem	prem	prem	prem	prem
Sta bsize	0.002			-0.000	0.011		0.009	-0.046			-0.053	-0.033		-0.042	0.003			0.001	0.011		0.010
	(0.050)			(-0.009)	(0.227)		(0.184)	(-1.225)			(-1.455)	(-0.842)		(-1.086)	(0.070)			(0.019)	(0.239)		(0.205)
Sta ned		-0.018		-0.018		-0.011	-0.009		-0.040		-0.047*		-0.031	-0.039		-0.015		-0.015		-0.009	-0.007
		(-0.627)		(-0.638)		(-0.397)	(-0.340)		(-1.479)		(-1.834)		(-1.125)	(-1.497)		(-0.542)		(-0.545)		(-0.316)	(-0.250)
dual			0.068		0.074	0.063	0.068			0.114*		0.093	0.101	0.070			0.066		0.071	0.061	0.067
			(1.032)		(0.944)	(0.987)	(0.876)			(1.821)		(1.382)	(1.572)	(1.029)			(0.994)		(0.919)	(0.963)	(0.867)
Sta cscore															0.033	0.031	0.031	0.031	0.031	0.031	0.031
															(1.528)	(1.541)	(1.543)	(1.489)	(1.524)	(1.521)	(1.484)
size	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	-0.005	-0.015	-0.014	0.005	-0.003	-0.010	0.005	-0.033	-0.030	-0.030	-0.030	-0.033	-0.028	-0.031
	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(-0.168)	(-0.501)	(-0.470)	(0.182)	(-0.102)	(-0.318)	(0.181)	(-0.927)	(-1.038)	(-1.039)	(-0.837)	(-0.915)	(-0.992)	(-0.852)
roa	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	-0.565**	-0.585**	-0.549**	-0.604***	-0.558**	-0.574**	-0.593**	-0.286	-0.292	-0.288	-0.292	-0.286	-0.292	-0.289
	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(-2.532)	(-2.597)	(-2.314)	(-2.649)	(-2.366)	(-2.417)	(-2.513)	(-0.961)	(-1.004)	(-0.980)	(-0.974)	(-0.953)	(-0.989)	(-0.952)
bown	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.143	0.091	0.119	0.104	0.132	0.092	0.102	0.064	0.050	0.070	0.049	0.060	0.060	0.054
	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(0.880)	(0.602)	(0.775)	(0.667)	(0.834)	(0.615)	(0.662)	(0.462)	(0.346)	(0.512)	(0.337)	(0.432)	(0.420)	(0.372)
lnnas	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053								0.053	0.052	0.055*	0.052	0.053	0.054*	0.053
	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)								(1.540)	(1.649)	(1.742)	(1.519)	(1.563)	(1.711)	(1.550)
level	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*								0.317*	0.318*	0.350*	0.318*	0.345*	0.348*	0.344*
	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)								(1.840)	(1.732)	(1.811)	(1.842)	(1.888)	(1.792)	(1.863)
fcf	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247								-0.286*	-0.309	-0.269	-0.309	-0.263	-0.282	-0.274
	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)								(-1.672)	(-1.561)	(-1.542)	(-1.601)	(-1.548)	(-1.443)	(-1.454)
pe	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001								-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.645)	(-0.598)	(-0.667)	(-0.583)	(-0.624)	(-0.619)	(-0.592)								(-0.594)	(-0.561)	(-0.619)	(-0.544)	(-0.577)	(-0.582)	(-0.554)
big4								0.113	0.116	0.105	0.114	0.105	0.107	0.108							
								(1.362)	(1.346)	(1.240)	(1.364)	(1.259)	(1.257)	(1.283)							
ceoch								0.058	0.079	0.086	0.090	0.083	0.103	0.104							
								(0.610)	(0.783)	(0.842)	(0.935)	(0.853)	(1.000)	(1.064)							
sg								0.001	-0.002	-0.007	0.000	-0.004	-0.007	-0.003							
								(0.074)	(-0.344)	(-0.844)	(0.012)	(-0.453)	(-0.841)	(-0.365)							

Constant	0.554	0.496	0.447	0.494	0.503	0.427	0.477	0.127	0.320	0.258	-0.048	0.071	0.193	-0.062	0.629	0.570	0.518	0.575	0.578	0.501	0.557
	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(0.252)	(0.619)	(0.524)	(-0.094)	(0.146)	(0.379)	(-0.123)	(1.023)	(1.269)	(1.174)	(0.939)	(0.981)	(1.137)	(0.924)
Observations	106	106	106	106	106	106	106	105	105	105	105	105	105	105	106	106	106	106	106	106	106
R-squared	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.117	0.114	0.123	0.137	0.132	0.131	0.144	0.146	0.148	0.154	0.148	0.155	0.155	0.156
F-test	3.107	3.003	3.256	2.724	2.962	2.834	2.641	1.761	2.036	2.149	1.805	1.785	1.986	1.719	3.201	3.119	3.341	2.838	3.055	2.953	2.752
Prob>F	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.104	0.058	0.045	0.085	0.089	0.056	0.095	0.002	0.002	0.001	0.004	0.002	0.003	0.004

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

In the second step, this research tests the effects of board structures on board effectiveness (BS→BE) and finds that the proportion of non-executives (*sta ned*) is significantly positively related to board effectiveness (*sta cscore*) in MBOs (where a low C-score indicates a high level of board effectiveness). This confirms the argument by Fama and Jensen (1983), Baysinger and Butler (1985), Buchholtz and Ribbens (1994) and Cotter et al. (1997) that a high percentage of non-executives on the board can increase the directors' independence and objectivity in decision-making that benefits the board's ability to monitor. Moreover, the findings suggest that CEO duality (*dual*) is significantly negatively related to board effectiveness (*sta cscore*) in MBOs, where a low C-score indicates a high level of board effectiveness. This is consistent with the argument that duality hampers the ability of the board to monitor opportunistic behaviours of management effectively (Cornforth, 2001; Elsaid and Davidson, 2009; Kim et al., 2009). However, the results are inconsistent. As discussed before, this may be because the models may suffer from omitted variable bias or the inclusion of extraneous variables.

Moving to the next step (BS, BE→premiums), the result also suggests that board effectiveness (*sta cscore*) is not significantly correlated to takeover premiums in MBOs. Therefore, it is concluded that there are no mediating effects of board effectiveness in the relationship between board structures and takeover premiums in MBOs. Hypotheses 4.7b, 4.8b and 4.9b are therefore rejected.

Table 4.12 The regression approach for mediation analysis of the effects of board structure on the relationship between board effectiveness and takeover premiums in MBO deals:
ME22 tests the effects of board effectiveness on takeover premiums (BE→ premiums); ME23-ME25 test the effects of board effectiveness on board structures (BE→ BS); ME26-ME32 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(in the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BE, BS→ premiums***						
	Me22	Me23	Me24	Me25	Me26	Me27	Me28	Me29	Me30	Me31	Me32
Variables	prem	Sta bsize	Sta ned	dual	prem	prem	prem	prem	prem	prem	prem
Sta cscore	0.033	-0.430	-0.393	0.230*	0.033	0.031	0.031	0.031	0.031	0.031	0.031
	(1.565)	(-1.391)	(-1.419)	(1.801)	(1.528)	(1.541)	(1.543)	(1.489)	(1.524)	(1.521)	(1.484)
Sta bsize					0.003			0.001	0.011		0.010
					(0.070)			(0.019)	(0.239)		(0.205)
Sta ned						-0.015		-0.015		-0.009	-0.007
						(-0.542)		(-0.545)		(-0.316)	(-0.250)
dual							0.066		0.071	0.061	0.067
							(0.994)		(0.919)	(0.963)	(0.867)
Size	-0.033	0.361***	0.154	-0.067	-0.033	-0.030	-0.030	-0.030	-0.033	-0.028	-0.031
	(-1.114)	(3.753)	(1.442)	(-1.407)	(-0.927)	(-1.038)	(-1.039)	(-0.837)	(-0.915)	(-0.992)	(-0.852)
roa	-0.286	-0.492	-1.011	0.092	-0.286	-0.292	-0.288	-0.292	-0.286	-0.292	-0.289
	(-0.986)	(-0.666)	(-0.929)	(0.243)	(-0.961)	(-1.004)	(-0.980)	(-0.974)	(-0.953)	(-0.989)	(-0.952)
bown	0.067	0.423	-0.842	0.037	0.064	0.050	0.070	0.049	0.060	0.060	0.054
	(0.492)	(0.764)	(-1.304)	(0.169)	(0.462)	(0.346)	(0.512)	(0.337)	(0.432)	(0.420)	(0.372)
lnnas	0.053*				0.053	0.052	0.055*	0.052	0.053	0.054*	0.053
	(1.687)				(1.540)	(1.649)	(1.742)	(1.519)	(1.563)	(1.711)	(1.550)
level	0.320*				0.317*	0.318*	0.350*	0.318*	0.345*	0.348*	0.344*
	(1.737)				(1.840)	(1.732)	(1.811)	(1.842)	(1.888)	(1.792)	(1.863)
fcf	-0.287				-0.286*	-0.309	-0.269	-0.309	-0.263	-0.282	-0.274
	(-1.644)				(-1.672)	(-1.561)	(-1.542)	(-1.601)	(-1.548)	(-1.443)	(-1.454)
pe	-0.001				-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.620)				(-0.594)	(-0.561)	(-0.619)	(-0.544)	(-0.577)	(-0.582)	(-0.554)

big4		0.010	0.079	0.060							
		(0.056)	(0.330)	(0.609)							
ceoch		0.136	0.685**	-0.299***							
		(0.413)	(2.049)	(-4.659)							
sg		0.050	-0.018	0.043***							
		(1.401)	(-0.641)	(3.460)							
Constant	0.612	-6.428***	-2.582	1.410	0.629	0.570	0.518	0.575	0.578	0.501	0.557
	(1.336)	(-3.724)	(-1.301)	(1.650)	(1.023)	(1.269)	(1.174)	(0.939)	(0.981)	(1.137)	(0.924)
Observations	106	105	105	105	106	106	106	106	106	106	106
R-squared	0.146	0.205	0.160	0.126	0.146	0.148	0.154	0.148	0.155	0.155	0.156
F-test	3.576	4.750	2.834	5.735	3.201	3.119	3.341	2.838	3.055	2.953	2.752
Prob>F	0.001	0.000	0.010	0.000	0.002	0.002	0.001	0.004	0.002	0.003	0.004

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.12 reports the results of mediating effects of board structures in the relationship between board effectiveness and takeover premiums (BE→BS→premiums) in MBOs. Following the approach of Baron and Kenny (1986), it is found that board effectiveness is not significantly correlated to takeover premiums in MBOs (BE→premiums). Moreover, the research finds that board effectiveness (*sta cscore*) (low C-score indicates high levels of board effectiveness in MBOs) is significantly negatively associated with CEO duality (*dual*), while not significantly related to board size (*sta bsize*) and the proportion of non-executives (*sta ned*) in MBOs (BE→BS). The significant result may indicate that an effective board would prefer to separate the position of CEO and chairman, as duality may hamper their monitoring and control of management (Arthur, 2001). Furthermore, the results find that board structures are not significantly related to takeover premiums (BE, BS→premiums). Therefore, Hypotheses 4.10b, 4.11b and 4.12b are rejected, and there are no mediating effects of board structures in the relationship between board effectiveness and takeover premiums in MBOs.

In the mediation analysis, the R-squares are range from 0.02 to 0.35 in third-party LBOs and 0.12 to 0.2 in MBOs, which are expected to be at an acceptable level. Although the previous research does not really test the mediating effects, there are many studies focus on examining the influence of board structures and board effectiveness on shareholder wealth. For example, Kroll et al. (2008) examine the influence of board expertise on performance outcomes and report that the R-square is 0.3. Jackling and Johl (2009) investigate the relationship between board characteristics and financial performance and find that the R-squares are range from 0.19 to 0.39. Hashim and Abdul Rahman (2011) report that the adjusted R-square is 0.81 in examining the effects of board composition, board diligence and expertise on audit report lag.

4.3.4 Endogeneity tests

Multiple regression analysis is subject to a potential endogeneity bias, since board structures can influence board effectiveness, and, in turn, can also be influenced by board effectiveness. Similar to prior studies (e.g. Abdallah et al., 2015), this research uses a 2SLS regression model as the solution for endogeneity.

Tables 4.38 to 4.40 of the Appendix report the results of endogeneity tests for moderation and mediation analysis in 2SLS. In the tables, the Hausman test is used to check for the endogeneity where the null hypothesis is rejected when p-values are less than 0.05; then, endogeneity arises (Diamond and Tolley, 2013; Baum, 2006; Adkins and Hill, 2011).

Moreover, in the tables, the validity of the instrumental variables is tested. The F-statistic for joint significance of these variables in the first-stage regression is the most commonly used diagnostic for the weakness of instrumental variables. The most widely used rule of thumb suggests that there exist weak instrumental variables when the F-statistic is less than 10 (Staiger and Stock, 1994). Furthermore, Cragg and Donald (1993) and Stock and Yogo (2005) suggest that the minimum eigenvalue statistic is used to test for weak instrumental variables where the minimum eigenvalue should be compared to the bound size of Wald tests. The Wald test is a way of testing the joint statistical significance of the endogenous regressors in the model at a level of 5%. If we are willing to tolerate distortion of a 5% Wald test based on the 2SLS estimator, the minimum eigenvalue exceeds the 15% of the size distortion, indicating that the null hypothesis can be rejected (Cameron and Trivedi, 2010).

As shown in Tables 4.38 to 4.40 in the Appendix, the F-statistic for the joint significance of the instrumental variable of lagged board structures (*sta bsize2, sta ned2, dual2*) is greater than 10 for moderation and mediation analysis in MBO and third-party LBOs, which pass the rule of thumb. Moreover, in the mediation analysis, the F-statistic for joint significance of the instrumental variable lagged C-score (*sta cscore2*) is greater than 10, which rejects the null hypothesis that the instrumental variable is weak. However, in the moderation analysis, the F-statistic for lagged C-score (*sta cscore2*) is not always greater than 10, which may indicate that the lagged C-score (*sta cscore2*) is a weak instrumental variable in moderation analysis in MBOs and third-party LBOs.

Furthermore, the minimum eigenvalue of the F-statistic is greater than the critical values for mediation analysis in MBOs and third-party LBOs, which confirms that the instrumental variables are valid. However, in moderation analysis, the minimum eigenvalue of the F-statistic is not always greater than the critical values, which indicates that the instrumental variables are weak.

Tables 4.38 to 4.40 report the results of the Hausman test. The findings suggest that, in most cases, the p-values of the Hausman test are greater than 0.05, which leads us to reject the null hypothesis that there are endogeneity problems. However, in some cases, the p-values of the Hausman test are less than 0.05, which indicates that endogenous problems may exist. Therefore, 2SLS methods can produce estimates that are more accurate than OLS methods.

Table 4.13 reports the results of the 2SLS analysis for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBOs. The Hausman tests for Model ENDOLE23 and ENDOLE27 suggest that endogeneity exists; thus, the OLS methods are biased. The results in 2SLS suggest that there is a significantly negative relationship between board effectiveness (*sta cscore*) and board size (*sta bsize*) in third-party LBOs. This indicates that a more effective board (high C-score indicates high levels of board effectiveness in third-party LBOs) would not increase the number of directors on the board, as this might hamper cooperation and communication among board members (Arthur, 2001; Hermalin and Weisbach, 1998). However, as there is no significant relationship between board size (*sta bsize*) and takeover premiums (*prem*), board size does not have a mediating effect in the relationship between board effectiveness (*sta cscore*) and takeover premiums (*prem*) in third-party LBOs.

Table 4.13 The endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals*:* *ENDOLE22 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOLE23-ENDOLE24 test the effects of board effectiveness on board structures (BE→ BS), ENDOLE26-ENDOLE32 tests the effects of board structures on takeover premiums (BE, BS→ premiums)* *(In third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	**Step2: BE→ BS**		**Step3: BE, BS→ premiums**						
VARIABLES	endole22 prem	endole23 Sta bsize	endole24 Sta ned	endole26 prem	endole27 prem	endole28 prem	endole29 prem	endole30 prem	endole31 prem	endole32 prem
Sta cscore	-0.135	-0.734*	0.864***	-0.114	-0.080	-0.135	-0.069	-0.115	-0.050	-0.040
	(-0.772)	(-1.858)	(2.892)	(-0.525)	(-0.382)	(-0.738)	(-0.282)	(-0.526)	(-0.211)	(-0.150)
Sta bsize				0.017			0.008	0.017		0.008
				(0.209)			(0.098)	(0.209)		(0.098)
Sta ned					-0.102		-0.103		-0.112	-0.113
					(-1.191)		(-1.191)		(-1.304)	(-1.301)
dual						-0.001		0.005	-0.076	-0.074
						(-0.002)		(0.021)	(-0.281)	(-0.274)
size	-0.094	0.157	0.221**	-0.093	-0.073	-0.094	-0.072	-0.094	-0.064	-0.064
	(-1.581)	(1.225)	(2.007)	(-1.563)	(-1.102)	(-1.511)	(-1.076)	(-1.508)	(-0.886)	(-0.873)
roa	-0.994	-0.582	-1.231	-1.029	-1.184	-0.994	-1.202	-1.027	-1.235	-1.252
	(-1.020)	(-0.581)	(-1.248)	(-1.040)	(-1.161)	(-0.989)	(-1.156)	(-1.005)	(-1.194)	(-1.188)
bown	0.213	1.010	-0.663	0.203	0.111	0.213	0.105	0.202	0.107	0.101
	(0.528)	(1.271)	(-0.840)	(0.478)	(0.263)	(0.526)	(0.238)	(0.475)	(0.251)	(0.228)
lnnas	0.165***			0.166***	0.151***	0.165***	0.151***	0.166***	0.149***	0.150***
	(3.590)			(3.603)	(3.450)	(3.605)	(3.455)	(3.621)	(3.351)	(3.357)
level	-0.439**			-0.442**	-0.408**	-0.439**	-0.409**	-0.443**	-0.395*	-0.397*
	(-2.197)			(-2.212)	(-1.975)	(-2.101)	(-1.971)	(-2.119)	(-1.763)	(-1.760)
fcf	0.423			0.533	0.592	0.423	0.644	0.528	0.676	0.726
	(0.378)			(0.416)	(0.492)	(0.363)	(0.469)	(0.401)	(0.532)	(0.507)

pe	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.594)			(0.571)	(0.323)	(0.592)	(0.301)	(0.573)	(0.251)	(0.233)
Big4		-0.441	0.200							
		(-1.419)	(0.747)							
ceoch		0.230	0.240							
		(0.574)	(0.800)							
Sg		-0.005	0.073							
		(-0.039)	(0.729)							
Constant	1.554	-2.697	-4.138**	1.539	1.227	1.554	1.216	1.547	1.088	1.081
	(1.419)	(-1.133)	(-2.078)	(1.405)	(1.025)	(1.368)	(1.007)	(1.367)	(0.824)	(0.815)
Observations	73	81	81	73	73	73	73	73	73	73
R-squared	0.188	0.140	0.028	0.192	0.192	0.188	0.193	0.192	0.194	0.194
Chi2-test	22.16	56.54	16.86	22.69	24.38	22.41	24.78	22.90	27.36	27.53
Prob>chi2	0.005	0.000	0.018	0.007	0.004	0.008	0.006	0.011	0.003	0.004
Endogenous test										
Hausman Chi2	0.843	8.449	3.393	1.962	6.154	0.912	6.120	2.149	6.185	6.297
Hausman Prob>Chi2	0.359	0.004	0.066	0.375	0.046	0.634	0.106	0.542	0.103	0.178
Weak instrument test										
F-test *Sta cscore2*	16.630***	26.232***	26.232***	9.972***	10.861***	10.588***	7.887***	7.742***	8.482***	6.572***
Sta bsize2				62.911***			45.728***	48.323***		41.294***
Sta ned2					136.722***		100.522***		106.632***	87.745***
Dual2						12.179***		8.935***	12.961***	9.612***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism at year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors at year Y-1. Ned: the proportion of non-executives on boards at year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 at year Y-1. Cscore2: denotes for the levels of accounting conservatism at year Y-2 (two year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize2: the total number of the board of directors at year Y-2. Ned2: the proportion of non-executives on boards at year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 at year Y-2. Sta cscore: the standardised cscore at year Y-1.Sta bsize: the standardised board size at year Y-1. Sta ned: the standardised ned at year Y-1. Sta cscore2: lagged variable, the standardised c-score at year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size at year Y-2. Sta ned2: lagged variable, the standardised ned at year Y-2. Size: ln total assets at year Y-1. Roa: return on assets at year Y-1. Bown: board ownership at year Y-1. Lnnas: ln non-audit fees at year Y-1. Level: total debts divided by total assets at year Y-1. Fcf: free cash flow at year Y-1. Pe: price-earnings ratio at year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms at year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 at year Y-1. Sg: sales growth at year Y-1.

Furthermore, the research finds that the p-values of the Hausman test for Models ENDOMO13, ENDOLO2, ENDOLO9, ENDOME2, ENDOME27 and ENDOLE2 in Tables 4.34 to 4.40 of the Appendix are below 0.05. This may indicate that endogeneity exists, in which the results of the OLS method are more biased than in the 2SLS method. However, it is found that the regression coefficients associated with board structures – board effectiveness and the interactive effects of board structures and board effectiveness – have the same directions and significance in OLS and 2SLS. Therefore, endogeneity should not be a problem affecting the results of the models.

4.3.5 Structural equation modelling (SEM)

4.3.5.1 Moderation analysis

Structural equation modelling, a variation of path analysis, is an extension to the multiple regression approach that simultaneously estimates the equations in the model. In SEM, the model-implied covariance matrix is compared to the observed covariance matrix, and goodness-of-fit statistics are then used to assess the discrepancy between the two (Fairchild and McQuillin, 2010). This study examines moderating/mediating models via SEM using AMOS.

The multi-group approach is the most commonly used method for moderation analysis when the moderator is categorical (Ro, 2012). In the analysis, the overall fit of the constrained model (equal by the moderator) is compared with the unconstrained model (which varies by moderator) and the magnitude of the difference of the chi-square determines the presence of moderating effects. As previously discussed, the sample is split into large, medium and small board size groups; large, medium and small proportions of non-executive groups; duality and non-duality groups; and large and small C-score (board effectiveness) groups. Grouping of board size and proportion of non-executives (*ned*) are carried out via a split into thirds. Board size and the proportion of non-executives (*ned*) are grouped as the minimum to 33rd percentiles for the low group, the 34th to 66th percentiles for the medium group and the 67th to the maximum percentiles for the high group. Grouping of C-scores (board effectiveness) is carried out via split at the median. The C-score group below the median is named as the low C-score group, while the group above the median is named as the high C-score group (a high C-score indicates high board effectiveness in third-party LBOs, but low board effectiveness in MBOs). As the sample for CEO duality in third-party LBOs is too small and does not satisfy the requirements of multi-group analysis, this research tests the moderating effects of board structures including board size and the proportion of non-executives.

Table 4.14 reports the results of the measurement invariance test for board size and ned groups in third-party LBOs. The baseline model for board size and ned shows an acceptable fit to the data (board size: χ^2=100.128, df=63, χ^2/df=1.589, RMSEA=0.09, CFI=0.798, GFI=0.819; ned: χ^2=131.815, df=63, χ^2/df=2.092, RMSEA=0.122, CFI=0.675, GFI=0.79). For the board size and ned groups, full-metric invariance is not supported, in that the chi-square difference ($\Delta\chi^2$) between the unconstrained model and the constrained model is not significant (board size: $\Delta\chi^2(2)$=3.812, p>0.1; ned: $\Delta\chi^2(2)$=2.13, p>0.1). Therefore, the relationship between board effectiveness (*sta cscore*) and takeover premiums (*prem*) does not have significant differences across *board size* and *ned*. Hypotheses 4.1a and 4.2a are rejected. This is consistent with the findings in the multiple regression analysis that board size and the proportion of non-executives do not have moderating effects in the relationship between board effectiveness and takeover premiums in third-party LBOs.

Table 4.14 Structural equation modelling (SEM) approach for moderation analysis: the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness): ***measurement invariance test***

Groups	*Models*	*Chi-square*	*df*	*Chi-square /df*	*RMSEA*	*CFI*	*GFI*	*⊿Chi-square*	*Invariance*
Board size groups	*Unconstrained*	100.128	63	1.589	0.090	0.798	0.819	$\Delta\chi^2(2)$= 3.812, p=0.149	Yes
	Fully constrained	103.940	65	1.599	0.091	0.788	0.813		
NED groups	*Unconstrained*	131.815	63	2.092	0.122	0.675	0.790	$\Delta\chi^2(2)$= 2.130, p=0.345	Yes
	Fully constrained	133.945	65	2.061	0.121	0.674	0.787		

Board size group: The standardised board size is divided into three groups: minimum to 33rd percentiles for low levels, 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: standardised proportion of non-executives on the board is divided into three groups: minimum to 33rd percentiles for low level, 34th to 66th percentiles for medium level and 67th to maximum for high level.

Table 4.15, Panel A shows the results of the measurement invariance test for C-score (board effectiveness) groups in third-party LBOs. The unconstrained model for the C-score (board effectiveness) shows a good fit to the data (χ^2=94.21, df=78, χ^2/df=1.208, RMSEA=0.053, CFI=0.824, GFI=0.831). It is found that for the C-score (board effectiveness), full-metric invariance is not supported, in that there is not a significant chi-square difference ($\Delta\chi^2$) between the unconstrained model and constrained model ($\Delta\chi^2(3)$=2.024, p>0.1). This implies that the impact of board structures on takeover premiums do not have a significant difference across C-score (board effectiveness) groups in third-party LBOs. This is consistent with the finding in the multiple regression approach that the C-score (board effectiveness) does not moderate the relationship between board structures and takeover premiums in third-party LBOs.

Table 4.15 Structural equation modelling (SEM) approach for moderation analysis: the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness): **measurement invariance test**

Panel A:

Groups	*Models*	*Chi-square*	*df*	*Chi-square /df*	*RMSEA*	*CFI*	*GFI*	Δ*Chi-square*	*Invariance*
C-score groups	*Unconstrained*	94.210	78	1.208	0.053	0.824	0.831	$\Delta\chi^2(3)$= 2.024, p=0.567	Yes
	Fully constrained	96.234	81	1.188	0.050	0.835	0.828		

Panel B:

Board effectiveness: C-score

Path	**High C-score**		**Low C-score**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta size →prem	0.018	0.905	-0.064	0.637	$\chi^2(78)$= 94.210	$\chi^2(79)$= 94.281	$\Delta\chi^2(1)$=0.071, p>0.1
sta ned →prem	-0.025	0.855	-0.016	0.905	$\chi^2(78)$= 94.210	$\chi^2(79)$= 94.217	$\Delta\chi^2(1)$=0.007, p>0.1
Dual →prem	-0.193	0.141	0.062	0.631	$\chi^2(78)$= 94.210	$\chi^2(79)$= 96.098	$\Delta\chi^2(1)$=1.888, p>0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels.

Panel B in Table 4.15 reports the results of the invariance test for C-score (board effectiveness) groups and the chi-square difference ($\Delta\chi^2$) test for each path. The results suggest that, for C-score (board effectiveness) groups, the links between board size (*sta bsize*) and takeover premiums (*prem*) is not significantly different ($\Delta\chi^2(1)$=0.071, p>0.1) in third-party LBOs. In addition, the link between the proportion of non-executive (*sta ned*) and takeover premiums (*prem*) ($\Delta\chi^2(1)$=0.007, p>0.1) and between CEO duality and takeover premiums (*prem*) ($\Delta\chi^2(1)$=1.888, p>0.1) are not significantly different across C-score (board effectiveness) groups in third-party LBOs. Thus, consistent with the findings in multiple regression analysis, Hypotheses 4.4a, 4.5a and 4.6a are rejected.

Table 4.16 shows the results of the measurement invariance test for *board size*, *ned* and *duality* groups in MBOs. The baseline model for these groups show a good fit to the data (board size: χ^2=72.308, df=60, χ^2/df=1.205, RMSEA=0.045, CFI=0.938, GFI=0.875; ned: χ^2=82.921, df=66, χ^2/df=1.256, RMSEA=0.05, CFI=0.917, GFI=0.86; CEO duality: χ^2=56.272, df=40, χ^2/df=1.407, RMSEA=0.063, CFI=0.914, GFI=0.892). The baseline (unconstrained) model is compared with the constrained model, by using a chi-square difference test. For the *board size* and *ned* groups, full-metric invariance is supported in that the chi-square difference ($\Delta\chi^2$) between the unconstrained model and constrained model is significant (*board size*: $\Delta\chi^2(2)$=4.649, $p<0.1$; *ned*: $\Delta\chi^2(2)$=5.715, $p<0.1$). The findings imply that the relationship between board effectiveness (*sta cscore*) and takeover premiums (*prem*) in MBOs may vary across the board size and *ned* groups.

Table 4.16 Structural equation modelling (SEM) approach for moderation analysis: multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness): **measurement invariance test**

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*ΔChi-square*	*Invariance*
Board size groups	*Unconstrained*	72.308	60	1.205	0.045	0.938	0.875	$\Delta\chi^2(2)$= 4.649, p=0.098	No
	Fully constrained	76.957	62	1.241	0.048	0.924	0.869		
NED groups	*Unconstrained*	82.921	66	1.256	0.050	0.917	0.860	$\Delta\chi^2(2)$= 5.715, p=0.057	No
	Fully constrained	88.636	68	1.303	0.054	0.899	0.852		
Duality groups	*Unconstrained*	56.272	40	1.407	0.063	0.914	0.892	$\Delta\chi^2(1)$= 1.198, p=0.274	Yes
	Fully constrained	57.470	41	1.402	0.062	0.913	0.891		

Board size group: The standardised board size is divided into three groups: minimum to 33rd percentiles for low levels, 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: standardised proportion of non-executives on the board is divided into three groups: minimum to 33rd percentiles for low level, 34th to 66th percentiles for medium level and 67th to maximum for high level. Duality group: The CEO duality is divided into two groups: equals to 1 denotes the duality group, otherwise denotes the not duality group.

Table 4.43 in the Appendix reports that board size and the proportion of non-executives have moderating effects in the relationship between board effectiveness and takeover premiums in MBOs. Specifically, in MBOs, a small board is likely to have significantly higher takeover premiums than a medium board under the same levels of board effectiveness, but lower board effectiveness tends to lead to higher premiums. Also, the findings suggest that, in MBOs, boards with a lower proportion of non-executives tend to be associated with higher premiums than those with a medium proportion of non-executives under the same levels of board effectiveness.

Moreover, for the duality group, full-metric invariance is supported, in that the chi-square difference ($\Delta\chi^2$) between the unconstrained model and constrained model is not significant ($\Delta\chi^2(1)$=1.198, p>0.1) (see Table 4.16). This indicates that the impact of probable variation does not display a significant difference across CEO duality groups. Therefore, CEO duality does not have moderating effects in the relationship between board effectiveness and takeover premiums in MBOs.

However, these findings are not always consistent with those in multiple regression analysis. This might be because, in multiple group analysis, the continuous variables ‘board size’ and ‘proportion of non-executives’ are artificially convert into categorical variables. As discussed in the methodology, this may result in loss of information and reduce ability to detect interaction effects (Frazier et al., 2004; Fitzsimons, 2008). Moreover, artificially dichotomising two continuous variables (e.g. an independent variable and a moderator) may result in the opposite effect and spurious results (Irwin and McClelland, 2001; MacCallum et al., 2002).

In addition, the inconsistence of the results may be because of the small sample size. Although attempts have been made to accommodate smaller sample analysis (e.g. Nevitt and Hancock, 2004), SEM is a technique that is commonly used for large samples (Kline, 2015; Tomarken and Waller, 2005). Previous studies (e.g. Jackson, 2003) suggest that the sample size-to-parameter ratio should be not less than 10:1. Kline (2015) suggests that the ‘typical’ sample size for the SEM approach is about 200. If this requirement is not met, the SEM approach may result in biased results. However, the sample size of this study for MBOs is only 106, which may lead to inconsistent results when using SEM and the multiple regression approach.

Table 4.17, Panel A reports the results of the measurement invariance test for C-score (board effectiveness) groups in MBOs. The baseline model for C-score (board effectiveness) shows an acceptable fit to the data (χ^2=148.775, df=80, χ^2/df=1.86, RMSEA=0.091, CFI=0.655, GFI=0.813). By comparing the baseline (unconstrained) model with the constrained model, it is found that for C-score (board effectiveness), full-metric invariance is not supported, in that the chi-square difference ($\Delta\chi^2$) between the unconstrained model and constrained model is not significant ($\Delta\chi^2(3)$=4.48, p>0.1). The findings imply that the impact of board structures on takeover premiums do not vary across C-score (board effectiveness) groups in MBOs. This indicates that C-score (board effectiveness) does not moderate the relationship between board structures and takeover premiums in MBOs.

Table 4.17 Structural equation modelling (SEM) approach for moderation analysis: multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness): **measurement invariance test**

Panel A:

Groups	***Models***	***Chi-square***	***df***	***Chi-square /df***	***RMSEA***	***CFI***	***GFI***	***∆Chi-square***	***Invariance***
C-score groups	*Unconstrained*	148.775	80	1.860	0.091	0.655	0.813	$\Delta\chi^2(3)$= 4.480, p=0.214	Yes
	Fully constrained	153.255	83	1.846	0.090	0.647	0.808		

Panel B:

Board effectiveness: C-score

Path	**High C-score**		**Low C-score**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta bsize →prem	0.009	0.937	0.012	0.921	$\chi^2(80)$=148.775	$\chi^2(81)$= 148.775	$\Delta\chi^2(1)$=0, p>0.1
sta ned →prem	-0.058	0.666	0.069	0.617	$\chi^2(80)$=148.775	$\chi^2(81)$= 149.085	$\Delta\chi^2(1)$=0.31, p>0.1
Dual →prem	0.192	0.095	-0.150	0.230	$\chi^2(80)$=148.775	$\chi^2(81)$= 151.862	$\Delta\chi^2(1)$=3.087, p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels.

To check the path differences, the baseline (unconstrained) model is compared with a series of nested (constrained) models, each with a specific parameter constraint between groups, by using a chi-square difference ($\Delta\chi^2$) test. Panel B in Table 4.17 reports the results of the invariance test and the chi-square difference ($\Delta\chi^2$) test for each path. The results suggest that the links between board size (*sta bsize*) and takeover premiums (*prem*) ($\Delta\chi^2(1)=0$, $p>0.1$) and between the proportion of non-executive (*sta ned*) and takeover premiums (*prem*) ($\Delta\chi^2(1)=0.31$, $p>0.1$) in MBOs is not significantly different across C-score (board effectiveness) groups. This indicates that C-score (board effectiveness) does not have moderating effects on the relationship between board size, the proportion of non-executives and takeover premiums in MBOs.

However, it is found that the path from CEO duality to takeover premiums (*prem*) is significantly different across C-score (board effectiveness) groups ($\Delta\chi^2(1)=3.087$, $p<0.1$). Specifically, the path coefficient for the high C-score (low board effectiveness) group is found to be greater than for the low C-score (high board effectiveness) group (high C-score group: $\beta=0.192$, $p=0.095$; low C-score group: $\beta=-0.15$, $p=0.23$) in MBOs. Accordingly, Hypothesis 4.6b is not rejected. Consistent with the finding in the multiple regression approach, in MBOs, boards with low effectiveness (high C-scores) tend to receive lower premiums when the positions of CEO and chairman are separate relative to highly effective boards (with low C-scores) and receive higher premiums when the CEO and chairman are the same person. This confirms the argument that the effective board would like a separate CEO and chairman, as this may facilitate their monitoring and control over management (Arthur, 2001; Hermalin and Weisbach, 1998).

4.3.5.2 Mediation analysis

The mediating effects of board structures and board effectiveness are further tested via SEM. Table 4.18 reports the mediation effects of board effectiveness (*sta cscore*) in the relationship between board structures and takeover premiums in third-party LBOs (for more detail, see Table 4.45 in the Appendix). The unconstrained model for the mediation effects of board effectiveness shows an acceptable fit to the data (χ^2=114.469, df=74, χ^2/df=1.547, RMSEA=0.085, CFI=0.744, GFI=0.852).

Table 4.18, Panel C, reports that the independent (board structures) - outcome (takeover premiums) path of the constrained model is not significant. Moreover, the findings suggest that the independent-outcome path of the unconstrained model, which includes the mediator, is not significant. Specifically, it is found that the proportion of non-executives (*ned*) is significantly positive related to board effectiveness (*sta cscore*) in third-party LBOs, while all other links are insignificant. Hence, it is expected that there is no mediation effect. Moreover, the bootstrapping tests suggest that the standardise indirect effects of board structures (*bsize*, *ned* & *dual*) on takeover premiums (*prem*) are not significant, which indicate that there is not a significant mediation effect (Panel D, Table 4.45 in Appendix). Therefore, Hypotheses 4.7a, 4.8a and 4.9a are rejected. Consistent with the findings in the multiple regression approach, board effectiveness does not have mediating effects in the relationship between board structures and takeover premiums in third-party LBOs.

Table 4.18 Summary table of the structural equation modelling (SEM) approach for mediation analysis: mediating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party deals *(BS→ BE→ premiums)*

(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)

Panel A: The model fit for the unconstrained model						
Models	***Chi-square***	***df***	***Chi-square/df***	***RMSEA***	***CFI***	***GFI***
Unconstrained	114.469	74	1.547	0.085	0.744	0.852

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	sta cscore	<---	sta bsize	-0.001	0.075	-0.012	0.991
	sta cscore	<---	sta ned	0.136	0.077	1.764	0.078
	sta cscore	<---	dual	0.109	0.222	0.494	0.622
BE →Prem	prem	<---	sta cscore	0.064	0.081	0.795	0.426
BS →Prem	prem	<---	sta bsize	-0.020	0.053	-0.382	0.702
	prem	<---	sta ned	-0.058	0.056	-1.052	0.293
	prem	<---	dual	-0.031	0.156	-0.200	0.841
Control variables	sta cscore	<---	sg	-0.020	0.091	-0.222	0.824
	sta cscore	<---	ceoch	-0.358	0.275	-1.304	0.192
	sta cscore	<---	big4	0.064	0.201	0.319	0.750
	sta cscore	<---	roa	0.100	0.482	0.208	0.835
	sta cscore	<---	size	-0.270	0.048	-5.606	0.000
	sta cscore	<---	bown	-0.233	0.567	-0.412	0.680
	prem	<---	size	-0.028	0.046	-0.605	0.545
	prem	<---	roa	-1.218	0.424	-2.872	0.004
	prem	<---	level	-0.358	0.200	-1.794	0.073
	prem	<---	lnnas	0.136	0.047	2.914	0.004
	prem	<---	pe	0.000	0.001	0.180	0.857
	prem	<---	fcf	0.891	0.543	1.640	0.101
	prem	<---	bown	0.157	0.403	0.389	0.697

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta cscore →prem	-0.052	0.609	-0.038	0.702	No mediation
Sta Ned →sta cscore →prem	-0.096	0.353	-0.109	0.293	No mediation
Dual →sta cscore →prem	-0.015	0.880	-0.020	0.841	No mediation

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.19 reports the mediating effects of board structures in the relationship between board effectiveness (*sta cscore*) and takeover premiums in third-party LBOs (for more detail, see Table 4.46 in the Appendix). The unconstrained model for the mediating effects of board effectiveness shows an acceptable fit to the data (χ^2=97.916, df=61, χ^2/df=1.605, RMSEA=0.09, CFI=0.767, GFI=0.873). Table 4.19, Panel C, reports that the independent (board effectiveness) - outcome (takeover premiums) path of the constrained model is not significant. Moreover, the findings suggest that the independent-outcome path of the unconstrained model with the mediator is not significant. Specifically, it is found that there is a significant relationship between the proportion of non-executives (*sta ned*) and board effectiveness (*sta cscore*) in third-party LBOs, while all other links are insignificant. Hence, it is expected that there is no mediation effect. Moreover, the bootstrapping tests suggest that the standardise indirect effects of board effectiveness (*sta cscore*) on takeover premiums (*prem*) are not significant, which indicate that there is not a significant mediation effect (Panel D, Table 4.46 in Appendix). Therefore, Hypotheses 4.10a, 4.11a and 4.12a are rejected. Board structures do not have mediating effects in the relationship between board effectiveness and takeover premiums in third-party LBOs.

Table 4.19 Summary table of the structural equation modelling (SEM) approach for mediation analysis: mediating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals *(BE→ BS→ premiums)*
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)

Panel A: The model fit for the unconstrained model						
Models	***Chi-square***	***df***	***Chi-square/df***	***RMSEA***	***CFI***	***GFI***
Unconstrained	97.916	61	1.605	0.090	0.767	0.873

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta cscore	-0.127	0.117	-1.083	0.279
	sta ned	<---	sta cscore	0.277	0.133	2.080	0.038
	dual	<---	sta cscore	0.027	0.049	0.558	0.577
BS →Prem	prem	<---	sta bsize	-0.020	0.065	-0.308	0.758
	prem	<---	sta ned	-0.058	0.057	-1.028	0.304
	prem	<---	dual	-0.031	0.157	-0.200	0.841
BE →Prem	prem	<---	sta cscore	0.064	0.069	0.925	0.355
Control variables	dual	<---	big4	-0.001	0.104	-0.006	0.995
	dual	<---	sg	-0.029	0.047	-0.620	0.535
	dual	<---	size	0.006	0.026	0.237	0.812
	dual	<---	roa	-0.084	0.250	-0.335	0.737
	dual	<---	bown	0.020	0.291	0.068	0.946
	dual	<---	ceoch	0.087	0.143	0.613	0.540
	sta ned	<---	ceoch	0.380	0.392	0.969	0.332
	sta ned	<---	big4	0.124	0.285	0.434	0.664
	sta ned	<---	sg	0.064	0.129	0.497	0.619
	sta ned	<---	size	0.085	0.070	1.220	0.223
	sta ned	<---	roa	-1.097	0.685	-1.601	0.109
	sta ned	<---	bown	-0.941	0.797	-1.181	0.238
	sta bsize	<---	ceoch	0.238	0.332	0.716	0.474
	sta bsize	<---	big4	-0.530	0.242	-2.191	0.028
	sta bsize	<---	sg	-0.021	0.109	-0.192	0.848
	sta bsize	<---	size	0.301	0.061	4.911	0.000
	sta bsize	<---	roa	-0.429	0.636	-0.675	0.500
	sta bsize	<---	bown	1.211	0.685	1.769	0.077
	prem	<---	size	-0.028	0.045	-0.622	0.534
	prem	<---	roa	-1.218	0.443	-2.751	0.006
	prem	<---	level	-0.358	0.200	-1.796	0.072
	prem	<---	lnnas	0.136	0.046	2.936	0.003

	prem	<---	pe	0.000	0.001	0.180	0.857
	prem	<---	fcf	0.891	0.599	1.487	0.137
	prem	<---	bown	0.157	0.407	0.385	0.700

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Cscore →sta bsize →prem	0.077	0.446	0.072	0.476	No mediation
Sta Cscore →sta ned →prem	0.077	0.446	0.101	0.329	No mediation
Sta Cscore →dual →prem	0.077	0.446	0.078	0.441	No mediation

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.20 reports the results of mediating effects of board effectiveness in the relationship between board structures and takeover premiums in MBOs (for more detail, see Table 4.47 in the Appendix). The unconstrained model for the mediating effects of the C-score (board effectiveness) shows a good fit to the data (χ^2=131.759, df=74, χ^2/df=1.781, RMSEA=0.087, CFI=0.8, GFI=0.862) in MBOs.

Table 4.20, Panel C, suggests that the independent (board structures) - outcome (takeover premiums) path of the constrained model is not significant. Moreover, the findings indicate that the independent-outcome path of the unconstrained model with the mediator, is not significant. Specifically, there is a significantly positive relationship between CEO duality (dual) and board effectiveness (*sta cscore*) in MBOs (p=0.099). Moreover, the results suggest that the proportion of non-executives (*sta ned*) is significantly positively correlated to takeover premiums (*prem*) in MBOs (p=0.053). However, all other links are insignificant. Hence, it is expected that there is no mediation effect. Moreover, the bootstrapping tests suggest that the standardise indirect effects of board structures (*bsize*, *ned* & *dual*) on takeover premiums (*prem*) are not significant, which indicate that there is not a significant mediation effect (Panel D, Table 4.47 in Appendix). Thus, consistent with the findings in the multiple regression approach, Hypotheses 4.7b, 4.8b and 4.9b are rejected. The results suggest that board effectiveness does not have mediating effects in the relationship between board structures and takeover premiums in MBOs.

Table 4.20 Summary table of the structural equation modelling (SEM) approach for mediation analysis: mediating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals *(BS→ BE→ premiums)*

(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)

Panel A: The model fit for the unconstrained model						
Models	***Chi-square***	***df***	***Chi-square/df***	***RMSEA***	***CFI***	***GFI***
Unconstrained	131.759	74	1.781	0.087	0.800	0.862

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	Sta cscore	<---	Sta bsize	-0.007	0.022	-0.300	0.764
	Sta cscore	<---	Sta ned	-0.040	0.022	-1.820	0.069
	Sta cscore	<---	dual	0.005	0.053	0.099	0.921
BE →Prem	prem	<---	Sta cscore	0.267	0.116	2.295	0.022
BS →Prem	prem	<---	Sta bsize	0.014	0.029	0.488	0.625
	prem	<---	Sta ned	0.002	0.029	0.053	0.958
	prem	<---	dual	0.069	0.067	1.025	0.306
Control variables	Sta cscore	<---	sg	-0.023	0.010	-2.299	0.022
	Sta cscore	<---	ceoch	0.093	0.078	1.192	0.233
	Sta cscore	<---	big4	0.193	0.046	4.212	0.000
	Sta cscore	<---	roa	-0.844	0.162	-5.220	0.000
	Sta cscore	<---	size	0.000	0.019	-0.025	0.980
	Sta cscore	<---	bown	-0.101	0.110	-0.916	0.360
	prem	<---	size	-0.030	0.030	-1.008	0.314
	prem	<---	roa	-0.167	0.280	-0.596	0.551
	prem	<---	level	0.585	0.210	2.783	0.005
	prem	<---	lnnas	0.052	0.025	2.066	0.039
	prem	<---	pe	-0.001	0.002	-0.670	0.503
	prem	<---	fcf	-0.234	0.246	-0.949	0.343

	prem	<---	bown	0.095	0.151	0.631	0.528

Panel C:

Relationship	Direct without Mediator		Direct with Mediator		Indirect
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta bsize →sta cscore →prem	0.029	0.763	0.046	0.625	No mediation
Sta ned →sta cscore →prem	-0.028	0.773	0.005	0.958	No mediation
Dual →sta cscore →prem	0.097	0.325	0.100	0.306	No mediation

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.21 reports the SEM approach for mediation analysis of the effects of board structures on the relationship between board effectiveness (*sta cscore*) and takeover premiums in MBOs (for more detail, see Table 4.48 in the Appendix). The unconstrained model for the mediating effects of board structures shows a good fit to the data (χ^2=106.928, df=62, χ^2/df=1.725, RMSEA=0.083, CFI=0.844, GFI=0.884).

Table 4.21, Panel C, reports that the independent (board effectiveness) - outcome (takeover premiums) path of the constrained model is statistically significant (p value=0.017). Moreover, the findings suggest that the independent-outcome path of the unconstrained model with the mediator is statistically significant (p value=0.02). Specifically, it is found that there is a significantly positive relationship between board effectiveness (*sta cscore*) and CEO duality (*dual*) (p=0.081) and between board effectiveness (*sta cscore*) and takeover premiums (*prem*) (p=0.022) in MBOs. Hence, it is expected that there is partial mediation effect. However, the bootstrapping tests suggest that the standardise indirect effects of board effectiveness (*sta cscore*) on takeover premiums (*prem*) are not significant, which indicate that there is not a significant mediation effect (Panel D, Table 4.48 in Appendix). Therefore, consistent with the findings in the multiple regression approach, the results suggest that board structures do not have significant mediating effects in the relationship between board effectiveness and takeover premiums in MBOs.

Table 4.21 Summary table of the structural equation modelling (SEM) approach for mediation analysis: mediating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals *(BE→ BS→ premiums)*

(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)

Panel A: The model fit for the unconstrained model						
Models	***Chi-square***	***df***	***Chi-square/df***	***RMSEA***	***CFI***	***GFI***
Unconstrained	106.928	62	1.725	0.083	0.844	0.884

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta cscore	-0.430	0.285	-1.509	0.131
	sta ned	<---	sta cscore	-0.393	0.293	-1.343	0.179
	dual	<---	sta cscore	0.230	0.132	1.745	0.081
BS →Prem	prem	<---	bsize	0.014	0.031	0.454	0.650
	prem	<---	ned	0.002	0.029	0.053	0.958
	prem	<---	dual	0.069	0.065	1.048	0.295
BE →Prem	prem	<---	sta cscore	0.267	0.117	2.288	0.022
Control variables	dual	<---	big4	0.060	0.090	0.672	0.502
	dual	<---	sg	0.043	0.019	2.315	0.021
	dual	<---	size	-0.067	0.038	-1.768	0.077
	dual	<---	roa	0.092	0.341	0.268	0.788
	dual	<---	bown	0.037	0.211	0.178	0.859
	dual	<---	ceoch	-0.299	0.153	-1.952	0.051
	sta ned	<---	ceoch	0.685	0.341	2.010	0.044
	sta ned	<---	big4	0.079	0.200	0.393	0.694
	sta ned	<---	sg	-0.018	0.042	-0.436	0.663
	sta ned	<---	size	0.154	0.084	1.821	0.069
	sta ned	<---	roa	-1.011	0.759	-1.332	0.183
	sta ned	<---	bown	-0.842	0.468	-1.799	0.072
	sta bsize	<---	ceoch	0.136	0.332	0.408	0.683
	sta bsize	<---	big4	0.010	0.195	0.054	0.957
	sta bsize	<---	sg	0.050	0.041	1.221	0.222
	sta bsize	<---	size	0.361	0.082	4.389	0.000
	sta bsize	<---	roa	-0.492	0.739	-0.666	0.506
	sta bsize	<---	bown	0.423	0.455	0.929	0.353
	prem	<---	size	-0.030	0.032	-0.942	0.346
	prem	<---	roa	-0.167	0.281	-0.594	0.553
	prem	<---	level	0.585	0.194	3.021	0.003
	prem	<---	lnnas	0.052	0.025	2.064	0.039

	prem	<---	pe	-0.001	0.002	-0.670	0.503
	prem	<---	fcf	-0.234	0.240	-0.973	0.330
	prem	<---	bown	0.095	0.149	0.640	0.522

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Cscore →sta bsize →prem	0.277	0.017	0.284	0.020	No mediation
Sta Cscore →sta ned →prem	0.277	0.017	0.278	0.022	No mediation
Sta Cscore →dual →prem	0.277	0.017	0.276	0.023	No mediation

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes the levels of accounting conservatism in year Y−1 (one year before the announcement of takeovers), which is calculated via Khan & Watts's (2009) model. Bsize: the total number of the board of directors in year Y−1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm's CEO and chairman in year Y−1 is the same person, otherwise 0. Sta cscore: the standardised cscore in year Y−1. Sta bsize: the standardised board size in year Y−1. Sta ned: the standardised ned in year Y−1. Size: ln (total assets) in year Y−1. Roa: return on assets in year Y−1. Bown: board ownership in year Y−1. Lnnas: ln (non-audit fees) in year Y−1. Level: total debts divided by total assets in year Y−1. Fcf: free cash flow in year Y−1. Pe: price earnings ratio in year Y−1. Big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. Ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

4.3.6 Sensitivity analysis

To check the robustness of the presented findings, a number of additional sensitivity analyses based on the sample of third-party LBOs and MBOs are performed. First, in order to ensure that the degree of accounting conservatism is a reasonable measure of board effectiveness, this research analyses the impact of board structures and board effectiveness on takeover premiums by using alternative proxies for board effectiveness, which include board tenure and the proportion of financial expertise on the board.

As discussed earlier, Vandenberg et al. (1999), Forbes and Milliken (1999), Finkelstein and Mooney (2003) and Payne et al. (2009) and Kirkpatrick et al. (2015) suggest that the key attributes of board effectiveness encapsulate directors' knowledge, experience, expertise, engagement, integrity and social skills. Board tenure refers to the length of time served by directors, where long tenures may indicate that directors have cumulative knowledge, information and experience of the firm (Finkelstein, 1992; Alderfer, 1986; Westphal and Zajac, 1995). Having directors with longer tenures may also imply that they are more competent to maintain their job (Peasnell et al., 2005). However, the opposite view suggests that long-serving directors may lose independence, which may rob the board of critical expertise. Hence, board tenure is used as an alternative proxy for board effectiveness in the analysis.

Moreover, directors' financial expertise tends to indicate that directors have more knowledge and information to monitor and constrain managers' irregularities in financial reporting (Krishnan and Visvanathan, 2009). However, the high proportion of financial expertise on boards tend to provide high quality financial reports. As this may make the acquirers bid more effectively, high proportion of financial expertise tend to lead to lower takeover premiums (McNichols and Stubben, 2014). Therefore, the proportion of financial expertise on boards is also used to proxy board effectiveness in robustness tests.

Tables 4.49 to 4.64 in the Appendix assess the moderation and mediation analysis of the impact of board structures and board effectiveness on takeover premiums with alternative proxies for board effectiveness in third-party LBOs and MBOs. The results are consistent with the findings in Tables 4.5 to 4.12, which indicate accounting conservatism is a reasonable measure for board effectiveness. Specifically, in the models, the C-score is replaced by board tenure and the proportion of financial expertise to measure the levels of board effectiveness. This does not change the directions or significance of the results.

Table 4.54 in the Appendix reports that the coefficient for the interaction term of CEO duality and board tenure (*dual*sta btenure*) is significantly negative at the 0.1 level in MBOs. In the model, the C-score is replaced by board tenure as a measure of the levels of board effectiveness. The direction and significance of the interaction effects of CEO duality and board effectiveness stay the same, which may indicate that the result is robust. Moreover, the directions of the coefficients for board size and board tenure (*sta bsize*sta btenure*), the proportion of non-executives and board tenure (*sta ned*sta btenure*), board size and the proportion of financial expertise (*sta bsize*sta fe*), the proportion of non-executives and the proportion of financial expertise (*sta ned*sta fe*), and CEO duality and the proportion of financial expertise (*dual*sta fe*) stay the same in MBOs (see Tables 4.53 to 4.56).

However, in Table 4.50, the research finds that the directions and significances of the interaction term for CEO duality and board tenure (*dual*sta btenure*) in third-party LBOs are different from the results that use the C-score to measure board effectiveness in Table 4.6. This may be because, in third-party LBO transactions, the board of directors are likely to have long-term job security issues (Hafzalla, 2009; Weir and Wright, 2006). This may affect the directors' tenure. Therefore, the boards are likely to require higher premiums to impede third-party LBOs, especially when the boards have duality.

Moreover, in Table 4.52, the directions and significances of the interaction terms for board structures and the proportion of financial expertise (*sta bsize*sta fe, sta ned*sta fe and dual*sta fe*) in third-party LBOs are different form the results that use the C-score to measure board effectiveness in Table 4.6. This may be because the high proportion of financial expertise indicates a high capability of directors to fulfil their function of monitoring and control, which results in high-quality financial reports (Payne et al., 2009; Krishnan and Visvanathan, 2009). However, acquirers may pay lower premiums to the targets with higher-quality accounting information, as they can bid closer to the target's reservation price (McNichols and Stubben, 2014). Therefore, third-party LBO firms tend to achieve lower premiums when the board has a large proportion of financial expertise.

Second, one could argue that the hypotheses of this study may suffer from endogeneity, as the board structures may influence board effectiveness, and, in turn, can also be influenced by board effectiveness. This research addresses endogeneity by using 2SLS regressions. In the models, the lagged value of board structures, accounting conservatism (C-score), board tenure, and the proportion of financial expertise are used as instrumental variables in analysis. Tables 4.34 to 4.40 and Tables 4.65 to 4.80 in the Appendix report the results of the 2SLS approach for moderation and mediation analysis in MBOs and third-party LBOs. The results suggest that, in most cases, there is no endogeneity problem. The direction or significance of the results in 2SLS and OLS are the same when the model does not pass the Hausman test.

Third, this research analyses the impact of board structures and board effectiveness with alternative proxies on takeover premiums by using both the multiple regression approach and SEM. Due to the limitations of the multiple regression approach, this research presents the analyses with alternative proxies for board effectiveness in third-party LBOs and in MBOs using the SEM approach. Tables 4.81 to 4.104 in the Appendix suggest that the results using alternative measures are consistent.

In particular, Table 4.89 in the Appendix reports that the relationship between board effectiveness (measured as board tenure) and takeover premiums is different across the groups measuring the proportion of non-executives in MBOs, which is consistent with the finding in Table 4.14. Table 4.90 in the Appendix also reports that, in MBOs, boards with high and medium proportions of non-executives are likely to achieve significantly higher premiums than boards with a lower proportion of non-executives when board effectiveness is at high levels.

In addition, Tables 4.91 and 4.92 in the Appendix reports that the link between board effectiveness (measured as the level of financial expertise) and takeover premiums is different across the board size groups in MBOs, which is consistent with the findings in Tables 4.8 and 4.14. Also, Tables 4.93 and 4.94 in the Appendix suggest that, in MBOs, the link between CEO duality and takeover premiums can vary across levels of board effectiveness (*btenure*), which is consistent with the finding in Table 4.15. Furthermore, the results in Tables 4.97 to 4.104 suggest that there is no mediating effect of board structures and board effectiveness on takeover premiums in MBOs and third-party LBOs, which is consistent with the findings in the main results.

Therefore, board tenure and the proportion of financial expertise as alternative measures for board effectiveness do not alter the results. However, the research finds that the results in the multiple regression approach and SEM are not always consistent. This may be because the sample size of the research is small, which may affect the results (Frazier et al., 2004; Fitzsimons, 2008). Moreover, artificially converting continuous variables into categorical variables in multi-group analysis may lead to information loss and spurious results that reduce ability to detect moderating effects (MacCallum et al., 2002; Irwin and McClelland, 2001).

4.4 Conclusion

The buyout transactions are likely to affect managers' interests, which provide a unique opportunity in examining the conflicts of interests between managers and shareholders. The first empirical chapter (Chapter 2) find that board structures do not have significant effects on performance outcomes (in this study it is the takeover premiums). The inclusive findings may indicate that research fails to model the impact of boards on shareholder wealth protection correctly.

It is recognised that the overall impact of boards is not only determined by its structures but also by its effectiveness. Board structures are the makeup of the board, which can affect the ability of directors to corporate and collaborate with each other. However, board effectiveness usually concerns with the outcomes of the tasks that occurs when the directors have fulfilled their responsibilities. It encapsulates the knowledge, experience, expertise and ability of the board of directors in performing their roles (Cornforth, 2001; Payne et al., 2009; Forbes and Milliken, 1999; Kirkpatrick et al., 2015; Levrau and Van den Berghe, 2007; Nicholson and Kiel, 2004). Conflating the two can be misleading (Bedard et al., 2004; Jackling and Johl, 2009; Kang et al., 2007).

Therefore, this research examines the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs by taking into account the interrelationship between board structure and board effectiveness. It is expected that board structures may affect the ability of the board of directors by defining the conditions within which the directors can effectively bring their skills, expertise, experience and knowledge together (Klein, 2002b; Pacini et al., 2008). Moreover, board effectiveness is expected to affect the CEO and board's bargaining position and power in the negotiations over the composition of the board (Arthur, 2001; Hermalin and Weisbach, 1998). Hence, this research tests whether board structures − including board size, the proportion of non-executives and CEO duality − and board effectiveness have a moderating or a mediating relationship that affects takeover premiums in third-party LBOs and MBOs.

Overall, this study has implication for the measurement of board effectiveness. In this study, board effectiveness is measured through the level of accounting conservatism (the C-score). Lim (2011) suggests that effective boards are likely to demand the managers to adopt conservative accounting to protect the long-term interests of shareholders. Moreover, the second empirical study (Chapter 3) suggests that boards are able to adjust the approach of accounting conservatism for the interests of shareholders. In particular, more conservative accounting tends to indicate a high level of board effectiveness in third-party LBOs, but a low level of board effectiveness in MBOs. It is also suggested that the levels of accounting conservatism reflect the extent to which the board has ability, knowledge, expertise and experience to carry out their duties that are attributed to the effectiveness of the board. By using the alternative measure of board effectiveness in the analysis, the research finds that the results are consistent throughout the models. This may indicate that levels of accounting conservatism are a reasonable measure of board effectiveness.

Moreover, this research has implication to understand the effects of the board, especially the interrelationship between board structures and board effectiveness and their influence on shareholder wealth. The multiple regression approach and SEM are used in analysing the moderating or mediating effects of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs. Overall, this research provides evidence for the existence of moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBOs. In particular, by using the multiple regression approach and SEM, it is found that, in MBOs, the magnitude of board effectiveness on takeover premiums is negatively influenced by, or moderated by board size. This implies that the link between board effectiveness and takeover premiums in MBOs is significantly different across board sizes. The finding illustrates that a small board could improve communication and coordination among members and reduce the free-rider problems that are a factor when protecting shareholder wealth (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Lehn et al., 2009; Harris and Raviv, 2008).

Furthermore, using multi-group analysis, this research finds that the proportion of non-executive directors has moderating effects on the relationship between board effectiveness and takeover premiums in MBOs. The magnitudes of board effectiveness on takeover premiums are positively affected by, or moderated by, the proportion of non-executives on the board. This suggests that a high proportion of non-executives on the board can benefit the board's monitoring by increasing the directors' independence and objectivity in decision-making, which contributes to shareholder wealth protection (Fama and Jensen, 1983; Baysinger and Butler, 1985; Buchholtz and Ribbens, 1994; Cotter et al., 1997). However, this result is not consistent with the findings in multiple regression analysis. This may be because, in multi-group analysis, the continuous variables 'proportion of non-executives' and 'board effectiveness' (C-score) are artificially converted into categorical variables that can lead to information loss and spurious interaction effects (MacCallum et al., 2002; Irwin and McClelland, 2001).Moreover, the sample size of the research is small, which may affect the results in SEM analysis (Frazier et al., 2004; Fitzsimons, 2008).

Also, using the multiple regression approach and SEM, this research finds that board effectiveness has moderating effects in the relationship between CEO duality and takeover premiums in MBOs. This indicates that, in MBOs, the link between CEO duality and takeover premiums varies across the levels of board effectiveness. In MBO firms, takeover premiums tend to deteriorate with CEO duality when firms have more effective boards. However, when the CEO and the chairman are the same person, the takeover premiums for MBO firms with less effective boards are, surprisingly, higher than firms with more effective boards. This may indicate that duality could provide managers with more control power over the board and a strong desire to accomplish MBOs quickly, which might incentivise them to increase their offer price (Arthur, 2001; Hermalin and Weisbach, 1998). However, this research finds that board structures (board effectiveness) do not have mediation effects in relationship between board effectiveness (board structures) and takeover premiums in third-party LBOs and MBOs.

In addition, this research has implication for using different approach includes multiple regression analysis and SEM to analyse the moderating and mediating effects. Specifically, multiple regression analysis is a widely used tool to predict variance based on a continuous dependent variable and continuous, dichotomous or dummy independent variables (Ro, 2012). It allows the analysis to control for factors that may simultaneously affect the dependent variable (Wooldridge, 2015). Moreover, multiple regression analysis can work in small data sets (Kuiper, 2008; Freund et al., 2006). However, this approach has some limitations that may affect the results of the analysis. First, in the multiple regression approach, the creation of interaction terms may result in compound measurement errors that dramatically reduce the reliability of the interaction terms. In turn, the low reliability of the interaction terms may reduce the power of the test that lead the results to be misspecified (Aguinis et al., 2001; Jaccard and Wan, 1996; Frazier et al., 2004; Holmbeck, 1997). Second, in the regression model, there is no distinction between a moderator variable (*Mo*) and an independent variable (*X*). Hence, the results might be misinterpreted.

SEM has some advantages over the multiple regression approach in the analysis. First, SEM can be used to test the complex relationships between one or more independent and outcome variables (Hox and Bechger, 1998). Second, in SEM, the correlated errors of measurement are added to a measurement model that can improve the overall fit of a model and minimise the problem of underestimation (Holmbeck, 1997; Hoyle and Smith, 1994). However, this approach may also have some limitations. First, the multiple-group approach is a valuable SEM strategy to test moderation effects, which has limitations when both the independent (*X*) and the moderator (*Mo*) variables are continuous (Tomarken and Waller, 2005; Ro, 2012). Although the researcher can convert the continuous moderator (*Mo*) into a categorical variable and then use the multi-group approach, this artificial grouping may result in loss of information and reduction in power to detect interaction effects (Frazier et al., 2004; Fitzsimons, 2008). In addition, artificially dichotomising two continuous variables may make the predictors have opposite effects and lead to spurious interaction effects (MacCallum et al., 2002; Irwin and McClelland, 2001). Moreover, SEM is generally based on large sample sizes (Kline, 2015; Tomarken and Waller, 2005). Jackson (2003) suggests that the sample size-to-parameters ratio should be not less than 10:1. Kline (2015) suggests that the ‘typical’ sample size for SEM is about 200. Small samples may result in loss of information and reduction of power of the results. Considering the advantages and disadvantages of these approaches, this study suggests that the moderating effects of continuous variables are more reliable in multiple regression analysis. However, the moderating effects of categorical variables tend to be more reliable in SEM. Moreover, the mediation results in SEM analysis are more reliable.

However, this research has some limitations. First, the sample size of this study is relatively small. SEM requires a minimum sample size of 200. Failure to meet this requirement may mean that the SEM approach is untenable and result in misinterpretation. This is because SEM is based on maximum likelihood analysis, which does not perform well with small samples (Kline, 2015). A small sample size may cause a Type I error. Due to this limitation, this study uses both multiple regression and SEM approaches in its analysis. The future research could examine the research questions using SEM with a large sample size. Second, this study uses AMOS in performing SEM. However, AMOS does not provide a test for endogeneity. Therefore, this study only checks endogeneity in the multiple regression approach. The future research could use alternative software to run SEM tests.

Chapter 5: Conclusion

5.1 Introduction

This thesis examined the influence of corporate governance mechanisms on opportunistic behaviours by management prior to LBOs in the UK. As previously discussed, leveraged buyouts are a distinct and increasingly important type of M&A in global finance. The UK is, after the US, the world's second largest LBO market. LBOs can be subdivided into two types of transactions: third-party LBOs and MBOs. A third-party LBO is led by outside investors, while an MBO is led by the target firm's management (Weir et al., 2005b; Weir and Wright, 2006). In companies which might become subject to a third-party LBO, managers are likely to have long-term job security issues that may motivate them to engage in opportunistic behaviours to manipulate earnings upwards to impede the takeover (Weir et al., 2005b; Weir and Wright, 2006; Amess and Wright, 2012). However, this may conflict with the interests of shareholders, as the overstatement will eventually be reversed, which is not in the long-term interests of shareholders (Hafzalla, 2009; He et al., 2010).

In MBOs, the direct involvement of management may also generate a conflict of interest between the target firm's managers and shareholders. In such transactions, managers are on both sides of these transactions. Managers are not only acting on behalf of shareholders to seek the highest possible purchase price, but also acting as buyers who are motivated to maximise their own interests by reducing their purchase price (Lowenstein, 1985; Hafzalla, 2009; Weir et al., 2005b; Weir and Wright, 2006). Therefore, third-party LBOs and MBOs can provide managers with different incentives that motivate them to behave opportunistically.

Corporate governance mechanisms are designed to prevent expropriation by managers to ensure that the interests of shareholders are protected (Ahmed and Duellman, 2007; Lara et al., 2009). Good corporate governance mechanisms can mitigate the conflict of interests between managers and shareholders, either by effectively motivating managers or better controlling and monitoring their behaviour. Weak corporate governance mechanisms, on the other hand, may enable greater managerial discretion, which is associated with more opportunistic behaviour by managers (Lara et al., 2007; Shleifer and Vishny, 1997). Therefore, this thesis explored how corporate governance mechanisms may affect such opportunistic behaviours by managers in third-party LBO and MBO settings in the UK.

In order to meet these aims, this thesis comprised three empirical studies, which were structured to compare third-party LBOs with MBOs in the UK market. In general, buyouts are likely to affect managerial interests that provide a unique opportunity to examine the conflicts of interests between managers and shareholders. The first empirical study (Chapter 2) investigated the influence of managerial interests on takeover resistance and bid premiums in third-party LBOs and MBOs. The results suggest that these two types of buyouts can generate clear conflicts of interests between managers and shareholders that may motivate managers to engage in different activities to protect their own interests. However, how could managers maximise their interests prior to MBOs and third-party LBOs? Moreover, to what extent does the corporate governance mechanism works on protecting the interests of shareholders before the buyouts become an interesting question.

Accounting conservatism usually indicates that managers have adopted prudent attitudes in earnings recognition, where bad news will be recognised as losses in a timelier manner than good news to be recognised as gains (Basu, 1997). Conservative accounting is proposed to reduce the overvaluation of firms. However, it may indeed reduce the firm's current value (Lafond and Roychowdhury, 2008; Basu, 1997; Chan et al., 2009; Chen and Zhang, 2007). Managers are likely to engage in different levels of accounting conservatism in order to manipulate the earnings and protect their self-interests (Beekes et al., 2004; Begley et al., 2003). Hence, the second empirical study (Chapter 3) examined the existence of accounting conservatism and the relationship between corporate governance and accounting conservatism prior to third-party LBOs and MBOs.

Moreover, the investigation of the relationship between board structures and takeover premiums in the first empirical study suggested that these variables were not significantly correlated in third-party LBOs and MBOs. The previous studies (e.g. Hermalin and Weisbach, 1991; Mehran, 1995; Klein, 1998; Bøhren and Strøm, 2010; Belkhir, 2009; Pacini et al., 2008; Bliss, 2011; Elsayed, 2007) also found an inclusive relationship between board structures and performance outcomes. It is recognised that the overall impact of the board is determined by its structures as well as its effectiveness. Conflating board structures and board effectiveness can lead to misleading results.

Lim (2011) suggests that effective boards are likely to require the managers to adopt conservative accounting for the long-term interests of shareholders. Moreover, the second empirical study (Chapter 3) suggests that boards are able to adjust the approach of accounting conservatism prior to buyouts in order to protect shareholder interests. In particular, it is found that effective boards are likely to push managers to engage in less conservative accounting prior to MBOs, but more conservative accounting prior to third-party LBOs. Hence, the levels of accounting conservatism are used to measure board effectiveness. The third empirical study (Chapter 4) examined the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs, by taking into account the potential of moderating or mediating effects of board structures and board effectiveness.

5.2 Results and Findings

The first empirical study (Chapter 2) focused on examining the effects of managerial incentive schemes, including managerial ownership and share options on takeover resistance and bid premiums in third-party LBOs and MBOs. The findings suggested that higher managerial ownership can lead to a greater likelihood of takeover resistance in third-party LBOs. This may be because high share ownership could provide managers with greater power and influence with the board, which may enable them to protect their own interests rather than those of shareholders (DeAngelo and DeAngelo, 1985). This implies that managers with high levels of share ownership are able to resist third-party LBO offers to protect their long-term job security. Regarding MBOs, this research found that there was no significant relationship between managerial ownership and takeover resistance. This may be because, managers' involvement in MBOs could provide them with stronger incentives that affect their decision-making, independent of their prior shares in the firm.

Moreover, as expected, the findings suggested that managerial share options were negatively related to takeover resistance in third-party LBOs, while this relationship was positive in MBOs. This suggests that managers with higher share options are less likely to resist third-party LBO offers, as these share options can be exercised immediately after takeover so that more returns may accrue for them (Moeller, 2005). While share options are also exercisable after MBO transactions, managers are less likely to exercise their share options via a cash pay-off, instead increasing their ownership of the firm (Veenman et al., 2011; Sanders, 2001). Moreover, if boards are aware of managers' incentives from share options, which would be immediately exercisable after the takeover offer, they might be more cautious about MBO offers and tend to resist takeovers.

Furthermore, the research found that managerial ownership was positively related to takeover premiums in third-party LBOs, but was not significantly correlated in MBOs. This may imply that high ownership has provided managers with incentives to demand high premiums. They might get the bidders to stop or they may at least get a higher premium on their shares (Song and Walkling, 1993).

In addition, the findings suggested that managerial share options were negatively related to takeover premiums in both third-party LBOs and MBOs. In third-party LBOs, managers have incentives to exercise their share options after a takeover. Higher managerial share options may reduce managers' incentives to drive up the takeover premiums, where higher premiums may be associated with a high risk of takeover failure. Moreover, it is surprising that share ownership does not affect takeover premiums in MBOs, but share options negatively affect them. In MBOs, share options do not have cash incentives. Managers may try to make their options exercisable and therefore increase their shares in the firm after a takeover. Hence, in order to reduce their possible purchase price of MBOs, managers are less likely to offer high premiums when they held higher share options (Moeller, 2005; Bauguess et al., 2009). This may also be a reason to explain why higher share options were positively associated with board resistance in MBOs.

To summarise, the results suggested that the effects of managerial incentive schemes on takeover resistance and bid premiums were different in third-party LBOs and MBOs. This may be because these two types of buyouts have shown that managers with different incentives may affect their behaviours. In MBOs, managers' direct involvement may motivate them to depress their purchase price, while in third-party LBOs managers may have incentives to protect their long-term job security to impede a takeover (Hafzalla, 2009; Watts, 2003b).

Furthermore, the findings indicate that the different pay-off structures of share ownership versus share options may provide different incentives to managers and thus lead to different managerial behaviours in decision-making (Vallascas and Hagendorff, 2013; Hagendorff and Vallascas, 2011; Kahneman and Tversky, 1979; Burns and Kedia, 2006).

The second empirical study (Chapter 3) investigated the degree of accounting conservatism and the influence of corporate governance mechanisms (board characteristics and ownership characteristics) on accounting conservatism preceding third-party LBOs and MBOs. The research found that managers tended to engage in more conservative accounting one year prior to an MBO than in a third-party LBO. This may be because managers' direct involvement in MBOs may generate incentives for them to reduce the perception of the firm's value and depress the purchase price (Hafzalla, 2009; Elitzur et al., 1998). Conservative accounting may possibly reduce the perceived value of the firm by delaying the recognition of good news as gains but recognise bad news as losses in a timely manner (Hafzalla, 2009; Beekes et al., 2004; Perry and Williams, 1994). However, managers may have incentives to prevent third-party LBOs to protect their long-term job security. Hence, prior to third-party LBOs, managers are likely to engage in less conservative accounting than prior to MBOs in order to increase the firm's perceived value and thereby impede potential third-party bids. The findings of this research indicate that managers' behaviours towards accounting conservatism are different in third-party LBOs and MBOs.

Moreover, the research found that the accounting conservatism shifted from more to less conservative preceding third-party LBOs, from year Y−2 (two years before the announcement of a buyout) to year Y−1 (one year before the announcement of a buyout) and from year Y−3 (three years before the announcement of a buyout) to year Y−1 (see Table 3.4 in Chapter 3). This is because third-party LBOs may provide managers with incentives to protect their long-term job security, which motivates them to engage in less conservative accounting disclosure to avoid the firm being undervalued and become the target of a third-party LBO. However, artificial overstatements resulting from less conservative accounting will be offset by an eventual reversed and thus negative impact on future earnings (Lafond and Roychowdhury, 2008). Continuously aggressive accounting disclosure may result in poor quality reporting, which is bad for managers' reputations (Francis et al., 2008).

Furthermore, as expected, the findings suggested that the degree of accounting conservatism shifted from less to more conservative preceding MBOs, from year Y−2 to year Y−1. This may indicate that there is a mean-reversion of managerial behaviours towards accounting conservatism. Before managers initiate an MBO, they may have incentives to manipulate earnings upwards to obtain greater earning-based pay, which may lead them to apply less conservative accounting. However, the direct involvement of managers in MBOs tends to provide them with incentives to reduce the firm's value and thus depress the purchase price.

In addition, the research found that corporate governance mechanisms had different impacts on accounting conservatism prior to third-party LBOs and MBOs. First, CEO duality tended to result in less conservative accounting before third-party LBOs, while there was no significant relationship prior to MBOs. Duality gives the CEO a concentrated power and position, which may enable the CEO to behave opportunistically (Cornett et al., 2008; Desai et al., 2003). Such a CEO might be motivated to protect their long-term job security and power within the firm prior to a third-party LBO.

Second, the proportion of non-executives on the board led to more conservative accounting prior to third-party LBOs, but they were not significantly related for MBOs. A high proportion of non-executive directors can increase the independence of the board, which benefits the board's control over management (Ajinkya et al., 2005; Lara et al., 2007). Boards with a higher proportion of non-executives are likely to reduce managers' opportunistic behaviours and apply more conservative accounting prior to a third-party LBO.

Third, surprisingly, audit committee independence was related to less conservative accounting both before MBOs and third-party LBOs. While, in the case of MBOs this works to shareholders' advantage, in the third-party LBO case it does not. The independent audit committee works to circumvent those managers in the target firm who deliberately cut its perceived value via more conservative accounting disclosure (Klein, 2002b; Klein, 2002a). Prior to MBOs, non-executives may be aware of potential conflicts of interest between managers and shareholders. More independent audit committees are likely to support less conservative accounting disclosure to avoid managers artificially depressing the firm's value. However, prior to third-party LBOs, the research found that independent audit committees supported less conservative accounting. This may be because third-party LBOs are more difficult to predict. The non-executives may not aware of the conflicts of interests. Hence, audit committee independence may not effectively protect shareholder interests prior to third-party LBOs.

Fourth, as expected, institutional shareholding may lead to more conservative accounting prior to third-party LBOs and MBOs. This may be because concentrated institutional shareholdings may provide institutional investors with longer investment horizons that motivate them to push the board to apply a conservative accounting disclosure (Brickley et al., 1988; Ramalingegowda and Yu, 2012). As higher ownership may make institutional investors assume the results of overstated earnings, such investors are likely to push the board to adopt more conservative accounting disclosure to protect their long-term interests. Moreover, the board of directors will be worried that aggressive accounting may be detected by institutional investors, which may increase their perception of investment risk.

Fifth, this research found that there was a ‘U-shaped’ relationship between managerial ownership and accounting conservatism prior to third-party LBOs. This may be because managerial ownership has alighment and entrenchment effects. According to incentive alignment effects, interest-aligned managers have a disincentive to act opportunistically and work to protect the interests of shareholders (Shuto and Takada, 2010; Lafond and Roychowdhury, 2008). Hence, managers with higher ownership are less likely to apply more conservative accounting prior to third-party LBOs, because it can deliberately cut the firm’s perceived value, which works against shareholder wealth maximisation (Ahmed and Duellman, 2007; Basu, 1997). However, at certain levels, managerial ownership may generate entrenchment effects that motivate them to engage in more conservative accounting. This is because the prediction of third-party LBOs is difficult. Overstatements via less conservative reporting will be offset by an eventual decline in the firm’s value when these overstatements are reversed; a larger managerial ownership may make managers assume the results of this (Shuto and Takada, 2010; Lafond and Roychowdhury, 2008; Morck et al., 1988a).

To summarise, the results suggested that corporate governance mechanisms were more effective in protecting shareholder interests prior to third-party LBOs than prior to MBOs. In the MBO case, before directors are aware of the impending offer, more conservative accounting is likely to be seen positively.

The third-party LBO case is similar to the normal case where managers try to avoid undervaluation to deter takeover bids or to increase their pay (Weir et al., 2005a; Weir et al., 2005b; Hafzalla, 2009). Prior to third-party LBOs, good corporate governance can constrain managers to engage in less conservative accounting. However, prior to MBOs, governance mechanisms are less effective, which may not have significant effects on the degree of accounting conservatism. As conservative accounting can indeed protect the long-term interests of shareholders, some boards of directors may not be familiar with certain of the firm's operations, which then makes it difficult to challenge the decisions of management.

The inconclusive relationship between board structures and takeover premiums in the first empirical study (Chapter 2) may indicate that the research failed to model the impact of boards on performance outcomes. As the overall impact of a board is determined by its structures and effectiveness, the third empirical study (Chapter 4) focused on the impact of board structures and board effectiveness on takeover premiums in third-party LBOs and MBOs. The findings suggested that board size had moderating effects on the relationship between board effectiveness and takeover premiums in MBOs. This relationship was more positive when board size was smaller. This indicates that the link between board effectiveness and takeover premiums in MBOs may vary depending on the size of the board, where a small board achieves higher takeover premiums relative to a large board when there is a high level of effectiveness. The finding suggests that a small board could improve board communication and coordination and reduces the free-rider problems that may facilitate shareholder wealth protection (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Lehn et al., 2009; Harris and Raviv, 2008).

The research also found that board effectiveness moderated the relationship between CEO duality and takeover premiums in MBOs. This relationship was more negative when there was a higher level of board effectiveness. This might suggest that a board with high levels of effectiveness can achieve high premiums when the firm has a separate CEO and chairman relative to a board with low effectiveness, and achieve lower premiums when the CEO and the chairman are the same person. This may be because the board can effectively monitor a CEO with a separate position from the chairman than a CEO who holds both positions (Arthur, 2001; Hermalin and Weisbach, 1998).

5.3 Implications

Overall, the findings in Chapters 2, 3 and 4 have implications for regulators, policy makers and accounting standard setters for the development of accounting information disclosure and corporate governance systems.

First, this research may have implications for the board of directors and investors in understanding the managerial incentives and opportunistic behaviours preceding the LBO setting.

The findings suggested that managers engaged in more conservative accounting disclosure prior to MBOs than prior to third-party LBOs. Managers may use more conservative accounting to reduce the perceived value of the firm before an MBO, thereby depressing the possible purchase price. Managers can also use less conservative (i.e. more aggressive) accounting disclosure to increase the firm’s perceived value and reduce the probability that the firm is undervalued in an attempt to impede a third-party LBO. Therefore, the findings reveal that more conservative accounting prior to MBOs is purposed to manipulate earnings and defraud the current shareholders. The board and shareholders should enhance monitoring of accounting information disclosure prior to an MBO.

Moreover, accounting conservatism shifted from less to more conservative prior to MBOs, but from more to less conservative prior to third-party LBOs. This implies that buyouts do indeed provide incentives to managers that affect their behaviour. As managers are likely to have a conflict of interests with shareholders, the board and shareholders should enhance monitoring and control over management.

Second, this research has implications for the board of directors and shareholders in the understanding of the effects of managerial incentives, including managerial ownership and share options in shareholder wealth protection.

Specifically, the research found that managerial ownership was positively associated with takeover resistance and bid premiums in third-party LBOs, but did not have a significant relationship in MBOs. This implies that high managerial ownership could lead to managers' opportunistic behaviour during a third-party LBOs. The board and shareholders should be aware that in companies with high levels of managerial ownership, managers may pursue their own interests instead of those of shareholders when facing a third-party LBO. Moreover, managerial share options were positively related to takeover resistance in MBOs, but were negatively related in third-party LBOs. There was a negative relationship between share options and takeover premiums in MBOs and third-party LBOs. This implies that managerial option schemes may fail to motivate managers to protect shareholder interests when facing a takeover. The board and shareholders should pay attention to the presence of significant share options of managers before a takeover, which may lead to their opportunistic behaviour.

In addition, managerial ownership had a non-linear relationship with accounting conservatism prior to third-party LBOs. This has implications for corporate governance regulation, suggesting that managerial ownership should be limited. Extremely high managerial ownership can only generate entrenchment effects that are harmful to the interests of shareholders. The board and shareholders should be aware of managers with extremely levels of high ownership prior to third-party LBOs.

Third, this research may have implications for the board of directors, shareholders and regulators in understanding the corporate governance mechanisms regarding the improvement of the board's monitoring and control over management.

The research found that audit committee independence was negatively related to accounting conservatism prior to MBOs. This implies that the audit committee is effective in monitoring and controlling accounting reporting prior to MBOs, which works to protect the interests of current shareholders. The improvement of audit committee independence and effectiveness contributes to the protection of current shareholder wealth. Moreover, the research found that the proportion of non-executives was not significantly related to accounting conservatism prior to MBOs. This reveals that a high proportion of non-executive directors is unable to reduce opportunistic behaviour of managers prior to MBOs. Firms should therefore enhance the independence and the effectiveness of the non-executives on the board prior to an MBO.

Moreover, CEO duality was negatively related to accounting conservatism prior to third-party LBOs. This implies that separating the position of CEO and chairman may help to mitigate managers' opportunistic behaviours prior to third-party LBOs, as their control and power might then be limited. However, the proportion of non-executives and institutional shareholdings are positively correlated to accounting conservatism preceding third-party LBOs. This implies that non-executives and institutional shareholders have played very important roles in monitoring managers' opportunistic behaviours preceding third-party LBOs.

Fourth, this research may have implications for understanding the interrelationship between board structures and board effectiveness and their effects on shareholder wealth protection.

Specifically, the research found that there were moderating effects of the board size on the relationship between board effectiveness and takeover premiums in MBOs. It also found that board effectiveness had moderating effects on the relationship between CEO duality and takeover premiums in MBOs. This implies that there is an interrelationship between board structures and board effectiveness. Board structures should be distinguished from board effectiveness in analysis. Research should consider the compounded impact of board structures and board effectiveness rather than focusing on their direct relationship to performance outcomes.

5.4 Limitations and Suggestions

This thesis has some limitations. First, due to the limitation of data available, the sample of this research includes both third-party LBO and MBO transactions, but did not match their firm size or industry when comparing managerial behaviours in different settings. This is because MBOs and third-party LBOs have small sample size, which are 124 and 88 in the study. The matching exercise can dramatically reduce the sample size of the study, which may reduce the reliability of the study and can lead to a misinterpretation (Kline, 2015). In particular, the matching exercise can artificially reduce the sample size that can lead to the loss of information and reduction of statistical power, which is the Type II error (Frazier et al., 2004; Fitzsimons, 2008; Kline, 2015; Freiman et al., 1978). Moreover, this may also lead to the Type I error, which can cause opposite effect of the results (Irwin and McClelland, 2001; MacCallum et al., 2002; Roussos and Stout, 1996; Kline, 2015). Therefore, instead of matching the size of the sample, this study uses firm size as a control variable in the study.

Second, the sample of this thesis mainly focuses on the successful third-party LBOs and MBOs in the market; however, there are more unsuccessful buyout transactions in the market that are not observed. Managers' behaviours and the effects of corporate governance mechanisms may be different in successful and unsuccessful buyouts. Future research could extend the study to the unsuccessful buyout setting and investigate to what extent the findings of this research can be applied in unsuccessful third-party LBO and MBO settings.

Third, the sample period of this thesis covers a significant leveraged buyout wave from 1997 to 2011. However, corporate governance information is limited in scope before 2006. Prior to 2006, the proportion of independent non-executives is not reported. Therefore, this study only includes non-executive directors in its analysis. However, the non-executive directors may not be completely independent in the monitoring and controlling of managerial behaviours that might affect the results of the analysis. Future research could add to studies by examining the effects of corporate governance in buyout transactions after 2006, in an attempt to reduce the effects of this. Moreover, by adding the impact of corporate governance prior to leveraged buyouts, it might be possible to focus on the US market, which might provide a larger sample and fuller data.

Fourth, this study has used the initial mood of the boards (hostile takeovers) to measure takeover resistance, which takes the value of 0 if the bid is friendly and 1 otherwise. However, this measure has some limitations. First, the target resistance indicates a dissatisfaction with target management and board, which is raising from the actions include any verbal statement indicating the offer is not supported or inadequate, definitive actions such as legal maneuvering or any restructuring, and initiating or actively participating in the cancellation of a proposed acquisition (Jennings and Mazzeo, 1993; Bradley et al., 1983; Dimopoulos and Sacchetto, 2014; Bates and Becher, 2015; Carline et al., 2016). However, due to the sample of this study focuses on going private companies starting from 1997, in which the deal information is limited, this research only measure resistance via the initial mood of the boards. Moreover, the hostile takeovers in third-party LBOs and MBOs have relatively small size, which tends to affect the validity, power and robustness of the results. Previous studies (e.g. Nayak, 2010; Button et al., 2013) suggest that a smaller sample may provide insufficient power in detecting a real effect and the study may turn out to be falsely negative and lead to a type II error. Therefore, the future study could run the analysis with an alternative measure of takeover resistance and focuses on large sample size.

Fifth, this research only focuses on corporate governance mechanisms, including CEO duality, the proportion of non-executives on the board, audit committee independence, managerial ownership, non-executive shareholding and institutional shareholding. Any future research could explore other governance factors that may affect accounting conservatism. More research could focus on the impact of other board characteristics, such as board qualifications and expertise on accounting conservatism prior to buyouts.

Sixth, in Chapter 4, the research uses structural equation modelling (SEM) to analyse moderating and mediating effects of board structures and board effectiveness on takeover premiums prior to buyouts. However, the sample size for MBOs and third-party LBOs is relatively small in the analysis. A small sample when using SEM may result in misinterpretations that affect the reliability of the results (Kline, 2015). Therefore, it is suggested that future studies test the moderating and mediating effects of board structures and board effectiveness using a larger sample. Moreover, future research could investigate the moderating and mediating effects of board structures and board effectiveness in a setting other than leveraged buyouts, which might provide sufficient data for analysis.

Appendix

Tables

Table 2.8 Sample of MBO and third-party LBO tender offers

Panel A: Sample for Determinants of Takeover Resistance			*Panel B: Sample for Determinants of Takeover Premiums*		
	MBO	*Third-party LBO*		*MBO*	*Third-party LBO*
Fiscal Year	*N*	*N*	*Fiscal Year*	*N*	*N*
1997	4	2	1997	4	2
1998	12	3	1998	10	3
1999	22	12	1999	20	11
2000	17	8	2000	15	8
2001	12	0	2001	12	0
2002	7	2	2002	6	2
2003	6	4	2003	6	4
2004	2	2	2004	2	2
2005	1	5	2005	0	4
2006	1	13	2006	1	12
2007	4	7	2007	4	7
2008	2	3	2008	2	3
2009	1	2	2009	1	2
2010	0	0	2010	0	0
2011	1	2	2011	1	2
Total	92	65	*Total*	84	62

Table 2.9 The Pearson correlations matrix for determinants of takeover resistance

Panel A: MBOs

	resist	prem	exeown	exeownv	ceoown	ceoownv	exeso	pe	fcf	roa	size	other-own	level	ceoch
resist	1.000													
prem	0.068	1.000												
exeown	-0.034	-0.064	1.000											
exeownv	0.067	0.058	0.451***	1.000										
ceoown	-0.101	-0.097	0.752***	0.271***	1.000									
ceoownv	-0.042	0.042	0.258**	0.833***	0.403***	1.000								
exeso	0.007	-0.257**	-0.112	0.046	-0.100	0.084	1.000							
pe	-0.012	0.340***	-0.046	-0.034	0.012	-0.001	-0.047	1.000						
fcf	0.044	0.043	0.043	0.028	0.105	0.083	-0.111	0.088	1.000					
roa	0.005	-0.135	0.181*	0.056	0.215**	0.051	-0.026	0.012	0.206**	1.000				
size	0.032	-0.167	-0.211**	0.150	-0.170	0.125	0.175*	0.010	-0.154	0.317***	1.000			
other-own	-0.010	-0.024	0.321***	0.195*	-0.101	-0.081	-0.276***	-0.029	0.083	0.073	-0.067	1.000		
level	-0.017	-0.069	-0.087	0.042	-0.096	-0.016	0.161	-0.038	-0.193*	-0.121	-0.087	-0.026	1.000	
ceoch	0.199*	-0.078	-0.180*	-0.093	-0.148	-0.063	-0.104	-0.061	-0.047	-0.066	-0.022	0.058	0.010	1.000

Panel B: Third-party LBOs

	resist	prem	exeown	exeownv	ceoown	ceoownv	exeso	pe	fcf	roa	size	other-own	level	ceoch
resist	1.000													
prem	-0.074	1.000												
exeown	-0.040	0.028	1.000											
exeownv	0.390***	-0.013	0.119	1.000										
ceoown	-0.078	-0.040	0.807***	-0.026	1.000									
ceoownv	-0.022	-0.033	0.170	0.051	0.262**	1.000								
exeso	0.073	-0.040	-0.028	0.076	-0.074	-0.328***	1.000							
pe	0.034	-0.326***	-0.169	0.010	-0.081	0.011	-0.118	1.000						
fcf	-0.058	-0.091	0.119	0.027	0.166	-0.146	0.135	-0.025	1.000					
roa	-0.051	-0.462***	0.275**	0.052	0.270**	0.027	-0.063	-0.023	0.420***	1.000				
size	0.419***	-0.207*	-0.313**	0.310**	-0.301**	0.082	0.189	-0.068	0.037	0.168	1.000			
other-own	-0.092	-0.075	0.502***	0.117	0.147	-0.042	0.020	-0.168	-0.055	0.067	-0.278**	1.000		
level	-0.086	-0.206*	-0.277**	-0.076	-0.188	0.154	-0.224*	0.272**	-0.355***	-0.285**	0.208*	-0.107	1.000	
ceoch	0.266**	0.046	0.025	-0.045	-0.121	-0.086	0.163	-0.074	-0.097	-0.022	0.065	0.181	-0.040	1.000

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0.

Table 2.10 The Pearson correlations matrix for determinants of takeover premiums

Panel A: MBOs

	prem	exeown	exeownv	ceoown	ceoownv	exeso	pe	fcf	roa	size	other-own	level	ned	multi	insti	lnnas
prem	1.000															
exeown	-0.015	1.000														
exeownv	0.057	0.478***	1.000													
ceoown	-0.041	0.736***	0.301***	1.000												
ceoownv	0.042	0.270**	0.834***	0.437***	1.000											
exeso	-0.333***	-0.016	0.059	0.049	0.105	1.000										
pe	0.329***	-0.040	-0.021	0.018	0.010	-0.163	1.000									
fcf	0.022	0.051	0.026	0.151	0.086	-0.149	0.052	1.000								
roa	-0.108	0.123	0.066	0.141	0.059	0.033	-0.039	0.230**	1.000							
size	-0.168	-0.192*	0.172	-0.162	0.145	0.161	-0.013	-0.147	0.314***	1.000						
other-own	-0.034	0.336***	0.187*	-0.086	-0.086	-0.310***	0.016	0.064	0.106	-0.036	1.000					
level	-0.092	-0.072	0.045	-0.051	-0.012	0.124	-0.108	-0.232**	-0.102	-0.082	-0.047	1.000				
ned	0.044	-0.515***	-0.186*	-0.327***	-0.087	-0.188*	0.247**	0.036	0.102	0.175	0.013	0.139	1.000			
multi	0.175	-0.160	-0.117	-0.155	-0.073	0.015	0.188*	-0.017	0.144	0.122	-0.134	-0.042	0.142	1.000		
insti	-0.073	-0.538***	-0.204*	-0.394***	-0.113	0.189*	-0.124	-0.098	-0.158	0.121	-0.415***	0.223**	0.184*	0.078	1.000	
lnnas	0.216**	-0.230**	-0.017	-0.137	0.052	0.048	0.088	-0.187*	-0.054	0.501***	-0.318***	-0.169	0.095	0.155	0.052	1.000

Panel B: Third-party LBOs

	prem	exeown	exeownv	ceoown	ceoownv	exeso	pe	fcf	roa	size	other-own	level	ned	multi	insti	lnnas
prem	1.000															
exeown	0.017	1.000														
exeownv	-0.016	0.117	1.000													
ceoown	-0.048	0.806***	-0.029	1.000												
ceoownv	-0.039	0.165	0.049	0.258**	1.000											
exeso	-0.039	-0.016	0.081	-0.065	-0.326***	1.000										
pe	-0.331***	-0.171	0.009	-0.083	0.010	-0.119	1.000									
fcf	-0.092	0.122	0.028	0.170	-0.147	0.132	-0.022	1.000								
roa	-0.475***	0.277**	0.052	0.274**	0.026	-0.064	-0.018	0.409***	1.000							
size	-0.200	-0.303**	0.319**	-0.293**	0.093	0.169	-0.067	0.035	0.179	1.000						
other-own	-0.087	0.495***	0.114	0.138	-0.051	0.035	-0.171	-0.053	0.065	-0.264**	1.000					
level	-0.211*	-0.298**	-0.081	-0.204	0.151	-0.194	0.277**	-0.355***	-0.291**	0.245*	-0.126	1.000				
ned	0.070	-0.424***	-0.015	-0.231*	-0.074	-0.080	-0.006	-0.052	-0.305**	0.187	-0.142	0.264**	1.000			
multi	0.229*	-0.270**	0.145	-0.265**	-0.169	0.256**	-0.069	-0.073	-0.152	0.385***	-0.118	0.064	0.128	1.000		
insti	0.089	-0.290**	-0.089	-0.241*	-0.107	-0.162	0.303**	0.003	-0.151	-0.076	-0.250*	0.222*	0.080	0.078	1.000	
lnnas	0.094	-0.237*	0.221*	-0.270**	0.132	0.050	-0.106	-0.037	0.068	0.232*	-0.065	0.252**	-0.050	0.096	0.007	1.000

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0.

Table 2.11 The endogenous test of the relationship between managerial ownership and takeover premiums: using 2SLS

	Dependent Variable=PREM					
	LBO		MBO		Third-party LBO	
	Model37	Model38	Model39	Model40	Model41	Model42
exeown	2.330	0.904	6.633	-1.425	0.546	0.262
	(1.315)	(0.680)	(0.372)	(-0.680)	(0.406)	(0.190)
exeso		-0.029***		-0.034**		-0.024
		(-3.020)		(-1.990)		(-1.560)
pe	-0.001	-0.001	-0.002	0.003	-0.004*	-0.004**
	(-0.422)	(-0.980)	(-0.170)	(1.460)	(-1.886)	(-1.980)
fcf	0.832	0.520	1.865	-1.339	0.421	0.628
	(0.895)	(0.680)	(0.386)	(-0.150)	(0.510)	(0.740)
roa	-2.628*	-1.903	-4.527	0.368	-3.589***	-3.731***
	(-1.674)	(-1.510)	(-0.381)	(0.200)	(-3.282)	(-3.430)
size	-0.029	-0.062	0.138	-0.178	-0.012	-0.010
	(-0.448)	(-1.180)	(0.173)	(-1.360)	(-0.278)	(-0.220)
other-own	-0.396	-0.222	-1.369	0.509	-0.840	-0.668
	(-0.587)	(-0.390)	(-0.279)	(0.670)	(-1.089)	(-0.850)
level	-0.901**	-0.803**	-1.135	0.543	-1.312***	-1.362***
	(-2.245)	(-2.430)	(-0.302)	(0.920)	(-3.333)	(-3.420)
ned	1.501*	0.895	5.079	-0.694	0.034	-0.179
	(1.816)	(1.390)	(0.392)	(-0.430)	(0.049)	(-0.025)
multi	0.262**	0.286***	0.419	0.056	0.152	0.184
	(2.240)	(2.880)	(0.461)	(0.320)	(1.206)	(1.510)
insti	0.353	0.090	0.816	-0.034	0.477	0.336
	(0.862)	(0.270)	(0.383)	(-0.090)	(1.332)	(0.880)
lnnas	0.111**	0.084**	0.149	0.096*	0.090**	0.085
	(2.265)	(2.160)	(0.849)	(1.820)	(2.059)	(1.940))
Constant	-1.063	0.587	-6.533	3.218	-0.076	0.383
	(-0.627)	(0.480)	(-0.303)	(1.150)	(-0.071)	(0.330)
Wald Chi2	26.400***	46.150***	3.3440	44.210***	60.110***	61.040***
Prob>Chi2	0.006	0.000	0.985	0.000	0.000	0.000
R-square	0.000	0.312	0.000	0.397	0.581	0.579
Hausman chi2	7.860	10.160	12.800	20.950	8.060	7.990
Hausman Prob>chi2	0.726	0.602	0.235	0.051	0.624	0.715
Durbin (Score) chi2	2.279	0.547	1.524	1.799	1.102	1.509
Durbin (Score) Prob>chi2	0.320	0.761	0.467	0.407	0.576	0.470
Wu-Hausman chi2	1.010	0.235	0.577	0.663	0.412	0.553
Wu-Hausman	0.368	0.791	0.566	0.521	0.666	0.580

Prob>chi2						
Basmann chi2	1.115	0.802	1.481	1.030	3.234	2.158
Basmann Prob>chi2	0.291	0.338	0.224	0.310	0.072	0.142
Observations	105	104	53	52	52	52

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. instrumental variables: ceo tenure is measured as the number of years as ceo of the firm; the risk of volatility is measured as the annualized standard deviation of daily share returns.; lagged roa is measured as 2 year lagged value of return on asset. prem is the takeover premium of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ned is the percentage of non-executive directors on the board. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fee.

Table 2.12 The relationship between managerial ownership and takeover resistance in MBOs: using alternative measures of managerial ownership

	Dependent Variable=resist											
	Model43	*Model44*	*Model45*	*Model46*	*Model47*	*Model48*	*Model49*	*Model50*	*Model51*	*Model52*	*Model53*	*Model54*
ceoown	-85.078	-85.078					-96.119	-96.119*				
	(-1.333)	(-1.274)					(-1.533)	(-1.647)				
exeownv			0.118	0.118					0.069	0.069		
			-0.727	-0.730					(0.425)	(0.427)		
ceoownv					-9.101	-9.101					-9.341	-9.341
					(-0.995)	(-1.011)					(-1.010)	(-1.088)
exeso							0.221*	0.221	0.165*	0.165	0.193*	0.193
							(1.761)	(1.448)	(1.798)	(1.501)	(1.927)	(1.597)
pe	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.002	-0.002	-0.005	-0.005*	-0.005	-0.005
	(-0.380)	(-0.436)	(-0.808)	(-0.987)	(-0.612)	(-0.710)	(-0.241)	(-0.266)	(-1.436)	(-1.922)	(-1.120)	(-1.356)
fcf	5.326	5.326	5.039	5.039	5.512	5.512	7.190**	7.190**	6.758	6.758	7.550*	7.550*
	-1.472	-1.327	-0.957	-0.861	-1.405	-1.277	(2.019)	(2.080)	(1.290)	(1.262)	(1.908)	(1.934)
roa	1.043	1.043	-1.237	-1.237	0.023	0.023	0.358	0.358	-2.252	-2.252	-0.921	-0.921
	-0.184	-0.183	(-0.184)	(-0.180)	-0.004	-0.004	(0.073)	(0.076)	(-0.366)	(-0.375)	(-0.180)	(-0.189)
size	0.179	0.179	0.371	0.371	0.348	0.348	0.367	0.367	0.493	0.493	0.526	0.526*
	-0.446	-0.440	-0.909	-0.944	-0.881	-0.875	(0.976)	(1.075)	(1.380)	(1.483)	(1.527)	(1.659)
other-own	-1.444	-1.444	-0.973	-0.973	-1.415	-1.415	0.432	0.432	0.758	0.758	0.478	0.478
	(-0.475)	(-0.499)	(-0.270)	(-0.281)	(-0.460)	(-0.482)	(0.143)	(0.150)	(0.234)	(0.243)	(0.151)	(0.156)
level	0.271	0.271	-0.100	-0.100	0.129	0.129	1.229	1.229	-0.052	-0.052	0.472	0.472
	-0.030	-0.030	(-0.011)	(-0.011)	-0.014	-0.014	(0.130)	(0.129)	(-0.006)	(-0.006)	(0.053)	(0.052)
prem	1.537	1.537*	1.725*	1.725**	1.765*	1.765**	3.165**	3.165**	2.787**	2.787***	3.140**	3.140**
	-1.330	-1.934	-1.757	-2.442	-1.654	-2.205	(2.479)	(2.569)	(2.428)	(2.853)	(2.415)	(2.575)

ceoch	1.826	1.826	2.667**	2.667**	2.089	2.089	2.504	2.504	3.046**	3.046**	2.666	2.666
	-1.287	-1.416	-1.985	-2.107	-1.348	-1.453	(1.580)	(1.478)	(2.125)	(2.028)	(1.628)	(1.547)
Industry Cluster		Yes		Yes		Yes		Yes		Yes		Yes
Constant	-6.931	-6.931	-11.213	-11.213	-10.171	-10.171	-14.001*	-14.001**	-15.924**	-15.924**	-16.530***	-16.530***
	(-0.953)	(-0.936)	(-1.507)	(-1.548)	(-1.413)	(-1.400)	(-1.869)	(-2.087)	(-2.351)	(-2.482)	(-2.594)	(-2.815)
Wald Chi2	25.020***	43.190***	30.760***	64.870***	27.950***	42.800***	15.220	20.380**	24.220***	41.110***	17.080*	29.030***
Prob>Chi2	0.003	0.000	0.000	0.000	0.001	0.000	0.124	0.023	0.007	0.000	0.073	0.001
Pseudo R Square	0.210	0.210	0.146	0.146	0.179	0.179	0.238	0.238	0.163	0.163	0.201	0.201
Observations	92	92	92	92	92	92	90	90	90	90	90	90

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0.

Table 2.13 The relationship between managerial ownership and takeover resistance in third-party LBOs: using alternative measures of managerial ownership

	Dependent Variable=resist											
	Model55	*Model56*	*Model57*	*Model58*	*Model59*	*Model60*	*Model61*	*Model62*	*Model63*	*Model64*	*Model65*	*Model66*
ceoown	11.644**	11.644**					5.975	5.975				
	-2.170	-2.190					(0.260)	(0.240)				
exeownv			0.292	0.292					0.058*	0.058*		
			-0.955	-0.899					(1.901)	(1.815)		
ceoownv					0.223	0.223					-0.766*	-0.766
					-0.696	-0.654					(-1.674)	(-1.486)
exeso							-0.436*	-0.436	-0.434***	-0.434**	-0.610**	-0.610*
							(-1.669)	(-1.540)	(-2.603)	(-2.421)	(-1.986)	(-1.809)
pe	0.009	0.009	0.009	0.009	0.011	0.011	-0.057*	-0.057*	-0.059**	-0.059**	-0.075*	-0.075
	-0.320	-0.327	-0.468	-0.477	-0.516	-0.534	(-1.744)	(-1.755)	(-2.149)	(-2.223)	(-1.797)	(-1.642)
fcf	-3.487	-3.487	-4.349	-4.349	-5.287	-5.287	-1.301	-1.301	-2.075	-2.075	-6.199	-6.199
	(-0.545)	(-0.606)	(-0.649)	(-0.671)	(-0.701)	(-0.757)	(-0.128)	(-0.127)	(-0.337)	(-0.355)	(-0.792)	(-0.857)
roa	-15.239	-15.239	-12.902	-12.902	-12.686	-12.686	-29.480*	-29.480	-27.698	-27.698	-31.760	-31.760
	(-1.363)	(-1.365)	(-1.214)	(-1.210)	(-1.129)	(-1.120)	(-1.650)	(-1.625)	(-1.632)	(-1.594)	(-1.476)	(-1.426)
size	1.330***	1.330***	0.997**	0.997**	1.180**	1.180**	2.001**	2.001**	1.798**	1.798**	2.326**	2.326*
	-2.858	-2.906	-2.301	-2.301	-2.560	-2.569	(2.305)	(2.216)	(2.262)	(2.135)	(2.013)	(1.870)
other-own	0.711	0.711	-2.888	-2.888	1.368	1.368	3.492	3.492	0.495	0.495	2.955	2.955
	-0.206	-0.203	(-0.744)	(-0.701)	-0.422	-0.423	(0.682)	(0.614)	(0.117)	(0.099)	(0.575)	(0.499)
level	-7.030	-7.030	-6.229	-6.229	-7.065	-7.065	-11.749*	-11.749*	-10.853**	-10.853**	-13.309**	-13.309**
	(-1.617)	(-1.544)	(-1.495)	(-1.404)	(-1.616)	(-1.545)	(-1.930)	(-1.949)	(-2.151)	(-2.133)	(-2.011)	(-2.072)
prem	-2.081	-2.081	-2.035	-2.035	-1.936	-1.936	-4.196	-4.196	-4.011	-4.011	-4.676	-4.676
	(-0.951)	(-0.979)	(-1.040)	(-1.057)	(-0.935)	(-0.958)	(-1.367)	(-1.392)	(-1.492)	(-1.515)	(-1.340)	(-1.390)

ceoch	2.967*	2.967*	2.581*	2.581*	2.537	2.537	4.335**	4.335**	4.129*	4.129*	4.578*	4.578
	-1.659	-1.686	-1.776	-1.819	-1.575	-1.608	(2.018)	(2.058)	(1.932)	(1.922)	(1.678)	(1.619)
Industry Cluster		Yes		Yes		Yes		Yes		Yes		Yes
Constant	-26.312***	-26.312***	-19.715***	-19.715***	-23.258***	-23.258***	-32.491***	-32.491**	-28.665**	-28.665**	-36.309**	-36.309*
	(-3.168)	(-3.217)	(-2.602)	(-2.595)	(-2.836)	(-2.827)	(-2.603)	(-2.508)	(-2.274)	(-2.139)	(-2.055)	(-1.893)
Wald Chi2	19.440**	52.030***	16.910**	35.320***	17.780**	31.170***	24.930***	27.030***	28.210***	27.370***	26.070***	34.630***
Prob>Chi2	0.022	0.000	0.050	0.000	0.038	0.000	0.005	0.003	0.002	0.002	0.004	0.000
Pseudo R Square	0.527	0.527	0.530	0.530	0.507	0.507	0.606	0.606	0.614	0.614	0.626	0.626
Observations	65	65	65	65	65	65	65	65	65	65	65	65

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0.

Table 2.14 The relationship between managerial ownership and takeover premiums in MBOs: using alternative measures of managerial ownership

	Dependent Variable=prem											
	Model67	*Model68*	*Model69*	*Model70*	*Model71*	*Model72*	*Model73*	*Model74*	*Model75*	*Model76*	*Model77*	*Model78*
ceoown	-0.111	-0.111					-0.123	-0.123				
	(-0.307)	(-0.346)					(-0.356)	(-0.399)				
exeownv			0.034***	0.034***					0.038***	0.038***		
			(2.809)	(3.401)					(2.902)	(3.212)		
ceoownv					0.025***	0.025***					0.028***	0.028***
					(2.821)	(4.234)					(3.320)	(4.316)
exeso							-0.027*	-0.027	-0.027*	-0.027	-0.027*	-0.027
							(-1.824)	(-1.563)	(-1.864)	(-1.594)	(-1.853)	(-1.579)
pe	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	(1.320)	(1.192)	(1.250)	(1.128)	(1.250)	(1.129)	(1.466)	(1.311)	(1.368)	(1.219)	(1.371)	(1.223)
fcf	0.087	0.087	0.020	0.020	0.024	0.024	-0.005	-0.005	-0.083	-0.083	-0.080	-0.080
	(0.266)	(0.266)	(0.065)	(0.065)	(0.074)	(0.074)	(-0.015)	(-0.014)	(-0.286)	(-0.256)	(-0.270)	(-0.243)
roa	0.059	0.059	0.063	0.063	0.054	0.054	0.020	0.020	0.019	0.019	0.017	0.017
	(0.143)	(0.160)	(0.154)	(0.184)	(0.134)	(0.160)	(0.047)	(0.052)	(0.047)	(0.054)	(0.040)	(0.046)
size	-0.111**	-0.111**	-0.125**	-0.125***	-0.118**	-0.118***	-0.095**	-0.095**	-0.111**	-0.111**	-0.104**	-0.104**
	(-2.327)	(-2.591)	(-2.541)	(-2.976)	(-2.444)	(-2.817)	(-2.135)	(-2.302)	(-2.375)	(-2.604)	(-2.268)	(-2.508)
other-own	0.169	0.169	0.166	0.166	0.239	0.239	-0.032	-0.032	-0.043	-0.043	0.043	0.043
	(0.719)	(1.119)	(0.819)	(1.052)	(1.080)	(1.424)	(-0.113)	(-0.145)	(-0.168)	(-0.201)	(0.161)	(0.198)
level	-0.027	-0.027	-0.093	-0.093	-0.052	-0.052	-0.006	-0.006	-0.080	-0.080	-0.033	-0.033
	(-0.090)	(-0.076)	(-0.317)	(-0.265)	(-0.175)	(-0.148)	(-0.020)	(-0.018)	(-0.268)	(-0.244)	(-0.106)	(-0.097)
ned	-0.077	-0.077	0.043	0.043	-0.025	-0.025	-0.210	-0.210	-0.081	-0.081	-0.157	-0.157
	(-0.237)	(-0.277)	(0.126)	(0.158)	(-0.077)	(-0.101)	(-0.580)	(-0.579)	(-0.219)	(-0.232)	(-0.444)	(-0.477)

multi	0.127	0.127	0.147	0.147*	0.143	0.143	0.124	0.124	0.147*	0.147*	0.142	0.142*
	(1.304)	(1.591)	(1.507)	(1.727)	(1.457)	(1.669)	(1.432)	(1.605)	(1.714)	(1.798)	(1.650)	(1.734)
insti	0.016	0.016	0.096	0.096	0.083	0.083	0.026	0.026	0.116	0.116	0.103	0.103
	(0.077)	(0.087)	(0.504)	(0.530)	(0.432)	(0.452)	(0.117)	(0.130)	(0.574)	(0.634)	(0.490)	(0.532)
lnnas	0.120**	0.120**	0.125**	0.125**	0.125**	0.125**	0.109**	0.109**	0.115***	0.115***	0.114***	0.114**
	(2.527)	(2.620)	(2.621)	(2.735)	(2.581)	(2.642)	(2.618)	(2.557)	(2.797)	(2.746)	(2.717)	(2.617)
Industry Cluster		Yes		Yes		Yes		Yes		Yes		Yes
Constant	1.056*	1.056*	1.151**	1.151**	1.072*	1.072**	1.287*	1.287*	1.402**	1.402**	1.312*	1.312*
	(1.732)	(1.827)	(2.001)	(2.211)	(1.887)	(2.108)	(1.848)	(1.797)	(2.055)	(2.084)	(1.977)	(2.026)
F-test	1.400	3.310***	2.070**	5.860***	2.030**	5.330***	1.560	2.320**	2.080**	3.280***	2.270**	4.110***
Prob>f	0.190	0.004	0.034	0.000	0.037	0.000	0.126	0.030	0.029	0.004	0.017	0.001
R-squared	0.254	0.254	0.273	0.273	0.261	0.261	0.326	0.326	0.350	0.350	0.336	0.336
Root MSE	0.336	0.336	0.332	0.332	0.334	0.334	0.326	0.326	0.320	0.320	0.323	0.323
Observations	84	84	84	84	84	84	82	82	82	82	82	82

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0.

Table 2.15 The relationship between managerial ownership and takeover premiums in third-LBOs: using alternative measures of managerial ownership

	Dependent Variable=prem											
	Model79	*Model80*	*Model81*	*Model82*	*Model83*	*Model84*	*Model85*	*Model86*	*Model87*	*Model88*	*Model89*	*Model90*
ceoown	0.763*	0.763*					0.757	0.757*				
	(1.759)	(1.906)					(1.665)	(1.706)				
exeownv			0.000	0.000					-0.001	-0.001		
			(0.008)	(0.008)					(-0.341)	(-0.321)		
ceoownv					0.056	0.056*					-0.006	-0.006
					(1.671)	(1.747)					(-0.135)	(-0.152)
exeso							-0.026***	-0.026***	-0.026***	-0.026***	-0.026**	-0.026**
							(-2.774)	(-2.989)	(-2.798)	(-2.849)	(-2.612)	(-2.678)
pe	-0.004***	-0.004***	-0.005***	-0.005***	-0.005***	-0.005***	-0.004***	-0.004***	-0.005***	-0.005***	-0.005***	-0.005***
	(-3.868)	(-3.756)	(-4.005)	(-3.828)	(-4.305)	(-4.179)	(-4.007)	(-4.164)	(-4.142)	(-4.207)	(-4.599)	(-4.681)
fcf	-0.003	-0.003	0.075	0.075	0.126	0.126	0.218	0.218	0.295	0.295	0.292	0.292
	(-0.006)	(-0.007)	(0.127)	(0.142)	(0.213)	(0.229)	(0.383)	(0.417)	(0.484)	(0.526)	(0.480)	(0.520)
roa	-2.614***	-2.614***	-2.439***	-2.439***	-2.442***	-2.442***	-2.909***	-2.909***	-2.751***	-2.751***	-2.740***	-2.740***
	(-5.022)	(-5.816)	(-4.462)	(-4.983)	(-4.710)	(-5.371)	(-5.783)	(-6.348)	(-4.934)	(-5.226)	(-5.093)	(-5.350)
size	-0.043	-0.043	-0.055	-0.055	-0.057	-0.057	-0.029	-0.029	-0.039	-0.039	-0.041	-0.041
	(-1.158)	(-1.090)	(-1.388)	(-1.254)	(-1.635)	(-1.543)	(-0.763)	(-0.753)	(-0.933)	(-0.882)	(-1.069)	(-1.041)
other-own	-0.630	-0.630	-0.667	-0.667	-0.643	-0.643	-0.553	-0.553	-0.567	-0.567	-0.591	-0.591
	(-1.131)	(-1.101)	(-1.162)	(-1.133)	(-1.173)	(-1.138)	(-1.022)	(-1.020)	(-1.012)	(-1.016)	(-1.120)	(-1.124)
level	-0.979***	-0.979***	-0.916***	-0.916***	-0.936***	-0.936***	-1.119***	-1.119***	-1.074***	-1.074***	-1.057***	-1.057***
	(-3.132)	(-3.310)	(-2.765)	(-2.859)	(-2.998)	(-3.218)	(-3.645)	(-4.030)	(-3.234)	(-3.436)	(-3.440)	(-3.769)
ned	0.049	0.049	-0.018	-0.018	0.009	0.009	-0.075	-0.075	-0.143	-0.143	-0.145	-0.145
	(0.092)	(0.099)	(-0.032)	(-0.034)	(0.016)	(0.017)	(-0.135)	(-0.137)	(-0.249)	(-0.251)	(-0.250)	(-0.254)

multi	0.201**	0.201**	0.193*	0.193**	0.208**	0.208**	0.244**	0.244**	0.236**	0.236**	0.235**	0.235**
	(2.078)	(2.288)	(1.950)	(2.135)	(2.068)	(2.240)	(2.436)	(2.607)	(2.306)	(2.457)	(2.289)	(2.438)
insti	0.416	0.416	0.328	0.328	0.350	0.350	0.327	0.327	0.238	0.238	0.236	0.236
	(1.182)	(1.334)	(0.928)	(1.062)	(0.985)	(1.105)	(0.945)	(0.963)	(0.686)	(0.721)	(0.686)	(0.719)
lnnas	0.074***	0.074***	0.063**	0.063**	0.061**	0.061**	0.078***	0.078***	0.069**	0.069**	0.067**	0.067**
	(2.873)	(2.870)	(2.171)	(2.118)	(2.275)	(2.227)	(3.253)	(2.930)	(2.452)	(2.295)	(2.550)	(2.375)
Industry Cluster		Yes		Yes		Yes		Yes		Yes		Yes
Constant	0.547	0.547	0.976	0.976	1.003*	1.003	0.659	0.659	1.030	1.030	1.081*	1.081*
	(0.859)	(0.819)	(1.345)	(1.227)	(1.695)	(1.599)	(1.118)	(1.093)	(1.484)	(1.425)	(1.860)	(1.844)
F-test	15.460***	35.400***	12.690***	15.380***	13.030***	18.300***	20.460***	29.680***	17.070***	20.820***	17.210***	21.090***
Prob>f	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.537	0.537	0.525	0.525	0.529	0.529	0.575	0.575	0.564	0.564	0.564	0.564
Root MSE	0.386	0.386	0.391	0.391	0.389	0.389	0.374	0.374	0.378	0.378	0.379	0.379
Observations	62	62	62	62	62	62	62	62	62	62	62	62

Robust pval in parentheses: *** p<0.01, ** p<0.05, * p<0.1. resist is a dummy variable that takes the value 0 if the bid is classified as friendly and 1 otherwise. prem is the takeover premiums of offer price to target closing share price 4 weeks prior to the original announcement date. exeown is percentage of executive shareholding. ceoown is percentage of ceo shareholding. exeownv is the year-end share price times the number of executive shares held and is in millions of pounds. ceoownv is the year-end share price times the number of ceo shares held and is in millions of pounds. exeso is the logarithm of the valuation of executive share options with black-scholes' (1973) model. pe is the price earnings ratio that calculate by adjust the target pe ratio by subtracting the industry median pe, along with using the 2-digit industry classification benchmark (icb-code) sorting. fcf is the free cash flow. it defined as the funds from operation minus capital expenditure and cash dividend deflated by total assets. roa is firm's return on assets. size is the natural logarithm of market value. other-own is the common shares held by the target board directors other than the ceo. level is total debt divided by total assets. ceoch is the dummy variable that takes value of 1 if the new ceo has been appointed at the financial year prior to the takeover announcement and otherwise 0. ned is the percentage of non-executive directors on the board. insti is the total common shares held by institutional investors divided by total common outstanding shares, where the shareholding is in excess of 3%. lnnas is the natural logarithm of the non-audit fees. multi is the dummy variable that code as 1 if there is more than one simultaneous bidder for the target and otherwise 0.

Table 3.6 Distribution of firms for MBOs and third-party LBOs from 1997 to 2011

Year	***MBOs***	***third-party LBOs***	***LBOs***		
			Observations	*Deal Value (GBP mil)*	
				Mean	Total
1997	6	2	8	57.328	458.62
1998	15	8	23	71.123	1635.84
1999	27	16	43	112.903	4854.84
2000	25	8	33	143.423	4732.95
2001	20	0	20	90.828	1816.55
2002	16	3	19	78.381	1489.23
2003	14	8	22	172.993	3805.84
2004	4	5	9	301.496	2713.46
2005	4	11	15	341.236	4436.07
2006	1	16	17	1267.119	21541.03
2007	6	10	16	1246.142	18692.13
2008	2	3	5	406.502	2032.51
2009	2	0	2	178.08	178.08
2010	0	4	4	950.728	3802.91
2011	3	6	9	90.791	817.12
Total	145	100	245	302.934	73007.18

Table 3.7 Descriptive statistics on conservatism proxies, board characteristics and control variables for MBO deals

Panel A. Descriptive statistics on conservatism proxies for the Basu (1997), Ball and Shivakumar (2005), and Khan and Watts (2009) at year Y-1, Y-2, and Y-3

variables	N	mean	p50	sd	min	p25	p75	max
epsp1	118	0.027	0.071	0.213	-1.215	-0.035	0.117	0.726
dr1	118	0.593	1.000	0.493	0.000	0.000	1.000	1.000
r1	118	-0.064	-0.093	0.416	-0.884	-0.339	0.135	1.480
drr1	118	-0.190	-0.093	0.233	-0.884	-0.339	0.000	0.000
accrb1	110	-0.057	-0.062	0.090	-0.269	-0.113	-0.007	0.272
dcfo1	118	0.110	0.000	0.314	0.000	0.000	0.000	1.000
cfo1	118	0.096	0.099	0.129	-0.556	0.042	0.164	0.426
dcfocfo1	118	-0.015	0.000	0.069	-0.556	0.000	0.000	0.000
cscore1	118	0.254	0.276	0.236	-2.149	0.230	0.339	0.408
gscore1	118	0.130	0.125	0.126	-0.183	0.036	0.224	0.481
size1	117	17.865	17.802	1.401	13.234	17.079	18.709	22.338
level1	117	0.170	0.144	0.152	0.000	0.037	0.256	0.740
mtb1	117	2.262	1.225	5.988	-1.676	0.798	2.116	63.599
epsp2	113	-0.024	0.078	0.745	-7.495	0.038	0.113	0.417
dr2	113	0.558	1.000	0.499	0.000	0.000	1.000	1.000
r2	113	0.045	-0.037	0.724	-0.937	-0.285	0.169	5.954
drr2	113	-0.162	-0.037	0.217	-0.937	-0.285	0.000	0.000
accrb2	108	-0.023	-0.036	0.117	-0.316	-0.084	0.015	0.528
dcfo2	113	0.133	0.000	0.341	0.000	0.000	0.000	1.000
cfo2	113	0.095	0.095	0.193	-1.528	0.054	0.160	0.519
dcfocfo2	113	-0.023	0.000	0.147	-1.528	0.000	0.000	0.000
cscore2	113	-0.302	-0.308	0.821	-2.278	-0.892	0.355	1.810
gscore2	113	0.543	0.400	0.733	-2.733	0.056	0.913	3.007
size2	113	17.853	17.770	1.395	14.041	17.058	18.599	22.422
level2	113	0.168	0.131	0.149	0.000	0.057	0.247	0.723
mtb2	113	2.340	1.345	14.501	-67.773	0.888	2.830	127.841
epsp3	110	0.043	0.077	0.323	-3.172	0.049	0.112	0.346
dr3	110	0.445	0.000	0.499	0.000	0.000	1.000	1.000
r3	110	0.058	0.032	0.416	-0.951	-0.156	0.261	1.331
drr3	110	-0.126	0.000	0.207	-0.951	-0.156	0.000	0.000
accrb3	96	-0.027	-0.035	0.109	-0.330	-0.072	0.011	0.453
dcfo3	110	0.109	0.000	0.313	0.000	0.000	0.000	1.000
cfo3	110	0.117	0.112	0.115	-0.276	0.063	0.173	0.419
dcfocfo3	110	-0.009	0.000	0.038	-0.276	0.000	0.000	0.000
cscore3	110	0.365	0.293	0.470	-0.577	0.066	0.548	2.731
gscore3	110	0.034	0.035	0.072	-0.580	0.008	0.059	0.247
size3	110	17.755	17.701	1.475	11.533	16.961	18.524	22.396

level3	110	0.176	0.148	0.164	0.000	0.039	0.251	1.029
mtb3	110	5.988	1.546	32.547	-15.527	0.938	2.981	334.615

Panel B. Descriptive statistics on board characteristics and control variables

variables	**N**	**mean**	**p50**	**sd**	**min**	**p25**	**p75**	**max**
dual1	117	0.282	0.000	0.452	0.000	0.000	1.000	1.000
ned1	117	0.444	0.429	0.145	0.000	0.375	0.500	0.750
auditn1	117	0.718	1.000	0.452	0.000	0.000	1.000	1.000
ceoown1	117	0.123	0.035	0.173	0.000	0.003	0.198	0.771
exeown1	117	0.157	0.066	0.195	0.000	0.006	0.241	0.771
nedown1	117	0.055	0.003	0.129	0.000	0.001	0.041	0.664
insti1	117	0.354	0.321	0.215	0.000	0.202	0.501	0.890
size1	117	17.865	17.802	1.401	13.234	17.079	18.709	22.338
level1	117	0.170	0.144	0.152	0.000	0.037	0.256	0.740
mtb1	117	2.262	1.225	5.988	-1.676	0.798	2.116	63.599
pe1	117	-3.829	-5.280	16.688	-58.720	-12.790	2.720	84.570
boar1	117	1.768	1.792	0.254	1.099	1.609	1.946	2.398
bsize1	117	6.051	6.000	1.542	3.000	5.000	7.000	11.000

epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3). accrb#: (δinventory+δdebtors+δother current assets-δcreditors-δother current liabilities-depreciation)/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). cfo#: cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfo#: dummy variable equal to 1 if cfo is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfocfo#: cash flow from operation * negative cash flow from operation at year # (#=1,2,3 denote the year y-1, y-2, y-3). cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). size#: natural logarithm of firms' total sales at year # (#=1,2,3 denote the year y-1, y-2, y-3). level#: total debts divided by total assets at year # (#=1,2,3 denote the year y-1, y-2, y-3). mtb#: market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year y-1, y-2, y-3). dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.8 Descriptive statistics on conservatism proxies, board characteristics and control variables for third-party LBO deals

Panel A. Descriptive statistics on conservatism proxies for the Basu (1997), Ball and Shivakumar (2005), and Khan and Watts (2009) at year Y-1, Y-2, and Y-3

variables	N	mean	p50	sd	min	p25	p75	max
epsp1	81	-0.034	0.051	0.316	-1.770	-0.004	0.091	0.367
dr1	81	0.556	1.000	0.500	0.000	0.000	1.000	1.000
r1	81	-0.043	-0.096	0.413	-0.874	-0.354	0.234	1.131
drr1	81	-0.193	-0.096	0.235	-0.874	-0.354	0.000	0.000
accrb1	75	-0.047	-0.041	0.063	-0.191	-0.079	-0.017	0.128
dcfo1	81	0.160	0.000	0.369	0.000	0.000	0.000	1.000
cfo1	81	0.074	0.073	0.101	-0.262	0.041	0.108	0.430
dcfocfo1	81	-0.012	0.000	0.041	-0.262	0.000	0.000	0.000
cscore1	80	-6.548	-6.571	0.750	-8.583	-6.934	-6.225	-3.428
gscore1	80	0.074	0.057	0.238	-0.489	-0.058	0.209	1.109
size1	80	18.413	18.465	1.779	9.952	17.506	19.390	21.676
level1	80	0.252	0.230	0.211	0.000	0.090	0.372	1.130
mtb1	80	0.826	1.655	10.698	-92.143	0.850	2.409	12.333
epsp2	70	0.026	0.069	0.222	-1.324	0.027	0.096	0.543
dr2	70	0.414	0.000	0.496	0.000	0.000	1.000	1.000
r2	70	0.193	0.062	0.628	-0.733	-0.109	0.269	2.987
drr2	70	-0.095	0.000	0.168	-0.733	-0.109	0.000	0.000
accrb2	67	-0.030	-0.033	0.100	-0.230	-0.070	-0.001	0.343
dcfo2	70	0.100	0.000	0.302	0.000	0.000	0.000	1.000
cfo2	70	0.090	0.087	0.110	-0.396	0.045	0.148	0.428
dcfocfo2	70	-0.012	0.000	0.052	-0.396	0.000	0.000	0.000
cscore2	70	0.654	0.752	0.841	-3.391	0.276	1.241	2.009
gscore2	70	0.013	0.009	0.212	-0.977	-0.117	0.160	0.429
size2	70	18.551	18.475	1.547	14.621	17.426	19.474	21.777
level2	70	0.249	0.238	0.187	0.000	0.118	0.351	1.047
mtb2	70	2.430	1.769	2.482	-2.581	1.230	3.023	13.274
epsp3	68	0.029	0.056	0.117	-0.416	0.017	0.085	0.236
dr3	68	0.441	0.000	0.500	0.000	0.000	1.000	1.000
r3	68	0.036	0.031	0.642	-0.841	-0.284	0.153	4.000
drr3	68	-0.159	0.000	0.253	-0.841	-0.284	0.000	0.000
accrb3	65	-0.052	-0.054	0.135	-0.490	-0.096	-0.016	0.533
dcfo3	68	0.132	0.000	0.341	0.000	0.000	0.000	1.000
cfo3	68	0.090	0.078	0.140	-0.423	0.047	0.138	0.582
dcfocfo3	68	-0.020	0.000	0.067	-0.423	0.000	0.000	0.000
cscore3	68	0.310	0.297	0.296	-1.350	0.206	0.439	0.885
gscore3	68	-0.029	-0.012	0.192	-0.502	-0.175	0.079	0.555
size3	68	18.459	18.339	1.623	14.279	17.564	19.344	21.872

level3	68	0.205	0.195	0.152	0.000	0.062	0.290	0.726
mtb3	68	2.032	1.894	2.100	-10.219	1.288	3.000	5.961

Panel B. Descriptive statistics on board characteristics and control variables

variables	**N**	**mean**	**p50**	**sd**	**min**	**p25**	**p75**	**max**
dual1	80	0.113	0.000	0.318	0.000	0.000	0.000	1.000
ned1	80	0.532	0.556	0.118	0.222	0.444	0.625	0.750
auditn1	80	0.900	1.000	0.302	0.000	1.000	1.000	1.000
ceoown1^2	80	0.016	0.000	0.055	0.000	0.000	0.007	0.419
exeown1^2	80	0.021	0.000	0.068	0.000	0.000	0.012	0.530
nedown1	80	0.036	0.002	0.067	0.000	0.000	0.032	0.362
insti1	80	0.369	0.370	0.186	0.000	0.289	0.496	0.905
size1	80	18.413	18.465	1.779	9.952	17.506	19.390	21.676
level1	80	0.252	0.230	0.211	0.000	0.090	0.372	1.130
mtb1	80	0.826	1.655	10.698	-92.143	0.850	2.409	12.333
pe1	80	0.700	-3.185	69.025	-242.180	-11.710	4.110	510.100
boar1	80	1.881	1.946	0.242	1.386	1.609	2.079	2.303
bsize1	80	6.750	7.000	1.587	4.000	5.000	8.000	10.000

epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3). accrb#: (δinventory+δdebtors+δother current assets-δcreditors-δother current liabilities-depreciation)/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). cfo#: cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfo#: dummy variable equal to 1 if cfo is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfocfo#: cash flow from operation * negative cash flow from operation at year # (#=1,2,3 denote the year y-1, y-2, y-3). cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). size#: natural logarithm of firms' total sales at year # (#=1,2,3 denote the year y-1, y-2, y-3). level#: total debts divided by total assets at year # (#=1,2,3 denote the year y-1, y-2, y-3). mtb#: market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year y-1, y-2, y-3). dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.9 Pearson Correlations between conservatism proxies, board characteristics and control variables for MBO deals

Panel A. Correlation between conservatism proxies at year Y-1, Y-2, and Y-3

	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1
epsp1	1.000									
dr1	-0.252***	1.000								
r1	0.386***	-0.746***	1.000							
drr1	0.429***	-0.678***	0.808***	1.000						
accrb1	0.116	-0.148	0.132	0.174*	1.000					
dcfo1	-0.110	-0.039	-0.133	-0.206**	0.316***	1.000				
cfo1	0.201**	0.079	0.087	0.158*	-0.250***	-0.638***	1.000			
dcfocfo1	-0.006	0.058	0.062	0.158*	-0.059	-0.631***	0.722***	1.000		
cscore1	-0.022	-0.121	0.085	0.112	0.088	0.038	-0.245***	-0.021	1.000	
gscore1	-0.042	0.058	-0.006	0.079	-0.019	0.022	-0.022	0.003	-0.229**	1.000
size1	0.142	-0.145	0.112	0.281***	-0.083	-0.157*	0.233**	0.261***	-0.045	0.571***
level1	-0.155*	0.173*	-0.093	-0.076	0.035	0.069	-0.087	0.073	-0.157*	0.869***
mtb1	0.060	0.083	-0.065	-0.087	-0.100	-0.067	0.321***	0.052	-0.978***	0.071
epsp2	0.363***	-0.097	0.157*	0.220**	-0.034	-0.370***	0.220**	0.155	0.003	-0.065
dr2	-0.167*	-0.049	0.010	0.030	0.061	-0.036	-0.188**	0.036	0.164*	0.062
r2	0.130	0.020	-0.011	-0.056	-0.136	0.145	-0.033	-0.373***	-0.044	-0.112
drr2	0.288***	-0.021	0.031	0.081	-0.038	-0.161*	0.258***	0.187**	-0.080	-0.142
accrb2	0.181*	-0.006	-0.020	0.022	0.173*	0.206**	-0.164*	-0.191**	-0.065	0.048
dcfo2	-0.208**	0.059	-0.097	-0.184*	0.230**	0.521***	-0.472***	-0.448***	0.014	0.164*
cfo2	0.130	-0.022	0.120	0.234**	-0.108	-0.392***	0.670***	0.636***	-0.237**	0.111
dcfocfo2	0.034	-0.070	0.165*	0.291***	0.009	-0.342***	0.408***	0.695***	-0.035	0.196**
cscore2	-0.035	0.066	-0.052	-0.195**	0.032	0.029	-0.077	-0.171*	-0.094	-0.836***
gscore2	-0.052	0.011	0.043	0.090	0.051	0.076	-0.119	0.022	0.312***	0.592***

Panel A. continued										
	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1
size2	0.098	-0.119	0.048	0.212**	-0.083	-0.129	0.225**	0.238**	-0.026	0.529***
level2	-0.032	0.036	0.005	0.041	0.007	0.089	-0.087	-0.001	-0.068	0.750***
mtb2	0.048	0.044	-0.082	-0.117	-0.102	0.007	0.087	-0.051	-0.787***	0.140
epsp3	0.062	-0.092	-0.009	-0.044	-0.016	0.007	0.081	0.074	0.158*	-0.194**
dr3	-0.122	-0.093	0.072	0.036	-0.065	-0.029	-0.110	-0.154	0.097	-0.087
r3	0.175*	-0.003	0.010	0.040	0.044	-0.096	0.212**	0.186*	-0.086	-0.004
drr3	0.256***	0.019	-0.031	0.012	0.028	-0.132	0.187*	0.231**	0.026	-0.008
accrb3	-0.100	0.042	-0.173*	-0.188*	0.133	0.267***	-0.465***	-0.437***	-0.024	0.065
dcfo3	-0.180*	0.060	-0.109	-0.109	0.093	0.295***	-0.394***	-0.473***	0.027	-0.057
cfo3	0.162*	0.070	0.012	0.022	-0.225**	-0.399***	0.667***	0.414***	-0.176*	-0.010
dcfocfo3	0.020	0.032	0.057	0.060	-0.183*	-0.443***	0.443***	0.641***	-0.006	0.020
cscore3	-0.101	0.124	-0.076	-0.095	-0.022	0.093	-0.199**	-0.159*	-0.235**	0.401***
gscore3	0.117	-0.042	0.067	0.127	0.057	0.049	0.042	-0.021	-0.253***	0.392***
size3	0.068	-0.142	0.096	0.276***	-0.052	-0.149	0.242**	0.334***	-0.030	0.510***
level3	-0.082	0.073	-0.042	0.014	-0.048	0.033	-0.109	-0.025	-0.256***	0.636***
mtb3	-0.183*	0.087	-0.099	-0.127	-0.096	-0.042	-0.106	0.023	0.131	-0.036

Panel A. continued

	size1	level1	mtb1	epsp2	dr2	r2	drr2	accrb2	dcfo2	cfo2
size1	1.000									
level1	0.098	1.000								
mtb1	0.067	-0.049	1.000							
epsp2	0.127	-0.156*	0.034	1.000						
dr2	0.020	0.080	-0.181*	0.017	1.000					
r2	0.094	-0.199**	0.089	0.067	-0.521***	1.000				
drr2	0.129	-0.260***	0.139	0.080	-0.666***	0.514***	1.000			
accrb2	-0.064	0.085	0.046	0.065	-0.119	0.041	0.120	1.000		
dcfo2	-0.158*	0.299***	-0.082	-0.328***	0.086	0.032	-0.288***	0.388***	1.000	
cfo2	0.313***	-0.076	0.268***	0.269***	-0.130	0.156*	0.361***	-0.470***	-0.544***	1.000
dcfocfo2	0.332***	0.036	0.041	0.230**	-0.093	0.130	0.342***	-0.591***	-0.400***	0.858***
cscore2	-0.697***	-0.615***	0.192**	0.021	-0.109	0.080	0.104	-0.044	-0.080	-0.116
gscore2	0.022	0.746***	-0.467***	-0.122	0.106	-0.155	-0.213**	0.119	0.230**	-0.099
size2	0.976***	0.058	0.054	0.102	0.062	0.036	0.078	-0.080	-0.140	0.260***
level2	0.076	0.869***	-0.108	-0.132	0.072	-0.132	-0.224**	0.146	0.259***	-0.064
mtb2	0.082	0.044	0.787***	0.009	-0.090	0.081	0.033	0.023	-0.002	0.086
epsp3	0.144	-0.319***	0.068	0.105	-0.033	0.086	0.257***	-0.072	-0.244**	0.157
dr3	0.043	-0.129	-0.011	-0.151	-0.006	0.116	0.037	-0.105	-0.036	-0.099
r3	0.000	-0.008	0.099	0.260***	0.052	-0.116	0.047	0.109	-0.108	0.175*
drr3	0.053	-0.041	0.008	0.401***	0.040	-0.088	0.123	0.001	-0.221**	0.258***
accrb3	-0.053	0.104	-0.055	-0.007	-0.007	0.243**	0.004	0.429***	0.422***	-0.353***
dcfo3	-0.254***	0.083	-0.123	-0.077	0.020	0.108	-0.277***	0.161	0.371***	-0.347***
cfo3	0.196**	-0.136	0.313***	0.132	0.067	-0.207**	0.092	-0.226**	-0.452***	0.424***
dcfocfo3	0.153	-0.068	0.075	-0.001	0.113	-0.496***	-0.009	-0.174*	-0.340***	0.107

Panel A. continued

	size1	level1	mtb1	epsp2	dr2	r2	drr2	accrb2	dcfo2	cfo2
cscore3	-0.307***	0.668***	-0.249***	-0.091	-0.030	0.005	-0.199**	0.069	0.228**	-0.155
gscore3	0.105	0.409***	0.007	-0.045	-0.062	0.029	-0.088	0.119	0.141	-0.050
size3	0.940***	0.060	0.122	0.099	0.082	0.030	0.110	-0.118	-0.129	0.370***
level3	0.074	0.726***	-0.213**	-0.053	0.006	0.017	-0.163*	0.025	0.183*	-0.005
mtb3	-0.035	-0.018	-0.135	0.024	0.078	-0.021	0.005	-0.126	-0.055	0.071

Panel A. continued

	dcfocfo2	cscore2	gscore2	size2	level2	mtb2	epsp3	dr3	r3	drr3
dcfocfo2	1.000									
cscore2	-0.208**	1.000								
gscore2	0.028	-0.703***	1.000							
size2	0.277***	-0.714***	0.024	1.000						
level2	0.025	-0.722***	0.881***	0.074	1.000					
mtb2	-0.016	0.148	-0.472***	0.074	0.001	1.000				
epsp3	0.127	0.164*	-0.353***	0.118	-0.354***	0.027	1.000			
dr3	-0.071	-0.042	-0.027	0.094	-0.042	-0.049	-0.179*	1.000		
r3	0.145	0.105	-0.114	-0.047	-0.088	0.097	0.318***	-0.740***	1.000	
drr3	0.214**	0.064	-0.102	0.006	-0.093	0.040	0.476***	-0.684***	0.771***	1.000
accrb3	-0.329***	0.040	0.033	-0.099	0.050	0.084	0.093	-0.073	0.139	0.076
dcfo3	-0.283***	0.083	0.105	-0.235**	0.126	0.064	-0.331***	0.156	-0.274***	-0.440***
cfo3	0.156	-0.050	-0.085	0.186*	-0.150	-0.209**	0.142	-0.196**	0.301***	0.330***
dcfocfo3	0.019	-0.055	-0.080	0.174*	-0.111	-0.097	0.053	-0.134	0.153	0.187*
cscore3	-0.098	-0.296***	0.741***	-0.329***	0.766***	0.020	-0.515***	-0.034	-0.061	-0.143

Panel A. continued

	dcfocfo2	cscore2	gscore2	size2	level2	mtb2	epsp3	dr3	r3	drr3
gscore3	0.035	-0.326***	0.317***	0.089	0.456***	0.421***	-0.261***	0.093	-0.070	-0.124
size3	0.417***	-0.717***	0.051	0.963***	0.090	0.101	0.125	0.088	-0.058	0.006
level3	0.074	-0.616***	0.804***	0.061	0.843***	0.053	-0.487***	-0.001	-0.088	-0.146
mtb3	0.024	-0.036	0.135	-0.025	0.001	-0.448***	0.004	-0.104	0.024	0.052

Panel A. continued

	accrb3	dcfo3	cfo3	dcfocfo3	cscore3	gscore3	size3	level3	mtb3
accrb3	1.000								
dcfo3	0.287***	1.000							
cfo3	-0.570***	-0.603***	1.000						
dcfocfo3	-0.439***	-0.657***	0.584***	1.000					
cscore3	0.080	0.312***	-0.233**	-0.210**	1.000				
gscore3	-0.040	0.107	-0.105	-0.094	0.449***	1.000			
size3	-0.097	-0.256***	0.146	0.148	-0.321***	0.108	1.000		
level3	0.050	0.219**	-0.183*	-0.157	0.916***	0.495***	0.085	1.000	
mtb3	0.071	0.002	0.014	0.016	0.038	-0.840***	-0.030	0.053	1.000

Panel B. Correlations between conservatism proxies, board characteristics, and control variables at year Y-1

	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1	dual1	ned1
epsp1	1.000											
dr1	-0.252***	1.000										
r1	0.386***	-0.746***	1.000									
drr1	0.429***	-0.678***	0.808***	1.000								
accrb1	0.116	-0.148	0.132	0.174*	1.000							
dcfo1	-0.110	-0.039	-0.133	-0.206**	0.316***	1.000						
cfo1	0.201**	0.079	0.087	0.158*	-0.250***	-0.638***	1.000					
dcfocfo1	-0.006	0.058	0.062	0.158*	-0.059	-0.631***	0.722***	1.000				
cscore1	-0.022	-0.121	0.085	0.112	0.088	0.038	-0.245***	-0.021	1.000			
gscore1	-0.042	0.058	-0.006	0.079	-0.019	0.022	-0.022	0.003	-0.229**	1.000		
dual1	0.135	-0.029	0.041	-0.002	-0.048	0.039	0.020	-0.117	0.097	-0.358***	1.000	
ned1	-0.120	-0.023	-0.112	-0.047	-0.110	0.107	-0.102	-0.158*	-0.063	0.197**	-0.244***	1.000
auditn1	-0.079	0.068	-0.084	-0.110	-0.073	-0.039	0.034	0.087	-0.072	0.230**	-0.282***	0.134
ceoown1	0.133	0.016	0.158*	0.036	0.196**	0.040	0.008	-0.085	0.007	-0.272***	0.187**	-0.386***
exeown1	0.145	0.031	0.166*	0.044	0.169*	-0.004	-0.005	-0.042	0.039	-0.314***	0.181*	-0.514***
nedown1	0.083	-0.155*	0.041	0.131	-0.041	-0.029	0.138	0.018	0.031	-0.043	-0.044	0.276***
insti1	-0.216**	0.066	-0.177*	-0.191**	-0.061	0.145	-0.111	-0.056	-0.035	0.231**	-0.172*	0.288***
size1	0.142	-0.145	0.112	0.281***	-0.083	-0.157*	0.233**	0.261***	-0.045	0.571***	-0.192**	0.101
level1	-0.155*	0.173*	-0.093	-0.076	0.035	0.069	-0.087	0.073	-0.157*	0.869***	-0.317***	0.176*
mtb1	0.060	0.083	-0.065	-0.087	-0.100	-0.067	0.321***	0.052	-0.978***	0.071	-0.039	0.031
pe1	0.221**	-0.086	0.036	0.188**	0.099	-0.058	0.130	0.078	-0.019	-0.080	0.060	-0.040
boar1	0.041	-0.031	0.011	0.053	0.156	0.076	0.026	0.092	-0.070	0.332***	-0.318***	-0.016
bsize1	0.059	-0.063	0.033	0.075	0.135	0.080	0.007	0.070	-0.047	0.304***	-0.293***	-0.016

Panel B. continued

	auditn1	ceoown1	exeown1	nedown1	insti1	size1	level1	mtb1	pe1	boar1	bsize1
auditn1	1.000										
ceoown1	-0.303***	1.000									
exeown1	-0.306***	0.926***	1.000								
nedown1	-0.079	-0.119	-0.111	1.000							
insti1	0.139	-0.448***	-0.532***	-0.215**	1.000						
size1	0.265***	-0.375***	-0.393***	-0.074	0.163*	1.000					
level1	0.117	-0.110	-0.147	-0.006	0.184**	0.098	1.000				
mtb1	0.059	0.001	-0.025	-0.034	0.003	0.067	-0.049	1.000			
pe1	-0.233**	0.034	0.112	0.102	-0.154*	-0.001	-0.101	0.041	1.000		
boar1	0.377***	-0.120	-0.096	-0.031	0.060	0.349***	0.193**	0.045	-0.038	1.000	
bsize1	0.343***	-0.129	-0.101	-0.017	0.042	0.355***	0.157*	0.029	-0.061	0.985***	1.000

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3). accrb#: (ðinventory+ðdebtors+ðother current assets-ðcreditors-ðother current liabilities-depreciation)/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). cfo#: cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfo#: dummy variable equal to 1 if cfo is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfocfo#: cash flow from operation * negative cash flow from operation at year # (#=1,2,3 denote the year y-1, y-2, y-3). cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). size#: natural logarithm of firms' total sales at year # (#=1,2,3 denote the year y-1, y-2, y-3). level#: total debts divided by total assets at year # (#=1,2,3 denote the year y-1, y-2, y-3). mtb#: market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year y-1, y-2, y-3). dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.10 Pearson Correlations between conservatism proxies, board characteristics and control variables for third-party LBOs

Panel A. Correlation between conservatism proxies at year Y-1, Y-2, and Y-3

	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1
epsp1	1.000									
dr1	-0.094	1.000								
r1	0.255**	-0.829***	1.000							
drr1	0.279**	-0.738***	0.871***	1.000						
accrb1	0.274**	-0.166	0.124	0.189	1.000					
dcfo1	-0.194*	0.053	-0.090	-0.097	0.145	1.000				
cfo1	0.243**	-0.030	0.126	0.140	-0.278**	-0.641***	1.000			
dcfocfo1	0.161	-0.076	0.158	0.209*	-0.118	-0.652***	0.654***	1.000		
cscore1	-0.050	0.039	-0.106	-0.138	0.048	0.259**	-0.168	-0.380***	1.000	
gscore1	-0.187*	0.138	-0.225**	-0.308***	0.063	0.182	0.017	-0.295***	0.595***	1.000
size1	0.171	-0.111	0.204*	0.271**	-0.057	-0.275**	0.106	0.390***	-0.877***	-0.903***
level1	-0.056	-0.058	0.056	0.116	-0.048	0.209*	-0.327***	-0.094	0.192*	-0.579***
mtb1	0.453***	-0.160	0.237**	0.275**	0.135	-0.266**	0.166	0.095	0.298***	-0.236**
epsp2	0.483***	0.171	-0.046	-0.051	0.184	-0.293**	0.270**	0.286**	-0.401***	-0.128
dr2	-0.254**	0.131	-0.251**	-0.361***	-0.175	-0.044	-0.109	-0.040	-0.106	0.000
r2	0.195	-0.292**	0.332***	0.305**	0.190	-0.026	0.149	0.029	0.171	0.119
drr2	0.366***	0.004	0.077	0.160	0.209*	0.085	0.032	-0.040	-0.034	-0.140
accrb2	-0.034	0.079	-0.063	0.028	0.114	0.425***	-0.367***	-0.280**	0.172	-0.049
dcfo2	-0.270**	0.019	-0.065	-0.075	0.042	0.772***	-0.584***	-0.684***	0.261**	0.240**
cfo2	0.287**	-0.086	0.119	0.060	-0.092	-0.545***	0.838***	0.633***	-0.142	0.020
dcfocfo2	0.124	-0.045	0.081	0.104	-0.043	-0.528***	0.568***	0.868***	-0.318***	-0.269**
cscore2	0.240**	0.052	-0.019	-0.051	0.138	-0.074	0.255**	0.074	-0.282**	0.386***

gscore2	0.325***	-0.009	0.065	0.060	0.120	-0.012	0.119	0.061	-0.564***	-0.125

Panel A. continued

	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1
size2	0.143	-0.089	0.151	0.162	-0.104	-0.158	-0.067	0.193	-0.840***	-0.838***
level2	-0.121	-0.076	0.057	0.110	-0.080	0.190	-0.321***	-0.142	0.180	-0.573***
mtb2	0.207*	0.014	-0.013	0.010	0.199	0.287**	-0.027	-0.216*	0.191	0.193
epsp3	0.396***	0.068	0.043	0.096	0.027	-0.064	0.145	0.153	-0.295**	-0.179
dr3	-0.271**	-0.198	0.141	0.082	-0.075	-0.034	-0.064	-0.078	0.093	0.246**
r3	0.208*	0.080	-0.003	0.104	0.122	-0.049	0.058	0.086	-0.128	-0.134
drr3	0.295**	0.123	-0.075	0.014	-0.049	-0.154	0.202*	0.276**	-0.396***	-0.378***
accrb3	0.124	0.166	-0.257**	-0.204	0.108	0.004	-0.087	0.034	-0.279**	-0.147
dcfo3	-0.201*	-0.078	-0.027	-0.059	0.066	0.450***	-0.457***	-0.494***	0.391***	0.132
cfo3	0.428***	0.075	0.030	0.016	-0.009	-0.233*	0.521***	0.389***	-0.200	0.032
dcfocfo3	0.438***	-0.016	0.186	0.260**	-0.041	-0.320***	0.413***	0.538***	-0.360***	-0.129
cscore3	0.150	-0.041	-0.087	-0.145	0.194	-0.298**	0.296**	0.027	-0.258**	0.008
gscore3	-0.206*	0.024	-0.037	-0.037	0.011	0.199	-0.093	-0.159	0.813***	0.439***
size3	0.142	-0.094	0.181	0.202*	-0.104	-0.112	-0.122	0.132	-0.829***	-0.818***
level3	-0.057	-0.130	0.197	0.207*	-0.072	0.035	-0.237*	-0.045	-0.074	-0.586***
mtb3	0.139	-0.055	-0.071	-0.130	0.195	-0.296**	0.278**	0.015	-0.235*	-0.033

Panel A. continued

	size1	level1	mtb1	epsp2	dr2	r2	drr2	accrb2	dcfo2	cfo2
size1	1.000									
level1	0.204*	1.000								
mtb1	0.044	0.121	1.000							
epsp2	0.326***	-0.306**	0.084	1.000						
dr2	0.042	0.002	-0.186	-0.108	1.000					
r2	-0.156	-0.045	0.116	0.068	-0.570***	1.000				
drr2	0.115	0.067	0.127	0.293**	-0.678***	0.531***	1.000			
accrb2	-0.077	0.241*	0.004	-0.343***	0.002	-0.081	0.035	1.000		
dcfo2	-0.338***	0.188	-0.364***	-0.426***	0.106	-0.043	-0.006	0.402***	1.000	
cfo2	0.093	-0.266**	0.147	0.321***	-0.229*	0.293**	0.144	-0.423***	-0.634***	1.000
dcfocfo2	0.347***	0.002	0.018	0.268**	-0.108	0.060	0.034	-0.199	-0.684***	0.686***
cscore2	-0.040	-0.829***	0.056	0.472***	-0.043	0.037	0.098	-0.100	-0.088	0.221*
gscore2	0.424***	-0.489***	0.096	0.505***	-0.038	-0.059	0.173	0.010	-0.071	0.169
size2	0.985***	0.185	0.026	0.294**	0.071	-0.188	0.055	-0.115	-0.355***	0.057
level2	0.215*	0.929***	0.000	-0.406***	0.008	-0.071	0.001	0.252**	0.221*	-0.241**
mtb2	-0.212*	-0.114	0.105	0.081	-0.115	0.047	0.182	0.319***	0.422***	-0.015
epsp3	0.279**	-0.075	-0.003	0.263**	-0.024	-0.348***	-0.010	0.087	-0.254**	0.126
dr3	-0.215*	-0.122	-0.162	-0.166	0.099	0.196	-0.086	0.067	0.141	-0.100
r3	0.164	-0.014	0.087	0.153	-0.156	-0.089	0.115	0.073	-0.152	0.023
drr3	0.463***	0.023	0.085	0.264**	0.047	-0.475***	-0.019	-0.102	-0.323***	0.217*
accrb3	0.254**	-0.102	0.010	0.257**	0.113	-0.392***	-0.104	0.189	-0.194	-0.065
dcfo3	-0.307**	0.218*	0.033	-0.365***	0.026	0.161	0.005	0.029	0.643***	-0.486***
cfo3	0.114	-0.309**	0.092	0.358***	-0.082	-0.058	0.012	-0.117	-0.461***	0.592***
dcfocfo3	0.288**	-0.201	-0.014	0.390***	-0.089	-0.078	-0.047	-0.128	-0.461***	0.445***

Panel A. continued

	size1	level1	mtb1	epsp2	dr2	r2	drr2	accrb2	dcfo2	cfo2
cscore3	0.158	-0.315***	0.053	0.244**	0.113	0.067	-0.054	-0.175	-0.314***	0.406***
gscore3	-0.746***	0.319***	-0.060	-0.331***	-0.127	0.099	-0.025	0.112	0.366***	-0.187
size3	0.965***	0.181	0.017	0.279**	0.102	-0.188	0.032	-0.076	-0.297**	-0.025
level3	0.370***	0.715***	-0.052	-0.009	-0.004	-0.111	-0.014	-0.005	0.010	-0.192
mtb3	0.166	-0.232*	0.046	0.236*	0.110	0.063	-0.059	-0.177	-0.307**	0.393***

Panel A. continued

	dcfocfo2	cscore2	gscore2	size2	level2	mtb2	epsp3	dr3	r3	drr3
dcfocfo2	1.000									
cscore2	-0.015	1.000								
gscore2	0.097	0.831***	1.000							
size2	0.309***	-0.059	0.379***	1.000						
level2	0.027	-0.889***	-0.525***	0.188	1.000					
mtb2	-0.147	0.485***	0.577***	-0.309***	-0.108	1.000				
epsp3	0.236*	0.114	0.244**	0.253**	-0.026	0.068	1.000			
dr3	-0.130	-0.031	-0.188	-0.178	-0.097	-0.179	-0.355***	1.000		
r3	0.171	0.155	0.238*	0.114	-0.058	0.186	0.331***	-0.551***	1.000	
drr3	0.364***	0.089	0.311***	0.429***	0.033	0.024	0.572***	-0.711***	0.587***	1.000
accrb3	0.015	0.159	0.263**	0.273**	-0.099	0.006	0.376***	-0.255**	0.106	0.332***
dcfo3	-0.570***	-0.151	-0.202*	-0.298**	0.164	0.178	-0.404***	0.177	-0.232*	-0.459***
cfo3	0.434***	0.306**	0.298**	0.081	-0.263**	0.126	0.533***	-0.281**	0.272**	0.413***
dcfocfo3	0.534***	0.170	0.258**	0.260**	-0.119	-0.006	0.543***	-0.204*	0.223*	0.458***
cscore3	0.142	0.314***	0.322***	0.140	-0.273**	0.087	0.148	-0.240**	0.182	0.262**

Panel A. continued

	dcfocfo2	cscore2	gscore2	size2	level2	mtb2	epsp3	dr3	r3	drr3
gscore3	-0.211*	-0.441***	-0.672***	-0.760***	0.339***	0.135	-0.257**	0.158	-0.169	-0.391***
size3	0.260**	-0.039	0.409***	0.980***	0.182	-0.311***	0.262**	-0.146	0.108	0.401***
level3	0.123	-0.690***	-0.347***	0.364***	0.767***	-0.243**	0.051	-0.068	-0.036	0.095
mtb3	0.150	0.229*	0.262**	0.146	-0.182	0.072	0.147	-0.249**	0.177	0.263**

Panel A. continued

	accrb3	dcfo3	cfo3	dcfocfo3	cscore3	gscore3	size3	level3	mtb3
accrb3	1.000								
dcfo3	-0.062	1.000							
cfo3	0.032	-0.669***	1.000						
dcfocfo3	0.082	-0.757***	0.710***	1.000					
cscore3	0.269**	-0.187	0.296**	0.095	1.000				
gscore3	-0.333***	0.312***	-0.223*	-0.261**	-0.482***	1.000			
size3	0.237*	-0.289**	0.053	0.281**	0.112	-0.759***	1.000		
level3	-0.074	-0.017	-0.172	0.053	-0.227*	0.269**	0.386***	1.000	
mtb3	0.254**	-0.180	0.278**	0.091	0.992***	-0.421***	0.119	-0.113	1.000

Panel B. Correlations between conservatism proxies, board characteristics, and control variables at year Y-1

	epsp1	dr1	r1	drr1	accrb1	dcfo1	cfo1	dcfocfo1	cscore1	gscore1	dual1	ned1
epsp1	1.000											
dr1	-0.094	1.000										
r1	0.255**	-0.829***	1.000									
drr1	0.279**	-0.738***	0.871***	1.000								
accrb1	0.274**	-0.166	0.124	0.189	1.000							
dcfo1	-0.194*	0.053	-0.090	-0.097	0.145	1.000						
cfo1	0.243**	-0.030	0.126	0.140	-0.278**	-0.641***	1.000					
dcfocfo1	0.161	-0.076	0.158	0.209*	-0.118	-0.652***	0.654***	1.000				
cscore1	-0.050	0.039	-0.106	-0.138	0.048	0.259**	-0.168	-0.380***	1.000			
gscore1	-0.187*	0.138	-0.225**	-0.308***	0.063	0.182	0.017	-0.295***	0.595***	1.000		
dual1	-0.191*	0.004	0.000	0.146	0.081	0.058	0.031	0.009	0.067	-0.051	1.000	
ned1	-0.126	-0.133	0.120	-0.005	-0.038	0.150	-0.254**	-0.172	0.131	-0.046	-0.046	1.000
auditn1	-0.017	-0.050	0.106	0.120	0.272**	0.034	-0.223**	-0.095	-0.164	-0.308***	-0.013	0.248**
ceoown1^2	0.056	0.046	-0.043	0.026	-0.083	-0.056	0.472***	0.038	0.125	0.178	0.085	-0.205*
exeown1^2	0.066	0.076	-0.051	0.021	-0.146	-0.054	0.484***	0.042	0.135	0.196*	0.055	-0.262**
nedown1	0.061	-0.022	-0.108	-0.125	0.220*	-0.001	0.013	-0.018	0.180	0.249**	-0.085	0.214*
insti1	-0.049	0.063	-0.010	-0.010	-0.099	0.157	-0.208*	-0.045	0.289***	-0.020	0.071	0.088
size1	0.171	-0.111	0.204*	0.271**	-0.057	-0.275**	0.106	0.390***	-0.877***	-0.903***	-0.010	-0.062
level1	-0.056	-0.058	0.056	0.116	-0.048	0.209*	-0.327***	-0.094	0.192*	-0.579***	0.134	0.283**
mtb1	0.453***	-0.160	0.237**	0.275**	0.135	-0.266**	0.166	0.095	0.298***	-0.236**	0.036	-0.096
pe1	0.048	-0.047	-0.016	0.055	0.185	-0.039	-0.053	0.015	0.068	0.014	-0.015	-0.109
boar1	0.113	0.085	0.000	-0.005	0.050	0.358***	-0.270**	-0.258**	-0.307***	-0.319***	-0.040	-0.061
bsize1	0.098	0.096	-0.017	-0.018	0.062	0.371***	-0.280**	-0.267**	-0.329***	-0.328***	-0.044	-0.090

Panel B. continued

	auditn1	ceoown1^2	exeown1^2	nedown1	insti1	size1	level1	mtb1	pe1	boar1	bsize1
auditn1	1.000										
ceoown1^2	-0.105	1.000									
exeown1^2	-0.161	0.984***	1.000								
nedown1	-0.057	-0.027	-0.035	1.000							
insti1	-0.054	-0.173	-0.176	-0.241**	1.000						
size1	0.254**	-0.163	-0.178	-0.249**	-0.141	1.000					
level1	0.278**	-0.134	-0.149	-0.074	0.266**	0.204*	1.000				
mtb1	-0.059	0.051	0.054	-0.111	0.201*	0.044	0.121	1.000			
pe1	-0.052	-0.032	-0.028	-0.012	0.049	-0.045	0.047	0.027	1.000		
boar1	0.131	-0.158	-0.126	-0.114	-0.155	0.342***	0.134	-0.084	-0.036	1.000	
bsize1	0.106	-0.160	-0.127	-0.118	-0.158	0.360***	0.118	-0.082	-0.025	0.992***	1.000

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3). accrb#: (ðinventory+ðdebtors+ðother current assets-ðcreditors-ðother current liabilities-depreciation)/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). cfo#: cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfo#: dummy variable equal to 1 if cfo is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfocfo#: cash flow from operation * negative cash flow from operation at year # (#=1,2,3 denote the year y-1, y-2, y-3). cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). size#: natural logarithm of firms' total sales at year # (#=1,2,3 denote the year y-1, y-2, y-3). level#: total debts divided by total assets at year # (#=1,2,3 denote the year y-1, y-2, y-3). mtb#: market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year y-1, y-2, y-3). dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.11 Results from cross-sectional regressions of beginning of period price deflated earnings on contemporaneous annual returns based on Basu (1997) model

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + \alpha_2 r_{i,t} + \alpha_3 r_{i,t} * dr_{i,t} + \varepsilon$$

		MBOs				***third-party LBOs***		
		Y-1	*Y-2*	*Y-3*		*Y-1*	*Y-2*	*Y-3*
		Model1	Model2	Model3		Model4	Model5	Model6
Variables	Expected sign	epsp1	epsp2	epsp3	Expected sign	epsp1	epsp2	epsp3
dr1		0.061				0.128*		
		(0.199)				(0.097)		
r1	-	0.100			+	0.118		
		(0.244)				(0.201)		
drr1	+	0.336**			-	0.363*		
		(0.039)				(0.060)		
dr2			0.222				0.060	
			(0.271)				(0.285)	
r2	-/+		0.072		-/+		-0.029	
			(0.347)				(0.606)	
drr2	+/-		0.491		+/-		0.565**	
			(0.150)				(0.037)	
dr3				0.017				-0.002
				(0.602)				(0.955)
r3	+			0.017	-			-0.014
				(0.308)				(0.740)
drr3	-			0.243	+			0.231**
				(0.194)				(0.023)
Constant		0.061*	-0.072	0.089***		-0.024	0.060***	0.069***
		(0.066)	(0.695)	(0.000)		(0.737)	(0.005)	(0.000)
Observations		118	113	110		81	70	68
R-squared		0.197	0.019	0.04		0.118	0.105	0.133
F-test		4.865***	1.375	1.459		3.448**	1.69	3.286**
Prob>F		0.0032	0.254	0.23		0.0207	0.178	0.0263

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3).

Table 3.12 Results from cross-sectional regressions of beginning of period price deflated earnings on contemporaneous annual returns by controlling firm size, leverage and market to book value, based on Khan & Watts (2009) model to calculate C-score and G-score

$$\frac{x_{i,t}}{p_{i,t-1}} = \alpha_0 + \alpha_1 dr_{i,t} + r_{i,t} * \left(\delta_0 + \delta_1 mv_{i,t} + \delta_2 mtb_{i,t} + \delta_3 level_{i,t}\right) + r_{i,t} * dr_{i,t} * \left(\theta_0 + \theta_1 mv_{i,t} + \theta_2 mtb_{i,t} + \theta_3 level_{i,t}\right) + (\mu_0 + \mu_1 mv_{i,t} + \mu_2 mtb_{i,t} + \mu_3 level_{i,t} + \mu_4 dr_{i,t} * mv_{i,t} + \mu_5 dr_{i,t} * mtb_{i,t} + \mu_6 dr_{i,t} * level_{i,t} + \varepsilon$$

	Y-1			*Y-2*			*Y-3*	
	MBOs	*third-party LBOs*		*MBOs*	*third-party LBOs*		*MBOs*	*third-party LBOs*
	Model7	Model10		Model8	Model11		Model9	Model12
Variables	epsp1	epsp1	Variables	epsp2	epsp2	Variables	epsp3	epsp3
dr1	-0.311	1.638**	dr2	0.138	-0.856	dr3	0.091	0.869*
	(0.476)	(0.045)		(0.877)	(0.273)		(0.756)	(0.054)
r1	-0.764	2.199**	r2	-0.077	-1.796**	r3	-0.027	1.970
	(0.643)	(0.037)		(0.959)	(0.013)		(0.910)	(0.283)
rsize1	0.043	-0.109*	rsize2	-0.003	0.098**	rsize3	0.002	-0.115
	(0.637)	(0.053)		(0.974)	(0.012)		(0.886)	(0.291)
rmtb1	0.002	-0.003	rmtb2	-0.024	0.063*	rmtb3	-0.002**	-0.022
	(0.979)	(0.861)		(0.299)	(0.054)		(0.037)	(0.583)
rlevel1	0.680	-0.445	rlevel2	4.351	-0.658*	rlevel3	0.236	0.778*
	(0.303)	(0.542)		(0.354)	(0.051)		(0.173)	(0.053)
drr1	0.272	0.584	drr2	7.433***	-1.284	drr3	2.168***	-0.079
	(0.882)	(0.701)		(0.004)	(0.773)		(0.005)	(0.970)
drrsize1	0.007	-0.041	drrsize2	-0.400***	0.137	drrsize3	-0.128***	0.009
	(0.946)	(0.628)		(0.008)	(0.568)		(0.006)	(0.944)
drrmtb1	-0.039	0.021	drrmtb2	0.011	0.158	drrmtb3	-0.000	0.137**
	(0.568)	(0.565)		(0.809)	(0.365)		(0.980)	(0.020)
drrlevel1	-0.328	1.251	drrlevel2	-3.717	-3.986*	drrlevel3	2.717***	-0.266
	(0.768)	(0.180)		(0.432)	(0.094)		(0.000)	(0.699)
size1	0.003	0.056	size2	-0.030	0.007	size3	0.002	0.038**
	(0.846)	(0.143)		(0.459)	(0.626)		(0.628)	(0.042)
mtb1	0.011	0.002	mtb2	0.010	-0.018*	mtb3	-0.000	-0.003
	(0.492)	(0.898)		(0.303)	(0.075)		(0.160)	(0.799)
level1	-0.130	0.066	level2	-2.550	-0.190	level3	-0.125	-0.396**
	(0.398)	(0.849)		(0.346)	(0.289)		(0.120)	(0.015)
drsize1	0.026	-0.086**	drsize2	-0.015	0.055	drsize3	-0.008	-0.059**
	(0.300)	(0.046)		(0.755)	(0.182)		(0.624)	(0.025)
drmtb1	-0.026	0.023	drmtb2	-0.010	0.035**	drmtb3	0.003	0.074**
	(0.202)	(0.377)		(0.362)	(0.023)		(0.729)	(0.014)
drlevel1	-0.264	-0.122	drlevel2	2.787	-0.888	drlevel3	0.497***	0.531*
	(0.380)	(0.738)		(0.306)	(0.217)		(0.003)	(0.057)
Constant	0.000	-1.036	Constant	0.707	0.030	Constant	0.068	-0.537
	(0.999)	(0.156)		(0.334)	(0.912)		(0.457)	(0.121)

Observations	118	81	Observations	113	70	Observations	110	68
R-squared	0.248	0.986	R-squared	0.113	0.663	R-squared	0.839	0.491
F-test	2.239***	301.4***	F-test	2.763***	2.78***	F-test	32.62***	5.278***
Prob>F	0.009	0.000	Prob>F	0.001	0.003	Prob>F	0.000	0.000

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp#: eps before extraordinary item/price at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). r#: share returns from 9 months before year # end to three months after the year # end, # (#=1,2,3 denote the year y-1, y-2, y-3). dr#: dummy variable coded 1 if share return (r#) is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). drr#: share return (r#) * negative returns (dr#) at year # (#=1,2,3 denote the year y-1, y-2, y-3). size#: natural logarithm of firms' total sales at year # (#=1,2,3 denote the year y-1, y-2, y-3). level#: total debts divided by total assets at year # (#=1,2,3 denote the year y-1, y-2, y-3). mtb#: market value of equity divided by the book value of equity at year # (#=1,2,3 denote the year y-1, y-2, y-3).

Table 3.13 Descriptive statistics of C-score and G-score

Panel A. MBOs

variables	***N***	***mean***	***p50***	***sd***	***min***	***p25***	***p75***	***max***
gscore1	119	0.131	0.126	0.126	-0.183	0.036	0.225	0.481
gscore2	118	0.544	0.395	0.745	-2.733	0.032	0.916	3.007
gscore3	113	0.035	0.035	0.072	-0.580	0.008	0.061	0.247
cscore1	119	0.254	0.275	0.235	-2.149	0.230	0.339	0.408
cscore2	118	-0.271	-0.303	0.878	-2.278	-0.913	0.368	2.643
cscore3	113	0.371	0.274	0.477	-0.577	0.066	0.548	2.731

Panel B. third-party LBOs

variables	***N***	***mean***	***p50***	***sd***	***min***	***p25***	***p75***	***max***
gscore1	87	0.055	0.055	0.241	-0.489	-0.082	0.179	1.109
gscore2	83	0.003	0.002	0.223	-0.977	-0.128	0.170	0.429
gscore3	74	-0.016	-0.006	0.224	-0.502	-0.173	0.081	0.948
cscore1	87	-6.558	-6.605	0.782	-8.583	-6.960	-6.242	-3.428
cscore2	83	0.657	0.757	0.845	-3.391	0.276	1.263	2.009
cscore3	74	0.328	0.297	0.377	-1.350	0.199	0.432	2.353

cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3).

Table 3.14 Correlations between C-score and G-score at year Y-1, Y-2, and Y-3 , based on Khan & Watts (2009) model

Panel A. MBOs

	gscore1	gscore2	gscore3	cscore1	cscore2	cscore3
gscore1	1.000					
gscore2	0.622***	1.000				
gscore3	0.392***	0.234**	1.000			
cscore1	-0.229**	0.285***	-0.201**	1.000		
cscore2	-0.840***	-0.700***	-0.287***	-0.065	1.000	
cscore3	0.383***	0.670***	0.456***	-0.051	-0.281***	1.000

Panel B. third-party LBOs

	gscore1	gscore2	gscore3	cscore1	cscore2	cscore3
gscore1	1.000					
gscore2	-0.218**	1.000				
gscore3	0.442***	-0.687***	1.000			
cscore1	0.491***	-0.605***	0.831***	1.000		
cscore2	0.311***	0.821***	-0.501***	-0.278**	1.000	
cscore3	-0.026	0.420***	-0.377***	-0.197*	0.354***	1.000

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. cscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3). gscore#: is linear functions of firm specific characteristics include firm size, market to book value and leverage, in khan and watts (2009), at year # (#=1,2,3 denote the year y-1, y-2, y-3).

Table 3.15 Relation between asymmetric timeliness (accounting conservatism) and board characteristics at year Y-1. Dependent variable: EPS before extraordinary item divided by the price at the beginning of year Basu (1997) model

		MBOs			***third-party LBOs***	
		Model13	Model14		Model15	Model16
Variables	Expected Sign	epsp1	epsp1	Expected Sign	epsp1	epsp1
dr1		-1.525	-1.474		-2.093	-1.785
		(0.150)	(0.188)		(0.184)	(0.259)
r1		-4.832**	-4.320*		-6.288**	-4.381**
		(0.030)	(0.059)		(0.043)	(0.033)
drr1		0.269	-1.010		8.559**	6.606**
		(0.956)	(0.847)		(0.032)	(0.043)
dual1		0.034	0.031		-2.664***	-2.607***
		(0.775)	(0.784)		(0.000)	(0.000)
drdual1		-0.008	-0.013		2.712***	2.656***
		(0.961)	(0.930)		(0.000)	(0.000)
rdual1	-	-0.258	-0.238	+	8.457***	7.995***
		(0.359)	(0.298)		(0.000)	(0.000)
drrdual1	+	0.237	0.217	-	-8.709***	-8.245***
		(0.607)	(0.610)		(0.000)	(0.000)
ned1		-0.262	-0.244		-1.116	-0.967
		(0.657)	(0.651)		(0.182)	(0.151)
drned1		0.753	0.716		2.305**	2.160**
		(0.264)	(0.256)		(0.050)	(0.043)
rned1	+	1.324	1.230	-	1.412	1.082
		(0.295)	(0.329)		(0.462)	(0.365)
drrned1	-	0.773	0.944	+	2.599	2.915*
		(0.671)	(0.619)		(0.258)	(0.095)
auditn1		-0.053	-0.052		-1.458***	-1.298***
		(0.628)	(0.639)		(0.000)	(0.000)
drauditn1		-0.086	-0.091		0.979**	0.855**
		(0.553)	(0.538)		(0.025)	(0.042)
rauditn1	+	0.607	0.575	-	3.919***	3.435***
		(0.105)	(0.116)		(0.001)	(0.002)
drrauditn1	-	-0.893*	-0.851*	+	-5.175***	-4.640***
		(0.053)	(0.062)		(0.000)	(0.000)
ceoown1		0.264				
		(0.552)				
drceoown1		-0.320				
		(0.515)				
rceoown1	-	-0.282				

		(0.692)				
drrceoown1	+	0.194				
		(0.873)				
exeown1			0.336			
			(0.381)			
drexeown1			-0.360			
			(0.423)			
rexeown1	-		-0.506			
			(0.441)			
drrexeown1	+		0.801			
			(0.523)			
ceoown1^2					8.494***	
					(0.000)	
drceoown1^2					-8.127***	
					(0.001)	
rceoown1^2				-	-48.755***	
					(0.003)	
drrceoown1^2				+	48.111***	
					(0.003)	
exeown1^2						9.534***
						(0.000)
drexeown1^2						-9.264***
						(0.000)
rexeown1^2				-		-55.310***
						(0.000)
drrexeown1^2				+		54.634***
						(0.000)
nedown1		0.317	0.321		-3.246***	-4.441***
		(0.236)	(0.235)		(0.009)	(0.001)
drnedown1		0.293	0.326		1.330	2.505*
		(0.545)	(0.506)		(0.327)	(0.070)
rnedown1	+	2.798	2.429	-	19.387***	25.693***
		(0.213)	(0.252)		(0.005)	(0.000)
drrnedown1	-	-0.458	0.199	+	-28.091***	-34.476***
		(0.876)	(0.945)		(0.000)	(0.000)
insti1		0.551***	0.560***		1.337**	1.194**
		(0.007)	(0.008)		(0.041)	(0.011)
drinsti1		-0.649**	-0.661**		-0.716	-0.574
		(0.049)	(0.048)		(0.440)	(0.479)
rinsti1	-	-2.448***	-2.471***	-	-4.338*	-4.117**
		(0.002)	(0.003)		(0.090)	(0.019)
drrinsti1	+	2.339**	2.466**	+	4.776*	4.553**
		(0.024)	(0.020)		(0.093)	(0.034)
level1		-0.150	-0.139		0.917***	0.803***

	(0.613)	(0.638)	(0.001)	(0.000)
drlevel1	-0.250	-0.266	-1.069**	-0.945**
	(0.542)	(0.517)	(0.021)	(0.028)
rlevel1	-0.231	-0.151	-2.924***	-2.061***
	(0.795)	(0.853)	(0.001)	(0.000)
drrlevel1	-0.014	-0.105	4.235***	3.435***
	(0.991)	(0.934)	(0.006)	(0.009)
mtb1	-0.052	-0.054	0.016	0.011
	(0.130)	(0.108)	(0.354)	(0.357)
drmtb1	0.023	0.025	0.024	0.030
	(0.537)	(0.496)	(0.600)	(0.511)
rmtb1	0.372**	0.372**	-0.025	-0.025
	(0.031)	(0.030)	(0.649)	(0.331)
drrmtb1	-0.436**	-0.437**	0.064	0.064
	(0.014)	(0.013)	(0.458)	(0.365)
size1	-0.036	-0.029	-0.008	0.003
	(0.326)	(0.461)	(0.819)	(0.905)
drsize1	0.119**	0.116**	-0.002	-0.013
	(0.029)	(0.044)	(0.959)	(0.759)
rsize1	0.340**	0.317**	0.002	-0.075
	(0.014)	(0.015)	(0.990)	(0.336)
drrsize1	-0.111	-0.057	-0.125	-0.050
	(0.664)	(0.828)	(0.413)	(0.628)
pe1	0.001	0.001	-0.001**	-0.001***
	(0.808)	(0.770)	(0.014)	(0.002)
drpe1	-0.004	-0.005	0.004	0.003
	(0.343)	(0.312)	(0.209)	(0.243)
rpe1	0.014**	0.013**	0.001	-0.000
	(0.021)	(0.027)	(0.709)	(0.844)
drrpe1	-0.031**	-0.030**	0.006	0.007
	(0.028)	(0.021)	(0.346)	(0.229)
boar1	0.345***	0.337**	-0.258	-0.267
	(0.008)	(0.010)	(0.525)	(0.419)
drboar1	-0.306	-0.280	0.162	0.169
	(0.266)	(0.313)	(0.780)	(0.749)
rboar1	-0.969*	-0.966**	1.890	1.867*
	(0.072)	(0.050)	(0.209)	(0.057)
drrboar1	1.066	1.111	-2.362	-2.323*
	(0.193)	(0.151)	(0.170)	(0.071)
Constant	0.075	-0.056	2.144**	1.799**
	(0.907)	(0.935)	(0.015)	(0.027)
Observations	117	117	80	80
R-squared	0.51	0.513	0.919	0.922

F-test	7.096***	7.252***		4653***	4842***
Prob>F	0	0		0	0

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp1: eps before extraordinary item/price at the beginning of year y-1. r1: share returns from 9 months before year 1 end to three months after the year 1 end, 1 (1=1,2,3 denote the year y-1, y-2, y-3). dr1: dummy variable coded 1 if share return (r1) is negative, 0 otherwise at year y-1. drr1: share return (r1) * negative returns (dr1) at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.16 Results from cross-sectional regressions of accruals on cash from operations based on Ball & Shivakumar (2005) model

		MBOs				*third-party LBOs*		
		Y-1	*Y-2*	*Y-3*		*Y-1*	*Y-2*	*Y-3*
		Model17	Model18	Model19		Model20	Model21	Model22
Variables	Expected sign	accrb1	accrb2	accrb3	Expected sign	accrb1	accrb2	accrb3
dcfo1		0.133				-0.006		
		(0.162)				(0.856)		
cfo1	-	-0.212**			+	-0.280***		
		(0.036)				(0.004)		
dcfocfo1	+	0.809*			-	0.219		
		(0.067)				(0.311)		
dcfo2			0.079				0.093	
			(0.391)				(0.171)	
cfo2	-/+		-0.334**		-/+		-0.364**	
			(0.011)				(0.023)	
dcfocfo2	+/-		0.401***		+/-		0.424***	
			(0.003)				(0.010)	
dcfo3				-0.069**				0.001
				(0.036)				(0.995)
cfo3	+			-0.447***	-			-0.066
				(0.000)				(0.823)
dcfocfo3	-			-0.822**	+			0.392
				(0.016)				(0.658)
Constant		-0.041***	0.003	0.022		-0.025**	-0.003	-0.030
		(0.001)	(0.837)	(0.226)		(0.049)	(0.829)	(0.443)
Observations		110	113	99		78	78	72
R-squared		0.063	0.083	0.348		0.103	0.118	0.008
F-test		2.383*	3.299**	13.49***		4.594***	3.309**	0.104
Prob>F		0.0735	0.0232	2.09E-07		0.00528	0.0247	0.958

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. accrb#: (δinventory + δdebtors + δother current assets – δcreditors - δother current liabilities - depreciation) / total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). cfo#: cash flow from operation/total assets at the beginning of year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfo#: dummy variable equal to 1 if cfo is negative, 0 otherwise at year # (#=1,2,3 denote the year y-1, y-2, y-3). dcfocfo#: cash flow from operation * negative cash flow from operation at year # (#=1,2,3 denote the year y-1, y-2, y-3).

Table 3.17 Information disclosure descriptive statistics on MBO deals and third-party LBO deals at year Y-1, Y-2, and Y-3, based on Banker et al. (2012) modified C-score model

Panel A: C-Score (Bad news) compare MBOs with third-party LBOs

	MBOs		***third-party LBOs***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
Y-1	118	0.392	81	-1.592	1.437	(0.152)
Y-3	110	0.060	68	0.359	-2.781***	(0.006)

Panel B: C-Score (Bad news) compare year Y-1 with Y-2

	Y-1		***Y-2***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	118	0.392	113	0.519	-0.746	(0.457)

Panel C: C-Score (Bad news) compare year Y-1 with Y-3

	Y-1		***Y-3***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	118	0.392	110	0.060	2.589***	(0.010)
third-party LBOs	81	-1.592	68	0.359	-1.075	(0.284)

Panel D: C-Score (Bad news) compare year Y-2 with Y-3

	Y-2		***Y-3***		***Significance tests***	
	Observations	*Mean*	*Observations*	*Mean*	*t*	*p > |t|*
MBOs	113	0.519	110	0.060	3.218**	(0.002)

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. cscore: is a linear function of firm specific characteristics includes firm size, market to book value and leverage in Khan and Watts (2009).

Table 3.18 Relation between asymmetric timeliness (accounting conservatism) and board characteristics at year Y-1. Dependent variable: C-score (bad news) based on Khan & Watts (2009) model

	MBOs			***third-party LBOs***		
		Model23	Model24		Model25	Model26
Variables	Expected Sign	cscore1	cscore1	Expected Sign	cscore1	cscore1
dual1	+	0.035	0.034	-	0.101	0.109
		(0.277)	(0.276)		(0.619)	(0.594)
ned1	-	-0.115	-0.104	+	0.845	0.929
		(0.190)	(0.225)		(0.218)	(0.174)
auditn1	-	-0.026	-0.020	+	-0.209	-0.185
		(0.549)	(0.620)		(0.347)	(0.387)
ceoown1	+	-0.072				
		(0.284)				
exeown1	+		-0.012			
			(0.828)			
ceoown1^2				+	2.191*	
					(0.086)	
exeown1^2				+		2.107*
						(0.093)
nedown1	-	0.080	0.094	+	2.243	2.257
		(0.424)	(0.379)		(0.245)	(0.242)
insti1	+	-0.017	0.002	+	1.260**	1.282**
		(0.703)	(0.965)		(0.025)	(0.022)
pe1		-0.001	-0.001		0.001	0.001
		(0.525)	(0.554)		(0.536)	(0.529)
boar1		-0.036	-0.035		-0.762**	-0.763***
		(0.473)	(0.485)		(0.010)	(0.009)
Constant		0.386***	0.361***		-5.966***	-6.047***
		(0.000)	(0.000)		(0.000)	(0.000)
Observations		118	118		85	85
R-squared		0.019	0.018		0.246	0.253
F-test		1.062	0.887		4.007***	4.08***
Prob>F		0.395	0.53		0.000522	0.000441

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. cscore1: is a linear function of firm specific characteristics includes firm size, market to book value and leverage in khan and watts (2009), at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. boar1: natural logarithm of the number of board directors at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.19 Sensitivity analysis by changing the form to measure board size. Relation between asymmetric timeliness (accounting conservatism) and board characteristics at year Y-1, based on Basu (1997) model. Dependent variable: EPS before extraordinary item divided by the price at the beginning of year

	MBOs			***third-party LBOs***		
		Model27	Model28		Model29	Model30
Variables	Expected Sign	epsp1	epsp1	Expected Sign	epsp1	epsp1
dr1		-1.849*	-1.783*		-1.872	-1.572
		(0.070)	(0.098)		(0.122)	(0.195)
r1		-5.893***	-5.432**		-4.639	-2.794
		(0.007)	(0.016)		(0.242)	(0.283)
drr1		1.322	0.131		6.509	4.627
		(0.786)	(0.980)		(0.138)	(0.152)
dual1		0.034	0.030		-2.585***	-2.538***
		(0.775)	(0.791)		(0.000)	(0.000)
drdual1		-0.002	-0.006		2.636***	2.590***
		(0.990)	(0.966)		(0.000)	(0.000)
rdual1	-	-0.282	-0.250	+	8.215***	7.805***
		(0.283)	(0.243)		(0.000)	(0.000)
drrdual1	+	0.266	0.235	-	-8.452***	-8.041***
		(0.554)	(0.575)		(0.000)	(0.000)
ned1		-0.294	-0.281		-0.805	-0.679
		(0.626)	(0.611)		(0.392)	(0.310)
drned1		0.798	0.761		2.006	1.882*
		(0.244)	(0.236)		(0.104)	(0.071)
rned1	+	1.533	1.464	-	1.006	0.691
		(0.232)	(0.250)		(0.648)	(0.599)
drrned1	-	0.573	0.712	+	3.072	3.371*
		(0.755)	(0.710)		(0.221)	(0.060)
auditn1		-0.044	-0.044		-1.479***	-1.323***
		(0.689)	(0.697)		(0.000)	(0.000)
drauditn1		-0.104	-0.108		0.987**	0.867**
		(0.462)	(0.451)		(0.025)	(0.044)
rauditn1	+	0.575	0.545	-	4.106***	3.622***
		(0.123)	(0.133)		(0.001)	(0.002)
drrauditn1	-	-0.885*	-0.844*	+	-5.392***	-4.855***
		(0.050)	(0.058)		(0.000)	(0.000)
ceoown1		0.257				
		(0.565)				
drceoown1		-0.319				
		(0.520)				

rceoown1	-	-0.213				
		(0.767)				
drrceoown1	+	0.116				
		(0.924)				
exeown1			0.323			
			(0.404)			
drexeown1			-0.356			
			(0.430)			
rexeown1	-		-0.425			
			(0.522)			
drrexeown1	+		0.706			
			(0.577)			
ceoown1^2					8.212***	
					(0.001)	
drceoown1^2					-7.854***	
					(0.002)	
rceoown1^2				-	-45.294***	
					(0.007)	
drrceoown1^2				+	44.598***	
					(0.008)	
exeown1^2						9.232***
						(0.000)
drexeown12						-8.967***
						(0.000)
rexeown12				-		-51.925***
						(0.000)
drrexeown1^2				+		51.201***
						(0.001)
nedown1		0.323	0.327		-2.958**	-4.092***
		(0.235)	(0.234)		(0.016)	(0.001)
drnedown1		0.270	0.303		1.042	2.154
		(0.572)	(0.532)		(0.433)	(0.108)
rnedown1	+	2.799	2.442	-	17.829**	23.823***
		(0.186)	(0.228)		(0.011)	(0.000)
drrnedown1	-	-0.489	0.159	+	-26.601***	-32.678***
		(0.863)	(0.955)		(0.000)	(0.000)
insti1		0.576***	0.580***		1.127	1.014**
		(0.004)	(0.005)		(0.103)	(0.029)
drinsti1		-0.683**	-0.693**		-0.510	-0.398
		(0.035)	(0.034)		(0.585)	(0.613)
rinsti1	-	-2.487***	-2.486***	-	-3.648	-3.527*
		(0.002)	(0.002)		(0.181)	(0.059)
drrinsti1	+	2.375**	2.476**	+	4.070	3.950*
		(0.020)	(0.018)		(0.171)	(0.075)

level1	-0.140	-0.130	0.835***	0.731***
	(0.639)	(0.664)	(0.004)	(0.001)
drlevel1	-0.258	-0.273	-0.976**	-0.861**
	(0.537)	(0.515)	(0.037)	(0.043)
rlevel1	-0.335	-0.248	-2.826***	-2.023***
	(0.696)	(0.751)	(0.003)	(0.001)
drrlevel1	0.098	0.003	4.187***	3.447***
	(0.940)	(0.998)	(0.007)	(0.010)
mtb1	-0.053	-0.055*	0.013	0.009
	(0.113)	(0.089)	(0.449)	(0.485)
drmtb1	0.023	0.025	0.027	0.032
	(0.533)	(0.491)	(0.554)	(0.476)
rmtb1	0.384**	0.384**	-0.020	-0.022
	(0.020)	(0.016)	(0.733)	(0.532)
drrmtb1	-0.451***	-0.451***	0.059	0.061
	(0.008)	(0.006)	(0.498)	(0.406)
size1	-0.040	-0.033	-0.014	-0.004
	(0.283)	(0.409)	(0.669)	(0.888)
drsize1	0.123**	0.120**	0.006	-0.004
	(0.025)	(0.038)	(0.897)	(0.919)
rsize1	0.358***	0.336***	0.013	-0.061
	(0.009)	(0.009)	(0.930)	(0.547)
drrsize1	-0.128	-0.074	-0.135	-0.062
	(0.614)	(0.777)	(0.423)	(0.611)
pe1	0.001	0.001	-0.001*	-0.001**
	(0.781)	(0.747)	(0.055)	(0.022)
drpe1	-0.005	-0.005	0.004	0.003
	(0.309)	(0.284)	(0.218)	(0.250)
rpe1	0.014**	0.013**	0.001	-0.000
	(0.018)	(0.027)	(0.762)	(0.880)
drrpe1	-0.030**	-0.030**	0.006	0.007
	(0.027)	(0.021)	(0.330)	(0.219)
bsize1	0.058***	0.056***	-0.017	-0.020
	(0.006)	(0.008)	(0.784)	(0.699)
drbsize1	-0.045	-0.041	-0.001	0.001
	(0.280)	(0.335)	(0.991)	(0.987)
rbsize1	-0.172**	-0.169**	0.222	0.224
	(0.035)	(0.024)	(0.355)	(0.174)
drrbsize1	0.199	0.203*	-0.300	-0.299
	(0.110)	(0.085)	(0.265)	(0.143)
Constant	0.400	0.270	1.836**	1.494**
	(0.536)	(0.695)	(0.015)	(0.032)
Observations	117	117	80	80

R-squared	0.512	0.515		0.918	0.921
F-test	6.675***	6.744***		4258***	7101***
Prob>F	0.000	0.000		0.000	0.000

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. epsp1: eps before extraordinary item/price at the beginning of year y-1. r1: share returns from 9 months before year 1 end to three months after the year 1 end, 1 (1=1,2,3 denote the year y-1, y-2, y-3). dr1: dummy variable coded 1 if share return (r1) is negative, 0 otherwise at year y-1. drr1: share return (r1) * negative returns (dr1) at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 3.20 Sensitivity analysis by changing the form to measure board size. Relation between asymmetric timeliness (accounting conservatism) and board characteristics at year Y-1, based on Basu (1997) model. Dependent variable: C-score (bad news)

	MBOs			***third-party LBOs***		
		Model31	Model32		Model33	Model34
VARIABLES	*Expected Sign*	*cscore1*	*cscore1*	*Expected Sign*	*cscore1*	*cscore1*
dual1	+	0.038	0.038	-	0.097	0.104
		(0.239)	(0.238)		(0.637)	(0.613)
ned1	-	-0.110	-0.098	+	0.801	0.884
		(0.205)	(0.244)		(0.243)	(0.196)
auditn1	-	-0.030	-0.024	+	-0.213	-0.190
		(0.493)	(0.555)		(0.334)	(0.372)
ceoown1	+	-0.072				
		(0.276)				
exeown1	+		-0.012			
			(0.829)			
ceoown1^2				+	2.118*	
					(0.093)	
exeown1^2				+		2.050*
						(0.099)
nedown1	-	0.080	0.093	+	2.211	2.226
		(0.426)	(0.380)		(0.250)	(0.247)
insti1	+	-0.018	0.001	+	1.249**	1.271**
		(0.687)	(0.985)		(0.025)	(0.022)
pe1		-0.001	-0.001		0.001	0.001
		(0.504)	(0.533)		(0.536)	(0.529)
bsize1		-0.002	-0.002		-0.124***	-0.124***
		(0.785)	(0.816)		(0.004)	(0.004)
Constant		0.337***	0.312***		-6.525***	-6.608***
		(0.000)	(0.000)		(0.000)	(0.000)
Observations		118	118		85	85
R-squared		0.019	0.017		0.254	0.261
F-test		0.866	0.688		4.234***	4.314***
Prob>F		0.548	0.701		0.000308	0.000256

Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1. cscore1: is linear functions of firm specific characteristics include firm size, market to book value and leverage in khan and watts (2009), at year y-1. size1: natural logarithm of firms' total sales at year y-1. level1: total debts divided by total assets at year y-1. mtb1: market value of equity divided by the book value of equity at year y-1. dual1: dummy variable coded 1 if the ceo is also the chairman of the board, 0 otherwise at year y-1. ned1: number of non-executive directors divided by the total number of board directors at year y-1. auditn1: audit committee independence, dummy variable equals to 1 if all the members in audit committee are non-executives, 0 otherwise at year y-1. ceoown1: ceo share ownership as a percentage of the total number of outstanding shares at year y-1. ceoown1^2: the square of the ceo share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1: executive share ownership as a percentage of the total number of outstanding shares at year y-1. exeown1^2: the square of the executive share ownership as a percentage of the total number of outstanding shares at year y-1. nedown1: total common shares held by non-executive directors divided by total common shares outstanding at year y-1. insti1: total common shares held by institutional investors divided by total common shares outstanding at year y-1. bsize1: number of board directors on the board at year y-1. pe1: the industry-adjusted price earnings ratio at year y-1.

Table 4.22 Descriptive statistics on takeover premiums, board structures, board effectiveness and control variables for third-party LBOs

variables	N	mean	p50	sd	min	p25	p75	max
prem	76	0.358	0.300	0.468	-0.994	0.134	0.474	2.286
bsize	76	6.763	7.000	1.574	4.000	5.500	8.000	10.000
ned	76	0.536	0.563	0.118	0.222	0.444	0.625	0.750
dual	76	0.105	0.000	0.309	0.000	0.000	0.000	1.000
cscore	76	-6.532	-6.597	0.766	-8.583	-6.900	-6.245	-3.427
*sta bsize *sta cscore*	76	-0.189	-0.050	0.527	-2.168	-0.372	0.098	1.100
*sta ned *sta cscore*	76	0.069	0.030	0.616	-1.954	-0.174	0.230	2.724
*dual *sta cscore*	76	0.006	0.000	0.237	-0.451	0.000	0.000	1.915
size total assets (£000)	76	546,444.900	104,704.500	1,532,222	6,776	42,148.500	445,330	11,700,000
size ln(total assets)	76	18.663	18.464	1.666	15.729	17.557	19.914	23.186
roa	76	0.018	0.051	0.147	-0.564	0.007	0.089	0.315
bown	76	0.102	0.029	0.143	0.000	0.003	0.146	0.746
lnnas non-audit fees (£000)	76	324.263	107	607.481	5	55	326	4,300
lnnas ln(non-audit fees)	76	4.895	4.671	1.329	1.609	4.005	5.787	8.366
level	76	0.589	0.552	0.242	0.060	0.471	0.663	1.774
fcf	76	-0.011	0.009	0.110	-0.417	-0.048	0.049	0.201
pea	76	1.407	-3.025	70.768	-242.180	-10.365	4.700	510.100
big4	76	0.868	1.000	0.340	0.000	1.000	1.000	1.000
ceoch	76	0.066	0.000	0.250	0.000	0.000	0.000	1.000
sg	76	0.237	0.085	0.757	-0.895	-0.008	0.222	5.169

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size (£000): Firm size is measured using the total assets of firms. Size: ln total assets in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas (£000): The audit independence is measured using the non-audit fees of firms. Lnnas: ln non-audit fees in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: is calculated by the funds from operation minus capital expenditure and cash dividend deflated by total assets in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.23 Descriptive statistics on takeover premiums, board structures, board effectiveness and control variables for MBOs

variables	N	mean	p50	sd	min	p25	p75	max
prem	106	0.415	0.397	0.314	-0.600	0.237	0.574	1.716
bsize	106	6.142	6.000	1.576	3.000	5.000	7.000	11.000
ned	106	0.445	0.429	0.148	0.000	0.375	0.500	0.750
dual	106	0.283	0.000	0.453	0.000	0.000	1.000	1.000
cscore	106	0.256	0.288	0.247	-2.149	0.244	0.339	0.408
*sta bsize *sta cscore*	106	-0.044	-0.007	0.437	-2.641	-0.207	0.062	1.743
*sta ned *sta cscore*	106	-0.071	-0.008	0.481	-3.952	-0.138	0.108	0.886
*dual *sta cscore*	106	0.061	0.000	0.175	-0.391	0.000	0.000	0.507
size total assets (£000)	106	133,181.600	54,727.500	363,045	1,370	27,809	117,899	3,376,400
size ln(total assets)	106	17.812	17.818	1.262	14.130	17.141	18.585	21.940
roa	106	0.048	0.062	0.141	-0.597	0.014	0.112	0.539
bown	106	0.200	0.110	0.213	0.000	0.014	0.336	0.733
lnnas non-audit fees (£000)	106	131.008	65.500	196.270	2.000	25.000	160.213	1,322
lnnas ln(non-audit fees)	106	4.071	4.182	1.382	0.693	3.219	5.077	7.187
level	106	0.504	0.492	0.185	0.095	0.387	0.637	1.122
fcf	106	-0.008	0.015	0.137	-0.980	-0.045	0.044	0.369
pea	106	-3.314	-4.425	16.923	-58.720	-12.470	3.120	84.570
big4	106	0.698	1.000	0.461	0.000	0.000	1.000	1.000
ceoch	106	0.085	0.000	0.280	0.000	0.000	0.000	1.000
sg	105	0.394	0.039	2.292	-0.554	-0.052	0.159	21.687

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size (£000): Firm size is measured using the total assets of firms. Size: ln total assets in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas (£000): The audit independence is measured using the non-audit fees of firms. Lnnas: ln non-audit fees in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: is calculated by the funds from operation minus capital expenditure and cash dividend deflated by total assets in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.24 Pearson Correlations among board structures, board effectiveness and control variables for third-party LBO deals

	prem	bsize	ned	dual	cscore	sta bsize	sta ned	sta cscore	sta bsize *sta cscore	sta ned *sta cscore
prem	1									
bsize	-0.079	1								
ned	-0.085	-0.054	1							
dual	-0.006	-0.003	-0.014	1						
cscore	0.005	-0.284**	0.111	0.05	1					
sta bsize	-0.079	1.000***	-0.054	-0.003	-0.284**	1				
sta ned	-0.085	-0.054	1.000***	-0.014	0.111	-0.054	1			
sta cscore	0.005	-0.284**	0.111	0.05	1.000***	-0.284**	0.111	1		
sta bsize *sta cscore	-0.046	-0.212*	0.075	0.104	0.248**	-0.212*	0.075	0.248**	1	
sta ned *sta cscore	0.083	0.038	0.048	0.205*	0.482***	0.038	0.048	0.482***	-0.068	1
dual *sta cscore	-0.098	-0.015	0.215*	0.076	0.326***	-0.015	0.215*	0.326***	0.099	0.460***
size	-0.069	0.444***	0.091	-0.017	-0.552***	0.444***	0.091	-0.552***	-0.325***	-0.123
roa	-0.239**	0.017	-0.217*	-0.069	-0.104	0.017	-0.217*	-0.104	0.008	-0.056
bown	-0.029	-0.088	-0.219*	-0.005	0.206*	-0.088	-0.219*	0.206*	0.175	0.079
lnnas	0.199*	0.339***	-0.004	-0.009	-0.457***	0.339***	-0.004	-0.457***	-0.113	-0.102
level	-0.137	0.153	0.147	0.076	-0.085	0.153	0.147	-0.085	-0.292**	0.038
fcf	-0.045	-0.310***	-0.09	-0.01	-0.184	-0.310***	-0.09	-0.184	-0.118	-0.121
pea	0.021	-0.017	-0.111	-0.011	0.07	-0.017	-0.111	0.07	0.002	0.113
big4	-0.045	-0.059	0.055	0.007	-0.122	-0.059	0.055	-0.122	-0.122	-0.105
ceoch	-0.027	0.108	0.136	0.082	-0.073	0.108	0.136	-0.073	-0.108	0.096
sg	-0.094	0.022	0.005	-0.086	-0.036	0.022	0.005	-0.036	0.092	-0.033

Continued

	dual *sta cscore	size	roa	bown	lnnas	level	fcf	pea	big4	ceoch	sg
dual *sta cscore	1										
size	-0.162	1									
roa	-0.081	0.158	1								
bown	0.162	-0.476***	0.194*	1							
lnnas	-0.14	0.621***	-0.031	-0.373***	1						
level	0.350***	0.243**	-0.131	-0.15	0.19	1					
fcf	-0.11	0.01	0.588***	0.082	-0.115	-0.047	1				
pea	-0.051	-0.018	0.024	-0.036	-0.063	-0.048	0.035	1			
big4	0.027	0.267**	0.125	-0.061	0.201*	0.122	0.067	-0.011	1		
ceoch	0.424***	-0.005	-0.239**	-0.037	0.059	0.276**	-0.244**	0.328***	0.103	1	
sg	0	0.043	0.17	0.023	0.152	0.031	0.086	-0.055	-0.067	-0.099	1

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.25 Pearson Correlations among board structures, board effectiveness and control variables for MBO deals

	prem	bsize	ned	dual	cscore	sta bsize	sta ned	sta cscore	sta bsize *sta cscore	sta ned *sta cscore
prem	1									
bsize	0.062	1								
ned	-0.004	-0.025	1							
dual	0.061	-0.310***	-0.249**	1						
cscore	0.061	-0.043	-0.067	0.114	1					
sta bsize	0.062	1.000***	-0.025	-0.310***	-0.043	1				
sta ned	-0.004	-0.025	1.000***	-0.249**	-0.067	-0.025	1			
sta cscore	0.061	-0.043	-0.067	0.114	1.000***	-0.043	-0.067	1		
sta bsize *sta cscore	0.107	0.462***	-0.015	-0.137	-0.014	0.462***	-0.015	-0.014	1	
sta ned *sta cscore	0.047	-0.006	0.254***	0.022	0.751***	-0.006	0.254***	0.751***	-0.123	1
dual *sta cscore	0.076	-0.240**	-0.089	0.560***	0.178*	-0.240**	-0.089	0.178*	-0.166*	-0.039
size	-0.041	0.406***	0.225**	-0.183*	0.047	0.406***	0.225**	0.047	0.210**	0.027
roa	-0.246**	0.102	-0.07	-0.092	-0.207**	0.102	-0.07	-0.207**	-0.015	-0.213**
bown	-0.079	-0.082	-0.286***	0.109	0.054	-0.082	-0.286***	0.054	-0.031	-0.054
lnnas	0.152	0.363***	0.136	-0.177*	-0.016	0.363***	0.136	-0.016	0.173*	0.002
level	0.189*	0.176*	0.104	-0.224**	-0.377***	0.176*	0.104	-0.377***	0.037	-0.146
fcf	-0.229**	-0.05	-0.212**	-0.064	-0.011	-0.05	-0.212**	-0.011	-0.042	-0.158
pea	-0.117	-0.084	-0.008	0.05	-0.025	-0.084	-0.008	-0.025	0.009	-0.143
big4	0.081	0.099	0.115	0.003	-0.034	0.099	0.115	-0.034	0.239**	-0.099
ceoch	0.051	0.059	0.213**	-0.116	0.059	0.059	0.213**	0.059	0.067	0.13
sg	0.014	0.129	0.026	0.176*	0.062	0.129	0.026	0.062	0.205**	0.115

Continued

	dual *sta cscore	size	roa	bown	lnnas	level	fcf	pea	big4	ceoch	sg
dual *sta cscore	1										
size	-0.132	1									
roa	-0.277***	0.359***	1								
bown	0.049	-0.352***	0.056	1							
lnnas	-0.250***	0.568***	0.152	-0.419***	1						
level	-0.428***	0.099	-0.044	-0.267***	0.161*	1					
fcf	-0.152	0.062	0.543***	0.079	0.006	-0.124	1				
pea	-0.038	-0.052	0.170*	0.187*	-0.041	-0.154	0.108	1			
big4	-0.014	0.296***	0.145	-0.226**	0.352***	0.213**	0.009	0.169*	1		
ceoch	-0.013	0.001	-0.239**	-0.09	0.14	0.019	-0.12	-0.179*	0.053	1	
sg	0.166*	-0.006	-0.251***	0.035	0.123	-0.175*	-0.086	-0.036	-0.011	0.252***	1

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.26 VIF table for Table 4.5 the regression approach for moderation analysis: Step 1 the constrained model (third-party LBOs)
(an assumption of no interaction effect) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Variables	lo1 VIF	lo2 VIF	lo3 VIF	lo4 VIF	lo5 VIF	lo6 VIF	lo7 VIF	lo8 VIF	lo9 VIF	lo10 VIF	lo11 VIF	lo12 VIF	lo13 VIF	lo14 VIF	lo15 VIF	lo16 VIF
Sta cscore									1.65	1.69	1.71	1.65	1.74	1.69	1.71	1.75
Sta bsize		1.53			1.54	1.53		1.54		1.57			1.57	1.57		1.57
Sta ned			1.14		1.15		1.14	1.15			1.18		1.18		1.18	1.19
dual				1.01		1.01	1.01	1.01				1.01		1.01	1.02	1.02
size	2.14	2.42	2.15	2.14	2.46	2.42	2.15	2.46	2.57	2.76	2.63	2.57	2.84	2.76	2.63	2.84
roa	1.83	1.87	1.88	1.83	1.92	1.88	1.89	1.93	1.88	1.94	1.95	1.89	2.01	1.95	1.96	2.02
bown	1.46	1.5	1.5	1.46	1.53	1.5	1.5	1.53	1.48	1.51	1.51	1.48	1.54	1.51	1.51	1.54
lnnas	1.7	1.71	1.74	1.7	1.74	1.71	1.74	1.74	1.78	1.79	1.8	1.78	1.8	1.79	1.8	1.8
level	1.11	1.11	1.12	1.11	1.12	1.12	1.12	1.13	1.12	1.12	1.12	1.12	1.13	1.13	1.13	1.14
fcf	1.58	1.85	1.59	1.59	1.85	1.85	1.59	1.85	1.73	2.07	1.74	1.73	2.07	2.07	1.75	2.08
pea	1.01	1.01	1.03	1.01	1.03	1.01	1.03	1.03	1.02	1.02	1.04	1.02	1.04	1.02	1.04	1.04
Mean VIF	1.55	1.63	1.52	1.48	1.59	1.56	1.46	1.54	1.65	1.72	1.63	1.58	1.69	1.65	1.57	1.63

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

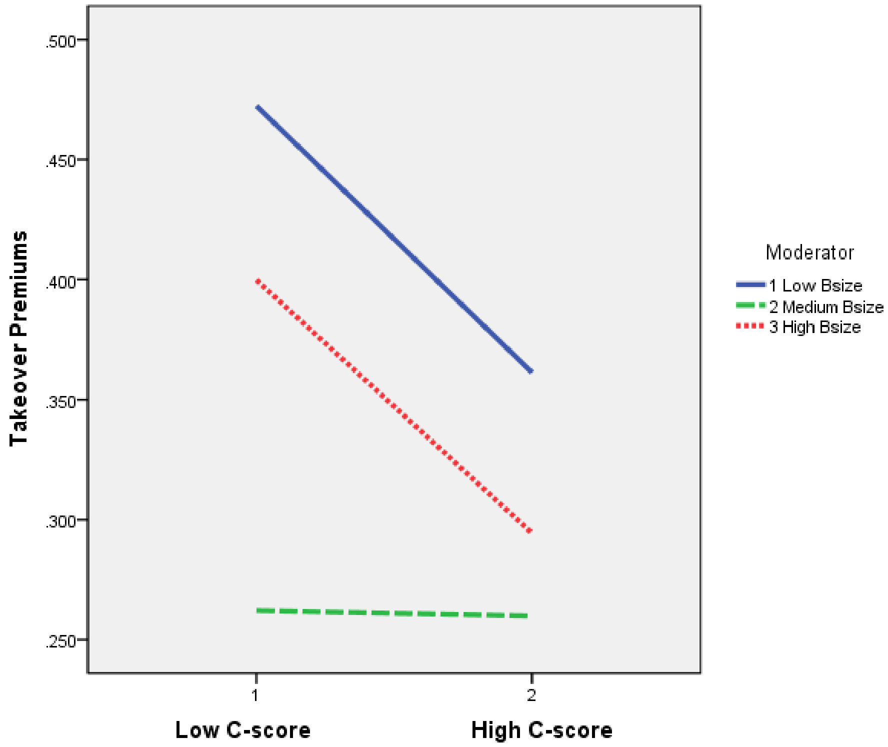
Table 4.27 VIF table for Table 4.6 the regression approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Variables	lo17 VIF	lo18 VIF	lo19 VIF	lo20 VIF	lo21 VIF	lo22 VIF	lo23 VIF
sta cscore	1.7	2.24	1.78	2.36	1.83	2.24	2.37
sta bsize	1.61			1.63	1.61		1.63
sta ned		1.18		1.22		1.24	1.26
dual			1.02		1.04	1.06	1.11
*sta bsize *sta cscore*	1.29			1.37	1.34		1.91
*sta ned *sta cscore*		1.39		1.46		1.73	1.49
*dual *sta cscore*			1.38		1.41	1.71	1.79
size	2.86	2.7	2.57	3	2.86	2.73	3.01
roa	1.98	1.96	1.89	2.08	2	1.98	2.1
bown	1.52	1.52	1.51	1.55	1.54	1.56	1.58
lnnas	1.83	1.81	1.78	1.88	1.83	1.81	1.89
level	1.18	1.12	1.34	1.2	1.44	1.37	1.53
fcf	2.15	1.74	1.74	2.18	2.17	1.76	2.19
pea	1.02	1.04	1.02	1.05	1.02	1.05	1.06
Mean VIF	1.71	1.67	1.6	1.75	1.68	1.69	1.78

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Figure 4.11 Board size and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across board size

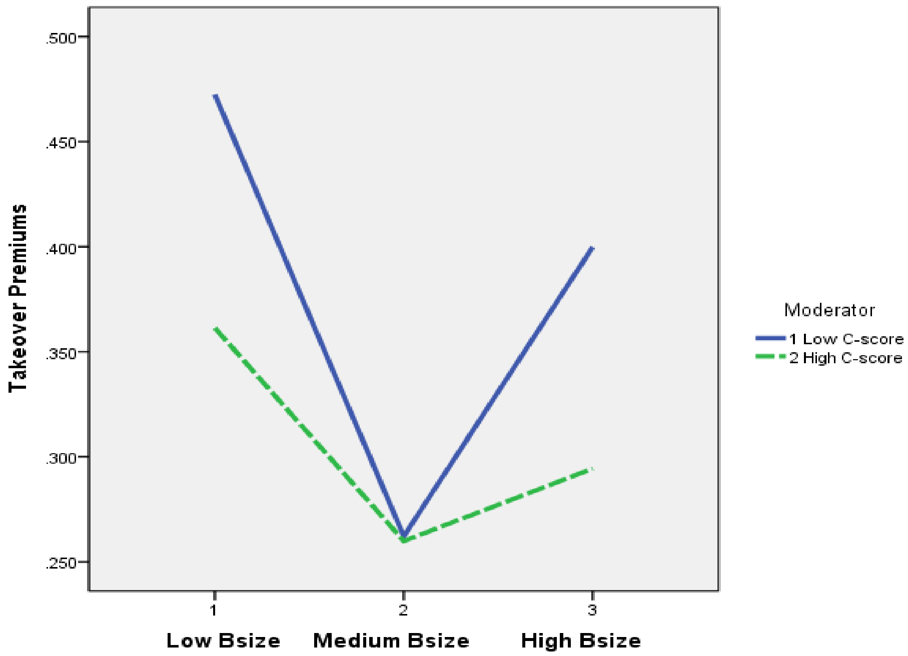
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
High Bsize: is the 67th to the maximum of board size.
Medium Bsize: is the 34th to 66th percentiles of board size.
Low Bsize: is the minimum to 33rd percentiles of board size.

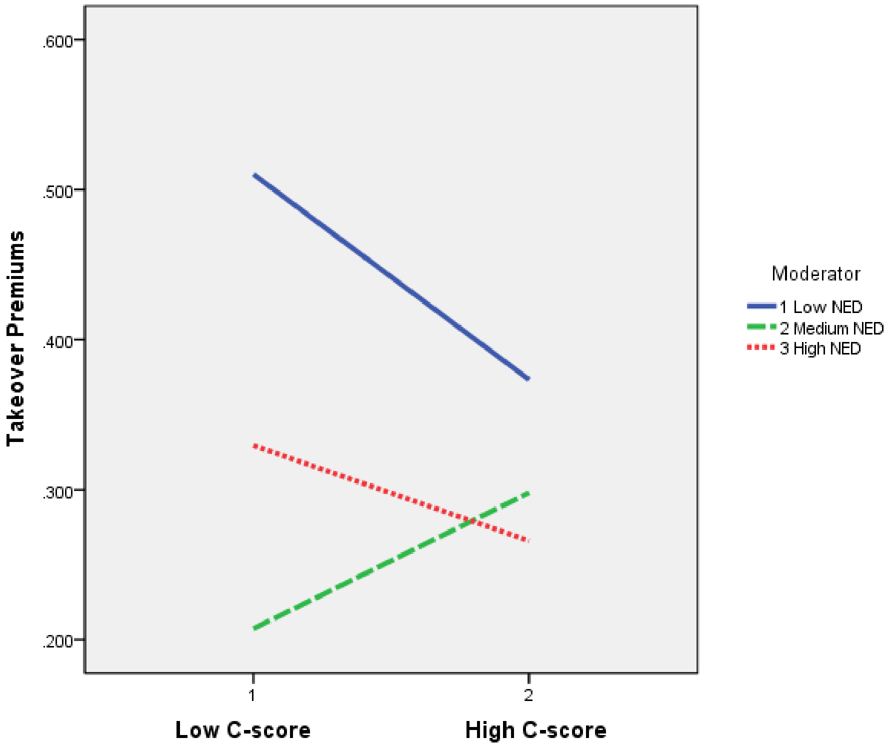
Figure 4.12 Board size and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across the levels of board effectiveness

(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
High Bsize: is the 67th to the maximum of board size.
Medium Bsize: is the 34th to 66th percentiles of board size.
Low Bsize: is the minimum to 33rd percentiles of board size.

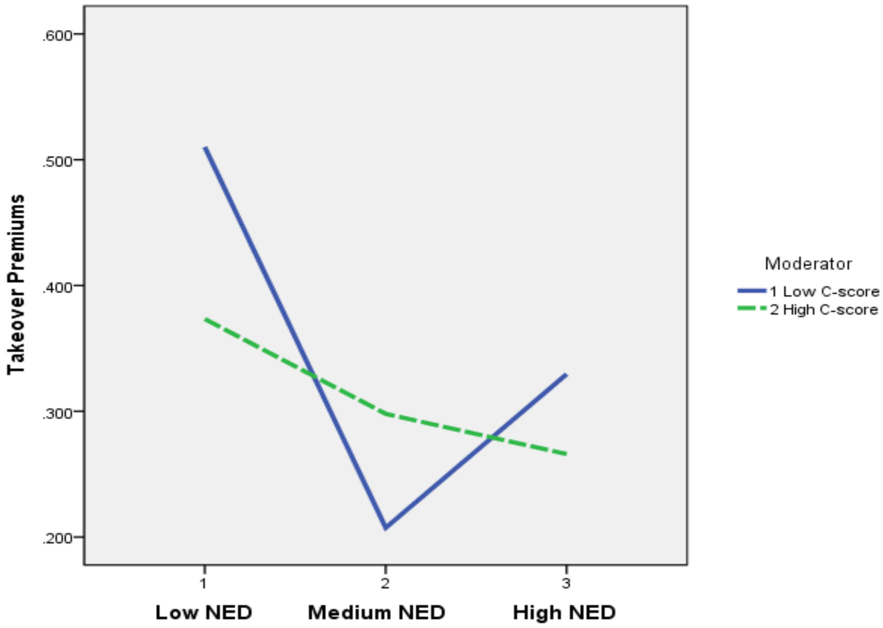
Figure 4.13 NED and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across NED
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
High NED: is the 67^{th} to the maximum of the proportion of non-executives on board.
Medium NED: is the 34^{th} to 66^{th} percentiles of the proportion of non-executives on board.
Low NED: is the minimum to 33^{rd} percentiles of the proportion of non-executives on board.

Figure 4.14 NED and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across the levels of board effectiveness

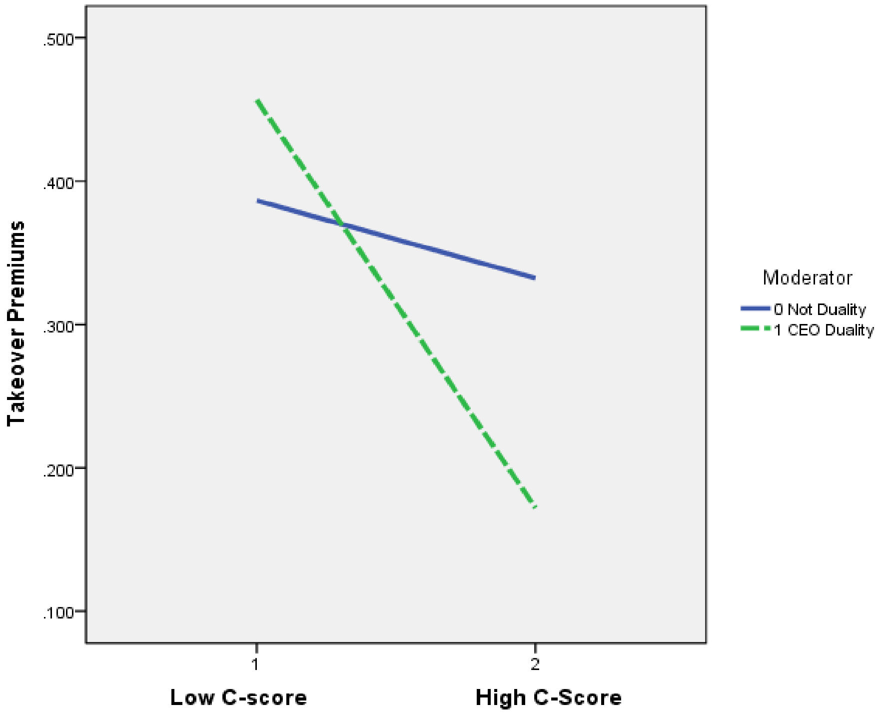
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
High NED: is the 67th to the maximum of the proportion of non-executives on board.
Medium NED: is the 34th to 66th percentiles of the proportion of non-executives on board.
Low NED: is the minimum to 33rd percentiles of the proportion of non-executives on board.

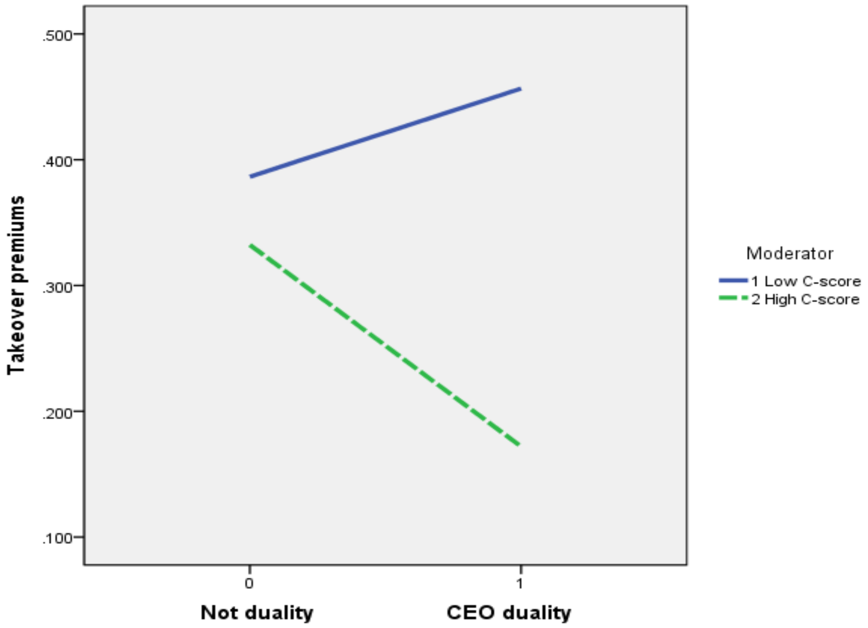
Figure 4.15 CEO duality and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across CEO duality

(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
Not Duality: represents the seperate position of CEO and chairman.
CEO Duality: represents that firm's CEO and chairman is the same person.

Figure 4.16 CEO duality and board effectiveness interaction for takeover premiums in third-party LBO deals – takeover premiums across the levels of board effectiveness
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness).



High C-score: represents a high level of board effectiveness in third-party LBOs.
Low C-score: represents a low level of board effectiveness in third-party LBOs.
Bsize: the total number of board of directors.
Not Duality: represents the seperate position of CEO and chairman.
CEO Duality: represents that firm's CEO and chairman is the same person.

Table 4.28 VIF table for Table 4.7 the regression approach for moderation analysis: Step 1 the constrained model (MBOs) (an assumption of no interaction effect) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	mo1	mo2	mo3	mo4	mo5	mo6	mo7	mo8	mo9	mo10	mo11	mo12	mo13	mo14	mo15	mo16
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
Sta cscore									1.31	1.31	1.32	1.31	1.32	1.31	1.32	1.32
Sta bsize		1.31			1.33	1.38		1.44		1.31			1.33	1.38		1.44
Sta ned			1.17		1.2		1.25	1.3			1.18		1.2		1.25	1.31
dual				1.1		1.16	1.16	1.26				1.1		1.16	1.16	1.26
size	1.79	1.93	1.84	1.8	2.01	1.93	1.84	2.01	1.86	2.01	1.92	1.87	2.1	2.01	1.92	2.1
roa	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
bown	1.38	1.42	1.44	1.38	1.47	1.42	1.45	1.48	1.38	1.42	1.44	1.38	1.48	1.43	1.45	1.48
lnnas	1.62	1.69	1.62	1.63	1.69	1.69	1.64	1.69	1.62	1.69	1.62	1.63	1.69	1.69	1.64	1.69
level	1.11	1.13	1.11	1.16	1.13	1.17	1.16	1.17	1.31	1.33	1.31	1.35	1.33	1.36	1.35	1.36
fcf	1.48	1.48	1.52	1.48	1.53	1.49	1.54	1.56	1.5	1.5	1.54	1.51	1.55	1.51	1.56	1.58
pea	1.08	1.09	1.09	1.08	1.09	1.09	1.09	1.09	1.08	1.09	1.09	1.08	1.09	1.09	1.09	1.09
Mean VIF	1.46	1.48	1.45	1.42	1.47	1.46	1.43	1.48	1.5	1.51	1.49	1.46	1.5	1.49	1.47	1.51

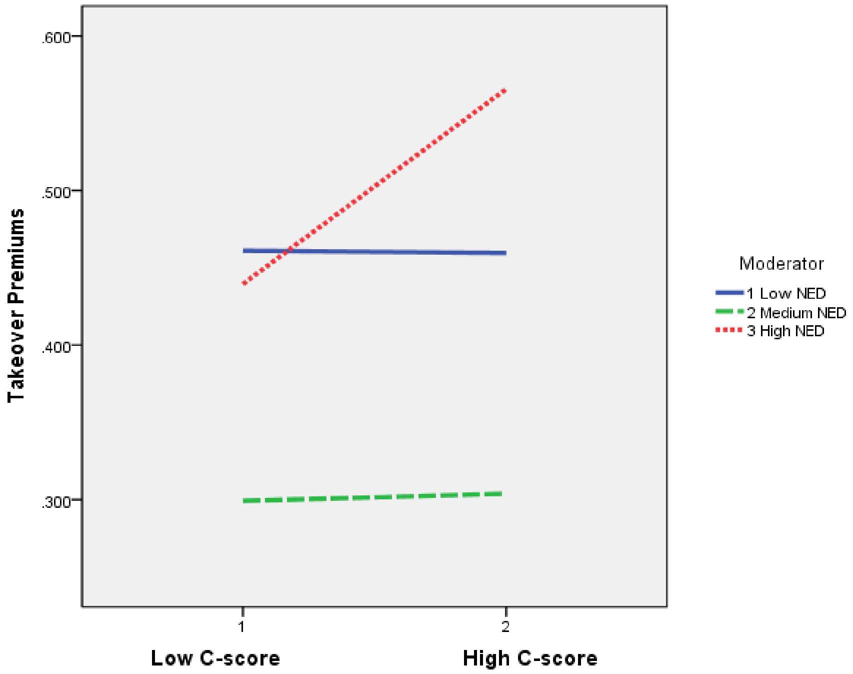
Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.29 VIF table for Table 4.8 the regression approach for moderation analysis: Step 2 the unconstrained model (MBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	mo17	mo18	mo19	mo20	mo21	mo22	mo23
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF
sta cscore	1.32	3.74	1.33	3.86	1.34	3.89	4.09
sta bsize	1.58			1.65	1.66		1.79
sta ned		1.51		1.56		1.63	1.74
dual			1.55		1.61	1.68	1.82
*sta bsize *sta cscore*	1.3			1.36	1.33		1.44
*sta ned *sta cscore*		3.37		3.56		3.74	4.11
*dual *sta cscore*			2.07		2.12	2.3	2.43
size	2.02	1.99	1.94	2.19	2.1	2.03	2.23
roa	1.97	2	2.11	2.02	2.15	2.12	2.16
bown	1.42	1.44	1.4	1.48	1.44	1.47	1.5
lnnas	1.69	1.62	1.72	1.69	1.78	1.73	1.79
level	1.33	1.36	1.66	1.38	1.69	1.67	1.7
fcf	1.5	1.58	1.51	1.59	1.52	1.61	1.62
pea	1.09	1.14	1.09	1.14	1.1	1.16	1.16
Mean VIF	1.52	1.98	1.64	1.96	1.65	2.09	2.11

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

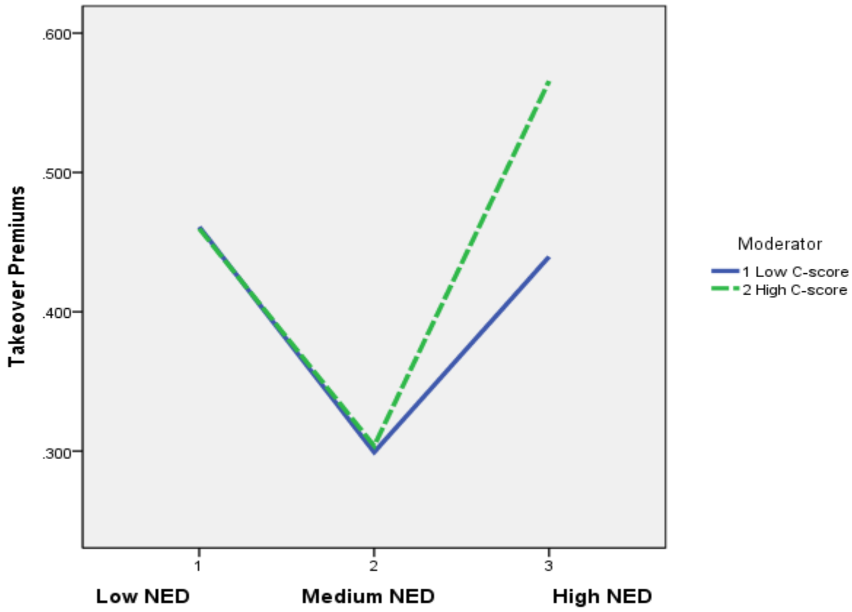
Figure 4.17 NED and board effectiveness interaction for takeover premiums in MBO deals – takeover premiums across NED
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Bsize: the total number of board of directors.
High NED: is the 67th to the maximum of the proportion of non-executives on board.
Medium NED: is the 34th to 66th percentiles of the proportion of non-executives on board.
Low NED: is the minimum to 33rd percentiles of the proportion of non-executives on board.

Figure 4.18 NED and board effectiveness interaction for takeover premiums in MBO deals – takeover premiums across the levels of board effectiveness

(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)



High C-score: represents a low level of board effectiveness in MBOs.
Low C-score: represents a high level of board effectiveness in MBOs.
Bsize: the total number of board of directors.
High NED: is the 67^{th} to the maximum of the proportion of non-executives on board.
Medium NED: is the 34^{th} to 66^{th} percentiles of the proportion of non-executives on board.
Low NED: is the minimum to 33^{rd} percentiles of the proportion of non-executives on board.

Table 4.30 VIF table for Table 4.9 the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
LE1-LE7 test the effects of board structures on takeover premiums (BS→ premiums), LE9-LE14 test the effects of board structures on board effectiveness (BS→ BE), LE15-LE21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	le1	le2	le3	le4	le5	le6	le7	le8	le9	le10	le11	le12	le13	le14	le15	le16	le17	le18	le19	Le20	Le21
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
Sta bsize	1.53			1.54	1.53		1.54	1.38			1.4	1.38		1.4	1.57			1.57	1.57		1.57
Sta ned		1.14		1.15		1.14	1.15		1.1		1.11		1.1	1.12		1.18		1.18		1.18	1.19
dual			1.01		1.01	1.01	1.01			1.01		1.01	1.02	1.02			1.01		1.01	1.02	1.02
Sta cscore															1.69	1.71	1.65	1.74	1.69	1.71	1.75
size	2.42	2.15	2.14	2.46	2.42	2.15	2.46	2.02	1.5	1.5	2.03	2.02	1.5	2.03	2.76	2.63	2.57	2.84	2.76	2.63	2.84
roa	1.87	1.88	1.83	1.92	1.88	1.89	1.93	1.25	1.28	1.24	1.29	1.25	1.28	1.29	1.94	1.95	1.89	2.01	1.95	1.96	2.02
bown	1.5	1.5	1.46	1.53	1.5	1.5	1.53	1.49	1.47	1.43	1.52	1.49	1.47	1.52	1.51	1.51	1.48	1.54	1.51	1.51	1.54
lnnas	1.71	1.74	1.7	1.74	1.71	1.74	1.74								1.79	1.8	1.78	1.8	1.79	1.8	1.8
level	1.11	1.12	1.11	1.12	1.12	1.12	1.13								1.12	1.12	1.12	1.13	1.13	1.13	1.14
fcf	1.85	1.59	1.59	1.85	1.85	1.59	1.85								2.07	1.74	1.73	2.07	2.07	1.75	2.08
pea	1.01	1.03	1.01	1.03	1.01	1.03	1.03								1.02	1.04	1.02	1.04	1.02	1.04	1.04
big4								1.18	1.12	1.12	1.18	1.18	1.12	1.18							
ceoch								1.11	1.09	1.09	1.12	1.11	1.1	1.12							
sg								1.04	1.05	1.05	1.05	1.05	1.05	1.05							
Mean VIF	1.63	1.52	1.48	1.59	1.56	1.46	1.54	1.35	1.23	1.21	1.34	1.31	1.2	1.3	1.72	1.63	1.58	1.69	1.65	1.57	1.63

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.31 VIF table for Table 4.10 the regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
LE22 tests the effects of board effectiveness on takeover premiums (BE→ premiums), LE23-LE25 test the effects of board effectiveness on board structures (BE→ BS), LE26-LE32 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	le22	le23	le24	le25	le26	le27	le28	le29	le30	le31	le32
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
Sta cscore	1.65	1.46	1.46	1.46	1.69	1.71	1.65	1.74	1.69	1.71	1.75
Sta bsize					1.57			1.57	1.57		1.57
Sta ned						1.18		1.18		1.18	1.19
dual							1.01		1.01	1.02	1.02
size	2.57	2.02	2.02	2.02	2.76	2.63	2.57	2.84	2.76	2.63	2.84
roa	1.88	1.24	1.24	1.24	1.94	1.95	1.89	2.01	1.95	1.96	2.02
bown	1.48	1.44	1.44	1.44	1.51	1.51	1.48	1.54	1.51	1.51	1.54
lnnas	1.78				1.79	1.8	1.78	1.8	1.79	1.8	1.8
level	1.12				1.12	1.12	1.12	1.13	1.13	1.13	1.14
fcf	1.73				2.07	1.74	1.73	2.07	2.07	1.75	2.08
pea	1.02				1.02	1.04	1.02	1.04	1.02	1.04	1.04
big4		1.12	1.12	1.12							
ceoch		1.1	1.1	1.1							
sg		1.04	1.04	1.04							
Mean VIF	1.65	1.35	1.35	1.35	1.72	1.63	1.58	1.69	1.65	1.57	1.63

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.32 VIF test for Table 4.11 the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structure and takeover premiums in MBO deals
ME1-ME7 test the effects of board structures on takeover premiums (BS→ premiums), ME9-ME14 test the effects of board structures on board effectiveness (BS→ BE), ME15-ME21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	me1	me2	me3	me4	me5	me6	me7	me8	me9	me10	me11	me12	me13	me14	me15	me16	me17	me18	me19	me20	me21
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
Sta bsize	1.31			1.33	1.38		1.44	1.23			1.26	1.35		1.42	1.31			1.33	1.38		1.44
Sta ned		1.17		1.2		1.25	1.3		1.17		1.2		1.22	1.27		1.18		1.2		1.25	1.31
dual			1.1		1.16	1.16	1.26			1.11		1.22	1.16	1.3			1.1		1.16	1.16	1.26
Sta cscore															1.31	1.32	1.31	1.32	1.31	1.32	1.32
size	1.93	1.84	1.8	2.01	1.93	1.84	2.01	1.75	1.54	1.54	1.83	1.75	1.57	1.83	2.01	1.92	1.87	2.1	2.01	1.92	2.1
roa	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.39	1.4	1.39	1.41	1.39	1.41	1.41	1.95	1.95	1.95	1.95	1.95	1.95	1.95
bown	1.42	1.44	1.38	1.47	1.42	1.45	1.48	1.26	1.29	1.25	1.29	1.26	1.29	1.29	1.42	1.44	1.38	1.48	1.43	1.45	1.48
lnnas	1.69	1.62	1.63	1.69	1.69	1.64	1.69								1.69	1.62	1.63	1.69	1.69	1.64	1.69
level	1.13	1.11	1.16	1.13	1.17	1.16	1.17								1.33	1.31	1.35	1.33	1.36	1.35	1.36
fcf	1.48	1.52	1.48	1.53	1.49	1.54	1.56								1.5	1.54	1.51	1.55	1.51	1.56	1.58
pea	1.09	1.09	1.08	1.09	1.09	1.09	1.09								1.09	1.09	1.08	1.09	1.09	1.09	1.09
big4								1.13	1.13	1.14	1.13	1.14	1.14	1.14							
ceoch								1.12	1.16	1.16	1.16	1.16	1.18	1.18							
sg								1.15	1.14	1.19	1.15	1.23	1.19	1.23							
Mean VIF	1.48	1.45	1.42	1.47	1.46	1.43	1.48	1.29	1.26	1.25	1.3	1.31	1.27	1.34	1.51	1.49	1.46	1.5	1.49	1.47	1.51

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.33 VIF table for Table 4.12 the regression approach for mediation analysis of the effects of board structure on the relationship between board effectiveness and takeover premiums in MBO deals
ME22 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ME23-ME25 test the effects of board effectiveness on board structures (BE→ BS), ME26-ME32 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	me22	me23	me24	me25	me26	me27	me28	me29	me30	me31	me32
Variables	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
Sta cscore	1.31	1.11	1.11	1.11	1.31	1.32	1.31	1.32	1.31	1.32	1.32
Sta bsize					1.31			1.33	1.38		1.44
Sta ned						1.18		1.2		1.25	1.31
dual							1.1		1.16	1.16	1.26
Size	1.86	1.5	1.5	1.5	2.01	1.92	1.87	2.1	2.01	1.92	2.1
roa	1.95	1.46	1.46	1.46	1.95	1.95	1.95	1.95	1.95	1.95	1.95
bown	1.38	1.26	1.26	1.26	1.42	1.44	1.38	1.48	1.43	1.45	1.48
lnnas	1.62				1.69	1.62	1.63	1.69	1.69	1.64	1.69
level	1.31				1.33	1.31	1.35	1.33	1.36	1.35	1.36
fcf	1.5				1.5	1.54	1.51	1.55	1.51	1.56	1.58
pea	1.08				1.09	1.09	1.08	1.09	1.09	1.09	1.09
big4		1.16	1.16	1.16							
ceoch		1.12	1.12	1.12							
sg		1.14	1.14	1.14							
Mean VIF	1.5	1.25	1.25	1.25	1.51	1.49	1.46	1.5	1.49	1.47	1.51

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.34 The endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (third-party LBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Variables	endolo1 prem	endolo2 prem	endolo3 prem	endolo4 prem	endolo5 prem	endolo6 prem	endolo7 prem
Sta cscore	-0.114	-0.080	-0.135	-0.069	-0.115	-0.050	-0.040
	(-0.525)	(-0.382)	(-0.738)	(-0.282)	(-0.526)	(-0.211)	(-0.150)
Sta bsize	0.017			0.008	0.017		0.008
	(0.209)			(0.098)	(0.209)		(0.098)
Sta ned		-0.102		-0.103		-0.112	-0.113
		(-1.191)		(-1.191)		(-1.304)	(-1.301)
dual			-0.001		0.005	-0.076	-0.074
			(-0.002)		(0.021)	(-0.281)	(-0.274)
size	-0.093	-0.073	-0.094	-0.072	-0.094	-0.064	-0.064
	(-1.563)	(-1.102)	(-1.511)	(-1.076)	(-1.508)	(-0.886)	(-0.873)
roa	-1.029	-1.184	-0.994	-1.202	-1.027	-1.235	-1.252
	(-1.040)	(-1.161)	(-0.989)	(-1.156)	(-1.005)	(-1.194)	(-1.188)
bown	0.203	0.111	0.213	0.105	0.202	0.107	0.101
	(0.478)	(0.263)	(0.526)	(0.238)	(0.475)	(0.251)	(0.228)
lnnas	0.166***	0.151***	0.165***	0.151***	0.166***	0.149***	0.150***
	(3.603)	(3.450)	(3.605)	(3.455)	(3.621)	(3.351)	(3.357)
level	-0.442**	-0.408**	-0.439**	-0.409**	-0.443**	-0.395*	-0.397*
	(-2.212)	(-1.975)	(-2.101)	(-1.971)	(-2.119)	(-1.763)	(-1.760)
fcf	0.533	0.592	0.423	0.644	0.528	0.676	0.726
	(0.416)	(0.492)	(0.363)	(0.469)	(0.401)	(0.532)	(0.507)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.571)	(0.323)	(0.592)	(0.301)	(0.573)	(0.251)	(0.233)
Constant	1.539	1.227	1.554	1.216	1.547	1.088	1.081
	(1.405)	(1.025)	(1.368)	(1.007)	(1.367)	(0.824)	(0.815)
Observations	73	73	73	73	73	73	73
R-squared	0.192	0.192	0.188	0.193	0.192	0.194	0.194
Chi2-test	22.69	24.38	22.41	24.78	22.90	27.36	27.53
Prob>chi2	0.007	0.004	0.008	0.006	0.011	0.003	0.004
Endogenous test							
Hausman Chi2	1.962	6.154	0.912	6.120	2.149	6.185	6.297
Hausman Prob>Chi2	0.375	0.046	0.634	0.106	0.542	0.103	0.178
Weak instrument test							
F-test *Sta cscore2*	9.972***	10.861***	10.588***	7.887***	7.742***	8.482***	6.572***
F-test *Sta Bsize2*	62.911***			45.728***	48.323***		41.294***
F-test *Sta Ned2*		136.722***		100.522***		106.632***	87.745***
F-test *Dual2*			12.179***		8.935***	12.961***	9.612***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta cscore2: lagged variable, interaction of standardised board size and standardised cscore in year Y-2. sta ned2 *sta cscore2: lagged variable, interaction of standardised ned and standardised cscore in year Y-2. Duality2 *sta cscore2: lagged variable, interaction of CEO duality and standardised cscore in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.35 The endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Variables	endolo8 prem	endolo9 prem	endolo10 prem	endolo11 prem	endolo12 prem	endolo13 prem	endolo14 prem
Sta cscore	-0.108	-3.973	-0.178	-0.821	-0.075	0.293	1.018
	(-0.353)	(-0.209)	(-0.622)	(-0.098)	(-0.095)	(0.069)	(0.220)
Sta bsize	0.010			1.287	-0.021		0.456
	(0.024)			(0.253)	(-0.064)		(0.326)
Sta ned		0.790		-0.954		-0.570	-0.390
		(0.181)		(-0.247)		(-0.172)	(-0.342)
dual			0.031		0.046	3.255	1.623
			(0.117)		(0.128)	(0.172)	(0.320)
Sta bsize*sta cscore	-0.054			10.207	-0.287		-0.474
	(-0.019)			(0.240)	(-0.106)		(-0.072)
Sta ned*sta cscore		5.644		0.000		-8.643	-4.270
		(0.204)		(0.000)		(-0.170)	(-0.328)
Dual*sta cscore			0.083		-0.056	10.263	4.600
			(0.189)		(-0.050)	(0.175)	(0.363)
size	-0.096	-0.807	-0.103	0.517	-0.104	-0.191	-0.076
	(-0.700)	(-0.222)	(-1.356)	(0.184)	(-1.128)	(-0.226)	(-0.194)
roa	-0.992	1.942	-0.963	-9.682	-0.823	-0.748	-1.891
	(-0.480)	(0.125)	(-0.945)	(-0.268)	(-0.420)	(-0.100)	(-0.310)
bown	0.197	-1.787	0.189	0.462	0.181	0.928	0.220
	(0.402)	(-0.191)	(0.436)	(0.097)	(0.365)	(0.141)	(0.105)
lnnas	0.165*	-0.053	0.166***	0.269	0.158*	0.714	0.435
	(1.810)	(-0.051)	(3.754)	(0.372)	(1.801)	(0.222)	(0.546)
level	-0.454	-1.242	-0.480**	2.161	-0.487*	-4.496	-2.405
	(-0.730)	(-0.266)	(-2.031)	(0.193)	(-1.661)	(-0.192)	(-0.410)
fcf	0.482	-2.394	0.344	11.335	0.253	-5.559	0.766
	(0.150)	(-0.153)	(0.289)	(0.248)	(0.110)	(-0.160)	(0.113)
pea	0.000	-0.002	0.000	0.000	0.000	0.010	0.004
	(0.483)	(-0.178)	(0.633)	(0.031)	(0.294)	(0.167)	(0.305)
Constant	1.584	15.872	1.733	-9.934	1.753	2.961	1.101
	(0.572)	(0.220)	(1.181)	(-0.186)	(0.981)	(0.208)	(0.155)
Observations	73	73	73	73	73	73	73
R-squared	0.194	0.000	0.174	0.000	0.153	0.000	0.00
Chi2-test	23.050**	0.950	26.910***	0.430	26.080***	0.700	2.959
Prob>chi2	0.011	0.999	0.003	1.000	0.010	1.000	0.999
Endogenous test							
Hausman Chi2	2.091	9.173	1.141	9.395	2.696	9.202	9.418
Hausman Prob>Chi2	0.554	0.027	0.767	0.094	0.747	0.101	0.224
Weak instrument test							
F-test							
Sta cscore2	7.535***	7.448***	6.169***	6.105***	5.147***	5.014***	5.303***
Sta bsize2	58.199***			41.794***	35.506***		29.783***
Sta bsize2* sta cscore2	0.699			0.777	0.689		0.703
Sta ned2		90.073***		59.106***		75.782***	64.148***
Sta ned2* sta cscore2		0.722		1.313		0.464	1.110

Dual2	21.109***	16.321***	15.762***	13.232***
Dual2* sta cscore2	6.010***	4.265***	3.943***	3.720***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta cscore2: lagged variable, interaction of standardised board size and standardised cscore in year Y-2. sta ned2 *sta cscore2: lagged variable, interaction of standardised ned and standardised cscore in year Y-2. Duality2 *sta cscore2: lagged variable, interaction of CEO duality and standardised cscore in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.36 The endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (MBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

Variables	endomo1 prem	endomo2 prem	endomo3 prem	endomo4 prem	endomo5 prem	endomo6 prem	endomo7 prem
Sta cscore	0.016	0.012	0.020	0.014	0.021	0.020	0.026
	(0.232)	(0.183)	(0.308)	(0.200)	(0.302)	(0.292)	(0.350)
Sta bsize	-0.004			0.015	0.003		0.036
	(-0.076)			(0.251)	(0.045)		(0.533)
Sta ned		0.065		0.066		0.080	0.086
		(1.368)		(1.340)		(1.518)	(1.489)
dual			0.045		0.047	0.089	0.112
			(0.585)		(0.524)	(0.967)	(0.996)
size	-0.029	-0.041	-0.029	-0.046	-0.030	-0.042	-0.053
	(-0.817)	(-1.236)	(-1.084)	(-1.050)	(-0.837)	(-1.239)	(-1.163)
roa	-0.323	-0.315	-0.308	-0.308	-0.306	-0.288	-0.264
	(-0.970)	(-0.959)	(-0.947)	(-0.902)	(-0.887)	(-0.844)	(-0.728)
bown	0.070	0.133	0.068	0.121	0.066	0.151	0.125
	(0.521)	(0.943)	(0.512)	(0.871)	(0.482)	(1.060)	(0.882)
lnnas	0.056*	0.061**	0.057*	0.058*	0.056*	0.065**	0.060*
	(1.654)	(2.031)	(1.876)	(1.725)	(1.673)	(2.169)	(1.784)
level	0.276	0.250	0.308	0.242	0.307	0.311	0.307
	(1.165)	(1.010)	(1.180)	(1.024)	(1.194)	(1.154)	(1.167)
fcf	-0.280*	-0.195	-0.272*	-0.189	-0.271*	-0.161	-0.137
	(-1.815)	(-1.291)	(-1.749)	(-1.224)	(-1.772)	(-1.032)	(-0.816)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
	(-0.683)	(-0.956)	(-0.697)	(-0.886)	(-0.661)	(-0.993)	(-0.898)
Constant	0.562	0.753	0.534	0.850	0.548	0.686	0.904
	(0.919)	(1.458)	(1.288)	(1.142)	(0.926)	(1.352)	(1.224)
Observations	105	104	105	104	105	104	104
R-squared	0.145	0.094	0.154	0.095	0.154	0.099	0.098
chi2-test	29.41	38.76	29.31	38.93	31.13	44.21	45.35
Prob>chi2	0.001	0.000	0.001	0.000	0.001	0.000	0.000
Endogenous test							
Hausman Chi2	0.947	6.388	0. 2906	7.280	0.311	6.858	7.747
Hausman Prob>Chi2	0.109	0.410	0.865	0.064	0.958	0.077	0.101
Weak instrument test							
F-test *Sta Cscore2*	1.073	1.077	1.077	0.711	0.711	0.715	0.530
Sta Bsize2	33.268***	52.771***	112.619***	23.622***	23.619***		18.434***
Sta Ned2				34.783***		34.836***	25.572***
Dual2					80.117***	70.441***	57.263***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta cscore2: lagged variable, interaction of standardised board size and standardised cscore in year Y-2.

sta ned2 *sta cscore2: lagged variable, interaction of standardised ned and standardised cscore in year Y-2. Duality2 *sta cscore2: lagged variable, interaction of CEO duality and standardised cscore in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.37 The endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (MBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	Variables	endomo8 prem	endomo9 prem	endomo10 prem	endomo11 prem	endomo12 prem	endomo13 prem	endomo14 prem
	Sta cscore	0.027	0.007	0.002	0.555	0.008	0.182	0.982
		(0.359)	(0.019)	(0.021)	(0.168)	(0.066)	(0.400)	(0.215)
	Sta bsize	-0.046			-0.079	-0.009		-0.096
		(-0.726)			(-0.203)	(-0.079)		(-0.107)
	Sta ned		0.063		0.303		0.184	0.510
			(0.352)		(0.206)		(0.833)	(0.276)
	dual			0.189		0.170	0.302	0.131
				(0.816)		(0.432)	(1.240)	(0.083)
	Sta bsize*sta cscore	0.205			0.779	0.061		1.230
		(0.796)			(0.211)	(0.099)		(0.192)
	Sta ned*sta cscore		0.015		-1.457		-0.566	-2.590
			(0.014)		(-0.161)		(-0.398)	(-0.215)
	Dual*sta cscore			-0.676		-0.578	-1.014	0.021
				(-0.776)		(-0.331)	(-1.017)	(0.003)
	size	-0.036	-0.040	-0.010	-0.164	-0.016	-0.043	-0.259
		(-0.941)	(-0.781)	(-0.271)	(-0.234)	(-0.191)	(-0.728)	(-0.231)
	roa	-0.218	-0.319	-0.566	0.525	-0.495	-0.516	1.154
		(-0.541)	(-0.906)	(-1.068)	(0.115)	(-0.436)	(-1.113)	(0.127)
	bown	0.063	0.133	0.016	0.063	0.019	0.096	0.029
		(0.432)	(0.942)	(0.102)	(0.191)	(0.114)	(0.509)	(0.066)
	lnnas	0.057*	0.061**	0.039	0.060	0.041	0.043	0.063
		(1.652)	(1.996)	(1.236)	(1.162)	(0.933)	(1.291)	(0.303)
	level	0.322	0.246	0.050	0.685	0.101	0.033	1.081
		(1.174)	(0.754)	(0.114)	(0.272)	(0.112)	(0.077)	(0.180)
	fcf	-0.309*	-0.190	-0.271	-0.775	-0.279	-0.338	-1.150
		(-1.742)	(-0.549)	(-1.551)	(-0.226)	(-1.491)	(-0.700)	(-0.233)
	pea	-0.001	-0.001	-0.002	-0.007	-0.002	-0.004	-0.012
		(-0.803)	(-0.300)	(-0.932)	(-0.190)	(-0.910)	(-0.609)	(-0.233)
	Constant	0.674	0.744	0.416	2.580	0.482	0.895	3.902
		(1.028)	(1.076)	(0.867)	(0.251)	(0.505)	(1.001)	(0.259)
	Observations	105	104	105	104	105	104	104
	R-squared	0.128	0.092	0.023	0.000	0.055	0.000	0.000
	Chi2-test	28.420***	40.350***	25.890***	7.960	28.340***	37.670***	4.236
	Prob>chi2	0.002	0.000	0.004	0.789	0.005	0.000	0.994
	Endogenous test							
	Hausman Chi2	0.576	6.818	3.375	7.756	5.691	12.726	11.932
	Hausman Prob>Chi2	0.902	0.078	0.337	0.170	0.338	0.026	0.103
	Weak instrument test							
F-test	*Sta cscore2*	0.786	0.733	0.837	0.480	0.501	0.500	0.282
	Sta bsize2	36.968***			31.822***	24.755***		24.860***
	Sta bsize2 sta cscore2*	3.434**			7.076	2.221*		4.172***
	Sta ned2		36.304***		21.306***		22.166***	15.326***
	Sta ned2 sta cscore2*		3.346**		2.386**		2.163*	1.791*
	Dual2			92.588***		56.390***	62.019***	46.291***
	Dual2 sta cscore2*			11.321***		7.731***	7.126***	5.780***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta cscore: interaction of standardised board size and standardised cscore in year Y-1. sta ned *sta cscore: interaction of standardised ned and standardised cscore in year Y-1. duality *sta cscore: interaction of CEO duality and standardised cscore in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta cscore2: lagged variable, interaction of standardised board size and standardised cscore in year Y-2. sta ned2 *sta cscore2: lagged variable, interaction of standardised ned and standardised cscore in year Y-2. Duality2 *sta cscore2: lagged variable, interaction of CEO duality and standardised cscore in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.38 The endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
ENDOLE1-ENDOLE7 test the effects of board structures on takeover premiums (BS→ premiums), ENDOLE9-ENDOLE14 test the effects of board structures on board effectiveness (BS→ BE), ENDOLE15-ENDOLE21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							Step2: BS→ BE							Step3: BS, BE→ premiums						
	endole1	endole2	endole3	endole4	endole5	endole6	endole7	endole8	endole9	endole10	endole11	endole12	endole13	endole14	endole15	endole16	endole17	endole18	endole19	endole20	endole21
Variables	prem	prem	prem	prem	prem	prem	prem	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	prem	prem	prem	prem	prem	prem	prem
Sta bsize	0.038			0.018	0.039		0.014	-0.062			-0.025	-0.074		-0.024	0.017			0.008	0.017		0.008
	(0.589)			(0.279)	(0.578)		(0.197)	(-0.613)			(-0.253)	(-0.733)		(-0.258)	(0.209)			(0.098)	(0.209)		(0.098)
Sta ned		-0.118*		-0.116*		-0.122*	-0.120*		0.188***		0.185***		0.189***	0.186***		-0.102		-0.103		-0.112	-0.113
		(-1.791)		(-1.708)		(-1.949)	(-1.849)		(2.946)		(2.920)		(2.867)	(2.850)		(-1.191)		(-1.191)		(-1.304)	(-1.301)
dual			-0.011		0.005	-0.086	-0.079			-0.123		-0.154	0.018	0.006			-0.001		0.005	-0.076	-0.074
			(-0.047)		(0.021)	(-0.339)	(-0.304)			(-0.595)		(-0.769)	(0.089)	(0.031)			(-0.002)		(0.021)	(-0.281)	(-0.274)
Sta cscore															-0.114	-0.080	-0.135	-0.069	-0.115	-0.050	-0.040
															(-0.525)	(-0.382)	(-0.738)	(-0.282)	(-0.526)	(-0.211)	(-0.150)
size	-0.071	-0.052	-0.061	-0.056	-0.071	-0.051	-0.055	-0.250***	-0.269***	-0.272***	-0.260***	-0.245***	-0.269***	-0.261***	-0.093	-0.073	-0.094	-0.072	-0.094	-0.064	-0.064
	(-1.645)	(-1.357)	(-1.549)	(-1.368)	(-1.631)	(-1.349)	(-1.312)	(-4.020)	(-6.974)	(-6.740)	(-4.314)	(-4.039)	(-6.970)	(-4.406)	(-1.563)	(-1.102)	(-1.511)	(-1.076)	(-1.508)	(-0.886)	(-0.873)
roa	-1.141	-1.270	-1.103	-1.286	-1.141	-1.292	-1.302	-0.308	-0.007	-0.301	-0.020	-0.332	-0.004	-0.019	-1.029	-1.184	-0.994	-1.202	-1.027	-1.235	-1.252
	(-1.256)	(-1.312)	(-1.229)	(-1.319)	(-1.244)	(-1.342)	(-1.345)	(-0.336)	(-0.008)	(-0.317)	(-0.023)	(-0.362)	(-0.004)	(-0.021)	(-1.040)	(-1.161)	(-0.989)	(-1.156)	(-1.005)	(-1.194)	(-1.188)
bown	0.214	0.114	0.250	0.099	0.214	0.108	0.098	-0.133	-0.047	-0.184	-0.020	-0.093	-0.049	-0.021	0.203	0.111	0.213	0.105	0.202	0.107	0.101
	(0.481)	(0.264)	(0.588)	(0.226)	(0.480)	(0.250)	(0.222)	(-0.283)	(-0.110)	(-0.416)	(-0.046)	(-0.192)	(-0.117)	(-0.050)	(0.478)	(0.263)	(0.526)	(0.238)	(0.475)	(0.251)	(0.228)
lnnas	0.170***	0.151***	0.169***	0.151***	0.170***	0.149***	0.150***								0.166***	0.151***	0.165***	0.151***	0.166***	0.149***	0.150***
	(3.721)	(3.392)	(3.676)	(3.416)	(3.700)	(3.303)	(3.324)								(3.603)	(3.450)	(3.605)	(3.455)	(3.621)	(3.351)	(3.357)
level	-0.442**	-0.400**	-0.432**	-0.405**	-0.443**	-0.389*	-0.393*								-0.442**	-0.408**	-0.439**	-0.409**	-0.443**	-0.395*	-0.397*
	(-2.319)	(-2.018)	(-2.227)	(-2.000)	(-2.229)	(-1.833)	(-1.795)								(-2.212)	(-1.975)	(-2.101)	(-1.971)	(-2.119)	(-1.763)	(-1.760)
fcf	0.867	0.782	0.735	0.845	0.867	0.797	0.842								0.533	0.592	0.423	0.644	0.528	0.676	0.726
	(0.900)	(0.802)	(0.781)	(0.846)	(0.900)	(0.820)	(0.851)								(0.416)	(0.492)	(0.363)	(0.469)	(0.401)	(0.532)	(0.507)

pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.485)	(0.213)	(0.481)	(0.218)	(0.486)	(0.188)	(0.194)								(0.571)	(0.323)	(0.592)	(0.301)	(0.573)	(0.251)	(0.233)
Big4								-0.006	-0.019	0.017	-0.030	-0.019	-0.019	-0.030							
								(-0.031)	(-0.107)	(0.091)	(-0.149)	(-0.093)	(-0.105)	(-0.150)							
ceoch								-0.235	-0.264	-0.259	-0.254	-0.227	-0.264	-0.254							
								(-0.587)	(-0.708)	(-0.631)	(-0.683)	(-0.548)	(-0.712)	(-0.689)							
sg								0.012	-0.003	0.009	-0.003	0.007	-0.003	-0.003							
								(0.205)	(-0.054)	(0.161)	(-0.055)	(0.124)	(-0.045)	(-0.052)							
Constant	1.109	0.841	0.917	0.935	1.110	0.847	0.916	4.617***	4.977***	5.029***	4.819***	4.560***	4.975***	4.821***	1.539	1.227	1.554	1.216	1.547	1.088	1.081
	(1.427)	(1.277)	(1.371)	(1.252)	(1.421)	(1.288)	(1.211)	(4.179)	(7.349)	(6.942)	(4.576)	(4.188)	(7.284)	(4.653)	(1.405)	(1.025)	(1.368)	(1.007)	(1.367)	(0.824)	(0.815)
Observations	73	73	73	73	73	73	73	81	81	81	81	81	81	81	73	73	73	73	73	73	73
R-squared	0.207	0.200	0.212	0.199	0.207	0.197	0.196	0.427	0.453	0.424	0.452	0.416	0.454	0.452	0.192	0.192	0.188	0.193	0.192	0.194	0.194
Chi2-test	22.25	23.62	21.82	24.45	22.36	26.52	26.97	86.87	116.6	88.26	115.6	91.67	119.0	118.9	22.69	24.38	22.41	24.78	22.90	27.36	27.53
Prob>chi2	0.004	0.003	0.005	0.004	0.008	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.004	0.008	0.006	0.011	0.003	0.004
Endogenous test																					
Hausman Chi2	1.614	5.711	0.000	5.812	1.589	5.832	5.946	0.811	2.690	0.916	3.463	1.255	5.001	5.253	1.962	6.154	0.912	6.120	2.149	6.185	6.297
Hausman Prob>Chi2	0.204	0.017	0.996	0.055	0.452	0.054	0.114	0.368	0.101	0.339	0.177	0.534	0.082	0.154	0.375	0.046	0.634	0.106	0.542	0.103	0.178
Weak instrument test																					
F-test *Stacscore2*															9.972***	10.861***	10.588***	7.887***	7.742***	8.482***	6.572***
F-test *Stabsize2*	120.365***			67.209***	68.244***		53.016***	167.451***			88.159***	84.440***		59.797***	62.911***			45.728***	48.323***		41.294***
F-test *Staned2*		272.209***		140.107***		148.999***	101.001***		353.011***		181.479***		215.826***	143.856***		136.722***		100.522***		106.632***	87.745***
F-test *Dual2*			17.292***		8.810***	10.500***	9.555***			18.617***		10.165***	9.172***	7.222***			12.179***		8.935***	12.961***	9.612***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Cscore2: denotes for the levels of accounting conservatism in year Y-2 (two year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.39 The endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
ENDOME1-ENDOME7 test the effects of board structures on takeover premiums (BS→ premiums), ENDOME9-ENDOME14 test the effects of board structures on board effectiveness (BS→ BE), ENDOME15-ENDOME21 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							Step2: BS→ BE							Step3: BE, BS→ premiums						
	endome1	endome2	endome3	endome4	endome5	endome6	endome7	endome8	endome9	endome10	endome11	endome12	endome13	endome14	endome15	endome16	endome17	endome18	endome19	endome20	endome21
Variables	prem	prem	prem	prem	prem	prem	prem	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	Sta cscore	prem	prem	prem	prem	prem	prem	prem
Sta bsize	-0.005			0.014	0.001		0.035	-0.018			-0.024	-0.006		-0.008	-0.004			0.015	0.003		0.036
	(-0.101)			(0.237)	(0.019)		(0.512)	(-0.349)			(-0.483)	(-0.103)		(-0.147)	(-0.076)			(0.251)	(0.045)		(0.533)
Sta ned		0.065		0.066		0.080	0.087		-0.015		-0.017		-0.004	-0.005		0.065		0.066		0.080	0.086
		(1.367)		(1.341)		(1.499)	(1.470)		(-0.390)		(-0.447)		(-0.097)	(-0.129)		(1.368)		(1.340)		(1.518)	(1.489)
dual			0.048		0.048	0.092	0.114			0.077		0.074	0.075	0.070			0.045		0.047	0.089	0.112
			(0.604)		(0.530)	(0.964)	(0.984)			(1.054)		(0.901)	(0.975)	(0.800)			(0.585)		(0.524)	(0.967)	(0.996)
Sta cscore															0.016	0.012	0.020	0.014	0.021	0.020	0.026
															(0.232)	(0.183)	(0.308)	(0.200)	(0.302)	(0.292)	(0.350)
size	-0.026	-0.039	-0.025	-0.043	-0.025	-0.038	-0.047	-0.002	-0.007	-0.003	0.003	-0.001	-0.002	0.001	-0.029	-0.041	-0.029	-0.046	-0.030	-0.042	-0.053
	(-0.779)	(-1.287)	(-0.974)	(-1.108)	(-0.783)	(-1.257)	(-1.194)	(-0.063)	(-0.214)	(-0.089)	(0.089)	(-0.019)	(-0.071)	(0.026)	(-0.817)	(-1.236)	(-1.084)	(-1.050)	(-0.837)	(-1.239)	(-1.163)
roa	-0.366	-0.349	-0.365	-0.347	-0.365	-0.344	-0.337	-0.561***	-0.569***	-0.570**	-0.579***	-0.571**	-0.573**	-0.577**	-0.323	-0.315	-0.308	-0.308	-0.306	-0.288	-0.264
	(-1.414)	(-1.360)	(-1.418)	(-1.337)	(-1.392)	(-1.307)	(-1.260)	(-2.606)	(-2.606)	(-2.541)	(-2.673)	(-2.556)	(-2.539)	(-2.573)	(-0.970)	(-0.959)	(-0.947)	(-0.902)	(-0.887)	(-0.844)	(-0.728)
bown	0.075	0.136	0.072	0.125	0.071	0.155	0.132	0.145	0.127	0.133	0.135	0.135	0.130	0.133	0.070	0.133	0.068	0.121	0.066	0.151	0.125
	(0.578)	(0.967)	(0.561)	(0.921)	(0.550)	(1.100)	(0.964)	(0.965)	(0.846)	(0.921)	(0.882)	(0.907)	(0.874)	(0.873)	(0.521)	(0.943)	(0.512)	(0.871)	(0.482)	(1.060)	(0.882)
lnnas	0.056*	0.061**	0.056*	0.059*	0.056*	0.064**	0.060*								0.056*	0.061**	0.057*	0.058*	0.056*	0.065**	0.060*
	(1.656)	(2.018)	(1.862)	(1.728)	(1.676)	(2.160)	(1.788)								(1.654)	(2.031)	(1.876)	(1.725)	(1.673)	(2.169)	(1.784)
level	0.242	0.222	0.263	0.212	0.263	0.267	0.251								0.276	0.250	0.308	0.242	0.307	0.311	0.307
	(1.640)	(1.361)	(1.513)	(1.378)	(1.601)	(1.452)	(1.467)								(1.165)	(1.010)	(1.180)	(1.024)	(1.194)	(1.154)	(1.167)
fcf	-0.266	-0.183	-0.251	-0.176	-0.250	-0.140	-0.112								-0.280*	-0.195	-0.272*	-0.189	-0.271*	-0.161	-0.137
	(-	(-1.069)	(-1.529)	(-0.994)	(-1.534)	(-0.767)	(-0.558)								(-1.815)	(-1.291)	(-1.749)	(-1.224)	(-1.772)	(-1.032)	(-0.816)

	1.633)																				
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001								-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
	(-0.702)	(-0.960)	(-0.719)	(-0.898)	(-0.689)	(-1.011)	(-0.932)								(-0.683)	(-0.956)	(-0.697)	(-0.886)	(-0.661)	(-0.993)	(-0.898)
Big4								0.090	0.089	0.085	0.087	0.085	0.085	0.085							
								(1.185)	(1.122)	(1.124)	(1.130)	(1.129)	(1.091)	(1.096)							
ceoch								0.075	0.082	0.092	0.086	0.092	0.094	0.095							
								(0.785)	(0.821)	(0.939)	(0.885)	(0.947)	(0.942)	(0.957)							
sg								-0.000	-0.002	-0.005	-0.001	-0.004	-0.005	-0.004							
								(-0.056)	(-0.250)	(-0.628)	(-0.072)	(-0.496)	(-0.629)	(-0.473)							
Constant	0.521	0.727	0.487	0.814	0.492	0.640	0.835	0.072	0.160	0.067	-0.008	0.032	0.061	0.009	0.562	0.753	0.534	0.850	0.548	0.686	0.904
	(0.892)	(1.495)	(1.184)	(1.185)	(0.884)	(1.348)	(1.240)	(0.129)	(0.304)	(0.134)	(-0.014)	(0.059)	(0.120)	(0.017)	(0.919)	(1.458)	(1.288)	(1.142)	(0.926)	(1.352)	(1.224)
Observations	105	104	105	104	105	104	104	116	115	116	115	116	115	115	105	104	105	104	105	104	104
R-squared	0.139	0.088	0.147	0.087	0.147	0.089	0.087	0.090	0.087	0.093	0.103	0.096	0.095	0.100	0.145	0.094	0.154	0.095	0.154	0.099	0.098
Chi2-test	28.01	38.03	27.52	38.12	29.36	42.04	41.85	13.57	13.80	14.76	13.26	14.65	14.51	14.43	29.41	38.76	29.31	38.93	31.13	44.21	45.35
Prob>chi2	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.059	0.055	0.039	0.103	0.066	0.069	0.108	0.001	0.000	0.001	0.000	0.001	0.000	0.000
Endogenous test																					
Hausman Chi2	0.076	4.547	0.271	5.222	0.324	5.361	6.077	1.247	1.495	0.242	2.859	1.551	1.936	3.416	0.947	6.388	0. 2906	7.280	0.311	6.858	7.747
Hausman Prob>Chi2	0.783	0.033	0.603	0.074	0.851	0.069	0.108	0.264	0.222	0.623	0.240	0.461	0.380	0.332	0.109	0.410	0.865	0.064	0.958	0.077	0.101
Weak Instrument test																					
F-test *Sta cscore2*															1.073	1.077	1.077	0.711	0.711	0.715	0.530
Sta bsize2	59.284***			31.409***	30.684***		21.180***	66.140***			37.136***	32.643***		24.615***	33.268***	52.771***	112.619***	23.622***	23.619***		18.434***
Sta ned2		104.955***		51.949***		52.241***	34.142***		144.306***		56.541***		57.262***	37.533***				34.783***		34.836***	25.572***
Dual2			152.326***		75.314***	89.309***	62.316***			208.286***		104.033***	112.702***	78.426***					80.117***	70.441***	57.263***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Cscore2: denotes for the levels of accounting conservatism in year Y-2 (two year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.40 The endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
ENDOME22 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOME23-ENDOME24 test the effects of board effectiveness on board structures (BE→ BS), ENDOME26-ENDOME32 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	**Step2: BE→ BS**		**Step3: BE, BS→ premiums**						
Variables	endome22 prem	endome23 bsize	endome24 ned	endome26 prem	endome27 prem	endome28 prem	endome29 prem	endome30 prem	endome31 prem	endome32 prem
Sta cscore	0.016	-0.723	-0.380	0.016	0.012	0.020	0.014	0.021	0.020	0.026
	(0.244)	(-1.206)	(-0.579)	(0.232)	(0.183)	(0.308)	(0.200)	(0.302)	(0.292)	(0.350)
Sta bsize				-0.004			0.015	0.003		0.036
				(-0.076)			(0.251)	(0.045)		(0.533)
Sta ned					0.065		0.066		0.080	0.086
					(1.368)		(1.340)		(1.518)	(1.489)
dual						0.045		0.047	0.089	0.112
						(0.585)		(0.524)	(0.967)	(0.996)
size	-0.030	0.380***	0.150	-0.029	-0.041	-0.029	-0.046	-0.030	-0.042	-0.053
	(-1.105)	(4.263)	(1.567)	(-0.817)	(-1.236)	(-1.084)	(-1.050)	(-0.837)	(-1.239)	(-1.163)
roa	-0.321	-0.736	-1.240	-0.323	-0.315	-0.308	-0.308	-0.306	-0.288	-0.264
	(-1.007)	(-1.022)	(-1.419)	(-0.970)	(-0.959)	(-0.947)	(-0.902)	(-0.887)	(-0.844)	(-0.728)
bown	0.067	0.507	-0.778	0.070	0.133	0.068	0.121	0.066	0.151	0.125
	(0.504)	(1.035)	(-1.413)	(0.521)	(0.943)	(0.512)	(0.871)	(0.482)	(1.060)	(0.882)
lnnas	0.055*			0.056*	0.061**	0.057*	0.058*	0.056*	0.065**	0.060*
	(1.826)			(1.654)	(2.031)	(1.876)	(1.725)	(1.673)	(2.169)	(1.784)
level	0.274			0.276	0.250	0.308	0.242	0.307	0.311	0.307
	(1.115)			(1.165)	(1.010)	(1.180)	(1.024)	(1.194)	(1.154)	(1.167)
fcf	-0.279*			-0.280*	-0.195	-0.272*	-0.189	-0.271*	-0.161	-0.137
	(-1.779)			(-1.815)	(-1.291)	(-1.749)	(-1.224)	(-1.772)	(-1.032)	(-0.816)
pea	-0.001			-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
	(-0.704)			(-0.683)	(-0.956)	(-0.697)	(-0.886)	(-0.661)	(-0.993)	(-0.898)

Big4			0.009	0.031							
			(0.054)	(0.144)							
ceoch			0.186	0.656**							
			(0.603)	(2.079)							
sg			0.049	-0.023							
			(1.416)	(-0.877)							
Constant		0.587	-6.775***	-2.460	0.562	0.753	0.534	0.850	0.548	0.686	0.904
		(1.380)	(-4.226)	(-1.389)	(0.919)	(1.458)	(1.288)	(1.142)	(0.926)	(1.352)	(1.224)
Observations		105	116	116	105	104	105	104	105	104	104
R-squared		0.146	0.218	0.159	0.145	0.094	0.154	0.095	0.154	0.099	0.098
Chi2-test		27.82	43.25	22.22	29.41	38.76	29.31	38.93	31.13	44.21	45.35
Prob>chi2		0.001	0.000	0.002	0.001	0.000	0.001	0.000	0.001	0.000	0.000
Endogenous test											
Hausman Chi2		0.069	0.332	0.001	0.947	6.388	0. 2906	7.280	0.311	6.858	7.747
Hausman Prob>Chi2		0.793	0.564	0.982	0.109	0.410	0.865	0.064	0.958	0.077	0.101
Weak instrument test											
F-test	*Sta cscore2*	2.166	22.058***	22.058***	1.073	1.077	1.077	0.711	0.711	0.715	0.530
	Sta bsize2				33.268***			23.622***	23.619***		18.434***
	Sta ned2					52.771***		34.783***		34.836***	25.572***
	Dual2						112.619***		80.117***	70.441***	57.263***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Cscore2: denotes for the levels of accounting conservatism in year Y-2 (two year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta cscore: the standardised cscore in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta cscore2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa:

return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.41 the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	-0.247	0.119	0.119	0.023	2.192**
prem	<---	size	-0.126	0.053	-0.240	0.000	-1.489
prem	<---	roa	1.673	0.076	3.097	0.000	1.270
prem	<---	lnnas	0.078	0.261	0.337	0.000	3.285***
prem	<---	bown	-0.465	0.476	-1.637	0.000	-1.623
prem	<---	level	0.017	0.941	-0.142	0.294	-0.601
prem	<---	pea	0.006	0.209	0.000	0.739	-1.273
prem	<---	fcf	-2.047	0.086	-1.360	0.019	0.518

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	-0.247	0.119	0.202	0.390	1.585
prem	<---	size	-0.126	0.053	0.103	0.319	1.875*
prem	<---	roa	1.673	0.076	-1.845	0.002	-3.164***
prem	<---	lnnas	0.078	0.261	0.082	0.339	0.038
prem	<---	bown	-0.465	0.476	0.493	0.393	1.099
prem	<---	level	0.017	0.941	-1.309	0.060	-1.812*
prem	<---	pea	0.006	0.209	-0.001	0.755	-1.238
prem	<---	fcf	-2.047	0.086	0.999	0.394	1.824*

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.119	0.023	0.202	0.390	0.343
prem	<---	size	-0.240	0.000	0.103	0.319	3.101***
prem	<---	roa	3.097	0.000	-1.845	0.002	-5.86***
prem	<---	lnnas	0.337	0.000	0.082	0.339	-2.713***
prem	<---	bown	-1.637	0.000	0.493	0.393	3.258***
prem	<---	level	-0.142	0.294	-1.309	0.060	-1.646
prem	<---	pea	0.000	0.739	-0.001	0.755	-0.279
prem	<---	fcf	-1.360	0.019	0.999	0.394	1.806*

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.152	0.432	0.194	0.000	0.214
prem	<---	size	0.066	0.520	0.043	0.089	-0.213
prem	<---	roa	-2.908	0.003	0.177	0.510	3.019***
prem	<---	lnnas	0.208	0.062	0.087	0.000	-1.076
prem	<---	bown	1.395	0.350	-0.613	0.000	-1.334
prem	<---	level	-0.740	0.064	-0.605	0.000	0.326
prem	<---	pea	0.003	0.166	0.000	0.000	-1.589
prem	<---	fcf	1.685	0.159	0.366	0.077	-1.085

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.152	0.432	-0.091	0.590	-0.946
prem	<---	size	0.066	0.520	-0.125	0.010	-1.679*
prem	<---	roa	-2.908	0.003	0.103	0.838	2.72***
prem	<---	lnnas	0.208	0.062	0.225	0.000	0.145
prem	<---	bown	1.395	0.350	0.230	0.547	-0.755
prem	<---	level	-0.740	0.064	-0.495	0.120	0.479
prem	<---	pea	0.003	0.166	-0.002	0.272	-1.768*
prem	<---	fcf	1.685	0.159	0.137	0.859	-1.087

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.194	0.000	-0.091	0.590	-1.677*
prem	<---	size	0.043	0.089	-0.125	0.010	-3.068***
prem	<---	roa	0.177	0.510	0.103	0.838	-0.130
prem	<---	lnnas	0.087	0.000	0.225	0.000	3***
prem	<---	bown	-0.613	0.000	0.230	0.547	1.992**
prem	<---	level	-0.605	0.000	-0.495	0.120	0.323
prem	<---	pea	0.000	0.000	-0.002	0.272	-0.844
prem	<---	fcf	0.366	0.077	0.137	0.859	-0.287

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.42 the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness) **- group differences**

			Cscore High		Cscore Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta bsize	0.013	0.905	-0.021	0.637	-0.286
prem	<---	sta ned	-0.015	0.855	-0.006	0.905	0.092
prem	<---	dual	-0.424	0.141	0.056	0.631	1.543
prem	<---	size	-0.081	0.200	-0.069	0.044	0.162
prem	<---	roa	-2.236	0.000	0.804	0.062	4.064***
prem	<---	lnnas	0.115	0.108	0.099	0.020	-0.193
prem	<---	bown	0.417	0.382	0.042	0.918	-0.600
prem	<---	level	-0.072	0.830	-0.413	0.011	-0.920
prem	<---	pea	0.000	0.975	0.001	0.292	0.720
prem	<---	fcf	1.678	0.047	-2.123	0.002	-3.507***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.43 the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.213	0.133	0.001	0.959	-1.473
prem	<---	size	-0.101	0.069	-0.058	0.200	0.595
prem	<---	roa	0.092	0.797	-0.488	0.438	-0.802
prem	<---	lnnas	0.010	0.850	0.107	0.000	1.628
prem	<---	bown	-0.200	0.448	0.418	0.026	1.91*
prem	<---	level	0.456	0.113	0.185	0.332	-0.785
prem	<---	pea	-0.001	0.721	-0.002	0.201	-0.213
prem	<---	fcf	-0.491	0.238	0.949	0.139	1.885*

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.213	0.133	0.515	0.053	1.000
prem	<---	size	-0.101	0.069	0.061	0.207	2.202**
prem	<---	roa	0.092	0.797	-0.169	0.779	-0.373
prem	<---	lnnas	0.010	0.850	0.012	0.799	0.028
prem	<---	bown	-0.200	0.448	-0.022	0.926	0.503
prem	<---	level	0.456	0.113	1.014	0.006	1.189
prem	<---	pea	-0.001	0.721	0.000	0.968	0.292
prem	<---	fcf	-0.491	0.238	-0.357	0.441	0.215

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.001	0.959	0.515	0.053	1.922*
prem	<---	size	-0.058	0.200	0.061	0.207	1.798*
prem	<---	roa	-0.488	0.438	-0.169	0.779	0.367
prem	<---	lnnas	0.107	0.000	0.012	0.799	-1.743*
prem	<---	bown	0.418	0.026	-0.022	0.926	-1.458
prem	<---	level	0.185	0.332	1.014	0.006	1.986**
prem	<---	pea	-0.002	0.201	0.000	0.968	0.621
prem	<---	fcf	0.949	0.139	-0.357	0.441	-1.652*

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.486	0.077	0.056	0.102	-1.554
prem	<---	size	0.055	0.349	-0.128	0.005	-2.454**
prem	<---	roa	-1.039	0.011	0.709	0.194	2.57**
prem	<---	lnnas	0.040	0.363	0.078	0.022	0.694
prem	<---	bown	0.229	0.351	-0.233	0.421	-1.217
prem	<---	level	1.161	0.008	0.354	0.168	-1.590
prem	<---	pea	-0.005	0.272	0.006	0.137	1.822*
prem	<---	fcf	0.028	0.917	-1.228	0.086	-1.644

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.486	0.077	0.436	0.012	-0.153
prem	<---	size	0.055	0.349	0.029	0.437	-0.380
prem	<---	roa	-1.039	0.011	-0.472	0.334	0.893
prem	<---	lnnas	0.040	0.363	0.028	0.403	-0.201
prem	<---	bown	0.229	0.351	0.008	0.956	-0.774
prem	<---	level	1.161	0.008	0.918	0.000	-0.477
prem	<---	pea	-0.005	0.272	-0.003	0.061	0.378
prem	<---	fcf	0.028	0.917	-0.079	0.863	-0.201

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.056	0.102	0.436	0.012	2.142**
prem	<---	size	-0.128	0.005	0.029	0.437	2.665***
prem	<---	roa	0.709	0.194	-0.472	0.334	-1.613
prem	<---	lnnas	0.078	0.022	0.028	0.403	-1.026
prem	<---	bown	-0.233	0.421	0.008	0.956	0.743
prem	<---	level	0.354	0.168	0.918	0.000	1.539
prem	<---	pea	0.006	0.137	-0.003	0.061	-2.065**
prem	<---	fcf	-1.228	0.086	-0.079	0.863	1.354

Panel C: Group difference analysis of CEO duality

			Dual		Not dual		z-score
			Estimate	P	Estimate	P	
prem	<---	sta cscore	0.354	0.168	0.033	0.323	1.242
prem	<---	size	0.014	0.768	-0.049	0.204	1.021
prem	<---	roa	0.213	0.701	-0.259	0.435	0.729
prem	<---	lnnas	0.023	0.645	0.073	0.014	-0.868
prem	<---	bown	-0.160	0.448	0.194	0.301	-1.255
prem	<---	level	0.575	0.074	0.434	0.052	0.360

prem	<---	pea	-0.003	0.164	0.001	0.800	-1.041
prem	<---	fcf	-0.705	0.067	-0.248	0.513	-0.847

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.44 the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness) **- group differences**

			Cscore High		Cscore Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta bsize	0.003	0.937	0.003	0.921	0.010
prem	<---	sta ned	-0.021	0.666	0.016	0.617	0.633
prem	<---	dual	0.145	0.095	-0.094	0.230	-2.043**
prem	<---	size	-0.011	0.800	-0.089	0.004	-1.442
prem	<---	roa	0.371	0.421	-0.278	0.246	-1.249
prem	<---	lnnas	0.053	0.187	0.054	0.022	0.019
prem	<---	bown	0.125	0.625	0.078	0.559	-0.161
prem	<---	level	0.698	0.008	-0.010	0.961	-2.101**
prem	<---	pea	-0.003	0.161	0.002	0.299	1.743*
prem	<---	fcf	-0.777	0.070	-0.267	0.367	0.980

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low and high levels for sta cscore is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.45 SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in third-party deals
(BS→ BE→ premiums). *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	114.469	74	1.547	0.085	0.744	0.852

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	sta cscore	<---	sta bsize	-0.001	0.075	-0.012	0.991
	sta cscore	<---	sta ned	0.136	0.077	1.764	0.078
	sta cscore	<---	dual	0.109	0.222	0.494	0.622
BE →Prem	prem	<---	sta cscore	0.064	0.081	0.795	0.426
BS →Prem	prem	<---	sta bsize	-0.020	0.053	-0.382	0.702
	prem	<---	sta ned	-0.058	0.056	-1.052	0.293
	prem	<---	dual	-0.031	0.156	-0.200	0.841
Control variables	sta cscore	<---	sg	-0.020	0.091	-0.222	0.824
	sta cscore	<---	ceoch	-0.358	0.275	-1.304	0.192
	sta cscore	<---	big4	0.064	0.201	0.319	0.750
	sta cscore	<---	roa	0.100	0.482	0.208	0.835
	sta cscore	<---	size	-0.270	0.048	-5.606	0.000
	sta cscore	<---	bown	-0.233	0.567	-0.412	0.680
	prem	<---	size	-0.028	0.046	-0.605	0.545
	prem	<---	roa	-1.218	0.424	-2.872	0.004
	prem	<---	level	-0.358	0.200	-1.794	0.073
	prem	<---	lnnas	0.136	0.047	2.914	0.004
	prem	<---	pea	0.000	0.001	0.180	0.857
	prem	<---	fcf	0.891	0.543	1.640	0.101
	prem	<---	bown	0.157	0.403	0.389	0.697

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta cscore →prem	-0.052	0.609	-0.038	0.702	No mediation
Sta Ned →sta cscore →prem	-0.096	0.353	-0.109	0.293	No mediation
Dual →sta cscore →prem	-0.015	0.880	-0.020	0.841	No mediation

Panel D: Bootstrapping tests

Standardised Indirect Effects	Sta bsize	dual	Sta ned
Sta cscore	0.000	0.000	0.000
prem	0.000 (0.917)	0.004 (0.363)	0.016 (0.257)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta cscore
Sta cscore	-0.001 (0.979)	0.045 (0.536)	0.163 (0.014)	0.000
prem	-0.038 (0.660)	-0.020 (0.713)	-0.109 (0.445)	0.100 (0.475)

Standardised Total Effects	Sta bsize	dual	Sta ned	Sta cscore
Sta cscore	-0.001 (0.979)	0.045 (0.536)	0.163 (0.014)	0.000
prem	-0.038 (0.704)	-0.016 (0.721)	-0.093 (0.521)	0.100 (0.475)

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.46 SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(BE→ BS→ premiums). *(In the third-party LBO context, more conservative accounting tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	97.916	61	1.605	0.090	0.767	0.873

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta cscore	-0.127	0.117	-1.083	0.279
	sta ned	<---	sta cscore	0.277	0.133	2.080	0.038
	dual	<---	sta cscore	0.027	0.049	0.558	0.577
BS →Prem	prem	<---	sta bsize	-0.020	0.065	-0.308	0.758
	prem	<---	sta ned	-0.058	0.057	-1.028	0.304
	prem	<---	dual	-0.031	0.157	-0.200	0.841
BE →Prem	prem	<---	sta cscore	0.064	0.069	0.925	0.355
Control variables	dual	<---	big4	-0.001	0.104	-0.006	0.995
	dual	<---	sg	-0.029	0.047	-0.620	0.535
	dual	<---	size	0.006	0.026	0.237	0.812
	dual	<---	roa	-0.084	0.250	-0.335	0.737
	dual	<---	bown	0.020	0.291	0.068	0.946
	dual	<---	ceoch	0.087	0.143	0.613	0.540
	sta ned	<---	ceoch	0.380	0.392	0.969	0.332
	sta ned	<---	big4	0.124	0.285	0.434	0.664
	sta ned	<---	sg	0.064	0.129	0.497	0.619
	sta ned	<---	size	0.085	0.070	1.220	0.223
	sta ned	<---	roa	-1.097	0.685	-1.601	0.109
	sta ned	<---	bown	-0.941	0.797	-1.181	0.238
	sta bsize	<---	ceoch	0.238	0.332	0.716	0.474
	sta bsize	<---	big4	-0.530	0.242	-2.191	0.028
	sta bsize	<---	sg	-0.021	0.109	-0.192	0.848
	sta bsize	<---	size	0.301	0.061	4.911	0.000
	sta bsize	<---	roa	-0.429	0.636	-0.675	0.500
	sta bsize	<---	bown	1.211	0.685	1.769	0.077
	prem	<---	size	-0.028	0.045	-0.622	0.534
	prem	<---	roa	-1.218	0.443	-2.751	0.006
	prem	<---	level	-0.358	0.200	-1.796	0.072
	prem	<---	lnnas	0.136	0.046	2.936	0.003
	prem	<---	pea	0.000	0.001	0.180	0.857
	prem	<---	fcf	0.891	0.599	1.487	0.137
	prem	<---	bown	0.157	0.407	0.385	0.700

Panel C:

Relationship	**Direct without Mediator** *Coefficients*	*p-value*	**Direct with Mediator** *Coefficients*	*p-value*	**Indirect**
Sta Cscore →sta bsize →prem	0.077	0.446	0.072	0.476	No mediation
Sta Cscore →sta ned →prem	0.077	0.446	0.101	0.329	No mediation
Sta Cscore →dual →prem	0.077	0.446	0.078	0.441	No mediation

Panel D: Bootstrapping tests

	Sta Cscore →sta bsize →prem		**Sta Cscore →sta ned →prem**		**Sta Cscore →dual →prem**	
Standardised Indirect Effects		cscore		cscore		cscore
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	0.001 (0.754)	prem	-0.024 (0.317)	prem	-0.001 (0.760)

Standardised Direct Effects		cscore		cscore		cscore
	dual	0.000	dual	0.000	dual	0.064 (0.644)
	Sta ned	0.000	Sta ned	0.223 (0.046)	Sta ned	0.000
	Sta bsize	-0.020 (0.851)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.072 (0.585)	prem	0.101 (0.432)	prem	0.078 (0.539)

Standardised Total Effects		cscore		cscore		cscore
	dual	0.000	dual	0.000	dual	0.064 (0.644)
	Sta ned	0.000	Sta ned	0.223 (0.046)	Sta ned	0.000
	Sta bsize	-0.020 (0.851)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.073 (0.552)	prem	0.077 (0.522)	prem	0.077 (0.536)

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.47 SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(BS→ BE→ premiums). *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	131.759	74	1.781	0.087	0.800	0.862

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	Sta cscore	<---	Sta bsize	-0.007	0.022	-0.300	0.764
	Sta cscore	<---	Sta ned	-0.040	0.022	-1.820	0.069
	Sta cscore	<---	dual	0.005	0.053	0.099	0.921
BE →Prem	prem	<---	Sta cscore	0.267	0.116	2.295	0.022
BS →Prem	prem	<---	Sta bsize	0.014	0.029	0.488	0.625
	prem	<---	Sta ned	0.002	0.029	0.053	0.958
	prem	<---	dual	0.069	0.067	1.025	0.306
Control variables	Sta cscore	<---	sg	-0.023	0.010	-2.299	0.022
	Sta cscore	<---	ceoch	0.093	0.078	1.192	0.233
	Sta cscore	<---	big4	0.193	0.046	4.212	0.000
	Sta cscore	<---	roa	-0.844	0.162	-5.220	0.000
	Sta cscore	<---	size	0.000	0.019	-0.025	0.980
	Sta cscore	<---	bown	-0.101	0.110	-0.916	0.360
	prem	<---	size	-0.030	0.030	-1.008	0.314
	prem	<---	roa	-0.167	0.280	-0.596	0.551
	prem	<---	level	0.585	0.210	2.783	0.005
	prem	<---	lnnas	0.052	0.025	2.066	0.039
	prem	<---	pea	-0.001	0.002	-0.670	0.503
	prem	<---	fcf	-0.234	0.246	-0.949	0.343
	prem	<---	bown	0.095	0.151	0.631	0.528

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta bsize →sta cscore →prem	0.029	0.763	0.046	0.625	No mediation
Sta ned →sta cscore →prem	-0.028	0.773	0.005	0.958	No mediation
Dual →sta cscore →prem	0.097	0.325	0.100	0.306	No mediation

Panel D: Bootstrapping tests

Standardised Indirect Effects	Sta bsize	dual	Sta ned
Sta cscore	0	0	0
prem	-0.006 (0.697)	0.002 (0.878)	-0.035 (0.042)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta cscore
Sta cscore	-0.019 (0.812)	0.007 (0.935)	-0.117 (0.064)	0
prem	0.046 (0.825)	0.1 (0.392)	0.005 (0.862)	0.298 (0.031)

Standardised Total Effects	Sta bsize	dual	Sta ned	Sta cscore
Sta cscore	-0.019 (0.812)	0.007 (0.935)	-0.117 (0.064)	0
prem	0.04 (0.790)	0.102 (0.400)	-0.030 (0.833)	0.298 (0.031)

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.48 SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(BE→ BS→ premiums). *(In the MBO context, less conservative accounting tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	106.928	62	1.725	0.083	0.844	0.884

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta cscore	-0.430	0.285	-1.509	0.131
	sta ned	<---	sta cscore	-0.393	0.293	-1.343	0.179
	dual	<---	sta cscore	0.230	0.132	1.745	0.081
BS →Prem	prem	<---	bsize	0.014	0.031	0.454	0.650
	prem	<---	ned	0.002	0.029	0.053	0.958
	prem	<---	dual	0.069	0.065	1.048	0.295
BE →Prem	prem	<---	sta cscore	0.267	0.117	2.288	0.022
Control variables	dual	<---	big4	0.060	0.090	0.672	0.502
	dual	<---	sg	0.043	0.019	2.315	0.021
	dual	<---	size	-0.067	0.038	-1.768	0.077
	dual	<---	roa	0.092	0.341	0.268	0.788
	dual	<---	bown	0.037	0.211	0.178	0.859
	dual	<---	ceoch	-0.299	0.153	-1.952	0.051
	sta ned	<---	ceoch	0.685	0.341	2.010	0.044
	sta ned	<---	big4	0.079	0.200	0.393	0.694
	sta ned	<---	sg	-0.018	0.042	-0.436	0.663
	sta ned	<---	size	0.154	0.084	1.821	0.069
	sta ned	<---	roa	-1.011	0.759	-1.332	0.183
	sta ned	<---	bown	-0.842	0.468	-1.799	0.072
	sta bsize	<---	ceoch	0.136	0.332	0.408	0.683
	sta bsize	<---	big4	0.010	0.195	0.054	0.957
	sta bsize	<---	sg	0.050	0.041	1.221	0.222
	sta bsize	<---	size	0.361	0.082	4.389	0.000
	sta bsize	<---	roa	-0.492	0.739	-0.666	0.506
	sta bsize	<---	bown	0.423	0.455	0.929	0.353
	prem	<---	size	-0.030	0.032	-0.942	0.346
	prem	<---	roa	-0.167	0.281	-0.594	0.553
	prem	<---	level	0.585	0.194	3.021	0.003
	prem	<---	lnnas	0.052	0.025	2.064	0.039
	prem	<---	pea	-0.001	0.002	-0.670	0.503
	prem	<---	fcf	-0.234	0.240	-0.973	0.330
	prem	<---	bown	0.095	0.149	0.640	0.522

Panel C:

Relationship	Direct without Mediator		Direct with Mediator		Indirect
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Cscore →sta bsize →prem	0.277	0.017	0.284	0.020	No mediation
Sta Cscore →sta ned →prem	0.277	0.017	0.278	0.022	No mediation
Sta Cscore →dual →prem	0.277	0.017	0.276	0.023	No mediation

Panel D: Bootstrapping tests

	Sta Cscore →sta bsize →prem		**Sta Cscore →sta ned →prem**		**Sta Cscore →sta dual →prem**	
Standardised Indirect Effects		sta cscore		sta cscore		sta cscore
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.003 (0.664)	prem	0.003 (0.694)	prem	0.015 (0.249)

Standardised Direct Effects		sta cscore		sta cscore		sta cscore
	dual	0.000	dual	0.000	dual	0.165 (0.097)
	Sta ned	0.000	Sta ned	-0.126 (0.157)	Sta ned	0.000
	Sta bsize	-0.137 (0.176)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.284 (0.024)	prem	0.278 (0.028)	prem	0.276 (0.024)

Standardised Total Effects		sta cscore		sta cscore		sta cscore
	dual	0.000	dual	0.000	dual	0.165 (0.097)
	Sta ned	0.000	Sta ned	-0.126 (0.157)	Sta ned	0.000
	Sta bsize	-0.137 (0.176)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.281 (0.022)	prem	0.281 (0.023)	prem	0.290 (0.025)

Prem: takeover premiums 4 weeks before the takeover announcement. Cscore: denotes for the levels of accounting conservatism in year Y-1 (one year before the announcement of takeovers), which is calculated via Khan & Watts (2009) model. Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta cscore: the standardised cscore in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.49 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for moderation analysis: Step 1 the constrained model (third-party LBOs)
(*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals *(In the third-party LBO context, the longer board tenure tends to indicate a high level of board effectiveness)*

Variables	lo24 prem	lo25 prem	lo26 prem	lo27 prem	lo28 prem	lo29 prem	lo30 prem	lo31 prem	lo32 prem	lo33 prem	lo34 prem	lo35 prem	lo36 prem	lo37 prem	lo38 prem	lo39 prem
Sta btenure									0.043	0.043	0.042	0.048	0.042	0.048	0.047	0.047
									(0.845)	(0.832)	(0.811)	(0.915)	(0.795)	(0.899)	(0.878)	(0.859)
Sta bsize		-0.022			-0.027	-0.022		-0.027		-0.001			-0.004	0.001		-0.002
		(-0.376)			(-0.466)	(-0.371)		(-0.461)		(-0.009)			(-0.054)	(0.009)		(-0.036)
Sta ned			-0.048		-0.050		-0.049	-0.051			-0.024		-0.025		-0.025	-0.025
			(-0.745)		(-0.770)		(-0.755)	(-0.780)			(-0.370)		(-0.370)		(-0.386)	(-0.384)
dual				-0.019		-0.018	-0.024	-0.024				-0.057		-0.058	-0.060	-0.060
				(-0.138)		(-0.132)	(-0.173)	(-0.168)				(-0.422)		(-0.417)	(-0.436)	(-0.428)
size	-0.051	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	-0.039	-0.039	-0.038	-0.040	-0.037	-0.040	-0.039	-0.038
	(-1.214)	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(-0.877)	(-0.757)	(-0.866)	(-0.876)	(-0.738)	(-0.762)	(-0.865)	(-0.741)
roa	-1.101	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	-1.169	-1.169	-1.199	-1.180	-1.195	-1.181	-1.211	-1.208
	(-1.189)	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(-1.218)	(-1.222)	(-1.233)	(-1.229)	(-1.233)	(-1.234)	(-1.250)	(-1.250)
bown	0.163	0.185	0.109	0.163	0.134	0.185	0.109	0.134	0.057	0.058	0.033	0.057	0.037	0.056	0.032	0.034
	(0.362)	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(0.122)	(0.117)	(0.068)	(0.118)	(0.072)	(0.111)	(0.064)	(0.066)
lnnas	0.134***	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***	0.117**	0.117**	0.114**	0.117**	0.115**	0.117**	0.115**	0.115**
	(2.829)	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)	(2.179)	(2.156)	(2.174)	(2.162)	(2.155)	(2.137)	(2.156)	(2.134)
level	-0.371*	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*	-0.491***	-0.491***	-0.479**	-0.482**	-0.478**	-0.482**	-0.469**	-0.468**
	(-1.972)	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)	(-2.799)	(-2.797)	(-2.537)	(-2.649)	(-2.529)	(-2.647)	(-2.412)	(-2.406)
fcf	0.812	0.735	0.828	0.815	0.734	0.738	0.831	0.737	0.375	0.373	0.394	0.377	0.383	0.379	0.397	0.389
	(0.839)	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)	(0.397)	(0.406)	(0.412)	(0.400)	(0.411)	(0.412)	(0.415)	(0.417)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)	(0.288)	(0.286)	(0.248)	(0.276)	(0.246)	(0.274)	(0.236)	(0.233)
Constant	0.886	0.776	0.854	0.888	0.717	0.778	0.856	0.720	0.841	0.837	0.830	0.849	0.811	0.852	0.839	0.825
	(1.234)	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(1.134)	(0.935)	(1.123)	(1.132)	(0.916)	(0.938)	(1.120)	(0.918)

Observations	76	76	76	76	76	76	76	76	71	71	71	71	71	71	71	71
R-squared	0.188	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.228	0.228	0.230	0.230	0.230	0.230	0.232	0.232
F-test	1.895	1.653	1.864	1.672	1.643	1.482	1.911	1.713	1.741	1.528	1.568	1.717	1.391	1.524	1.799	1.610
Prob>F	0.084	0.127	0.081	0.121	0.121	0.173	0.065	0.097	0.107	0.159	0.145	0.104	0.207	0.153	0.080	0.120

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.50 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, the longer board tenure tends to indicate a high level of board effectiveness)*

Variables	lo40 prem	lo41 prem	lo42 prem	lo43 prem	lo44 prem	lo45 prem	lo46 prem
sta tenure	0.055	0.020	0.025	0.032	0.030	-0.022	-0.021
	(0.785)	(0.353)	(0.413)	(0.469)	(0.301)	(-0.505)	(-0.252)
sta bsize	-0.001			-0.001	-0.002		-0.002
	(-0.012)			(-0.021)	(-0.027)		(-0.029)
sta ned		-0.024		-0.028		-0.016	-0.017
		(-0.371)		(-0.405)		(-0.247)	(-0.236)
dual			-0.122		-0.121	-0.086	-0.086
			(-0.847)		(-0.792)	(-0.513)	(-0.489)
sta bsize *sta btenure	-0.030			-0.035	-0.009		-0.002
	(-0.426)			(-0.454)	(-0.103)		(-0.021)
sta ned *sta btenure		0.067		0.068		0.101	0.100
		(0.765)		(0.795)		(1.206)	(1.314)
dual *sta btenure			0.140		0.132	0.188**	0.186
			(1.561)		(0.899)	(2.124)	(1.305)
size	-0.036	-0.032	-0.042	-0.028	-0.040	-0.032	-0.031
	(-0.700)	(-0.719)	(-0.911)	(-0.556)	(-0.765)	(-0.696)	(-0.596)
roa	-1.206	-1.300	-1.169	-1.347	-1.179	-1.327	-1.327
	(-1.264)	(-1.345)	(-1.220)	(-1.401)	(-1.271)	(-1.364)	(-1.406)
bown	0.057	0.098	0.098	0.095	0.097	0.194	0.194
	(0.114)	(0.197)	(0.204)	(0.184)	(0.190)	(0.391)	(0.373)
lnnas	0.110*	0.115**	0.114**	0.108*	0.112**	0.112**	0.112**
	(1.986)	(2.180)	(2.100)	(1.957)	(2.030)	(2.116)	(2.072)
level	-0.489***	-0.466**	-0.432**	-0.461**	-0.434**	-0.397*	-0.397*
	(-2.765)	(-2.440)	(-2.212)	(-2.386)	(-2.156)	(-1.893)	(-1.860)
fcf	0.375	0.511	0.335	0.514	0.333	0.508	0.502
	(0.401)	(0.540)	(0.357)	(0.553)	(0.363)	(0.536)	(0.543)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.263)	(0.271)	(0.288)	(0.238)	(0.275)	(0.309)	(0.300)
Constant	0.808	0.702	0.867	0.659	0.848	0.664	0.652
	(0.904)	(0.929)	(1.145)	(0.746)	(0.929)	(0.859)	(0.714)
Observations	71	71	71	71	71	71	71
F-test	1.360	1.470	3.390***	1.220	2.820***	2.150**	1.844*
Prob>F	0.222	0.173	0.002	0.292	0.004	0.027	0.054
R-squared	0.231	0.238	0.242	0.242	0.242	0.258	0.258
△R-squared	0.003	0.008	0.012	0.012	0.012	0.026	0.026

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.51 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the regression approach for moderation analysis: Step 1 the constrained model (third-party LBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	lo47 prem	lo48 prem	lo49 prem	lo50 prem	lo51 prem	lo52 prem	lo53 prem	lo54 prem	lo55 prem	lo56 prem	lo57 prem	lo58 prem	lo59 prem	lo60 prem	lo61 prem	lo62 prem
Sta fe									-0.071	-0.081	-0.066	-0.071	-0.076	-0.081	-0.066	-0.076
									(-1.045)	(-1.117)	(-0.921)	(-1.037)	(-1.002)	(-1.107)	(-0.915)	(-0.995)
Sta bsize		-0.022			-0.027	-0.022		-0.027		-0.051			-0.053	-0.051		-0.053
		(-0.376)			(-0.466)	(-0.371)		(-0.461)		(-0.759)			(-0.786)	(-0.753)		(-0.779)
Sta ned			-0.048		-0.050		-0.049	-0.051			-0.036		-0.038		-0.036	-0.038
			(-0.745)		(-0.770)		(-0.755)	(-0.780)			(-0.537)		(-0.575)		(-0.546)	(-0.584)
dual				-0.019		-0.018	-0.024	-0.024				-0.025		-0.024	-0.028	-0.028
				(-0.138)		(-0.132)	(-0.173)	(-0.168)				(-0.176)		(-0.173)	(-0.200)	(-0.197)
size	-0.051	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	-0.048	-0.035	-0.045	-0.048	-0.032	-0.035	-0.045	-0.032
	(-1.214)	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(-1.157)	(-0.772)	(-1.117)	(-1.151)	(-0.727)	(-0.768)	(-1.110)	(-0.723)
roa	-1.101	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	-1.150	-1.102	-1.194	-1.155	-1.146	-1.106	-1.200	-1.152
	(-1.189)	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(-1.324)	(-1.331)	(-1.352)	(-1.320)	(-1.358)	(-1.328)	(-1.352)	(-1.360)
bown	0.163	0.185	0.109	0.163	0.134	0.185	0.109	0.134	0.232	0.293	0.187	0.233	0.248	0.294	0.188	0.249
	(0.362)	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(0.500)	(0.610)	(0.390)	(0.497)	(0.501)	(0.606)	(0.387)	(0.497)
lnnas	0.134***	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***	0.135***	0.138***	0.131***	0.135***	0.134***	0.138***	0.131***	0.133***
	(2.829)	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)	(2.746)	(2.764)	(2.692)	(2.725)	(2.709)	(2.741)	(2.669)	(2.686)
level	-0.371*	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*	-0.395*	-0.386*	-0.381*	-0.392*	-0.371*	-0.384*	-0.378*	-0.369*
	(-1.972)	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)	(-1.987)	(-1.941)	(-1.814)	(-1.936)	(-1.763)	(-1.889)	(-1.766)	(-1.714)
fcf	0.812	0.735	0.828	0.815	0.734	0.738	0.831	0.737	0.914	0.750	0.919	0.918	0.748	0.754	0.922	0.752
	(0.839)	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)	(0.937)	(0.838)	(0.924)	(0.936)	(0.820)	(0.839)	(0.923)	(0.822)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)	(0.457)	(0.469)	(0.387)	(0.450)	(0.398)	(0.462)	(0.379)	(0.391)
Constant	0.886	0.776	0.854	0.888	0.717	0.778	0.856	0.720	0.828	0.565	0.808	0.830	0.533	0.567	0.811	0.536
	(1.234)	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(1.160)	(0.688)	(1.131)	(1.155)	(0.658)	(0.686)	(1.126)	(0.657)
Observations	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.188	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.210	0.216	0.214	0.210	0.221	0.216	0.214	0.221

F-test	1.895	1.653	1.864	1.672	1.643	1.482	1.911	1.713	1.595	1.425	1.605	1.427	1.439	1.293	1.615	1.474
Prob>F	0.084	0.127	0.081	0.121	0.121	0.173	0.066	0.097	0.143	0.196	0.132	0.195	0.184	0.253	0.122	0.164

Robust pval in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.52 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the regression approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	Lo63 prem	Lo64 prem	Lo65 prem	Lo66 prem	Lo67 prem	Lo68 prem	Lo69 prem
sta fe	-0.070	-0.066	-0.074	-0.062	-0.072	-0.076	-0.072
	(-1.027)	(-1.033)	(-1.084)	(-0.964)	(-1.043)	(-1.148)	(-1.064)
sta bsize	-0.038			-0.006	-0.037		-0.001
	(-0.620)			(-0.117)	(-0.580)		(-0.021)
sta ned		-0.016		-0.021		-0.005	-0.009
		(-0.274)		(-0.351)		(-0.086)	(-0.138)
dual			-0.024		-0.008	-0.127	-0.120
			(-0.173)		(-0.062)	(-0.907)	(-0.827)
sta bsize *sta fe	0.042			0.021	0.042		0.015
	(0.691)			(0.352)	(0.691)		(0.233)
sta ned *sta fe		-0.192***		-0.187***		-0.204***	-0.201***
		(-3.161)		(-2.824)		(-3.227)	(-2.799)
dual *sta fe			0.051		0.051	0.133	0.130
			(0.204)		(0.210)	(0.535)	(0.502)
size	-0.038	-0.059*	-0.047	-0.057	-0.038	-0.060*	-0.059
	(-0.825)	(-1.831)	(-1.141)	(-1.508)	(-0.814)	(-1.888)	(-1.570)
roa	-1.062	-0.551	-1.130	-0.542	-1.040	-0.456	-0.453
	(-1.350)	(-0.883)	(-1.224)	(-0.892)	(-1.235)	(-0.744)	(-0.743)
bown	0.305	0.194	0.250	0.209	0.321	0.255	0.261
	(0.629)	(0.453)	(0.535)	(0.462)	(0.661)	(0.593)	(0.578)
lnnas	0.137**	0.145***	0.135***	0.144***	0.137**	0.147***	0.147***
	(2.652)	(2.878)	(2.704)	(2.798)	(2.606)	(2.871)	(2.805)
level	-0.391*	-0.279	-0.379*	-0.280	-0.377*	-0.229	-0.231
	(-1.926)	(-1.358)	(-1.765)	(-1.341)	(-1.721)	(-1.193)	(-1.181)
fcf	0.718	0.660	0.898	0.609	0.703	0.606	0.581
	(0.820)	(0.775)	(0.888)	(0.772)	(0.775)	(0.713)	(0.736)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.476)	(0.354)	(0.459)	(0.353)	(0.479)	(0.390)	(0.384)
Constant	0.633	0.944	0.810	0.905	0.621	0.917	0.907
	(0.768)	(1.634)	(1.134)	(1.269)	(0.753)	(1.621)	(1.279)
Observations	76	76	76	76	76	76	76
F-test	1.210	2.540**	1.400	2.040**	1.110	2.430**	2.009**
Prob>F	0.300	0.012	0.202	0.035	0.370	0.012	0.032
R-squared	0.223	0.343	0.211	0.345	0.223	0.353	0.353
△R-squared	0.007	0.129	0.001	0.124	0.007	0.139	0.132

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.53 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for moderation analysis: Step 1 the constrained model (MBOs)
(*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Variables	mo24 prem	mo25 prem	mo26 prem	mo27 prem	mo28 prem	mo29 prem	mo30 prem	mo31 prem	mo32 prem	mo33 prem	mo34 prem	mo35 prem	mo36 prem	mo37 prem	mo38 prem	mo39 prem
Sta btenure									-0.026	-0.027	-0.030	-0.033	-0.031	-0.033	-0.033	-0.033
									(-0.850)	(-0.828)	(-0.868)	(-1.056)	(-0.853)	(-1.016)	(-0.982)	(-0.921)
Sta bsize		0.002			-0.000	0.011		0.009		-0.009			-0.011	0.001		0.000
		(0.050)			(-0.009)	(0.227)		(0.184)		(-0.173)			(-0.230)	(0.014)		(0.003)
Sta ned			-0.018		-0.018		-0.011	-0.009			-0.015		-0.017		-0.002	-0.002
			(-0.627)		(-0.638)		(-0.397)	(-0.340)			(-0.392)		(-0.441)		(-0.067)	(-0.063)
dual				0.068		0.074	0.063	0.068				0.088		0.088	0.086	0.086
				(1.032)		(0.944)	(0.987)	(0.876)				(1.165)		(1.000)	(1.207)	(0.968)
size	-0.026	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	-0.020	-0.018	-0.016	-0.012	-0.012	-0.012	-0.012	-0.012
	(-0.956)	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(-0.630)	(-0.463)	(-0.506)	(-0.390)	(-0.315)	(-0.337)	(-0.367)	(-0.299)
roa	-0.378	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	-0.338	-0.336	-0.344	-0.324	-0.342	-0.324	-0.325	-0.325
	(-1.424)	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(-1.043)	(-1.054)	(-1.053)	(-0.963)	(-1.053)	(-0.975)	(-0.968)	(-0.966)
bown	0.074	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.092	0.097	0.082	0.105	0.088	0.105	0.104	0.104
	(0.547)	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(0.630)	(0.640)	(0.538)	(0.707)	(0.560)	(0.684)	(0.668)	(0.657)
lnnas	0.053*	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053	0.058	0.059	0.057	0.058*	0.058	0.058	0.058	0.058
	(1.677)	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)	(1.664)	(1.573)	(1.620)	(1.680)	(1.545)	(1.546)	(1.659)	(1.536)
level	0.247	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*	0.212	0.216	0.219	0.250	0.226	0.250	0.251	0.251
	(1.514)	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)	(1.152)	(1.210)	(1.166)	(1.300)	(1.244)	(1.327)	(1.288)	(1.325)
fcf	-0.255	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247	-0.041	-0.046	-0.035	-0.007	-0.042	-0.007	-0.007	-0.007
	(-1.483)	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)	(-0.148)	(-0.168)	(-0.127)	(-0.025)	(-0.150)	(-0.023)	(-0.024)	(-0.023)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.671)	(-0.645)	(-0.598)	(-0.667)	(-0.583)	(-0.624)	(-0.619)	(-0.592)	(-0.774)	(-0.764)	(-0.727)	(-0.810)	(-0.724)	(-0.783)	(-0.801)	(-0.782)
Constant	0.541	0.554	0.496	0.447	0.494	0.503	0.427	0.477	0.394	0.348	0.323	0.209	0.251	0.213	0.201	0.202
	(1.234)	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(0.776)	(0.522)	(0.645)	(0.403)	(0.368)	(0.335)	(0.380)	(0.297)
Observations	106	106	106	106	106	106	106	106	90	90	90	90	90	90	90	90

R-squared	0.137	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.092	0.092	0.093	0.106	0.094	0.106	0.106	0.106
F-test	3.492	3.107	3.003	3.256	2.724	2.962	2.834	2.641	1.052	0.958	0.936	1.026	0.869	0.957	0.941	0.913
Prob>F	0.002	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.405	0.481	0.499	0.427	0.565	0.488	0.501	0.532

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.54 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for moderation analysis: Step 2 the unconstrained model (MBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Variables	mo40 prem	mo41 prem	mo42 prem	mo43 prem	mo44 prem	mo45 prem	mo46 prem
sta btenure	-0.030	-0.024	0.000	-0.030	0.021	-0.003	0.017
	(-0.957)	(-0.713)	(0.008)	(-0.817)	(0.515)	(-0.064)	(0.375)
sta bsize	-0.003			-0.003	-0.016		-0.020
	(-0.053)			(-0.060)	(-0.312)		(-0.388)
sta ned		-0.012		-0.020		0.002	-0.020
		(-0.331)		(-0.547)		(0.062)	(-0.606)
dual			0.088		0.032	0.090	0.016
			(1.180)		(0.426)	(1.238)	(0.227)
*sta bsize *sta btenure*	-0.061			-0.067	-0.084		-0.089
	(-1.348)			(-1.440)	(-1.561)		(-1.655)
*sta ned *sta btenure*		0.044		0.053		0.023	0.006
		(1.208)		(1.349)		(0.608)	(0.169)
*dual *sta btenure*			-0.101		-0.175*	-0.083	-0.173*
			(-1.336)		(-1.962)	(-1.005)	(-1.840)
size	-0.017	-0.014	-0.018	-0.008	-0.019	-0.016	-0.013
	(-0.453)	(-0.466)	(-0.524)	(-0.225)	(-0.507)	(-0.468)	(-0.339)
roa	-0.363	-0.375	-0.310	-0.412	-0.340	-0.328	-0.355
	(-1.202)	(-1.147)	(-0.900)	(-1.357)	(-1.036)	(-0.938)	(-1.087)
bown	0.086	0.109	0.124	0.103	0.129	0.136	0.119
	(0.559)	(0.714)	(0.830)	(0.660)	(0.844)	(0.866)	(0.752)
lnnas	0.058	0.056	0.057*	0.056	0.059	0.057*	0.059
	(1.562)	(1.639)	(1.706)	(1.530)	(1.651)	(1.692)	(1.615)
level	0.276	0.206	0.230	0.280	0.286	0.228	0.295
	(1.394)	(1.107)	(1.231)	(1.410)	(1.450)	(1.201)	(1.475)
fcf	0.068	-0.107	-0.015	0.002	0.101	-0.051	0.097
	(0.223)	(-0.375)	(-0.052)	(0.006)	(0.313)	(-0.171)	(0.291)
pea	-0.001	-0.001	-0.001	-0.000	-0.001	-0.001	-0.000
	(-0.466)	(-0.554)	(-0.788)	(-0.169)	(-0.326)	(-0.692)	(-0.224)
Constant	0.301	0.315	0.321	0.169	0.325	0.296	0.226
	(0.479)	(0.628)	(0.575)	(0.270)	(0.508)	(0.521)	(0.343)
Observations	90	90	90	90	90	90	90
F-test	1.330	0.880	1.010	1.130	0.980	0.850	0.900
Prob>F	0.229	0.557	0.442	0.348	0.477	0.599	0.563
R-squared	0.120	0.102	0.123	0.137	0.168	0.125	0.171
△R-squared	0.028	0.009	0.017	0.043	0.062	0.019	0.065

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.55 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the regression approach for moderation analysis: Step 1 the constrained model (MBOs)
(*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	mo47 prem	mo48 prem	mo49 prem	mo50 prem	mo51 prem	mo52 prem	mo53 prem	mo54 prem	mo55 prem	mo56 prem	mo57 prem	mo58 prem	mo59 prem	mo60 prem	mo61 prem	mo62 prem
Sta fe									-0.016	-0.016	-0.015	-0.012	-0.015	-0.012	-0.012	-0.012
									(-0.604)	(-0.595)	(-0.590)	(-0.460)	(-0.579)	(-0.456)	(-0.464)	(-0.459)
Sta bsize		0.002			-0.000	0.011		0.009		0.003			0.000	0.011		0.009
		(0.050)			(-0.009)	(0.227)		(0.184)		(0.062)			(0.004)	(0.226)		(0.182)
Sta ned			-0.018		-0.018		-0.011	-0.009			-0.017		-0.017		-0.011	-0.009
			(-0.627)		(-0.638)		(-0.397)	(-0.340)			(-0.611)		(-0.620)		(-0.402)	(-0.348)
dual				0.068		0.074	0.063	0.068				0.065		0.070	0.059	0.064
				(1.032)		(0.944)	(0.987)	(0.876)				(0.966)		(0.894)	(0.920)	(0.829)
size	-0.026	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	-0.026	-0.027	-0.024	-0.024	-0.024	-0.026	-0.022	-0.025
	(-0.956)	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(-0.964)	(-0.797)	(-0.880)	(-0.882)	(-0.701)	(-0.784)	(-0.829)	(-0.717)
roa	-0.378	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	-0.359	-0.359	-0.363	-0.362	-0.363	-0.360	-0.363	-0.362
	(-1.424)	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(-1.295)	(-1.266)	(-1.296)	(-1.283)	(-1.266)	(-1.253)	(-1.283)	(-1.248)
bown	0.074	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.075	0.073	0.055	0.078	0.055	0.068	0.065	0.059
	(0.547)	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(0.547)	(0.519)	(0.380)	(0.563)	(0.373)	(0.486)	(0.449)	(0.406)
lnnas	0.053*	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053	0.053*	0.052	0.052*	0.055*	0.052	0.053	0.054*	0.053
	(1.677)	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)	(1.709)	(1.557)	(1.666)	(1.759)	(1.532)	(1.574)	(1.723)	(1.559)
level	0.247	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*	0.249	0.247	0.251	0.282	0.251*	0.277*	0.280	0.276*
	(1.514)	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)	(1.552)	(1.643)	(1.561)	(1.633)	(1.667)	(1.697)	(1.621)	(1.687)
fcf	-0.255	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247	-0.263	-0.262	-0.289	-0.244	-0.289	-0.239	-0.262	-0.255
	(-1.483)	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)	(-1.514)	(-1.539)	(-1.454)	(-1.391)	(-1.493)	(-1.387)	(-1.317)	(-1.322)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.671)	(-0.645)	(-0.598)	(-0.667)	(-0.583)	(-0.624)	(-0.619)	(-0.592)	(-0.612)	(-0.586)	(-0.545)	(-0.618)	(-0.529)	(-0.579)	(-0.572)	(-0.547)
Constant	0.541	0.554	0.496	0.447	0.494	0.503	0.427	0.477	0.542	0.558	0.497	0.452	0.498	0.509	0.432	0.481
	(1.234)	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(1.233)	(0.936)	(1.163)	(1.060)	(0.848)	(0.890)	(1.020)	(0.830)

Observations	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106
R-squared	0.137	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.140	0.140	0.142	0.148	0.142	0.148	0.149	0.149
F-test	3.492	3.107	3.003	3.256	2.724	2.962	2.834	2.641	3.545	3.140	3.046	3.268	2.739	2.939	2.854	2.614
Prob>F	0.002	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.001	0.002	0.003	0.002	0.005	0.003	0.004	0.006

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.56 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the regression approach for moderation analysis: Step 2 the unconstrained model (MBOs)
(*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	Mo63 prem	Mo64 prem	Mo65 prem	Mo66 prem	Mo67 prem	Mo68 prem	Mo69 prem
sta fe	-0.016	-0.017	-0.006	-0.018	-0.005	-0.010	-0.010
	(-0.584)	(-0.660)	(-0.184)	(-0.615)	(-0.171)	(-0.317)	(-0.310)
sta bsize	0.002			-0.001	0.009		0.006
	(0.038)			(-0.028)	(0.169)		(0.108)
sta ned		-0.009		-0.009		-0.003	0.001
		(-0.285)		(-0.261)		(-0.111)	(0.021)
dual			0.062		0.071	0.058	0.068
			(0.899)		(0.939)	(0.888)	(0.926)
*sta bsize *sta fe*	-0.002			-0.002	-0.016		-0.015
	(-0.048)			(-0.038)	(-0.399)		(-0.349)
*sta ned *sta fe*		0.024		0.024		0.023	0.022
		(0.954)		(0.893)		(0.900)	(0.849)
*dual *sta fe*			-0.025		-0.038	-0.015	-0.027
			(-0.548)		(-0.768)	(-0.330)	(-0.522)
size	-0.027	-0.029	-0.024	-0.029	-0.028	-0.028	-0.030
	(-0.772)	(-1.070)	(-0.908)	(-0.848)	(-0.794)	(-1.011)	(-0.876)
roa	-0.357	-0.352	-0.352	-0.350	-0.324	-0.348	-0.322
	(-1.330)	(-1.277)	(-1.251)	(-1.323)	(-1.149)	(-1.239)	(-1.142)
bown	0.073	0.054	0.080	0.055	0.067	0.065	0.060
	(0.518)	(0.375)	(0.582)	(0.371)	(0.480)	(0.452)	(0.407)
lnnas	0.052	0.053*	0.056*	0.054	0.054	0.056*	0.055
	(1.552)	(1.714)	(1.811)	(1.564)	(1.604)	(1.801)	(1.612)
level	0.247	0.233	0.290	0.233	0.286*	0.269	0.266
	(1.600)	(1.408)	(1.659)	(1.446)	(1.703)	(1.476)	(1.506)
fcf	-0.264	-0.299	-0.244	-0.301	-0.253	-0.272	-0.275
	(-1.556)	(-1.508)	(-1.401)	(-1.599)	(-1.461)	(-1.369)	(-1.436)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.561)	(-0.453)	(-0.551)	(-0.426)	(-0.521)	(-0.445)	(-0.446)
Constant	0.556	0.596	0.454	0.591	0.514	0.525	0.574
	(0.909)	(1.358)	(1.064)	(0.995)	(0.877)	(1.184)	(0.974)
Observations	106	106	106	106	106	106	106
F-test	2.800***	3.180***	3.450***	2.620***	2.890***	2.970***	2.533***
Prob>F	0.004	0.002	0.001	0.005	0.002	0.002	0.004
R-squared	0.140	0.147	0.149	0.147	0.151	0.154	0.155
△R-squared	0	0.005	0.001	0.005	0.003	0.005	0.006

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.57 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
LE33-LE39 test the effects of board structures on takeover premiums (BS→ premiums), LE40-LE46 test the effects of board structures on board effectiveness (BS→ BE), LE47-LE53 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
VARIABLES	le33 prem	le34 prem	le35 prem	le36 prem	le37 prem	le38 prem	le39 prem	le40 Sta btenure	le41 Sta btenure	le42 Sta btenure	le43 Sta btenure	le44 Sta btenure	le45 Sta btenure	le46 Sta btenure	le47 prem	le48 prem	le49 prem	le50 prem	le51 prem	le52 prem	le53 prem
Sta bsize	-0.022			-0.027	-0.022		-0.027	-0.111			-0.120	-0.114		-0.122	-0.001			-0.004	0.001		-0.002
	(-0.376)			(-0.466)	(-0.371)		(-0.461)	(-0.841)			(-0.900)	(-0.896)		(-0.943)	(-0.009)			(-0.054)	(0.009)		(-0.036)
Sta ned		-0.048		-0.050		-0.049	-0.051		-0.049		-0.061		-0.042	-0.054		-0.024		-0.025		-0.025	-0.025
		(-0.745)		(-0.770)		(-0.755)	(-0.780)		(-0.444)		(-0.544)		(-0.366)	(-0.462)		(-0.370)		(-0.370)		(-0.386)	(-0.384)
dual			-0.019		-0.018	-0.024	-0.024			0.677		0.680	0.673	0.675			-0.057		-0.058	-0.060	-0.060
			(-0.138)		(-0.132)	(-0.173)	(-0.168)			(1.466)		(1.455)	(1.461)	(1.451)			(-0.422)		(-0.417)	(-0.436)	(-0.428)
Sta btenure															0.043	0.042	0.048	0.042	0.048	0.047	0.047
															(0.832)	(0.811)	(0.915)	(0.795)	(0.899)	(0.878)	(0.859)
size	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	-0.031	-0.070	-0.067	-0.027	-0.026	-0.067	-0.023	-0.039	-0.038	-0.040	-0.037	-0.040	-0.039	-0.038
	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(-0.367)	(-0.736)	(-0.735)	(-0.321)	(-0.322)	(-0.725)	(-0.278)	(-0.757)	(-0.866)	(-0.876)	(-0.738)	(-0.762)	(-0.865)	(-0.741)
roa	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	1.053	1.006	1.117*	0.992	1.116*	1.075	1.062	-1.169	-1.199	-1.180	-1.195	-1.181	-1.211	-1.208
	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(1.603)	(1.582)	(1.784)	(1.517)	(1.692)	(1.661)	(1.567)	(-1.222)	(-1.233)	(-1.229)	(-1.233)	(-1.234)	(-1.250)	(-1.250)
bown	0.185	0.109	0.163	0.134	0.185	0.109	0.134	0.279	0.084	0.147	0.233	0.300	0.107	0.259	0.058	0.033	0.057	0.037	0.056	0.032	0.034
	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(0.350)	(0.110)	(0.195)	(0.295)	(0.385)	(0.146)	(0.339)	(0.117)	(0.068)	(0.118)	(0.072)	(0.111)	(0.064)	(0.066)
lnnas	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***								0.117**	0.114**	0.117**	0.115**	0.117**	0.115**	0.115**
	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)								(2.156)	(2.174)	(2.162)	(2.155)	(2.137)	(2.156)	(2.134)
level	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*								-0.491***	-0.479**	-0.482**	-0.478**	-0.482**	-0.469**	-0.468**
	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)								(-2.797)	(-2.537)	(-2.649)	(-2.529)	(-2.647)	(-2.412)	(-2.406)
fcf	0.735	0.828	0.815	0.734	0.738	0.831	0.737								0.373	0.394	0.377	0.383	0.379	0.397	0.389
	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)								(0.406)	(0.412)	(0.400)	(0.411)	(0.412)	(0.415)	(0.417)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)								(0.286)	(0.248)	(0.276)	(0.246)	(0.274)	(0.236)	(0.233)
big4								-0.095	-0.030	-0.036	-0.091	-0.096	-0.031	-0.093							

								(-0.438)	(-0.142)	(-0.179)	(-0.422)	(-0.458)	(-0.152)	(-0.439)							
ceoch								-0.467	-0.509*	-0.574	-0.442	-0.513	-0.560	-0.491							
								(-1.474)	(-1.710)	(-1.659)	(-1.326)	(-1.400)	(-1.599)	(-1.313)							
sg								-0.222**	-0.209**	-0.193**	-0.216**	-0.200**	-0.188**	-0.195**							
								(-2.568)	(-2.329)	(-2.529)	(-2.346)	(-2.575)	(-2.282)	(-2.322)							
Constant	0.776	0.854	0.888	0.717	0.778	0.856	0.720	0.665	1.363	1.224	0.603	0.498	1.219	0.444	0.837	0.830	0.849	0.811	0.852	0.839	0.825
	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(0.429)	(0.784)	(0.749)	(0.383)	(0.336)	(0.738)	(0.293)	(0.935)	(1.123)	(1.132)	(0.916)	(0.938)	(1.120)	(0.918)
Observations	76	76	76	76	76	76	76	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.080	0.076	0.116	0.083	0.123	0.118	0.125	0.228	0.230	0.230	0.230	0.230	0.232	0.232
F-test	1.653	1.864	1.672	1.643	1.482	1.911	1.713	2.408	2.582	2.612	2.107	2.124	2.216	1.811	1.528	1.568	1.717	1.391	1.524	1.799	1.610
Prob>F	0.127	0.081	0.121	0.121	0.173	0.065	0.097	0.030	0.021	0.020	0.048	0.047	0.038	0.084	0.159	0.145	0.104	0.207	0.153	0.080	0.120

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average board tenure of the board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.58 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
LE54 tests the effects of board effectiveness on takeover premiums (BE→ premiums), LE55-ME57 test the effects of board effectiveness on board structures (BE→ BS), LE58-LE64 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BE, BS→ premiums***						
	le54	le55	le56	le57	le58	le59	le60	le61	le62	le63	le64
Variables	prem	bsize	ned	dual	prem	prem	prem	prem	prem	prem	prem
Sta btenure	0.043	-0.060	-0.038	0.068	0.043	0.042	0.048	0.042	0.048	0.047	0.047
	(0.845)	(-0.924)	(-0.469)	(1.541)	(0.832)	(0.811)	(0.915)	(0.795)	(0.899)	(0.878)	(0.859)
Sta bsize					-0.001			-0.004	0.001		-0.002
					(-0.009)			(-0.054)	(0.009)		(-0.036)
Sta ned						-0.024		-0.025		-0.025	-0.025
						(-0.370)		(-0.370)		(-0.386)	(-0.384)
dual							-0.057		-0.058	-0.060	-0.060
							(-0.422)		(-0.417)	(-0.436)	(-0.428)
size	-0.039	0.351***	0.006	-0.000	-0.039	-0.038	-0.040	-0.037	-0.040	-0.039	-0.038
	(-0.877)	(5.651)	(0.074)	(-0.015)	(-0.757)	(-0.866)	(-0.876)	(-0.738)	(-0.762)	(-0.865)	(-0.741)
roa	-1.169	0.049	-0.958	-0.163	-1.169	-1.199	-1.180	-1.195	-1.181	-1.211	-1.208
	(-1.218)	(0.064)	(-1.160)	(-0.487)	(-1.222)	(-1.233)	(-1.229)	(-1.233)	(-1.234)	(-1.250)	(-1.250)
bown	0.057	1.349*	-0.940	-0.033	0.058	0.033	0.057	0.037	0.056	0.032	0.034
	(0.122)	(1.775)	(-0.981)	(-0.127)	(0.117)	(0.068)	(0.118)	(0.072)	(0.111)	(0.064)	(0.066)
lnnas	0.117**				0.117**	0.114**	0.117**	0.115**	0.117**	0.115**	0.115**
	(2.179)				(2.156)	(2.174)	(2.162)	(2.155)	(2.137)	(2.156)	(2.134)
level	-0.491***				-0.491***	-0.479**	-0.482**	-0.478**	-0.482**	-0.469**	-0.468**
	(-2.799)				(-2.797)	(-2.537)	(-2.649)	(-2.529)	(-2.647)	(-2.412)	(-2.406)
fcf	0.375				0.373	0.394	0.377	0.383	0.379	0.397	0.389
	(0.397)				(0.406)	(0.412)	(0.400)	(0.411)	(0.412)	(0.415)	(0.417)
pea	0.000				0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.288)				(0.286)	(0.248)	(0.276)	(0.246)	(0.274)	(0.236)	(0.233)

big4		-0.529	0.126	0.002							
		(-1.369)	(0.361)	(0.024)							
ceoch		0.499*	0.317	0.106							
		(1.820)	(0.938)	(0.519)							
sg		-0.079	0.099	-0.018							
		(-1.233)	(1.108)	(-0.683)							
Constant	0.841	-6.269***	-0.090	0.123	0.837	0.830	0.849	0.811	0.852	0.839	0.825
	(1.134)	(-5.569)	(-0.055)	(0.258)	(0.935)	(1.123)	(1.132)	(0.916)	(0.938)	(1.120)	(0.918)
Observations	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.228	0.338	0.083	0.060	0.228	0.230	0.230	0.230	0.230	0.232	0.232
F-test	1.741	7.212	1.322	0.662	1.528	1.568	1.717	1.391	1.524	1.799	1.610
Prob>F	0.107	0.000	0.255	0.703	0.159	0.145	0.104	0.207	0.153	0.080	0.120

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average board tenure of the board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.59 Sensitive analysis: use alternative measure for board effectiveness (FE) - the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
LE65-LE71 test the effects of board structures on takeover premiums (BS→ premiums), LE72-LE78 test the effects of board structures on board effectiveness (BS→ BE), LE79-LE85 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
Variables	le65 prem	le66 prem	le67 prem	le68 prem	le69 prem	le70 prem	le71 prem	le72 Sta fe	le73 Sta fe	le74 Sta fe	le75 Sta fe	le76 Sta fe	le77 Sta fe	le78 Sta fe	le79 prem	le80 prem	le81 prem	le82 prem	le83 prem	le84 prem	le85 prem
Sta bsize	-0.022			-0.027	-0.022		-0.027	-0.369**			-0.353**	-0.369**		-0.353**	-0.051			-0.053	-0.051		-0.053
	(-0.376)			(-0.466)	(-0.371)		(-0.461)	(-2.151)			(-2.055)	(-2.135)		(-2.038)	(-0.759)			(-0.786)	(-0.753)		(-0.779)
Sta ned		-0.048		-0.050		-0.049	-0.051		0.179		0.146		0.179	0.146		-0.036		-0.038		-0.036	-0.038
		(-0.745)		(-0.770)		(-0.755)	(-0.780)		(1.207)		(1.052)		(1.200)	(1.043)		(-0.537)		(-0.575)		(-0.546)	(-0.584)
dual			-0.019		-0.018	-0.024	-0.024			-0.035		-0.040	-0.019	-0.027			-0.025		-0.024	-0.028	-0.028
			(-0.138)		(-0.132)	(-0.173)	(-0.168)			(-0.113)		(-0.158)	(-0.055)	(-0.095)			(-0.176)		(-0.173)	(-0.200)	(-0.197)
Sta fe															-0.081	-0.066	-0.071	-0.076	-0.081	-0.066	-0.076
															(-1.117)	(-0.921)	(-1.037)	(-1.002)	(-1.107)	(-0.915)	(-0.995)
size	-0.046	-0.048	-0.051	-0.041	-0.046	-0.048	-0.041	0.153*	0.027	0.029	0.145*	0.153*	0.027	0.145*	-0.035	-0.045	-0.048	-0.032	-0.035	-0.045	-0.032
	(-0.984)	(-1.160)	(-1.207)	(-0.917)	(-0.978)	(-1.152)	(-0.911)	(1.721)	(0.328)	(0.330)	(1.687)	(1.708)	(0.326)	(1.675)	(-0.772)	(-1.117)	(-1.151)	(-0.727)	(-0.768)	(-1.110)	(-0.723)
roa	-1.077	-1.165	-1.105	-1.139	-1.081	-1.170	-1.143	-0.421	-0.077	-0.281	-0.251	-0.425	-0.079	-0.253	-1.102	-1.194	-1.155	-1.146	-1.106	-1.200	-1.152
	(-1.176)	(-1.225)	(-1.184)	(-1.208)	(-1.171)	(-1.224)	(-1.208)	(-0.354)	(-0.066)	(-0.262)	(-0.201)	(-0.354)	(-0.068)	(-0.202)	(-1.331)	(-1.352)	(-1.320)	(-1.358)	(-1.328)	(-1.352)	(-1.360)
bown	0.185	0.109	0.163	0.134	0.185	0.109	0.134	1.328	1.031	0.845	1.459	1.329	1.031	1.459	0.293	0.187	0.233	0.248	0.294	0.188	0.249
	(0.394)	(0.236)	(0.360)	(0.280)	(0.392)	(0.234)	(0.278)	(1.412)	(1.091)	(0.819)	(1.624)	(1.404)	(1.084)	(1.613)	(0.610)	(0.390)	(0.497)	(0.501)	(0.606)	(0.387)	(0.497)
lnnas	0.135***	0.128***	0.134***	0.129***	0.135***	0.128***	0.129***								0.138***	0.131***	0.135***	0.134***	0.138***	0.131***	0.133***
	(2.820)	(2.754)	(2.806)	(2.753)	(2.795)	(2.730)	(2.727)								(2.764)	(2.692)	(2.725)	(2.709)	(2.741)	(2.669)	(2.686)
level	-0.366*	-0.355*	-0.369*	-0.348*	-0.364*	-0.352*	-0.345*								-0.386*	-0.381*	-0.392*	-0.371*	-0.384*	-0.378*	-0.369*
	(-1.928)	(-1.789)	(-1.917)	(-1.732)	(-1.874)	(-1.735)	(-1.680)								(-1.941)	(-1.814)	(-1.936)	(-1.763)	(-1.889)	(-1.766)	(-1.714)
fcf	0.735	0.828	0.815	0.734	0.738	0.831	0.737								0.750	0.919	0.918	0.748	0.754	0.922	0.752
	(0.790)	(0.837)	(0.836)	(0.773)	(0.788)	(0.836)	(0.772)								(0.838)	(0.924)	(0.936)	(0.820)	(0.839)	(0.923)	(0.822)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.387)	(0.300)	(0.382)	(0.298)	(0.382)	(0.294)	(0.293)								(0.469)	(0.387)	(0.450)	(0.398)	(0.462)	(0.379)	(0.391)

big4								-0.130	0.056	0.083	-0.142	-0.130	0.056	-0.142							
								(-0.319)	(0.126)	(0.176)	(-0.361)	(-0.316)	(0.125)	(-0.358)							
ceoch								-0.298	-0.523	-0.465	-0.350	-0.295	-0.521	-0.348							
								(-0.800)	(-1.289)	(-1.254)	(-0.880)	(-0.795)	(-1.288)	(-0.880)							
sg								0.161	0.150	0.160	0.152	0.159	0.149	0.151							
								(1.642)	(1.235)	(1.309)	(1.500)	(1.611)	(1.220)	(1.479)							
Constant	0.776	0.854	0.888	0.717	0.778	0.856	0.720	-2.799	-0.590	-0.623	-2.671	-2.794	-0.587	-2.668	0.565	0.808	0.830	0.533	0.567	0.811	0.536
	(0.935)	(1.197)	(1.227)	(0.886)	(0.930)	(1.191)	(0.882)	(-1.585)	(-0.364)	(-0.355)	(-1.572)	(-1.570)	(-0.359)	(-1.557)	(0.688)	(1.131)	(1.155)	(0.658)	(0.686)	(1.126)	(0.657)
Observations	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.189	0.196	0.188	0.197	0.189	0.196	0.198	0.122	0.063	0.040	0.137	0.122	0.063	0.138	0.216	0.214	0.210	0.221	0.216	0.214	0.221
F-test	1.653	1.864	1.672	1.643	1.482	1.911	1.713	1.722	1.027	0.674	1.720	1.493	0.907	1.523	1.425	1.605	1.427	1.439	1.293	1.615	1.474
Prob>F	0.127	0.081	0.121	0.121	0.173	0.065	0.097	0.118	0.421	0.694	0.110	0.176	0.516	0.158	0.196	0.132	0.195	0.184	0.253	0.122	0.164

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.60 Sensitive analysis: use alternative measure for board effectiveness (FE) - the regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
LE86 tests the effects of board effectiveness on takeover premiums (BE→ premiums), LE87-LE89 test the effects of board effectiveness on board structures (BE→ BS), LE90-LE96 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BS→ premiums***						
Variables	le86 prem	le87 bsize	le88 ned	le89 dual	le90 prem	le91 prem	le92 prem	le93 prem	le94 prem	le95 prem	le96 prem
Sta fe	-0.071	-0.232**	0.136	-0.003	-0.081	-0.066	-0.071	-0.076	-0.081	-0.066	-0.076
	(-1.045)	(-2.167)	(1.251)	(-0.112)	(-1.117)	(-0.921)	(-1.037)	(-1.002)	(-1.107)	(-0.915)	(-0.995)
Sta bsize					-0.051			-0.053	-0.051		-0.053
					(-0.759)			(-0.786)	(-0.753)		(-0.779)
Sta ned						-0.036		-0.038		-0.036	-0.038
						(-0.537)		(-0.575)		(-0.546)	(-0.584)
dual							-0.025		-0.024	-0.028	-0.028
							(-0.176)		(-0.173)	(-0.200)	(-0.197)
size	-0.048	0.341***	0.009	-0.001	-0.035	-0.045	-0.048	-0.032	-0.035	-0.045	-0.032
	(-1.157)	(5.974)	(0.121)	(-0.039)	(-0.772)	(-1.117)	(-1.151)	(-0.727)	(-0.768)	(-1.110)	(-0.723)
roa	-1.150	-0.451	-1.087	-0.087	-1.102	-1.194	-1.155	-1.146	-1.106	-1.200	-1.152
	(-1.324)	(-0.499)	(-1.258)	(-0.266)	(-1.331)	(-1.352)	(-1.320)	(-1.358)	(-1.328)	(-1.352)	(-1.360)
bown	0.232	1.506**	-1.160	0.012	0.293	0.187	0.233	0.248	0.294	0.188	0.249
	(0.500)	(2.286)	(-1.338)	(0.049)	(0.610)	(0.390)	(0.497)	(0.501)	(0.606)	(0.387)	(0.497)
lnnas	0.135***				0.138***	0.131***	0.135***	0.134***	0.138***	0.131***	0.133***
	(2.746)				(2.764)	(2.692)	(2.725)	(2.709)	(2.741)	(2.669)	(2.686)
level	-0.395*				-0.386*	-0.381*	-0.392*	-0.371*	-0.384*	-0.378*	-0.369*
	(-1.987)				(-1.941)	(-1.814)	(-1.936)	(-1.763)	(-1.889)	(-1.766)	(-1.714)
fcf	0.914				0.750	0.919	0.918	0.748	0.754	0.922	0.752
	(0.937)				(0.838)	(0.924)	(0.936)	(0.820)	(0.839)	(0.923)	(0.822)
pea	0.000				0.000	0.000	0.000	0.000	0.000	0.000	0.000

	(0.457)				(0.469)	(0.387)	(0.450)	(0.398)	(0.462)	(0.379)	(0.391)
big4		-0.557*	0.138	0.002							
		(-1.819)	(0.494)	(0.024)							
ceoch		0.352	0.371	0.079							
		(1.250)	(1.022)	(0.404)							
sg		0.037	0.039	-0.029							
		(0.458)	(0.411)	(-1.170)							
Constant	0.828	-6.025***	-0.128	0.123	0.565	0.808	0.830	0.533	0.567	0.811	0.536
	(1.160)	(-5.880)	(-0.091)	(0.267)	(0.688)	(1.131)	(1.155)	(0.658)	(0.686)	(1.126)	(0.657)
Observations	76	76	76	76	76	76	76	76	76	76	76
R-squared	0.210	0.340	0.115	0.015	0.216	0.214	0.210	0.221	0.216	0.214	0.221
F-test	1.595	8.759	1.578	0.491	1.425	1.605	1.427	1.439	1.293	1.615	1.474
Prob>F	0.143	0.000	0.157	0.838	0.196	0.132	0.195	0.184	0.253	0.122	0.164

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.61 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals

ME33-ME39 test the effects of board structures on takeover premiums (BS→ premiums), ME40-ME46 test the effects of board structures on board effectiveness (BS→ BE), ME47-ME53 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
Variables	me33 prem	me34 prem	me35 prem	me36 prem	me37 prem	me38 prem	me39 prem	me40 Sta btenure	me41 Sta btenure	me42 Sta btenure	me43 Sta btenure	me44 Sta btenure	me45 Sta btenure	me46 Sta btenure	me47 prem	me48 prem	me49 prem	me50 prem	me51 prem	me52 prem	me53 prem
Sta bsize	0.002			-0.000	0.011		0.009	-0.083			-0.128	-0.040		-0.102	-0.009			-0.011	0.001		0.000
	(0.050)			(-0.009)	(0.227)		(0.184)	(-0.801)			(-1.359)	(-0.388)		(-1.030)	(-0.173)			(-0.230)	(0.014)		(0.003)
Sta ned		-0.018		-0.018		-0.011	-0.009		-0.239**		-0.263***		-0.204**	-0.234**		-0.015		-0.017		-0.002	-0.002
		(-0.627)		(-0.638)		(-0.397)	(-0.340)		(-2.504)		(-2.773)		(-2.047)	(-2.238)		(-0.392)		(-0.441)		(-0.067)	(-0.063)
dual			0.068		0.074	0.063	0.068			0.364*		0.341	0.242	0.166			0.088		0.088	0.086	0.086
			(1.032)		(0.944)	(0.987)	(0.876)			(1.681)		(1.533)	(1.026)	(0.672)			(1.165)		(1.000)	(1.207)	(0.968)
Sta btenure															-0.027	-0.030	-0.033	-0.031	-0.033	-0.033	-0.033
															(-0.828)	(-0.868)	(-1.056)	(-0.853)	(-1.016)	(-0.982)	(-0.921)
size	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	0.017	0.048	0.027	0.099	0.038	0.065	0.100	-0.018	-0.016	-0.012	-0.012	-0.012	-0.012	-0.012
	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(0.191)	(0.558)	(0.315)	(1.137)	(0.451)	(0.759)	(1.169)	(-0.463)	(-0.506)	(-0.390)	(-0.315)	(-0.337)	(-0.367)	(-0.299)
roa	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	1.285	1.193	1.237	1.259	1.260	1.198	1.250	-0.336	-0.344	-0.324	-0.342	-0.324	-0.325	-0.325
	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(1.279)	(1.166)	(1.313)	(1.203)	(1.305)	(1.220)	(1.222)	(-1.054)	(-1.053)	(-0.963)	(-1.053)	(-0.975)	(-0.968)	(-0.966)
bown	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.708	0.559	0.722*	0.553	0.723*	0.593	0.577	0.097	0.082	0.105	0.088	0.105	0.104	0.104
	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(1.655)	(1.511)	(1.754)	(1.474)	(1.739)	(1.573)	(1.516)	(0.640)	(0.538)	(0.707)	(0.560)	(0.684)	(0.668)	(0.657)
lnnas	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053								0.059	0.057	0.058*	0.058	0.058	0.058	0.058
	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)								(1.573)	(1.620)	(1.680)	(1.545)	(1.546)	(1.659)	(1.536)
level	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*								0.216	0.219	0.250	0.226	0.250	0.251	0.251
	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)								(1.210)	(1.166)	(1.300)	(1.244)	(1.327)	(1.288)	(1.325)
fcf	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247								-0.046	-0.035	-0.007	-0.042	-0.007	-0.007	-0.007
	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)								(-0.168)	(-0.127)	(-0.025)	(-0.150)	(-0.023)	(-0.024)	(-0.023)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001								-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-	(-	(-	(-0.583)	(-	(-	(-								(-0.764)	(-0.727)	(-0.810)	(-0.724)	(-0.783)	(-0.801)	(-0.782)

	0.645)	0.598)	0.667)		0.624)	0.619)	0.592)														
big4								0.055	0.103	0.033	0.083	0.028	0.073	0.066							
								(0.317)	(0.568)	(0.192)	(0.456)	(0.162)	(0.406)	(0.366)							
ceoch								0.097	0.292	0.196	0.331	0.194	0.335	0.353							
								(0.342)	(1.055)	(0.641)	(1.322)	(0.653)	(1.212)	(1.383)							
sg								-0.059*	-0.067**	-0.081***	-0.059	-0.077**	-0.078**	-0.068*							
								(-1.868)	(-2.155)	(-2.648)	(-1.663)	(-2.291)	(-2.304)	(-1.726)							
Constant	0.554	0.496	0.447	0.494	0.503	0.427	0.477	-0.567	-1.133	-0.834	-2.031	-1.032	-1.496	-2.097	0.348	0.323	0.209	0.251	0.213	0.201	0.202
	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(-0.351)	(-0.716)	(-0.537)	(-1.284)	(-0.664)	(-0.952)	(-1.344)	(0.522)	(0.645)	(0.403)	(0.368)	(0.335)	(0.380)	(0.297)
Observations	106	106	106	106	106	106	106	89	89	89	89	89	89	89	90	90	90	90	90	90	90
R-squared	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.113	0.158	0.135	0.174	0.137	0.170	0.179	0.092	0.093	0.106	0.094	0.106	0.106	0.106
F-test	3.107	3.003	3.256	2.724	2.962	2.834	2.641	3.003	4.133	4.069	3.402	3.316	4.019	3.313	0.958	0.936	1.026	0.869	0.957	0.941	0.913
Prob>F	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.007	0.001	0.001	0.002	0.003	0.000	0.002	0.481	0.499	0.427	0.565	0.488	0.501	0.532

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average board tenure of the board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.62 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
ME54 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ME55-ME57 test the effects of board effectiveness on board structures (BE→ BS), ME58-ME64 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BS→ premiums***						
Variables	me54 prem	me55 bsize	me56 ned	me57 dual	me58 prem	me59 prem	me60 prem	me61 prem	me62 prem	me63 prem	me64 prem
Sta btenure	-0.026	-0.093	-0.243**	0.090	-0.027	-0.030	-0.033	-0.031	-0.033	-0.033	-0.033
	(-0.850)	(-0.786)	(-2.302)	(1.430)	(-0.828)	(-0.868)	(-1.056)	(-0.853)	(-1.016)	(-0.982)	(-0.921)
Sta bsize					-0.009			-0.011	0.001		0.000
					(-0.173)			(-0.230)	(0.014)		(0.003)
Sta ned						-0.015		-0.017		-0.002	-0.002
						(-0.392)		(-0.441)		(-0.067)	(-0.063)
dual							0.088		0.088	0.086	0.086
							(1.165)		(1.000)	(1.207)	(0.968)
size	-0.020	0.346***	0.248**	-0.106**	-0.018	-0.016	-0.012	-0.012	-0.012	-0.012	-0.012
	(-0.630)	(3.439)	(2.582)	(-2.035)	(-0.463)	(-0.506)	(-0.390)	(-0.315)	(-0.337)	(-0.367)	(-0.299)
roa	-0.338	0.673	0.108	-0.107	-0.336	-0.344	-0.324	-0.342	-0.324	-0.325	-0.325
	(-1.043)	(0.698)	(0.118)	(-0.247)	(-1.054)	(-1.053)	(-0.963)	(-1.053)	(-0.975)	(-0.968)	(-0.966)
bown	0.092	0.128	-0.429	-0.117	0.097	0.082	0.105	0.088	0.105	0.104	0.104
	(0.630)	(0.222)	(-0.689)	(-0.512)	(0.640)	(0.538)	(0.707)	(0.560)	(0.684)	(0.668)	(0.657)
lnnas	0.058				0.059	0.057	0.058*	0.058	0.058	0.058	0.058
	(1.664)				(1.573)	(1.620)	(1.680)	(1.545)	(1.546)	(1.659)	(1.536)
level	0.212				0.216	0.219	0.250	0.226	0.250	0.251	0.251
	(1.152)				(1.210)	(1.166)	(1.300)	(1.244)	(1.327)	(1.288)	(1.325)
fcf	-0.041				-0.046	-0.035	-0.007	-0.042	-0.007	-0.007	-0.007
	(-0.148)				(-0.168)	(-0.127)	(-0.025)	(-0.150)	(-0.023)	(-0.024)	(-0.023)
pea	-0.001				-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001

	(-0.774)				(-0.764)	(-0.727)	(-0.810)	(-0.724)	(-0.783)	(-0.801)	(-0.782)
big4		-0.178	0.152	0.099							
		(-0.818)	(0.682)	(0.986)							
ceoch		0.151	0.884***	-0.310***							
		(0.402)	(2.808)	(-4.190)							
sg		0.062	-0.027	0.050***							
		(1.534)	(-0.965)	(3.708)							
Constant	0.394	-6.164***	-4.531**	2.152**	0.348	0.323	0.209	0.251	0.213	0.201	0.202
	(0.776)	(-3.381)	(-2.566)	(2.315)	(0.522)	(0.645)	(0.403)	(0.368)	(0.335)	(0.380)	(0.297)
Observations	90	89	89	89	90	90	90	90	90	90	90
R-squared	0.092	0.208	0.276	0.169	0.092	0.093	0.106	0.094	0.106	0.106	0.106
F-test	1.052	3.915	4.506	5.984	0.958	0.936	1.026	0.869	0.957	0.941	0.913
Prob>F	0.405	0.001	0.000	0.000	0.481	0.499	0.427	0.565	0.488	0.501	0.532

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average board tenure of the board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.63 Sensitive analysis: use alternative measure for board effectiveness (FE) - the regression approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
ME65-ME71 test the effects of board structures on takeover premiums (BS→ premiums), ME72-ME78 test the effects of board structures on board effectiveness (BS→ BE), ME79-ME85 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step 1: BS→ premiums							***Step 2: BS→ BE***							***Step 3: BS, BE→ premiums***						
Variables	me65 prem	me66 prem	me67 prem	me68 prem	me69 prem	me70 prem	me71 prem	me72 Sta fe	me73 Sta fe	me74 Sta fe	me75 Sta fe	me76 Sta fe	me77 Sta fe	me78 Sta fe	me79 prem	me80 prem	me81 prem	me82 prem	me83 prem	me84 prem	me85 prem
Sta bsize	0.002			-0.000	0.011		0.009	0.023			0.029	-0.020		-0.018	0.003			0.000	0.011		0.009
	(0.050)			(-0.009)	(0.227)		(0.184)	(0.252)			(0.314)	(-0.211)		(-0.185)	(0.062)			(0.004)	(0.226)		(0.182)
Sta ned		-0.018		-0.018		-0.011	-0.009		0.039		0.043		0.013	0.009		-0.017		-0.017		-0.011	-0.009
		(-0.627)		(-0.638)		(-0.397)	(-0.340)		(0.352)		(0.384)		(0.111)	(0.076)		(-0.611)		(-0.620)		(-0.402)	(-0.348)
dual			0.068		0.074	0.063	0.068			-0.302		-0.315	-0.297	-0.310			0.065		0.070	0.059	0.064
			(1.032)		(0.944)	(0.987)	(0.876)			(-1.262)		(-1.219)	(-1.223)	(-1.167)			(0.966)		(0.894)	(0.920)	(0.829)
Sta fe															-0.016	-0.015	-0.012	-0.015	-0.012	-0.012	-0.012
															(-0.595)	(-0.590)	(-0.460)	(-0.579)	(-0.456)	(-0.464)	(-0.459)
size	-0.027	-0.023	-0.024	-0.023	-0.026	-0.022	-0.024	0.009	0.011	-0.004	-0.000	0.002	-0.006	0.001	-0.027	-0.024	-0.024	-0.024	-0.026	-0.022	-0.025
	(-0.791)	(-0.869)	(-0.873)	(-0.693)	(-0.780)	(-0.820)	(-0.713)	(0.104)	(0.134)	(-0.053)	(-0.002)	(0.026)	(-0.071)	(0.006)	(-0.797)	(-0.880)	(-0.882)	(-0.701)	(-0.784)	(-0.829)	(-0.717)
roa	-0.377	-0.380	-0.376	-0.380	-0.374	-0.377	-0.376	0.939	0.964	0.922	0.974	0.917	0.932	0.924	-0.359	-0.363	-0.362	-0.363	-0.360	-0.363	-0.362
	(-1.397)	(-1.425)	(-1.387)	(-1.395)	(-1.354)	(-1.389)	(-1.350)	(1.582)	(1.544)	(1.636)	(1.543)	(1.604)	(1.574)	(1.534)	(-1.266)	(-1.296)	(-1.283)	(-1.266)	(-1.253)	(-1.283)	(-1.248)
bown	0.072	0.053	0.076	0.054	0.067	0.064	0.059	0.047	0.090	0.075	0.083	0.084	0.086	0.091	0.073	0.055	0.078	0.055	0.068	0.065	0.059
	(0.524)	(0.374)	(0.566)	(0.371)	(0.488)	(0.450)	(0.407)	(0.083)	(0.154)	(0.136)	(0.141)	(0.147)	(0.150)	(0.154)	(0.519)	(0.380)	(0.563)	(0.373)	(0.486)	(0.449)	(0.406)
lnnas	0.053	0.052	0.055*	0.052	0.053	0.054*	0.053								0.052	0.052*	0.055*	0.052	0.053	0.054*	0.053
	(1.534)	(1.636)	(1.737)	(1.511)	(1.558)	(1.701)	(1.543)								(1.557)	(1.666)	(1.759)	(1.532)	(1.574)	(1.723)	(1.559)
level	0.245	0.248	0.282	0.249	0.277*	0.280	0.276*								0.247	0.251	0.282	0.251*	0.277*	0.280	0.276*
	(1.603)	(1.523)	(1.626)	(1.629)	(1.689)	(1.614)	(1.679)								(1.643)	(1.561)	(1.633)	(1.667)	(1.697)	(1.621)	(1.687)
fcf	-0.254	-0.281	-0.237	-0.281	-0.232	-0.255	-0.247								-0.262	-0.289	-0.244	-0.289	-0.239	-0.262	-0.255
	(-1.506)	(-1.434)	(-1.375)	(-1.469)	(-1.367)	(-1.305)	(-1.303)								(-1.539)	(-1.454)	(-1.391)	(-1.493)	(-1.387)	(-1.317)	(-1.322)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001								-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-	(-	(-	(-0.583)	(-	(-	(-								(-0.586)	(-0.545)	(-0.618)	(-0.529)	(-0.579)	(-0.572)	(-0.547)

	0.645)	0.598)	0.667)		0.624)	0.619)	0.592)														
big4								-0.241	-0.244	-0.216	-0.243	-0.216	-0.217	-0.216							
								(-0.919)	(-0.927)	(-0.829)	(-0.919)	(-0.824)	(-0.823)	(-0.816)							
ceoch								-0.119	-0.142	-0.203	-0.148	-0.204	-0.210	-0.209							
								(-0.427)	(-0.490)	(-0.711)	(-0.507)	(-0.712)	(-0.710)	(-0.703)							
sg								0.020	0.022	0.035	0.021	0.036	0.035	0.036							
								(0.936)	(1.000)	(1.467)	(0.923)	(1.483)	(1.449)	(1.465)							
Constant	0.554	0.496	0.447	0.494	0.503	0.427	0.477	-0.104	-0.148	0.201	0.054	0.086	0.227	0.116	0.558	0.497	0.452	0.498	0.509	0.432	0.481
	(0.937)	(1.161)	(1.055)	(0.846)	(0.889)	(1.015)	(0.829)	(-0.065)	(-0.096)	(0.134)	(0.032)	(0.053)	(0.148)	(0.069)	(0.936)	(1.163)	(1.060)	(0.848)	(0.890)	(1.020)	(0.830)
Observations	106	106	106	106	106	106	106	105	105	105	105	105	105	105	106	106	106	106	106	106	106
R-squared	0.137	0.140	0.146	0.140	0.147	0.147	0.148	0.029	0.030	0.045	0.030	0.045	0.045	0.045	0.140	0.142	0.148	0.142	0.148	0.149	0.149
F-test	3.107	3.003	3.256	2.724	2.962	2.834	2.641	0.641	0.618	0.885	0.535	0.780	0.778	0.707	3.140	3.046	3.268	2.739	2.939	2.854	2.614
Prob>F	0.004	0.005	0.003	0.007	0.004	0.005	0.007	0.721	0.740	0.521	0.828	0.621	0.623	0.701	0.002	0.003	0.002	0.005	0.003	0.004	0.006

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.64 Sensitive analysis: use alternative measure for board effectiveness (FE) - the regression approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
ME86 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ME87-ME89 test the effects of board effectiveness on board structures (BE→ BS), ME90-ME96 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step 1: BE→ premiums	***Step2: BE→ BS***			***Step 3: BS→ premiums***						
Variables	me86 prem	me87 bsize	me88 ned	me89 dual	me90 prem	me91 prem	me92 prem	me93 prem	me94 prem	me95 prem	me96 prem
Sta fe	-0.016	0.019	0.035	-0.055	-0.016	-0.015	-0.012	-0.015	-0.012	-0.012	-0.012
	(-0.604)	(0.250)	(0.364)	(-1.268)	(-0.595)	(-0.590)	(-0.460)	(-0.579)	(-0.456)	(-0.464)	(-0.459)
Sta bsize					0.003			0.000	0.011		0.009
					(0.062)			(0.004)	(0.226)		(0.182)
Sta ned						-0.017		-0.017		-0.011	-0.009
						(-0.611)		(-0.620)		(-0.402)	(-0.348)
dual							0.065		0.070	0.059	0.064
							(0.966)		(0.894)	(0.920)	(0.829)
size	-0.026	0.370***	0.162	-0.071	-0.027	-0.024	-0.024	-0.024	-0.026	-0.022	-0.025
	(-0.964)	(3.891)	(1.484)	(-1.463)	(-0.797)	(-0.880)	(-0.882)	(-0.701)	(-0.784)	(-0.829)	(-0.717)
roa	-0.359	-0.272	-0.825	0.016	-0.359	-0.363	-0.362	-0.363	-0.360	-0.363	-0.362
	(-1.295)	(-0.370)	(-0.769)	(0.045)	(-1.266)	(-1.296)	(-1.283)	(-1.266)	(-1.253)	(-1.283)	(-1.248)
bown	0.075	0.368	-0.893	0.069	0.073	0.055	0.078	0.055	0.068	0.065	0.059
	(0.547)	(0.677)	(-1.376)	(0.308)	(0.519)	(0.380)	(0.563)	(0.373)	(0.486)	(0.449)	(0.406)
lnnas	0.053*				0.052	0.052*	0.055*	0.052	0.053	0.054*	0.053
	(1.709)				(1.557)	(1.666)	(1.759)	(1.532)	(1.574)	(1.723)	(1.559)
level	0.249				0.247	0.251	0.282	0.251*	0.277*	0.280	0.276*
	(1.552)				(1.643)	(1.561)	(1.633)	(1.667)	(1.697)	(1.621)	(1.687)
fcf	-0.263				-0.262	-0.289	-0.244	-0.289	-0.239	-0.262	-0.255
	(-1.514)				(-1.539)	(-1.454)	(-1.391)	(-1.493)	(-1.387)	(-1.317)	(-1.322)
pea	-0.001				-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001

	(-0.612)				(-0.586)	(-0.545)	(-0.618)	(-0.529)	(-0.579)	(-0.572)	(-0.547)
big4		-0.034	0.042	0.073							
		(-0.172)	(0.181)	(0.756)							
ceoch		0.115	0.668*	-0.294***							
		(0.334)	(1.973)	(-4.799)							
sg		0.050	-0.018	0.044***							
		(1.459)	(-0.650)	(3.911)							
Constant	0.542	-6.608***	-2.742	1.495*	0.558	0.497	0.452	0.498	0.509	0.432	0.481
	(1.233)	(-3.886)	(-1.352)	(1.720)	(0.936)	(1.163)	(1.060)	(0.848)	(0.890)	(1.020)	(0.830)
Observations	106	105	105	105	106	106	106	106	106	106	106
R-squared	0.140	0.190	0.147	0.117	0.140	0.142	0.148	0.142	0.148	0.149	0.149
F-test	3.545	4.241	2.610	6.442	3.140	3.046	3.268	2.739	2.939	2.854	2.614
Prob>F	0.001	0.000	0.016	0.000	0.002	0.003	0.002	0.005	0.003	0.004	0.006

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.65 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (third-party LBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals *(In the third-party LBO context, the longer board tenure tends to indicate a high level of board effectiveness)*

Variables	endolo15 prem	endolo16 prem	endolo17 prem	endolo18 prem	endolo19 prem	endolo20 prem	endolo21 prem
Sta btenure	0.057	0.069	0.069	0.070	0.068	0.100	0.097
	(0.789)	(0.911)	(0.854)	(0.913)	(0.834)	(1.098)	(1.053)
Sta bsize	0.081			0.063	0.076		0.051
	(1.083)			(0.829)	(0.996)		(0.614)
Sta ned		-0.088		-0.078		-0.097	-0.088
		(-1.352)		(-1.179)		(-1.566)	(-1.393)
dual			-0.116		-0.089	-0.227	-0.199
			(-0.453)		(-0.337)	(-0.783)	(-0.682)
size	-0.074	-0.044	-0.050	-0.064	-0.073	-0.045	-0.061
	(-1.512)	(-1.105)	(-1.201)	(-1.339)	(-1.473)	(-1.091)	(-1.229)
roa	-1.263	-1.304	-1.204	-1.357	-1.277	-1.365	-1.399
	(-1.329)	(-1.324)	(-1.333)	(-1.351)	(-1.355)	(-1.422)	(-1.426)
bown	0.093	0.071	0.163	0.022	0.093	0.050	0.014
	(0.198)	(0.155)	(0.364)	(0.048)	(0.197)	(0.107)	(0.029)
lnnas	0.161***	0.144***	0.156***	0.149***	0.160***	0.143***	0.147***
	(3.138)	(2.937)	(2.995)	(3.033)	(3.097)	(2.779)	(2.896)
level	-0.575***	-0.511***	-0.539***	-0.526***	-0.556***	-0.456**	-0.475**
	(-3.329)	(-2.698)	(-2.777)	(-2.852)	(-2.932)	(-1.973)	(-2.105)
fcf	0.503	0.304	0.248	0.499	0.489	0.311	0.467
	(0.507)	(0.313)	(0.271)	(0.490)	(0.498)	(0.329)	(0.466)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.395)	(0.184)	(0.353)	(0.217)	(0.371)	(0.111)	(0.145)
Constant	1.324	0.812	0.877	1.176	1.306	0.827	1.117
	(1.545)	(1.204)	(1.273)	(1.392)	(1.505)	(1.205)	(1.276)
Observations	68	68	68	68	68	68	68
R-squared	0.252	0.243	0.257	0.241	0.254	0.225	0.229
Chi2-test	25.72	22.36	23.58	25.18	26.27	25.50	26.70
Prob>chi2	0.002	0.008	0.005	0.005	0.003	0.004	0.005
Endogenous test							
Hausman Chi2	2.593	5.768	0.173	5.838	2.568	6.380	6.320
Hausman Prob>Chi2	0.273	0.056	0.917	0.120	0.463	0.095	0.177
Weak instrument test							
F-test *Sta btenure2*	63.959***	33.157***	26.093***	44.929***	56.024***	23.509***	40.591***
F-test *Sta bsize2*	42.542***			29.616***	32.507***		26.520***
F-test *Sta ned2*		139.997***		108.529***		105.560***	89.936***
F-test *Dual2*			13.783***		8.950***	12.634***	9.887***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure:

interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Sta btenure2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta btenure2: lagged variable, interaction of standardised board size and standardised btenure in year Y-2. sta ned2 *sta btenure2: lagged variable, interaction of standardised ned and standardised btenure in year Y-2. Duality2 *sta btenure2: lagged variable, interaction of CEO duality and standardised btenure in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.66 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, the longer board tenure tends to indicate a high level of board effectiveness)*

Variables	endolo22 prem	endolo23 prem	endolo24 prem	endolo25 prem	endolo26 prem	endolo27 prem	endolo28 prem
Sta btenure	0.085	0.071	0.049	0.107	0.101	0.105	0.183
	(1.307)	(0.807)	(0.561)	(1.274)	(1.135)	(0.664)	(1.064)
Sta bsize	0.089			0.080	0.079		0.078
	(1.189)			(1.042)	(0.992)		(0.875)
Sta ned		-0.088		-0.078		-0.098	-0.091
		(-1.361)		(-1.165)		(-1.517)	(-1.363)
dual			-0.257		-0.171	-0.344	-0.258
			(-0.865)		(-0.545)	(-0.964)	(-0.771)
Sta bsize*sta btenure	-0.123**			-0.104	-0.127*		-0.129*
	(-2.178)			(-1.491)	(-1.836)		(-1.646)
Sta ned*sta btenure		-0.009		-0.074		-0.064	-0.151
		(-0.037)		(-0.285)		(-0.199)	(-0.425)
Dual*sta btenure			0.154		0.027	0.090	-0.080
			(1.402)		(0.204)	(0.440)	(-0.338)
Size	-0.069	-0.045	-0.053	-0.071	-0.067	-0.054	-0.077
	(-1.394)	(-0.953)	(-1.242)	(-1.167)	(-1.319)	(-1.005)	(-1.120)
roa	-1.404	-1.290	-1.201	-1.363	-1.429	-1.266	-1.348
	(-1.335)	(-1.254)	(-1.356)	(-1.207)	(-1.384)	(-1.244)	(-1.199)
bown	0.106	0.063	0.199	-0.042	0.116	0.010	-0.155
	(0.226)	(0.133)	(0.445)	(-0.084)	(0.239)	(0.019)	(-0.260)
lnnas	0.147***	0.145***	0.151***	0.140***	0.145***	0.141***	0.139**
	(2.940)	(2.933)	(2.819)	(2.836)	(2.769)	(2.602)	(2.535)
level	-0.584***	-0.513***	-0.465**	-0.553***	-0.538**	-0.420*	-0.532**
	(-3.372)	(-2.755)	(-2.038)	(-3.022)	(-2.487)	(-1.654)	(-2.209)
fcf	0.539	0.290	0.215	0.444	0.504	0.193	0.346
	(0.511)	(0.276)	(0.241)	(0.396)	(0.496)	(0.183)	(0.314)
pea	0.000	0.000	0.000	0.000	0.000	0.000	-0.000
	(0.346)	(0.181)	(0.356)	(0.143)	(0.309)	(0.079)	(-0.009)
Constant	1.281	0.830	0.906	1.353	1.243	0.980	1.495
	(1.520)	(1.015)	(1.307)	(1.280)	(1.437)	(1.070)	(1.226)
Observations	68	68	68	68	68	68	68
R-squared	0.246	0.242	0.260	0.218	0.248	0.203	0.173
Chi2-test	27.580***	22.330**	35.730***	26.550***	42.340***	28.890***	35.95
Prob>chi2	0.002	0. 014	0. 000	0. 009	0. 000	0. 004	0.001
Endogenous test							
Hausman Chi2	3.434	6.541	0.790	7.412	3.652	0.151	8.642
Hausman Prob>Chi2	0.330	0.088	0.852	0.192	0.601	0.066	0.279
Weak instrument test							
Sta btenure2	97.692***	67.187***	185.781***	64.048***	91.715***	133.629***	142.194***
F-test Sta bsize2	28.845***			17.453***	21.031***		15.243***
Sta bsize2* sta btenure2	12.003***			15.238***	16.542***		17.303***

Sta ned2	91.150***		71.375***		63.226***	61.499***
Sta ned2* sta btenure2	2.214*		1.429		3.498***	2.391**
Dual2		22.82***		20.031***	18.530***	23.101***
Dual2* sta btenure2		551.419***		455.224***	329.8***	366.749***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Sta btenure2: lagged variable, the standardised btenure in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta btenure2: lagged variable, interaction of standardised board size and standardised btenure in year Y-2. sta ned2 *sta btenure2: lagged variable, interaction of standardised ned and standardised btenure in year Y-2. Duality2 *sta btenure2: lagged variable, interaction of CEO duality and standardised btenure in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.67 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (third-party LBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in third-party LBO deals
(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)

Variables	endolo29 prem	endolo30 prem	endolo31 prem	endolo32 prem	endolo33 prem	endolo34 prem	endolo35 prem
Sta fe	-0.091	-0.071	-0.092	-0.074	-0.091	-0.070	-0.073
	(-1.350)	(-1.064)	(-1.519)	(-1.022)	(-1.381)	(-1.078)	(-1.036)
Sta bsize	-0.001			-0.011	0.001		-0.013
	(-0.010)			(-0.152)	(0.011)		(-0.171)
Sta ned		-0.103		-0.103		-0.105	-0.106
		(-1.538)		(-1.543)		(-1.633)	(-1.636)
dual			0.038		0.038	-0.038	-0.043
			(0.172)		(0.169)	(-0.162)	(-0.176)
size	-0.057	-0.050	-0.057	-0.047	-0.057	-0.050	-0.046
	(-1.364)	(-1.344)	(-1.526)	(-1.153)	(-1.360)	(-1.342)	(-1.120)
roa	-1.169	-1.303	-1.164	-1.294	-1.165	-1.311	-1.302
	(-1.454)	(-1.472)	(-1.422)	(-1.477)	(-1.430)	(-1.480)	(-1.490)
bown	0.362	0.219	0.362	0.232	0.361	0.214	0.229
	(0.784)	(0.491)	(0.822)	(0.510)	(0.783)	(0.486)	(0.508)
lnnas	0.176***	0.158***	0.176***	0.158***	0.176***	0.157***	0.157***
	(3.922)	(3.654)	(3.904)	(3.660)	(3.906)	(3.615)	(3.615)
level	-0.481**	-0.442**	-0.486**	-0.441**	-0.486**	-0.437**	-0.434**
	(-2.429)	(-2.150)	(-2.380)	(-2.125)	(-2.354)	(-2.019)	(-1.969)
fcf	0.838	0.859	0.835	0.823	0.838	0.864	0.822
	(0.930)	(0.908)	(0.913)	(0.877)	(0.925)	(0.914)	(0.879)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.603)	(0.352)	(0.614)	(0.354)	(0.613)	(0.340)	(0.339)
Constant	0.840	0.794	0.839	0.734	0.843	0.798	0.728
	(1.087)	(1.201)	(1.270)	(0.982)	(1.087)	(1.211)	(0.963)
Observations	73	73	73	73	73	73	73
R-squared	0.241	0.227	0.240	0.229	0.240	0.226	0.228
Chi2-test	26.83	29.85	26.28	30.34	26.80	30.34	30.73
Prob>chi2	0.001	0.000	0.002	0.001	0.003	0.001	0.001
Endogenous test							
Hausman Chi2	1.733	6.547	0.268	6.838	1.635	6.704	6.951
Hausman Prob>Chi2	0.420	0.038	0.875	0.077	0.652	0.082	0.139
Weak instrument test							
F-test *Sta fe2*	348.5***	331.672***	315.625***	276.888***	239.324***	236.835***	213.625***
F-test *Sta bsize2*	59.666***			46.926***	45.056***		41.786***
F-test *Sta ned2*		142.050***		105.106***		102.623***	84.145***
F-test *Dual2*			9.368***		6.053***	8.225***	7.151***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Sta fe2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta fe2: lagged variable, interaction of standardised board size and standardised fe in year Y-2. sta ned2 *sta fe2: lagged variable, interaction of standardised ned and standardised fe in year Y-2. Duality2 *sta fe2: lagged variable, interaction of CEO duality and standardised fe in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.68 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (third-party LBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in third-party LBO deals *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	endolo36 prem	endolo37 prem	endolo38 prem	endolo39 prem	endolo40 prem	endolo41 prem	endolo42 prem
Sta fe	-0.071	-0.085	-0.089	-0.057	-0.069	-0.074	-0.047
	(-1.085)	(-1.337)	(-1.517)	(-0.876)	(-1.086)	(-1.215)	(-0.739)
Sta bsize	0.034			0.063	0.043		0.070
	(0.470)			(0.909)	(0.559)		(0.959)
Sta ned		-0.071		-0.076		-0.090	-0.089
		(-1.232)		(-1.268)		(-1.592)	(-1.449)
dual			0.076		0.104	0.015	0.055
			(0.358)		(0.501)	(0.068)	(0.246)
Sta bsize*sta fe	0.062			0.063	0.067		0.068
	(0.931)			(0.960)	(1.019)		(1.027)
Sta ned*sta fe		-0.129**		-0.120*		-0.130**	-0.118*
		(-2.074)		(-1.873)		(-2.090)	(-1.838)
Dual*sta fe			-0.089		-0.049	-0.198	-0.155
			(-0.259)		(-0.152)	(-0.545)	(-0.441)
size	-0.068	-0.061*	-0.058	-0.078**	-0.071	-0.061*	-0.081**
	(-1.548)	(-1.909)	(-1.553)	(-2.005)	(-1.622)	(-1.910)	(-2.084)
roa	-1.119	-0.860	-1.204	-0.867	-1.128	-0.979	-0.961
	(-1.441)	(-1.136)	(-1.379)	(-1.168)	(-1.318)	(-1.192)	(-1.161)
bown	0.373	0.270	0.335	0.242	0.356	0.179	0.170
	(0.822)	(0.673)	(0.767)	(0.590)	(0.786)	(0.465)	(0.425)
lnnas	0.183***	0.173***	0.176***	0.180***	0.185***	0.170***	0.178***
	(4.075)	(4.088)	(3.879)	(4.175)	(4.036)	(3.911)	(3.997)
level	-0.496**	-0.398**	-0.516**	-0.418**	-0.525**	-0.448*	-0.467*
	(-2.519)	(-2.134)	(-2.089)	(-2.227)	(-2.134)	(-1.838)	(-1.913)
fcf	0.832	0.685	0.869	0.780	0.859	0.771	0.861
	(0.956)	(0.797)	(0.916)	(0.946)	(0.921)	(0.859)	(0.974)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.628)	(0.392)	(0.600)	(0.434)	(0.642)	(0.251)	(0.361)
Constant	1.029	0.891	0.869	1.217*	1.082	0.958*	1.305*
	(1.288)	(1.550)	(1.320)	(1.693)	(1.364)	(1.696)	(1.869)
Observations	73	73	73	73	73	73	73
R-squared	0.257	0.355	0.234	0.356	0.249	0.339	0.337
Chi2-test	26.490***	39.880***	26.460***	39.290***	26.230***	43.100***	41.080***
Prob>chi2	0.003	0.000	0.003	0.000	0.010	0.000	0.000
Endogenous test							
Hausman Chi2	3.122	9.272	1.342	10.644	2.751	9.522	11.757
Hausman Prob>Chi2	0.373	0.026	0.719	0.059	0.738	0.090	0.109
Weak instrument test							
F-test: Sta fe2	243.807***	218.343***	213.299***	164.761***	149.971***	139.814***	119.983***
F-test: Sta bsize2	41.098***			31.415***	31.081***	71.148***	29.104***
F-test: Sta bsize2* sta fe2	34.454***			21.121***	21.457***	54.296***	15.730***
F-test: Sta ned2		92.781***		69.131***			60.656***

Sta ned2* sta fe2	82.667***		63.861***			56.029***
Dual2		23.666***		17.192***	15.296***	13.987***
Dual2* sta fe2		142.888***		79.027***	85.062***	60.708***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Sta fe2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta fe2: lagged variable, interaction of standardised board size and standardised fe in year Y-2. sta ned2 *sta fe2: lagged variable, interaction of standardised ned and standardised fe in year Y-2. Duality2 *sta fe2: lagged variable, interaction of CEO duality and standardised fe in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.69 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (MBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Variables	endomo15 prem	endomo16 prem	endomo17 prem	endomo18 prem	endomo19 prem	endomo20 prem	endomo21 prem
Sta btenure	-0.048	-0.027	-0.047*	-0.026	-0.049*	-0.025	-0.020
	(-1.583)	(-0.839)	(-1.727)	(-0.683)	(-1.675)	(-0.824)	(-0.540)
Sta bsize	-0.027			0.003	-0.019		0.030
	(-0.438)			(0.046)	(-0.298)		(0.371)
Sta ned		0.084		0.085		0.112*	0.118
		(1.439)		(1.351)		(1.697)	(1.590)
dual			0.093		0.084	0.136	0.152
			(1.111)		(0.899)	(1.331)	(1.261)
size	-0.014	-0.044	-0.013	-0.045	-0.009	-0.040	-0.048
	(-0.381)	(-1.247)	(-0.420)	(-0.954)	(-0.250)	(-1.106)	(-1.011)
roa	-0.288	-0.262	-0.288	-0.262	-0.284	-0.240	-0.244
	(-0.942)	(-0.846)	(-0.906)	(-0.873)	(-0.910)	(-0.747)	(-0.779)
bown	0.118	0.156	0.112	0.154	0.123	0.192	0.178
	(0.810)	(1.029)	(0.792)	(1.007)	(0.846)	(1.223)	(1.132)
lnnas	0.064*	0.064**	0.061*	0.063*	0.064*	0.066**	0.062*
	(1.750)	(1.982)	(1.835)	(1.745)	(1.733)	(2.063)	(1.710)
level	0.217	0.160	0.245	0.159	0.250	0.207	0.197
	(1.268)	(0.889)	(1.309)	(0.880)	(1.365)	(1.073)	(1.032)
fcf	-0.054	-0.065	-0.003	-0.063	-0.018	-0.026	-0.003
	(-0.195)	(-0.263)	(-0.011)	(-0.245)	(-0.064)	(-0.096)	(-0.011)
pea	-0.001	-0.002	-0.001	-0.002	-0.001	-0.002	-0.002
	(-0.873)	(-1.048)	(-0.903)	(-1.000)	(-0.903)	(-1.160)	(-1.103)
Constant	0.259	0.812	0.208	0.832	0.124	0.658	0.812
	(0.392)	(1.368)	(0.407)	(0.960)	(0.199)	(1.086)	(0.968)
Observations	89	89	89	89	89	89	89
R-squared	0.091	0.018	0.108	0.017	0.104	0.013	0.010
Chi2-test	12.44	15.75	11.45	16.48	13.72	16.27	16.38
Prob>chi2	0.190	0.072	0.246	0.087	0.186	0.092	0.127
Endogenous test							
Hausman Chi2	2.428	4.355	0.722	5.576	2.046	4.683	5.808
Hausman Prob>Chi2	0.297	0.113	0.697	0.134	0.563	0.197	0.214
Weak instrument test							
F-test *Sta btenure2*	200.328***	217.908***	223.787***	150.213***	154.773***	156.429***	124.962***
F-test *Sta bsize2*	29.668***			22.573***	19.812***		16.840***
F-test *Sta ned2*		43.438***		29.250***		29.123***	21.528***
F-test *Dual2*			96.077***		152.807***	112.783***	118.300***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Sta btenure2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta btenure2: lagged variable, interaction of standardised board size and standardised btenure in year Y-2. sta ned2 *sta btenure2: lagged variable, interaction of standardised ned and standardised btenure in year Y-2. Duality2 *sta btenure2: lagged variable, interaction of CEO duality and standardised btenure in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.70 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (MBOs) (*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Variables	endomo22 prem	endomo23 prem	endomo24 prem	endomo25 prem	endomo26 prem	endomo27 prem	endomo28 prem
Sta btenure	-0.048	-0.032	-0.020	-0.032	-0.017	0.022	0.023
	(-1.612)	(-1.014)	(-0.616)	(-0.855)	(-0.494)	(0.516)	(0.632)
Sta bsize	-0.024			0.017	-0.034		0.020
	(-0.352)			(0.224)	(-0.495)		(0.263)
Sta ned		0.087		0.082		0.122*	0.115*
		(1.396)		(1.416)		(1.791)	(1.768)
dual			0.100		0.082	0.135	0.126
			(1.170)		(0.878)	(1.294)	(1.101)
Sta bsize*sta btenure	-0.011			-0.027	-0.008		-0.029
	(-0.207)			(-0.523)	(-0.134)		(-0.496)
Sta ned*sta btenure		-0.072		-0.058		-0.106	-0.091
		(-1.138)		(-1.026)		(-1.406)	(-1.403)
Dual*sta btenure			-0.077		-0.101	-0.157	-0.157
			(-1.091)		(-1.492)	(-1.513)	(-1.531)
size	-0.014	-0.048	-0.016	-0.049	-0.010	-0.056	-0.058
	(-0.387)	(-1.287)	(-0.511)	(-1.128)	(-0.285)	(-1.350)	(-1.284)
roa	-0.294	-0.212	-0.279	-0.239	-0.274	-0.149	-0.180
	(-1.006)	(-0.657)	(-0.871)	(-0.836)	(-0.890)	(-0.431)	(-0.568)
bown	0.114	0.115	0.126	0.104	0.149	0.163	0.148
	(0.777)	(0.689)	(0.888)	(0.631)	(0.990)	(0.947)	(0.878)
lnnas	0.064*	0.065*	0.060*	0.063*	0.065*	0.067**	0.063*
	(1.728)	(1.947)	(1.864)	(1.658)	(1.804)	(2.048)	(1.740)
level	0.227	0.179	0.233	0.197	0.245	0.200	0.215
	(1.274)	(0.944)	(1.279)	(1.054)	(1.344)	(1.021)	(1.138)
fcf	-0.033	0.049	-0.007	0.088	-0.024	0.126	0.168
	(-0.102)	(0.164)	(-0.027)	(0.280)	(-0.072)	(0.386)	(0.512)
pea	-0.001	-0.002	-0.001	-0.002	-0.001	-0.002	-0.002
	(-0.725)	(-1.158)	(-0.886)	(-0.864)	(-0.761)	(-1.328)	(-1.042)
Constant	0.259	0.856	0.278	0.881	0.152	0.929	0.978
	(0.398)	(1.369)	(0.521)	(1.119)	(0.234)	(1.346)	(1.233)
Observations	89	89	89	89	89	89	89
R-squared	0.101	0.000	0.123	0.000	0.128	0.000	0.000
Chi2-test	14.840	15.400	11.880	15.590	14.650	13.600	13.370
Prob>chi2	0.138	0.118	0.293	0.211	0.261	0.327	0.498
Endogenous test							
Hausman Chi2	2.913	5.726	1.188	7.020	3.182	6.233	8.049
Hausman Prob>Chi2	0.405	0.126	0.756	0.219	0.672	0.284	0.328
Weak instrument test							
F-test: Sta btenure2	134.608***	182.183***	214.637***	109.23***	158.648***	200.376***	156.181***
F-test: Sta bsize2	64.732***			54.158***	44.326***		49.833***
F-test: Sta bsize2* sta btenure2	17.063			12.633***	17.094***		12.698***

Sta ned2	34.800***		24.944***		20.589***	16.715***
Sta ned2* sta btenure2	21.539***		17.066***		19.315***	14.755***
Dual2		92.694***		142.674***	99.557***	111.706***
Dual2* sta btenure2		146.717***		82.282***	167.638***	107.455***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta btenure: interaction of standardised board size and standardised btenure in year Y-1. sta ned *sta btenure: interaction of standardised ned and standardised btenure in year Y-1. duality *sta btenure: interaction of CEO duality and standardised btenure in year Y-1. Sta btenure2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta btenure2: lagged variable, interaction of standardised board size and standardised btenure in year Y-2. sta ned2 *sta btenure2: lagged variable, interaction of standardised ned and standardised btenure in year Y-2. Duality2 *sta btenure2: lagged variable, interaction of CEO duality and standardised btenure in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.71 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for moderation analysis: Step 1 the constrained model (MBOs) (*an assumption of no interaction effect*) of the effects of board structures and board effectiveness on takeover premiums in MBO deals *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	endomo29 prem	endomo30 prem	endomo31 prem	endomo32 prem	endomo33 prem	endomo34 prem	endomo35 prem
Sta fe	-0.020	-0.023	-0.018	-0.023	-0.018	-0.019	-0.017
	(-0.587)	(-0.621)	(-0.498)	(-0.629)	(-0.523)	(-0.500)	(-0.485)
Sta bsize	-0.005			0.014	0.000		0.033
	(-0.108)			(0.239)	(0.002)		(0.506)
Sta ned		0.065		0.066		0.079	0.085
		(1.363)		(1.339)		(1.502)	(1.473)
dual			0.042		0.042	0.085	0.107
			(0.526)		(0.467)	(0.890)	(0.939)
Size	-0.026	-0.039	-0.026	-0.043	-0.026	-0.038	-0.047
	(-0.792)	(-1.287)	(-0.991)	(-1.118)	(-0.795)	(-1.258)	(-1.200)
roa	-0.344	-0.324	-0.346	-0.322	-0.346	-0.324	-0.320
	(-1.217)	(-1.155)	(-1.236)	(-1.139)	(-1.223)	(-1.142)	(-1.119)
bown	0.077	0.139	0.074	0.128	0.074	0.157	0.134
	(0.586)	(0.958)	(0.562)	(0.920)	(0.560)	(1.089)	(0.964)
lnnas	0.056*	0.060**	0.056*	0.058*	0.056*	0.064**	0.059*
	(1.682)	(2.054)	(1.890)	(1.745)	(1.696)	(2.177)	(1.799)
level	0.247*	0.228	0.264	0.217	0.264	0.268	0.253
	(1.705)	(1.410)	(1.533)	(1.445)	(1.628)	(1.472)	(1.495)
fcf	-0.275*	-0.193	-0.261	-0.186	-0.260	-0.151	-0.123
	(-1.682)	(-1.120)	(-1.550)	(-1.055)	(-1.577)	(-0.817)	(-0.615)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.618)	(-0.851)	(-0.641)	(-0.795)	(-0.618)	(-0.910)	(-0.848)
Constant	0.520	0.726	0.494	0.811	0.495	0.646	0.831
	(0.903)	(1.481)	(1.194)	(1.192)	(0.894)	(1.340)	(1.244)
Observations	105	104	105	104	105	104	104
R-squared	0.140	0.088	0.147	0.087	0.147	0.089	0.087
Chi2-test	34.35	43.71	34.83	43.29	34.92	46.06	44.69
Prob>chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endogenous test							
Hausman Chi2	0.360	5.371	0.403	5.594	0.596	6.195	6.424
Hausman Prob>Chi2	0.835	0.068	0.818	0.133	0.897	0.103	0.170
Weak instrument test							

		endomo29	endomo30	endomo31	endomo32	endomo33	endomo34	endomo35
F-test	*Sta fe2*	218.816***	232.360***	210.007***	161.939***	148.896***	152.371***	119.937***
	Sta bsize2	29.126***			20.585***	20.230***		15.677***
	Sta ned2		66.431***		44.040***		43.384***	32.236***
	Dual2			98.779***		68.241***	69.446***	60.257***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Sta fe2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year

Y-2. sta bsize2 *sta fe2: lagged variable, interaction of standardised board size and standardised fe in year Y-2. sta ned2 *sta fe2: lagged variable, interaction of standardised ned and standardised fe in year Y-2. Duality2 *sta fe2: lagged variable, interaction of CEO duality and standardised fe in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.72 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for moderation analysis: Step 2 the unconstrained model (MBOs)
(*an assumption of interaction effect*) of the effects of board structures, board effectiveness and the interaction term takeover premiums in MBO deals *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Variables	endomo36 prem	endomo37 prem	endomo38 prem	endomo39 prem	endomo40 prem	endomo41 prem	endomo42 prem
Sta fe	-0.003	-0.031	-0.025	-0.009	-0.020	-0.046	-0.032
	(-0.087)	(-0.725)	(-0.610)	(-0.263)	(-0.541)	(-0.782)	(-0.664)
Sta bsize	0.041			0.057	0.047		0.068
	(0.510)			(0.681)	(0.581)		(0.798)
Sta ned		0.076		0.053		0.091	0.053
		(1.370)		(1.124)		(1.451)	(0.965)
dual			0.044		0.007	0.069	0.025
			(0.537)		(0.081)	(0.707)	(0.226)
Sta bsize*sta fe	0.086			0.088	0.114		0.123
	(0.969)			(0.978)	(1.093)		(1.146)
Sta ned*sta fe		0.060		0.041		0.068	0.051
		(0.951)		(0.781)		(0.921)	(0.788)
Dual*sta fe			0.025		0.082	0.061	0.105
			(0.387)		(0.894)	(0.599)	(0.813)
size	-0.035	-0.050	-0.025	-0.055	-0.033	-0.050	-0.055
	(-0.945)	(-1.492)	(-0.979)	(-1.313)	(-0.894)	(-1.452)	(-1.280)
roa	-0.452*	-0.301	-0.355	-0.422	-0.518*	-0.321	-0.505*
	(-1.691)	(-1.042)	(-1.302)	(-1.567)	(-1.926)	(-1.162)	(-1.899)
bown	0.076	0.131	0.072	0.102	0.075	0.141	0.097
	(0.563)	(0.934)	(0.536)	(0.742)	(0.514)	(0.985)	(0.649)
lnnas	0.055*	0.062**	0.055*	0.058*	0.052	0.062**	0.053*
	(1.676)	(2.174)	(1.865)	(1.764)	(1.610)	(2.133)	(1.654)
level	0.256*	0.191	0.255	0.207	0.237	0.195	0.183
	(1.666)	(1.269)	(1.531)	(1.297)	(1.455)	(1.206)	(1.039)
fcf	-0.172	-0.223	-0.261	-0.130	-0.143	-0.192	-0.094
	(-0.849)	(-1.313)	(-1.529)	(-0.591)	(-0.683)	(-1.071)	(-0.409)
pea	-0.000	-0.001	-0.001	-0.000	-0.000	-0.001	-0.000
	(-0.182)	(-0.526)	(-0.680)	(-0.120)	(-0.223)	(-0.656)	(-0.136)
Constant	0.680	0.945*	0.494	1.049	0.683	0.920	1.078
	(1.056)	(1.666)	(1.185)	(1.369)	(1.047)	(1.533)	(1.354)
Observations	105	104	105	104	105	104	104
R-squared	0.101	0.087	0.143	0.059	0.066	0.076	0.013
Chi2-test	44.240***	41.300***	34.200***	50.950***	44.660***	39.570***	49.640***
Prob>chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endogenous test							
Hausman Chi2	3.719	7.511	2.986	10.660	5.571	9.549	13.833
Hausman Prob>Chi2	0.294	0.057	0.294	0.059	0.350	0.089	0.054
Weak instrument test							
F-test Sta fe2	151.791***	154.693***	161.414***	94.527***	109.604***	106.141***	77.815***
F-test Sta bsize2	22.871***			15.998***	19.330***		15.673***

Sta bsize2* sta fe2	54.499***			43.862***	56.109***		40.433
Sta ned2		45.430***		29.746***		27.035***	21.148***
Sta ned2* sta fe2		31.245***		31.551***		21.141***	23.711***
Dual2			67.244***		54.688***	47.195***	61.249***
Dual2* sta fe2			56.360***		84.443***	60.938***	75.079***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. sta bsize *sta fe: interaction of standardised board size and standardised fe in year Y-1. sta ned *sta fe: interaction of standardised ned and standardised fe in year Y-1. duality *sta fe: interaction of CEO duality and standardised fe in year Y-1. Sta fe2: lagged variable, the standardised c-score in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. sta bsize2 *sta fe2: lagged variable, interaction of standardised board size and standardised fe in year Y-2. sta ned2 *sta fe2: lagged variable, interaction of standardised ned and standardised fe in year Y-2. Duality2 *sta fe2: lagged variable, interaction of CEO duality and standardised fe in year Y-2. Size: ln total assets in year y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.73 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
ENDOLE33-ENDOLE39 test the effects of board structures on takeover premiums (BS→ premiums), ENDOLE40-ENDOLE46 test the effects of board structures on board effectiveness (BS→ BE), ENDOLE47-ENDOLE53 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							**Step2: BS→ BE**							**Step3: BS, BE→ premiums**						
Variables	Endole33 prem	Endole34 prem	Endole35 prem	Endole36 prem	Endole37 prem	Endole38 prem	Endole39 prem	Endole40 Sta btenure	Endole41 Sta btenure	Endole42 Sta btenure	Endole43 Sta btenure	Endole44 Sta btenure	Endole45 Sta btenure	Endole46 Sta btenure	Endole47 prem	Endole48 prem	Endole49 prem	Endole50 prem	Endole51 prem	Endole52 prem	Endole53 prem
Sta bsize	0.038			0.018	0.039		0.014	-0.033			-0.050	0.066		0.061	0.081			0.063	0.076		0.051
	(0.589)			(0.279)	(0.578)		(0.197)	(-0.295)			(-0.422)	(0.437)		(0.391)	(1.083)			(0.829)	(0.996)		(0.614)
Sta ned		-0.118*		-0.116*		-0.122*	-0.120*		-0.066		-0.072		-0.023	-0.015		-0.088		-0.078		-0.097	-0.088
		(-1.791)		(-1.708)		(-1.949)	(-1.849)		(-0.677)		(-0.713)		(-0.222)	(-0.142)		(-1.352)		(-1.179)		(-1.566)	(-1.393)
dual			-0.011		0.005	-0.086	-0.079			1.150*		1.171*	1.133*	1.159*			-0.116		-0.089	-0.227	-0.199
			(-0.047)		(0.021)	(-0.339)	(-0.304)			(1.717)		(1.709)	(1.684)	(1.657)			(-0.453)		(-0.337)	(-0.783)	(-0.682)
Sta btenure															0.057	0.069	0.069	0.070	0.068	0.100	0.097
															(0.789)	(0.911)	(0.854)	(0.913)	(0.834)	(1.098)	(1.053)
size	-0.071	-0.052	-0.061	-0.056	-0.071	-0.051	-0.055	-0.039	-0.053	-0.049	-0.034	-0.074	-0.050	-0.072	-0.074	-0.044	-0.050	-0.064	-0.073	-0.045	-0.061
	(-1.645)	(-1.357)	(-1.549)	(-1.368)	(-1.631)	(-1.349)	(-1.312)	(-0.448)	(-0.629)	(-0.612)	(-0.395)	(-0.726)	(-0.618)	(-0.704)	(-1.512)	(-1.105)	(-1.201)	(-1.339)	(-1.473)	(-1.091)	(-1.229)
roa	-1.141	-1.270	-1.103	-1.286	-1.141	-1.292	-1.302	1.379**	1.287**	1.534**	1.280**	1.536**	1.500**	1.514**	-1.263	-1.304	-1.204	-1.357	-1.277	-1.365	-1.399
	(-1.256)	(-1.312)	(-1.229)	(-1.319)	(-1.244)	(-1.342)	(-1.345)	(2.340)	(2.276)	(2.458)	(2.241)	(2.517)	(2.328)	(2.376)	(-1.329)	(-1.324)	(-1.333)	(-1.351)	(-1.355)	(-1.422)	(-1.426)
bown	0.214	0.114	0.250	0.099	0.214	0.108	0.098	-0.222	-0.311	-0.430	-0.256	-0.511	-0.445	-0.516	0.093	0.071	0.163	0.022	0.093	0.050	0.014
	(0.481)	(0.264)	(0.588)	(0.226)	(0.480)	(0.250)	(0.222)	(-0.318)	(-0.457)	(-0.581)	(-0.366)	(-0.626)	(-0.611)	(-0.638)	(0.198)	(0.155)	(0.364)	(0.048)	(0.197)	(0.107)	(0.029)
lnnas	0.170***	0.151***	0.169***	0.151***	0.170***	0.149***	0.150***								0.161***	0.144***	0.156***	0.149***	0.160***	0.143***	0.147***
	(3.721)	(3.392)	(3.676)	(3.416)	(3.700)	(3.303)	(3.324)								(3.138)	(2.937)	(2.995)	(3.033)	(3.097)	(2.779)	(2.896)
level	-0.442**	-0.400**	-0.432**	-0.405**	-0.443**	-0.389*	-0.393*								-0.575***	-0.511***	-0.539***	-0.526***	-0.556***	-0.456**	-0.475**
	(-2.319)	(-2.018)	(-2.227)	(-2.000)	(-2.229)	(-1.833)	(-1.795)								(-3.329)	(-2.698)	(-2.777)	(-2.852)	(-2.932)	(-1.973)	(-2.105)
fcf	0.867	0.782	0.735	0.845	0.867	0.797	0.842								0.503	0.304	0.248	0.499	0.489	0.311	0.467
	(0.900)	(0.802)	(0.781)	(0.846)	(0.900)	(0.820)	(0.851)								(0.507)	(0.313)	(0.271)	(0.490)	(0.498)	(0.329)	(0.466)
pea	0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.485)	(0.213)	(0.481)	(0.218)	(0.486)	(0.188)	(0.194)								(0.395)	(0.184)	(0.353)	(0.217)	(0.371)	(0.111)	(0.145)

Big4								0.037	0.065	0.112	0.046	0.140	0.116	0.141							
								(0.184)	(0.329)	(0.498)	(0.231)	(0.566)	(0.524)	(0.574)							
ceoch								-0.466*	-0.480**	-0.496	-0.456*	-0.529	-0.495*	-0.526							
								(-1.946)	(-2.127)	(-1.635)	(-1.894)	(-1.609)	(-1.658)	(-1.607)							
sg								-0.272***	-0.261***	-0.241***	-0.264***	-0.235***	-0.239***	-0.233***							
								(-2.878)	(-2.700)	(-2.848)	(-2.692)	(-2.740)	(-2.700)	(-2.651)							
Constant	1.109	0.841	0.917	0.935	1.110	0.847	0.916	0.828	1.069	0.827	0.736	1.267	0.836	1.243	1.324	0.812	0.877	1.176	1.306	0.827	1.117
	(1.427)	(1.277)	(1.371)	(1.252)	(1.421)	(1.288)	(1.211)	(0.521)	(0.710)	(0.595)	(0.465)	(0.714)	(0.602)	(0.691)	(1.545)	(1.204)	(1.273)	(1.392)	(1.505)	(1.205)	(1.276)
Observations	73	73	73	73	73	73	73	76	76	76	76	76	76	76	68	68	68	68	68	68	68
R-squared	0.207	0.200	0.212	0.199	0.207	0.197	0.196	0.084	0.084	0.073	0.085	0.066	0.075	0.069	0.252	0.243	0.257	0.241	0.254	0.225	0.229
Chi2-test	22.25***	23.620***	21.820***	24.450***	22.360***	26.520***	26.970***	19.71***	20.810***	18.140**	19.820**	19.280**	18.160**	19.210**	25.72	22.36	23.58	25.18	26.27	25.50	26.70
Prob>chi2	0.004	0.003	0.005	0.004	0.008	0.002	0.003	0. 006	0. 004	0.011	0. 011	0. 013	0. 020	0. 024	0.002	0.008	0.005	0.005	0.003	0.004	0.005
Endogenous test																					
Hausman Chi2	1.614	5.711	0.000	5.812	1.589	5.832	5.946	0.001	0.219	2.850	0.224	3.019	3.060	3.432	2.593	5.768	0.173	5.838	2.568	6.380	6.320
Hausman Prob>Chi2	0.204	0.017	0.996	0.055	0.452	0.054	0.114	0.974	0.640	0.091	0.894	0.221	0.217	0.330	0.273	0.056	0.917	0.120	0.463	0.095	0.177
Weak instrument test																					
F-test *Sta btenure2*															63.959***	33.157***	26.093***	44.929***	56.024***	23.509***	40.591***
F-test *Sta bsize2*	120.364***			67.209***	68.243***		53.016***	125.156***			64.801***	62.421***		43.385***	42.542***			29.616***	32.507***		26.520***
F-test *Sta ned2*		272.208***		140.107***		148.999***	101.001***		328.747***		169.472***		201.105***	134.466***		139.997***		108.529***		105.560***	89.936***
F-test *Dual2*			17.292***		8.810***	10.500***	9.555***			18.401***		10.081***	9.065***	7.219***			13.783***		8.950***	12.634***	9.887***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Btenure2: the average tenure of board of directors in year Y-2 (two year before the announcement of takeovers). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta btenure2: lagged variable, the standardised btenure in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1.Sg: sales growth in year Y-1.

Table 4.74 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
ENDOLE54 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOLE55-ENDOME56 test the effects of board effectiveness on board structures (BE→ BS), ENDOLE58-ENDOLE64 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	**Step2: BE→ BS**		**Step3: BE, BS→ premiums**						
Variables	Endole54 prem	Endole55 bsize	Endole56 ned	Endole58 prem	Endole59 prem	Endole60 prem	Endole61 prem	Endole62 prem	Endole63 prem	Endole64 prem
Sta btenure	0.054	-0.080	0.140	0.057	0.069	0.069	0.070	0.068	0.100	0.097
	(0.755)	(-0.640)	(0.827)	(0.789)	(0.911)	(0.854)	(0.913)	(0.834)	(1.098)	(1.053)
Sta bsize				0.081			0.063	0.076		0.051
				(1.083)			(0.829)	(0.996)		(0.614)
Sta ned					-0.088		-0.078		-0.097	-0.088
					(-1.352)		(-1.179)		(-1.566)	(-1.393)
dual						-0.116		-0.089	-0.227	-0.199
						(-0.453)		(-0.337)	(-0.783)	(-0.682)
size	-0.050	0.368***	-0.010	-0.074	-0.044	-0.050	-0.064	-0.073	-0.045	-0.061
	(-1.197)	(6.401)	(-0.126)	(-1.512)	(-1.105)	(-1.201)	(-1.339)	(-1.473)	(-1.091)	(-1.229)
roa	-1.180	0.120	-1.570*	-1.263	-1.304	-1.204	-1.357	-1.277	-1.365	-1.399
	(-1.290)	(0.156)	(-1.904)	(-1.329)	(-1.324)	(-1.333)	(-1.351)	(-1.355)	(-1.422)	(-1.426)
bown	0.168	1.168*	-0.709	0.093	0.071	0.163	0.022	0.093	0.050	0.014
	(0.380)	(1.720)	(-0.818)	(0.198)	(0.155)	(0.364)	(0.048)	(0.197)	(0.107)	(0.029)
lnnas	0.156***			0.161***	0.144***	0.156***	0.149***	0.160***	0.143***	0.147***
	(3.050)			(3.138)	(2.937)	(2.995)	(3.033)	(3.097)	(2.779)	(2.896)
level	-0.564***			-0.575***	-0.511***	-0.539***	-0.526***	-0.556***	-0.456**	-0.475**
	(-3.211)			(-3.329)	(-2.698)	(-2.777)	(-2.852)	(-2.932)	(-1.973)	(-2.105)
fcf	0.247			0.503	0.304	0.248	0.499	0.489	0.311	0.467
	(0.266)			(0.507)	(0.313)	(0.271)	(0.490)	(0.498)	(0.329)	(0.466)
pea	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000

		(0.382)			(0.395)	(0.184)	(0.353)	(0.217)	(0.371)	(0.111)	(0.145)
Big4			-0.400	0.210							
			(-1.267)	(0.695)							
ceoch			0.446*	0.105							
			(1.706)	(0.335)							
sg			-0.114	0.169**							
			(-1.518)	(1.987)							
Constant		0.867	-6.665***	0.089							
		(1.264)	(-6.511)	(0.061)	1.324	0.812	0.877	1.176	1.306	0.827	1.117
					(1.545)	(1.204)	(1.273)	(1.392)	(1.505)	(1.205)	(1.276)
Observations		68	76	76	68	68	68	68	68	68	68
R-squared		0.259	0.385	0.045	0.252	0.243	0.257	0.241	0.254	0.225	0.229
Chi2-test		22.080***	64.350***	11.470	25.72	22.36	23.58	25.18	26.27	25.50	26.70
Prob>chi2		0.005	0. 000	0. 119	0.002	0.008	0.005	0.005	0.003	0.004	0.005
Endogenous test											
Hausman Chi2		0.026	0.341	1.577	2.593	5.768	0.173	5.838	2.568	6.380	6.320
Hausman Prob>Chi2		0.873	0.559	0.209	0.273	0.056	0.917	0.120	0.463	0.095	0.177
Weak instrument test											
F-test	*Sta btenure2*	24.704***	28.291***	28.291***	63.959***	33.157***	26.093***	44.929***	56.024***	23.509***	40.591***
	Sta bsize2				42.542***			29.616***	32.507***		26.520***
	Sta ned2					139.997***		108.529***		105.560***	89.936***
	Dual2						13.783***		8.950***	12.634***	9.887***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Btenure2: the average tenure of board of directors in year Y-2 (two year before the announcement of takeovers). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta btenure2: lagged variable, the standardised btenure in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.75 Sensitive analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
ENDOLE65-ENDOLE71 test the effects of board structures on takeover premiums (BS→ premiums), ENDOLE72-ENDOLE78 test the effects of board structures on board effectiveness (BS→ BE), ENDOLE79-ENDOLE85 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							**Step2: BS→ BE**							**Step3: BS, BE→ premiums**						
Variables	Endole65 prem	Endole66 prem	Endole67 prem	Endole68 prem	Endole69 prem	Endole70 prem	Endole71 prem	Endole72 Sta fe	Endole73 Sta fe	Endole74 Sta fe	Endole75 Sta fe	Endole76 Sta fe	Endole77 Sta fe	Endole78 Sta fe	Endole79 prem	Endole80 prem	Endole81 prem	Endole82 prem	Endole83 prem	Endole84 prem	Endole85 prem
Sta bsize	0.038			0.018	0.039		0.014	-0.372**			-0.350**	-0.373**		-0.342*	-0.001			-0.011	0.001		-0.013
	(0.589)			(0.279)	(0.578)		(0.197)	(-2.266)			(-2.092)	(-2.193)		(-1.934)	(-0.010)			(-0.152)	(0.011)		(-0.171)
Sta ned		-0.118*		-0.116*		-0.122*	-0.120*		0.149		0.113		0.159	0.117		-0.103		-0.103		-0.105	-0.106
		(-1.791)		(-1.708)		(-1.949)	(-1.849)		(1.013)		(0.834)		(1.082)	(0.847)		(-1.538)		(-1.543)		(-1.633)	(-1.636)
dual			-0.011		0.005	-0.086	-0.079			0.147		-0.008	0.266	0.093			0.038		0.038	-0.038	-0.043
			(-0.047)		(0.021)	(-0.339)	(-0.304)			(0.341)		(-0.020)	(0.605)	(0.226)			(0.172)		(0.169)	(-0.162)	(-0.176)
Sta fe															-0.091	-0.071	-0.092	-0.074	-0.091	-0.070	-0.073
															(-1.350)	(-1.064)	(-1.519)	(-1.022)	(-1.381)	(-1.078)	(-1.036)
size	-0.071	-0.052	-0.061	-0.056	-0.071	-0.051	-0.055	0.189**	0.058	0.056	0.182**	0.189**	0.058	0.180*	-0.057	-0.050	-0.057	-0.047	-0.057	-0.050	-0.046
	(-1.645)	(-1.357)	(-1.549)	(-1.368)	(-1.631)	(-1.349)	(-1.312)	(2.099)	(0.785)	(0.706)	(2.031)	(2.082)	(0.779)	(1.946)	(-1.364)	(-1.344)	(-1.526)	(-1.153)	(-1.360)	(-1.342)	(-1.120)
roa	-1.141	-1.270	-1.103	-1.286	-1.141	-1.292	-1.302	-0.870	-0.512	-0.713	-0.696	-0.872	-0.464	-0.675	-1.169	-1.303	-1.164	-1.294	-1.165	-1.311	-1.302
	(-1.256)	(-1.312)	(-1.229)	(-1.319)	(-1.244)	(-1.342)	(-1.345)	(-0.777)	(-0.455)	(-0.726)	(-0.581)	(-0.774)	(-0.426)	(-0.563)	(-1.454)	(-1.472)	(-1.422)	(-1.477)	(-1.430)	(-1.480)	(-1.490)
bown	0.214	0.114	0.250	0.099	0.214	0.108	0.098	1.575*	1.267	1.118	1.643*	1.577*	1.231	1.622*	0.362	0.219	0.362	0.232	0.361	0.214	0.229
	(0.481)	(0.264)	(0.588)	(0.226)	(0.480)	(0.250)	(0.222)	(1.750)	(1.446)	(1.175)	(1.926)	(1.769)	(1.390)	(1.896)	(0.784)	(0.491)	(0.822)	(0.510)	(0.783)	(0.486)	(0.508)
lnnas	0.170***	0.151***	0.169***	0.151***	0.170***	0.149***	0.150***								0.176***	0.158***	0.176***	0.158***	0.176***	0.157***	0.157***
	(3.721)	(3.392)	(3.676)	(3.416)	(3.700)	(3.303)	(3.324)								(3.922)	(3.654)	(3.904)	(3.660)	(3.906)	(3.615)	(3.615)
level	-0.442**	-0.400**	-0.432**	-0.405**	-0.443**	-0.389*	-0.393*								-0.481**	-0.442**	-0.486**	-0.441**	-0.486**	-0.437**	-0.434**
	(-2.319)	(-2.018)	(-2.227)	(-2.000)	(-2.229)	(-1.833)	(-1.795)								(-2.429)	(-2.150)	(-2.380)	(-2.125)	(-2.354)	(-2.019)	(-1.969)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
fcf		0.867	0.782	0.735	0.845	0.867	0.797	0.842								0.838	0.859	0.835	0.823	0.838	0.864	0.822
		(0.900)	(0.802)	(0.781)	(0.846)	(0.900)	(0.820)	(0.851)								(0.930)	(0.908)	(0.913)	(0.877)	(0.925)	(0.914)	(0.879)
pea		0.000	0.000	0.000	0.000	0.000	0.000	0.000								0.000	0.000	0.000	0.000	0.000	0.000	0.000
		(0.485)	(0.213)	(0.481)	(0.218)	(0.486)	(0.188)	(0.194)								(0.603)	(0.352)	(0.614)	(0.354)	(0.613)	(0.340)	(0.339)
Big4									0.090	0.228	0.266	0.076	0.089	0.237	0.082							
									(0.265)	(0.629)	(0.707)	(0.229)	(0.262)	(0.655)	(0.249)							
ceoch									-0.324	-0.483	-0.484	-0.335	-0.323	-0.488	-0.340							
									(-0.935)	(-1.491)	(-1.526)	(-0.958)	(-0.939)	(-1.443)	(-0.967)							
sg									0.180**	0.173	0.189*	0.171*	0.180**	0.179	0.173*							
									(2.115)	(1.580)	(1.730)	(1.932)	(2.077)	(1.631)	(1.928)							
Constant		1.109	0.841	0.917	0.935	1.110	0.847	0.916	-3.767**	-1.421	-1.411	-3.644**	-3.770**	-1.456	-3.605**	0.840	0.794	0.839	0.734	0.843	0.798	0.728
		(1.427)	(1.277)	(1.371)	(1.252)	(1.421)	(1.288)	(1.211)	(-2.154)	(-0.977)	(-0.906)	(-2.099)	(-2.151)	(-0.995)	(-2.045)	(1.087)	(1.201)	(1.270)	(0.982)	(1.087)	(1.211)	(0.963)
Observations		73	73	73	73	73	73	73	81	81	81	81	81	81	81	73	73	73	73	73	73	73
R-squared		0.207	0.200	0.212	0.199	0.207	0.197	0.196	0.140	0.087	0.064	0.151	0.140	0.078	0.149	0.241	0.227	0.240	0.229	0.240	0.226	0.228
Chi2-test		22.25***	23.620***	21.820***	24.450***	22.360***	26.520***	26.970***	16.720**	11.080	7.690	20.120***	16.730**	11.550	20.340**	26.83	29.85	26.28	30.34	26.80	30.34	30.73
Prob>chi2		0.004	0.003	0.005	0.004	0.008	0.002	0.003	0.019	0.135	0.361	0.001	0.033	0.172	0.016	0.001	0.000	0.002	0.001	0.003	0.001	0.001
Endogenous test																						
Hausman Chi2		1.614	5.711	0.000	5.812	1.589	5.832	5.946	0.067	0.037	0.721	0.0448	0.329	2.128	1.122	1.733	6.547	0.268	6.838	1.635	6.704	6.951
Hausman Prob>Chi2		0.204	0.017	0.996	0.055	0.452	0.054	0.114	0.796	0.847	0.396	0.978	0.848	0.345	0.772	0.420	0.038	0.875	0.077	0.652	0.082	0.139
Weak instrument test																						
F-test	*Sta fe2*															348.5***	331.672***	315.625***	276.888***	239.324***	236.835***	213.625***
	Sta bsize2	120.364***			67.209***	68.243***		53.016***	167.451***			88.158***	84.440***		59.797***	59.666***			46.926***	45.056***		41.786***
	Sta ned2		272.208***		140.107***		148.999***	101.001***		353.011***		181.470***		215.827***	143.856***		142.050***		105.106***		102.623***	84.145***
	Dual2			17.292***		8.810***	10.500***	9.555***			18.617***		10.165***	9.172***	7.223***			9.368***		6.053***	8.225***	7.151***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Fe: the proportion of financial experts on the board in year Y-2 (two year before the announcement). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta fe2: lagged variable, the standardise fe at yeat Y-2. Sta bsize: lagged variable, the standardised board size in year Y-2. Sta ned: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.76 Sensitive analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
ENDOLE86 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOLE87-ENDOLE88 test the effects of board effectiveness on board structures (BE→ BS), ENDOLE90-ENDOLE96 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	**Step2: BE→ BS**		**Step3: BE, BS→ premiums**						
Variables	Endole86 prem	Endole87 bsize	Endole88 ned	Endole90 prem	Endole91 prem	Endole92 prem	Endole93 prem	Endole94 prem	Endole95 prem	Endole96 prem
Sta fe	-0.091	-0.275**	0.199*	-0.091	-0.071	-0.092	-0.074	-0.091	-0.070	-0.073
	(-1.476)	(-2.430)	(1.697)	(-1.350)	(-1.064)	(-1.519)	(-1.022)	(-1.381)	(-1.078)	(-1.036)
Sta bsize				-0.001			-0.011	0.001		-0.013
				(-0.010)			(-0.152)	(0.011)		(-0.171)
Sta ned					-0.103		-0.103		-0.105	-0.106
					(-1.538)		(-1.543)		(-1.633)	(-1.636)
dual						0.038		0.038	-0.038	-0.043
						(0.172)		(0.169)	(-0.162)	(-0.176)
size	-0.057	0.372***	-0.025	-0.057	-0.050	-0.057	-0.047	-0.057	-0.050	-0.046
	(-1.530)	(6.906)	(-0.375)	(-1.364)	(-1.344)	(-1.526)	(-1.153)	(-1.360)	(-1.342)	(-1.120)
roa	-1.170	-0.574	-1.331*	-1.169	-1.303	-1.164	-1.294	-1.165	-1.311	-1.302
	(-1.449)	(-0.638)	(-1.645)	(-1.454)	(-1.472)	(-1.422)	(-1.477)	(-1.430)	(-1.480)	(-1.490)
bown	0.361	1.475**	-1.067	0.362	0.219	0.362	0.232	0.361	0.214	0.229
	(0.817)	(2.282)	(-1.372)	(0.784)	(0.491)	(0.822)	(0.510)	(0.783)	(0.486)	(0.508)
lnnas	0.176***			0.176***	0.158***	0.176***	0.158***	0.176***	0.157***	0.157***
	(3.920)			(3.922)	(3.654)	(3.904)	(3.660)	(3.906)	(3.615)	(3.615)
level	-0.481**			-0.481**	-0.442**	-0.486**	-0.441**	-0.486**	-0.437**	-0.434**
	(-2.445)			(-2.429)	(-2.150)	(-2.380)	(-2.125)	(-2.354)	(-2.019)	(-1.969)
fcf	0.840			0.838	0.859	0.835	0.823	0.838	0.864	0.822
	(0.924)			(0.930)	(0.908)	(0.913)	(0.877)	(0.925)	(0.914)	(0.879)
pea	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000

		(0.604)			(0.603)	(0.352)	(0.614)	(0.354)	(0.613)	(0.340)	(0.339)
Big4			-0.386	0.167							
			(-1.370)	(0.646)							
ceoch			0.290	0.109							
			(0.980)	(0.356)							
sg			0.037	0.047							
			(0.445)	(0.537)							
Constant		0.844	-6.760***	0.469	0.840	0.794	0.839	0.734	0.843	0.798	0.728
		(1.278)	(-6.844)	(0.373)	(1.087)	(1.201)	(1.270)	(0.982)	(1.087)	(1.211)	(0.963)
Observations		73	81	81	73	73	73	73	73	73	73
R-squared		0.241	0.374	0.100	0.241	0.227	0.240	0.229	0.240	0.226	0.228
Chi2-test		26.300***	73.690***	10.99	26.83	29.85	26.28	30.34	26.80	30.34	30.73
Prob>chi2		0.001	0.000	0.139	0.001	0.000	0.002	0.001	0.003	0.001	0.001
Endogenous test											
Hausman Chi2		0.171	1.561	1.524	1.733	6.547	0.268	6.838	1.635	6.704	6.951
Hausman Prob>Chi2		0.679	0.211	0.217	0.420	0.038	0.875	0.077	0.652	0.082	0.139
Weak instrument test											
F-test	*Sta fe2*	594.640***	523.016***	523.016***	348.5***	331.672***	315.625***	276.888***	239.324***	236.835***	213.625***
	Sta bsize2				59.666***			46.926***	45.056***		41.786***
	Sta ned2					142.050***		105.106***		102.623***	84.145***
	Dual2						9.368***		6.053***	8.225***	7.151***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Fe: the proportion of financial experts on the board in year Y-2 (two year before the announcement). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta fe2: lagged variable, the standardise fe at yeat Y-2. Sta bsize: lagged variable, the standardised board size in year Y-2. Sta ned: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.77 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
ENDOME32-ENDOME38 test the effects of board structures on takeover premiums (BS→ premiums), ENDOME39-ENDOME45 test the effects of board structures on board effectiveness (BS→ BE), ENDOME46-ENDOME52 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							**Step2: BS→ BE**							**Step3: BS, BE→ premiums**						
Variables	Endome 33 prem	Endome 34 prem	Endome 35 prem	Endome 36 prem	Endom e37 prem	Endome3 8 prem	Endome 39 prem	Endome 40 Sta btenure	Endome 41 Sta btenure	Endome 42 Sta btenure	Endome 43 Sta btenure	Endome 44 Sta btenure	Endome 45 Sta btenure	Endome 46 Sta btenure	Endome 47 prem	Endome 48 prem	Endome 49 prem	Endome 50 prem	Endome 51 prem	Endome 52 prem	Endome 53 prem
Sta bsize	-0.005			0.014	0.001		0.035	-0.147			-0.210	-0.102		-0.161	-0.027			0.003	-0.019		0.030
	(-0.101)			(0.237)	(0.019)		(0.512)	(-0.810)			(-1.234)	(-0.598)		(-0.948)	(-0.438)			(0.046)	(-0.298)		(0.371)
Sta ned		0.065		0.066		0.080	0.087		-0.156		-0.172		-0.102	-0.128		0.084		0.085		0.112*	0.118
		(1.367)		(1.341)		(1.499)	(1.470)		(-1.165)		(-1.305)		(-0.635)	(-0.776)		(1.439)		(1.351)		(1.697)	(1.590)
dual			0.048		0.048	0.092	0.114			0.338		0.295	0.299	0.221			0.093		0.084	0.136	0.152
			(0.604)		(0.530)	(0.964)	(0.984)			(1.299)		(1.192)	(0.999)	(0.732)			(1.111)		(0.899)	(1.331)	(1.261)
Sta btenure															-0.048	-0.027	-0.047*	-0.026	-0.049*	-0.025	-0.020
															(-1.583)	(-0.839)	(-1.727)	(-0.683)	(-1.675)	(-0.824)	(-0.540)
Size	-0.026	-0.039	-0.025	-0.043	-0.025	-0.038	-0.047	-0.007	-0.025	-0.023	0.054	0.009	-0.005	0.050	-0.014	-0.044	-0.013	-0.045	-0.009	-0.040	-0.048
	(-0.779)	(-1.287)	(-0.974)	(-1.108)	(-0.783)	(-1.257)	(-1.194)	(-0.063)	(-0.250)	(-0.265)	(0.465)	(0.095)	(-0.052)	(0.458)	(-0.381)	(-1.247)	(-0.420)	(-0.954)	(-0.250)	(-1.106)	(-1.011)
roa	-0.366	-0.349	-0.365	-0.347	-0.365	-0.344	-0.337	1.773*	1.627	1.627*	1.711	1.682*	1.583	1.659	-0.288	-0.262	-0.288	-0.262	-0.284	-0.240	-0.244
	(-1.414)	(-1.360)	(-1.418)	(-1.337)	(-1.392)	(-1.307)	(-1.260)	(1.709)	(1.536)	(1.670)	(1.598)	(1.690)	(1.586)	(1.621)	(-0.942)	(-0.846)	(-0.906)	(-0.873)	(-0.910)	(-0.747)	(-0.779)
bown	0.075	0.136	0.072	0.125	0.071	0.155	0.132	1.049**	0.946**	1.054**	0.968**	1.065**	0.997**	1.001**	0.118	0.156	0.112	0.154	0.123	0.192	0.178
	(0.578)	(0.967)	(0.561)	(0.921)	(0.550)	(1.100)	(0.964)	(2.312)	(2.097)	(2.391)	(2.114)	(2.384)	(2.113)	(2.117)	(0.810)	(1.029)	(0.792)	(1.007)	(0.846)	(1.223)	(1.132)
lnnas	0.056*	0.061**	0.056*	0.059*	0.056*	0.064**	0.060*								0.064*	0.064**	0.061*	0.063*	0.064*	0.066**	0.062*
	(1.656)	(2.018)	(1.862)	(1.728)	(1.676)	(2.160)	(1.788)								(1.750)	(1.982)	(1.835)	(1.745)	(1.733)	(2.063)	(1.710)
level	0.242	0.222	0.263	0.212	0.263	0.267	0.251								0.217	0.160	0.245	0.159	0.250	0.207	0.197
	(1.640)	(1.361)	(1.513)	(1.378)	(1.601)	(1.452)	(1.467)								(1.268)	(0.889)	(1.309)	(0.880)	(1.365)	(1.073)	(1.032)
fcf	-0.266	-0.183	-0.251	-0.176	-0.250	-0.140	-0.112								-0.054	-0.065	-0.003	-0.063	-0.018	-0.026	-0.003
	(-1.633)	(-1.069)	(-1.529)	(-0.994)	(-1.534)	(-0.767)	(-0.558)								(-0.195)	(-0.263)	(-0.011)	(-0.245)	(-0.064)	(-0.096)	(-0.011)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001								-0.001	-0.002	-0.001	-0.002	-0.001	-0.002	-0.002
	(-0.702)	(-0.960)	(-0.719)	(-0.898)	(-0.689)	(-1.011)	(-0.932)								(-0.873)	(-1.048)	(-0.903)	(-1.000)	(-0.903)	(-1.160)	(-1.103)
Big4								0.016	0.053	0.013	0.014	-0.003	0.022	0.000							
								(0.081)	(0.267)	(0.066)	(0.071)	(-0.014)	(0.109)	(0.002)							
ceoch								0.143	0.245	0.210	0.291	0.215	0.282	0.308							

								(0.524)	(0.887)	(0.672)	(1.248)	(0.735)	(1.002)	(1.252)							
Sg								-0.052	-0.065**	-0.078**	-0.051	-0.070*	-0.079**	-0.065							
								(-1.533)	(-1.963)	(-2.334)	(-1.396)	(-1.928)	(-2.257)	(-1.635)							
Constant	0.521	0.727	0.487	0.814	0.492	0.640	0.835	-0.190	0.149	0.026	-1.251	-0.535	-0.282	-1.242	0.259	0.812	0.208	0.832	0.124	0.658	0.812
	(0.892)	(1.495)	(1.184)	(1.185)	(0.884)	(1.348)	(1.240)	(-0.101)	(0.081)	(0.017)	(-0.599)	(-0.308)	(-0.169)	(-0.632)	(0.392)	(1.368)	(0.407)	(0.960)	(0.199)	(1.086)	(0.968)
Observations	105	104	105	104	105	104	104	99	99	99	99	99	99	99	89	89	89	89	89	89	89
R-squared	0.139	0.088	0.147	0.087	0.147	0.089	0.087	0.152	0.159	0.172	0.176	0.177	0.182	0.190	0.091	0.018	0.108	0.017	0.104	0.013	0.010
Chi2-test	28.010***	38.030***	27.520***	38.120***	29.36***	42.040***	41.850***	20.420***	30.390***	24.460***	28.930***	22.490***	32.070***	30.450***	12.44	15.75	11.45	16.48	13.72	16.27	16.38
Prob>chi2	0.001	0.000	0. 001	0. 000	0. 001	0. 000	0. 000	0. 005	0. 000	0. 001	0. 000	0. 004	0. 000	0. 000	0.190	0.072	0.246	0.087	0.186	0.092	0.127
Endogenous test																					
Hausman Chi2	0.076	4.547	0.271	5.222	0.324	5.361	6.077	0.0136	0.0163	2.013	0.300	1.899	1.919	1.771	2.428	4.355	0.722	5.576	2.046	4.683	5.808
Hausman Prob>Chi2	0.783	0.033	0.603	0.074	0.851	0.069	0.108	0.907	0.898	0.156	0.861	0.387	0.383	0.621	0.297	0.113	0.697	0.134	0.563	0.197	0.214
Weak instrument test																					
F-test Sta btenure2															200.328***	217.908***	223.787***	150.213***	154.773***	156.429***	124.962***
Sta bsize2	59.284***			31.409***	30.684***		21.181***	45.679***			23.847***	22.659***		16.118***	29.668***			22.573***	19.812***		16.840***
Sta ned2		104.955***		51.949***		52.241***	34.142***		84.224***		41.626***		42.145***	27.563***		43.438***		29.250***		29.123***	21.528***
Dual2			152.326***		75.314***	89.309***	62.316***			167.231***		99.651***	143.903***	110.035***			96.077***		152.807***	112.783***	118.300***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Btenure2: the average tenure of board of directors in year Y-2 (two year before the announcement of takeovers). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta btenure: the standardised btenure in year Y-1.Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta btenure2: lagged variable, the standardised btenure in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.78 Sensitive analysis: use alternative measure for board effectiveness (Btenure) - the endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
ENDOME54 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOME55-ENDOME56 test the effects of board effectiveness on board structures (BE→ BS), ME58-ME64 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	Step2: BE→ BS		Step3: BE, BS→ premiums						
Variables	Endome54 prem	Endome55 bsize	Endome56 ned	Endome58 prem	Endome59 prem	Endome60 prem	Endome61 prem	Endome62 prem	Endome63 prem	Endome64 prem
Sta btenure	-0.044	-0.089	-0.134	-0.048	-0.027	-0.047*	-0.026	-0.049*	-0.025	-0.020
	(-1.600)	(-1.109)	(-1.201)	(-1.583)	(-0.839)	(-1.727)	(-0.683)	(-1.675)	(-0.824)	(-0.540)
Sta bsize				-0.027			0.003	-0.019		0.030
				(-0.438)			(0.046)	(-0.298)		(0.371)
Sta ned					0.084		0.085		0.112*	0.118
					(1.439)		(1.351)		(1.697)	(1.590)
dual						0.093		0.084	0.136	0.152
						(1.111)		(0.899)	(1.331)	(1.261)
size	-0.021	0.354***	0.211**	-0.014	-0.044	-0.013	-0.045	-0.009	-0.040	-0.048
	(-0.690)	(3.811)	(2.364)	(-0.381)	(-1.247)	(-0.420)	(-0.954)	(-0.250)	(-1.106)	(-1.011)
roa	-0.295	0.593	-0.295	-0.288	-0.262	-0.288	-0.262	-0.284	-0.240	-0.244
	(-0.950)	(0.685)	(-0.344)	(-0.942)	(-0.846)	(-0.906)	(-0.873)	(-0.910)	(-0.747)	(-0.779)
bown	0.100	0.234	-0.388	0.118	0.156	0.112	0.154	0.123	0.192	0.178
	(0.721)	(0.467)	(-0.710)	(0.810)	(1.029)	(0.792)	(1.007)	(0.846)	(1.223)	(1.132)
lnnas	0.060*			0.064*	0.064**	0.061*	0.063*	0.064*	0.066**	0.062*
	(1.810)			(1.750)	(1.982)	(1.835)	(1.745)	(1.733)	(2.063)	(1.710)
level	0.203			0.217	0.160	0.245	0.159	0.250	0.207	0.197
	(1.156)			(1.268)	(0.889)	(1.309)	(0.880)	(1.365)	(1.073)	(1.032)
fcf	-0.037			-0.054	-0.065	-0.003	-0.063	-0.018	-0.026	-0.003
	(-0.139)			(-0.195)	(-0.263)	(-0.011)	(-0.245)	(-0.064)	(-0.096)	(-0.011)
pea	-0.001			-0.001	-0.002	-0.001	-0.002	-0.001	-0.002	-0.002
	(-0.859)			(-0.873)	(-1.048)	(-0.903)	(-1.000)	(-0.903)	(-1.160)	(-1.103)

Big4			-0.186	0.065							
			(-1.016)	(0.331)							
ceoch			0.171	0.823***							
			(0.491)	(2.867)							
sg			0.061	-0.028							
			(1.642)	(-1.051)							
Constant		0.404	-6.320***	-3.733**	0.259	0.812	0.208	0.832	0.124	0.658	0.812
		(0.827)	(-3.782)	(-2.280)	(0.392)	(1.368)	(0.407)	(0.960)	(0.199)	(1.086)	(0.968)
Observations		89	99	99	89	89	89	89	89	89	89
R-squared		0.093	0.232	0.207	0.091	0.018	0.108	0.017	0.104	0.013	0.010
Chi2-test		10.42	38.820***	24.800***	12.44	15.75	11.45	16.48	13.72	16.27	16.38
Prob>chi2		0.237	0.000	0.001	0.190	0.072	0.246	0.087	0.186	0.092	0.127
Endogenous test											
Hausman Chi2		1.216	0.785	0.048	2.428	4.355	0.722	5.576	2.046	4.683	5.808
Hausman Prob>Chi2		0.270	0.376	0.827	0.297	0.113	0.697	0.134	0.563	0.197	0.214
Weak instrument test											
F-test	*Sta btenure*	397.107***	686.659***	686.659***	200.328***	217.908***	223.787***	150.213***	154.773***	156.429***	124.962***
	Sta bsize				29.668***			22.573***	19.812***		16.840***
	Sta ned					43.438***		29.250***		29.123***	21.528***
	dual						96.077***		152.807***	112.783***	118.300***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Btenure2: the average tenure of board of directors in year Y-2 (two year before the announcement of takeovers). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta btenure2: lagged variable, the standardised btenure in year Y-2 (two year before the announcement). Sta bsize2: lagged variable, the standardised board size in year Y-2. Sta ned2: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.79 Sensitive analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for mediation analysis of the effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
ENDOME65-ENDOME71 test the effects of board structures on takeover premiums (BS→ premiums), ENDOME72-ENDOME78 test the effects of board structures on board effectiveness (BS→ BE), ENDOME79-ENDOME85 tests the effects of board effectiveness on takeover premiums (BS, BE→ premiums) *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step1: BS→ premiums							**Step2: BS→ BE**							**Step3: BS, BE→ premiums**						
Variables	Endome65 prem	Endome 66 prem	Endome 67 prem	Endome 68 prem	Endome 69 prem	Endome70 prem	Endome71 prem	Endome 72 Sta fe	Endome 73 Sta fe	Endome 74 Sta fe	Endome 75 Sta fe	Endome 76 Sta fe	Endome 77 Sta fe	Endome 78 Sta fe	Endome 79 prem	Endome 80 prem	Endome 81 prem	Endome 82 prem	Endome 83 prem	Endome 84 prem	Endome 85 prem
Sta bsize	-0.005			0.014	0.001		0.035	-0.027			-0.021	-0.096		-0.128	-0.005			0.014	0.000		0.033
	(-0.101)			(0.237)	(0.019)		(0.512)	(-0.233)			(-0.177)	(-0.786)		(-1.055)	(-0.108)			(0.239)	(0.002)		(0.506)
Sta ned		0.065		0.066		0.080	0.087		0.019		0.018		-0.041	-0.062		0.065		0.066		0.079	0.085
		(1.367)		(1.341)		(1.499)	(1.470)		(0.144)		(0.131)		(-0.309)	(-0.457)		(1.363)		(1.339)		(1.502)	(1.473)
dual			0.048		0.048	0.092	0.114			-0.370		-0.420	-0.415*	-0.490*			0.042		0.042	0.085	0.107
			(0.604)		(0.530)	(0.964)	(0.984)			(-1.527)		(-1.576)	(-1.713)	(-1.826)			(0.526)		(0.467)	(0.890)	(0.939)
Sta fe															-0.020	-0.023	-0.018	-0.023	-0.018	-0.019	-0.017
															(-0.587)	(-0.621)	(-0.498)	(-0.629)	(-0.523)	(-0.500)	(-0.485)
size	-0.026	-0.039	-0.025	-0.043	-0.025	-0.038	-0.047	0.012	0.000	-0.029	0.008	0.004	-0.025	0.022	-0.026	-0.039	-0.026	-0.043	-0.026	-0.038	-0.047
	(-0.779)	(-1.287)	(-0.974)	(-1.108)	(-0.783)	(-1.257)	(-1.194)	(0.137)	(0.003)	(-0.395)	(0.089)	(0.049)	(-0.329)	(0.238)	(-0.792)	(-1.287)	(-0.991)	(-1.118)	(-0.795)	(-1.258)	(-1.200)
roa	-0.366	-0.349	-0.365	-0.347	-0.365	-0.344	-0.337	0.775	0.816	0.859*	0.807	0.837	0.840	0.792	-0.344	-0.324	-0.346	-0.322	-0.346	-0.324	-0.320
	(-1.414)	(-1.360)	(-1.418)	(-1.337)	(-1.392)	(-1.307)	(-1.260)	(1.425)	(1.389)	(1.708)	(1.357)	(1.644)	(1.561)	(1.447)	(-1.217)	(-1.155)	(-1.236)	(-1.139)	(-1.223)	(-1.142)	(-1.119)
bown	0.075	0.136	0.072	0.125	0.071	0.155	0.132	-0.039	-0.012	-0.027	-0.005	0.016	-0.031	0.010	0.077	0.139	0.074	0.128	0.074	0.157	0.134
	(0.578)	(0.967)	(0.561)	(0.921)	(0.550)	(1.100)	(0.964)	(-0.081)	(-0.025)	(-0.056)	(-0.010)	(0.032)	(-0.063)	(0.020)	(0.586)	(0.958)	(0.562)	(0.920)	(0.560)	(1.089)	(0.964)
lnnas	0.056*	0.061**	0.056*	0.059*	0.056*	0.064**	0.060*								0.056*	0.060**	0.056*	0.058*	0.056*	0.064**	0.059*
	(1.656)	(2.018)	(1.862)	(1.728)	(1.676)	(2.160)	(1.788)								(1.682)	(2.054)	(1.890)	(1.745)	(1.696)	(2.177)	(1.799)
level	0.242	0.222	0.263	0.212	0.263	0.267	0.251								0.247*	0.228	0.264	0.217	0.264	0.268	0.253
	(1.640)	(1.361)	(1.513)	(1.378)	(1.601)	(1.452)	(1.467)								(1.705)	(1.410)	(1.533)	(1.445)	(1.628)	(1.472)	(1.495)
fcf	-0.266	-0.183	-0.251	-0.176	-0.250	-0.140	-0.112								-0.275*	-0.193	-0.261	-0.186	-0.260	-0.151	-0.123
	(-1.633)	(-1.069)	(-1.529)	(-0.994)	(-1.534)	(-0.767)	(-0.558)								(-1.682)	(-1.120)	(-1.550)	(-1.055)	(-1.577)	(-0.817)	(-0.615)
pea	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001								-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.702)	(-0.960)	(-0.719)	(-0.898)	(-0.689)	(-1.011)	(-0.932)								(-0.618)	(-0.851)	(-0.641)	(-0.795)	(-0.618)	(-0.910)	(-0.848)
Big4								-0.249	-0.280	-0.222	-0.281	-0.224	-0.259	-0.263							
								(-1.101)	(-1.249)	(-0.995)	(-1.251)	(-1.006)	(-1.168)	(-1.189)							
ceoch								-0.169	-0.188	-0.267	-0.184	-0.267	-0.258	-0.247							
								(-0.648)	(-0.675)	(-1.022)	(-0.653)	(-1.012)	(-0.919)	(-0.862)							

sg								0.019 (0.970)	0.018 (0.876)	0.035* (1.652)	0.019 (0.944)	0.042* (1.838)	0.035* (1.748)	0.045** (2.122)							
Constant	0.521 (0.892)	0.727 (1.495)	0.487 (1.184)	0.814 (1.185)	0.492 (0.884)	0.640 (1.348)	0.835 (1.240)	-0.088 (-0.054)	0.153 (0.110)	0.722 (0.538)	0.005 (0.003)	0.139 (0.087)	0.700 (0.512)	-0.112 (-0.067)	0.520 (0.903)	0.726 (1.481)	0.494 (1.194)	0.811 (1.192)	0.495 (0.894)	0.646 (1.340)	0.831 (1.244)
Observations	105	104	105	104	105	104	104	116	115	116	115	116	115	115	105	104	105	104	105	104	104
R-squared	0.139	0.088	0.147	0.087	0.147	0.089	0.087	0.025	0.030	0.049	0.030	0.050	0.057	0.058	0.140	0.088	0.147	0.087	0.147	0.089	0.087
Chi2-test	28.010***	38.030***	27.520***	38.120***	29.36***	42.040***	41.850***	4.500	5.340	7.090	5.360	7.130	11.390	12.300	34.35	43.71	34.83	43.29	34.92	46.06	44.69
Prob>chi2	0.000	0.000	0. 001	0. 000	0. 001	0. 000	0. 000	0.721	0.619	0.420	0.719	0.523	0.181	0.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endogenous test																					
Hausman Chi2	0.076	4.547	0.271	5.222	0.324	5.361	6.077	0.032	0.028	0.036	0.046	0.144	0.0679	0.392	0.360	5.371	0.403	5.594	0.596	6.195	6.424
Hausman Prob>Chi2	0.783	0.033	0.603	0.074	0.851	0.069	0.108	0.859	0.868	0.850	0.977	0.930	0.967	0.942	0.835	0.068	0.818	0.133	0.897	0.103	0.170
Weak instrument test																					
F-test *Sta fe2*															218.816***	232.360***	210.007***	161.939***	148.896***	152.371***	119.937***
F-test *Sta bsize2*	59.284***			31.409***	30.684***		21.181***	66.140***			37.136***	32.643***		24.615***	29.126***			20.585***	20.230***		15.677***
F-test *Sta ned2*		104.955***		51.949***		52.241***	34.142***		114.306***		56.542***		57.262***	37.533***		66.431***		44.040***		43.384***	32.236***
F-test *Dual2*			152.326***		75.314***	89.309***	62.316***			208.286***		104.033***	112.702***	78.426***			98.779***		68.241***	69.446***	60.257***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Fe: the proportion of financial experts on the board in year Y-2 (two year before the announcement). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta fe2: lagged variable, the standardise fe at yeat Y-2. Sta bsize: lagged variable, the standardised board size in year Y-2. Sta ned: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.80 Sensitive analysis: use alternative measure for board effectiveness (FE) - the endogenous 2SLS test approach for mediation analysis of the effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
ENDOME86 tests the effects of board effectiveness on takeover premiums (BE→ premiums), ENDOME87-ENDOME88 test the effects of board effectiveness on board structures (BE→ BS), ENDOME90-ENDOME96 tests the effects of board structures on takeover premiums (BE, BS→ premiums) *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

	Step1: BE→ premiums	**Step2: BE→ BS**		**Step3: BE, BS→ premiums**						
Variables	Endome86 prem	Endome87 bsize	Endome88 ned	Endome90 prem	Endome91 prem	Endome92 prem	Endome93 prem	Endome94 prem	Endome95 prem	Endome96 prem
Sta fe	-0.020	-0.044	0.114	-0.020	-0.023	-0.018	-0.023	-0.018	-0.019	-0.017
	(-0.575)	(-0.535)	(1.270)	(-0.587)	(-0.621)	(-0.498)	(-0.629)	(-0.523)	(-0.500)	(-0.485)
Sta bsize				-0.005			0.014	0.000		0.033
				(-0.108)			(0.239)	(0.002)		(0.506)
Sta ned					0.065		0.066		0.079	0.085
					(1.363)		(1.339)		(1.502)	(1.473)
dual						0.042		0.042	0.085	0.107
						(0.526)		(0.467)	(0.890)	(0.939)
size	-0.027	0.387***	0.153	-0.026	-0.039	-0.026	-0.043	-0.026	-0.038	-0.047
	(-1.040)	(4.433)	(1.552)	(-0.792)	(-1.287)	(-0.991)	(-1.118)	(-0.795)	(-1.258)	(-1.200)
roa	-0.344	-0.301	-1.118	-0.344	-0.324	-0.346	-0.322	-0.346	-0.324	-0.320
	(-1.232)	(-0.460)	(-1.206)	(-1.217)	(-1.155)	(-1.236)	(-1.139)	(-1.223)	(-1.142)	(-1.119)
bown	0.072	0.405	-0.825	0.077	0.139	0.074	0.128	0.074	0.157	0.134
	(0.547)	(0.852)	(-1.454)	(0.586)	(0.958)	(0.562)	(0.920)	(0.560)	(1.089)	(0.964)
lnnas	0.055*			0.056*	0.060**	0.056*	0.058*	0.056*	0.064**	0.059*
	(1.849)			(1.682)	(2.054)	(1.890)	(1.745)	(1.696)	(2.177)	(1.799)
level	0.243			0.247*	0.228	0.264	0.217	0.264	0.268	0.253
	(1.559)			(1.705)	(1.410)	(1.533)	(1.445)	(1.628)	(1.472)	(1.495)
fcf	-0.273			-0.275*	-0.193	-0.261	-0.186	-0.260	-0.151	-0.123
	(-1.635)			(-1.682)	(-1.120)	(-1.550)	(-1.055)	(-1.577)	(-0.817)	(-0.615)
pea	-0.001			-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001

		(-0.633)			(-0.618)	(-0.851)	(-0.641)	(-0.795)	(-0.618)	(-0.910)	(-0.848)
Big4			-0.068	0.024							
			(-0.401)	(0.121)							
ceoch			0.126	0.649**							
			(0.389)	(2.099)							
sg			0.051	-0.025							
			(1.584)	(-0.914)							
Constant		0.553	-6.913***	-2.546	0.520	0.726	0.494	0.811	0.495	0.646	0.831
		(1.316)	(-4.422)	(-1.390)	(0.903)	(1.481)	(1.194)	(1.192)	(0.894)	(1.340)	(1.244)
Observations		105	116	116	105	104	105	104	105	104	104
R-squared		0.140	0.209	0.142	0.140	0.088	0.147	0.087	0.147	0.089	0.087
Chi2-test		34.260***	36.090***	22.560***	34.35	43.71	34.83	43.29	34.92	46.06	44.69
Prob>chi2		0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endogenous test											
Hausman Chi2		1.297	0.766	6.000***	0.360	5.371	0.403	5.594	0.596	6.195	6.424
Hausman Prob>Chi2		0.719	0.382	0.014	0.835	0.068	0.818	0.133	0.897	0.103	0.170
Weak instrument test											
F-test	*Sta fe2*	416.714***	449.056***	449.056***	218.816***	232.360***	210.007***	161.939***	148.896***	152.371***	119.937***
	Sta bsize2				29.126***			20.585***	20.230***		15.677***
	Sta ned2					66.431***		44.040***		43.384***	32.236***
	Dual2						98.779***		68.241***	69.446***	60.257***

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. Fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Fe: the proportion of financial experts on the board in year Y-2 (two year before the announcement). Bsize2: the total number of the board of directors in year Y-2. Ned2: the proportion of non-executives on boards in year Y-2. Dual2: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-2. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Sta fe2: lagged variable, the standardise fe at yeat Y-2. Sta bsize: lagged variable, the standardised board size in year Y-2. Sta ned: lagged variable, the standardised ned in year Y-2. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.81 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness) **- measurement invariance test**

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*△Chi-square*	*Invariance*
Board size groups	*Unconstrained*	74.062	63	1.176	0.051	0.921	0.828	$\Delta\chi^2(2)$= 3.687, p=0.158	Yes
	Fully constrained	77.749	65	1.196	0.054	0.909	0.821		
NED groups	*Unconstrained*	83.413	60	1.390	0.076	0.838	0.813	$\Delta\chi^2(2)$= 4.766, p=0.092	No
	Fully constrained	88.179	62	1.422	0.079	0.819	0.804		

Board size group: The standardised board size is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: The standardised proportion of non-executives on board is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels.

Table 4.82 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.019	0.630	0.003	0.968	0.278
prem	<---	size	-0.145	0.004	-0.293	0.000	-2.236**
prem	<---	roa	1.120	0.055	2.930	0.000	1.868*
prem	<---	lnnas	0.139	0.011	0.340	0.000	2.638***
prem	<---	bown	-1.650	0.005	-1.694	0.000	-0.059
prem	<---	level	-0.465	0.012	-0.044	0.765	1.774*
prem	<---	pea	0.008	0.020	0.000	0.864	-2.335**
prem	<---	fcf	-3.347	0.000	-1.700	0.003	1.643

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.019	0.630	0.204	0.041	2.073**
prem	<---	size	-0.145	0.004	0.081	0.399	2.082**
prem	<---	roa	1.120	0.055	-2.060	0.000	-3.871***
prem	<---	lnnas	0.139	0.011	0.015	0.855	-1.249
prem	<---	bown	-1.650	0.005	0.484	0.402	2.581***
prem	<---	level	-0.465	0.012	-0.408	0.499	0.091
prem	<---	pea	0.008	0.020	0.000	0.939	-1.902*
prem	<---	fcf	-3.347	0.000	0.774	0.515	2.857***

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.003	0.968	0.204	0.041	1.659*
prem	<---	size	-0.293	0.000	0.081	0.399	3.533***
prem	<---	roa	2.930	0.000	-2.060	0.000	-5.165***
prem	<---	lnnas	0.340	0.000	0.015	0.855	-3.301***
prem	<---	bown	-1.694	0.000	0.484	0.402	2.957***
prem	<---	level	-0.044	0.765	-0.408	0.499	-0.585
prem	<---	pea	0.000	0.864	0.000	0.939	-0.057
prem	<---	fcf	-1.700	0.003	0.774	0.515	1.873*

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.159	0.076	-0.043	0.057	-2.186**

prem	<---	size	0.057	0.552	-0.025	0.379	-0.825
prem	<---	roa	-3.011	0.000	-0.923	0.004	2.433**
prem	<---	lnnas	0.232	0.014	-0.011	0.633	-2.498**
prem	<---	bown	0.958	0.413	-0.293	0.196	-1.050
prem	<---	level	-1.100	0.002	-0.160	0.304	2.465**
prem	<---	pea	0.004	0.029	-0.001	0.002	-2.429**
prem	<---	fcf	0.218	0.859	-0.020	0.941	-0.189

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.159	0.076	0.036	0.602	-1.084
prem	<---	size	0.057	0.552	-0.111	0.039	-1.529
prem	<---	roa	-3.011	0.000	0.196	0.703	3.386***
prem	<---	lnnas	0.232	0.014	0.245	0.000	0.114
prem	<---	bown	0.958	0.413	0.325	0.316	-0.521
prem	<---	level	-1.100	0.002	-0.589	0.100	1.024
prem	<---	pea	0.004	0.029	-0.003	0.165	-2.537**
prem	<---	fcf	0.218	0.859	-0.106	0.897	-0.219

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.043	0.057	0.036	0.602	1.086
prem	<---	size	-0.025	0.379	-0.111	0.039	-1.398
prem	<---	roa	-0.923	0.004	0.196	0.703	1.845*
prem	<---	lnnas	-0.011	0.633	0.245	0.000	3.857***
prem	<---	bown	-0.293	0.196	0.325	0.316	1.563
prem	<---	level	-0.160	0.304	-0.589	0.100	-1.098
prem	<---	pea	-0.001	0.002	-0.003	0.165	-1.116
prem	<---	fcf	-0.020	0.941	-0.106	0.897	-0.100

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta btenure is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.83 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, large proportion of financial experts on board tends to indicate a high level of board effectiveness) **- measurement invariance test**

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*△Chi-square*	*Invariance*
Board size groups	*Unconstrained*	77.593	60	1.293	0.063	0.876	0.854	$\Delta\chi^2(2)$= 7.566, p=0.023	No
	Fully constrained	85.159	62	1.374	0.072	0.837	0.842		
NED groups	*Unconstrained*	95.843	63	1.521	0.085	0.794	0.817	$\Delta\chi^2(2)$= 10.794, p=0.005	No
	Fully constrained	106.637	65	1.641	0.094	0.739	0.804		

Board size group: The standardised board size is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: The standardised proportion of non-executives on board is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels.

Table 4.84 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals
(In the third-party LBO context, large proportion of financial experts on board tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.125	0.173	0.170	0.000	0.437
prem	<---	size	-0.088	0.159	-0.346	0.000	-3.683***
prem	<---	roa	1.012	0.201	2.801	0.000	1.714*
prem	<---	lnnas	0.092	0.187	0.316	0.000	2.792***
prem	<---	bown	-0.011	0.987	-2.533	0.000	-3.171***
prem	<---	level	-0.048	0.839	0.156	0.227	0.763
prem	<---	pea	0.002	0.600	0.000	0.305	-0.581
prem	<---	fcf	-1.015	0.306	-1.892	0.000	-0.784

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.125	0.173	-0.141	0.068	-2.216**
prem	<---	size	-0.088	0.159	0.085	0.376	1.511
prem	<---	roa	1.012	0.201	-1.791	0.002	-2.872***
prem	<---	lnnas	0.092	0.187	0.054	0.516	-0.354
prem	<---	bown	-0.011	0.987	0.514	0.370	0.579
prem	<---	level	-0.048	0.839	-0.963	0.073	-1.562
prem	<---	pea	0.002	0.600	0.000	0.962	-0.432
prem	<---	fcf	-1.015	0.306	0.858	0.467	1.217

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.170	0.000	-0.141	0.068	-3.509***
prem	<---	size	-0.346	0.000	0.085	0.376	4.27***
prem	<---	roa	2.801	0.000	-1.791	0.002	-5.16***
prem	<---	lnnas	0.316	0.000	0.054	0.516	-2.86***
prem	<---	bown	-2.533	0.000	0.514	0.370	4.47***
prem	<---	level	0.156	0.227	-0.963	0.073	-2.025**
prem	<---	pea	0.000	0.305	0.000	0.962	0.147
prem	<---	fcf	-1.892	0.000	0.858	0.467	2.137**

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	-0.391	0.000	0.094	0.000	4.089***
prem	<---	size	-0.003	0.972	0.036	0.127	0.438
prem	<---	roa	-2.077	0.007	-0.818	0.016	1.506
prem	<---	lnnas	0.349	0.002	-0.024	0.254	-3.323***
prem	<---	bown	2.812	0.004	-0.038	0.817	-2.848***
prem	<---	level	-0.751	0.016	-0.266	0.105	1.372
prem	<---	pea	0.003	0.107	-0.001	0.000	-1.915*
prem	<---	fcf	1.785	0.076	-0.488	0.076	-2.177**

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	-0.391	0.000	0.107	0.041	3.922***
prem	<---	size	-0.003	0.972	-0.114	0.013	-1.132
prem	<---	roa	-2.077	0.007	0.587	0.244	2.911***
prem	<---	lnnas	0.349	0.002	0.227	0.000	-0.981
prem	<---	bown	2.812	0.004	0.105	0.724	-2.626***
prem	<---	level	-0.751	0.016	-0.305	0.349	0.986
prem	<---	pea	0.003	0.107	-0.002	0.266	-1.936*
prem	<---	fcf	1.785	0.076	-0.016	0.983	-1.442

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.094	0.000	0.107	0.041	0.211
prem	<---	size	0.036	0.127	-0.114	0.013	-2.921***
prem	<---	roa	-0.818	0.016	0.587	0.244	2.312**
prem	<---	lnnas	-0.024	0.254	0.227	0.000	4.085***
prem	<---	bown	-0.038	0.817	0.105	0.724	0.422
prem	<---	level	-0.266	0.105	-0.305	0.349	-0.108
prem	<---	pea	-0.001	0.000	-0.002	0.266	-0.779
prem	<---	fcf	-0.488	0.076	-0.016	0.983	0.600

Robust pval in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta fe is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.85 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness) **- measurement invariance test**

Panel A:

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*ΔChi-square*	*Invariance*
Board tenure groups	*Unconstrained*	120.289	74	1.626	0.095	0.653	0.777	$\Delta\chi^2(3)$= 2.024, p=0.567	Yes
	Fully constrained	120.913	77	1.570	0.091	0.671	0.776		

Panel B:

Board effectiveness: Board tenure

Path	**High Board tenure**		**Low Board tenure**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta size →prem	-0.096	0.516	0.028	0.821	$\chi^2(74)$= 120.289	$\chi^2(75)$= 120.490	$\Delta\chi^2(1)$=0.201, p>0.1
sta ned →prem	-0.103	0.396	-0.161	0.183	$\chi^2(74)$= 120.289	$\chi^2(75)$= 120.590	$\Delta\chi^2(1)$=0.301, p>0.1
Dual →prem	0.078	0.500	0.017	0.886	$\chi^2(74)$= 120.289	$\chi^2(75)$= 120.297	$\Delta\chi^2(1)$=0.008, p>0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low and high levels for sta btenure is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels.

Table 4.86 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals

(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness) **- group differences**

			Btenure High		Btenure Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta bsize	-0.040	0.516	0.020	0.821	0.563
prem	<---	sta ned	-0.045	0.396	-0.106	0.183	-0.631
prem	<---	dual	0.081	0.500	0.045	0.886	-0.106
prem	<---	size	-0.075	0.096	0.006	0.918	1.118
prem	<---	roa	0.975	0.037	-2.306	0.000	-4.729***
prem	<---	lnnas	0.171	0.000	0.083	0.200	-1.095
prem	<---	bown	-1.018	0.004	0.902	0.061	3.223***
prem	<---	level	-0.582	0.002	-0.396	0.209	0.503
prem	<---	pea	0.000	0.935	0.005	0.132	1.503
prem	<---	fcf	-0.596	0.390	0.960	0.176	1.568

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta btenure is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.87 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- measurement invariance test**

Panel A:

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*ΔChi-square*	*Invariance*
Financial experts groups	*Unconstrained*	107.515	68	1.581	0.089	0.740	0.805	$\Delta\chi^2(3)$= 15.372, p=0.002	No
	Fully constrained	122.887	71	1.731	0.099	0.658	0.793		

Panel B:

Board effectiveness: the proportion of financial experts on board (FE)

Path	**High FE**		**Low FE**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta size →prem	-0.054	0.714	-0.074	0.551	$\chi^2(68)$= 107.515	$\chi^2(69)$= 107.545	$\Delta\chi^2(1)$=0.030, p>0.1
sta ned →prem	-0.507	0.000	0.413	0.000	$\chi^2(68)$= 107.515	$\chi^2(69)$= 122.121	$\Delta\chi^2(1)$=14.606, p<0.001
Dual →prem	0.084	0.551	-0.224	0.035	$\chi^2(68)$= 107.515	$\chi^2(69)$= 110.261	$\Delta\chi^2(1)$=2.746, p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low and high levels for sta fe is defined as the minimum to 50^{th} percentiles for low levels, the 51^{th} to maximum for high levels.

Table 4.88 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- group differences**

			Fe High		Fe Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta bsize	-0.028	0.714	-0.049	0.551	-0.191
prem	<---	sta ned	-0.217	0.000	0.290	0.000	5.277***
prem	<---	dual	0.126	0.551	-0.395	0.035	-1.849*
prem	<---	size	-0.010	0.834	-0.081	0.155	-0.970
prem	<---	roa	0.207	0.713	-0.988	0.041	-1.611
prem	<---	lnnas	0.098	0.020	0.227	0.000	1.699*
prem	<---	bown	-0.086	0.802	1.268	0.071	1.73*
prem	<---	level	-0.084	0.790	-0.395	0.069	-0.812
prem	<---	pea	0.000	0.997	0.008	0.049	1.946*
prem	<---	fcf	0.618	0.394	1.517	0.032	0.888

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta fe is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.89 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness) **- measurement invariance test**

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*△Chi-square*	*Invariance*
Board size groups	*Unconstrained*	90.150	63	1.431	0.070	0.769	0.837	$\Delta\chi^2(2)$= 3.936, p=0.140	Yes
	Fully constrained	94.086	65	1.447	0.068	0.752	0.832		
NED groups	*Unconstrained*	91.100	66	1.380	0.066	0.792	0.826	$\Delta\chi^2(2)$= 5.532, p=0.063	No
	Fully constrained	96.632	68	1.421	0.070	0.762	0.818		
Duality groups	*Unconstrained*	61.939	40	1.548	0.079	0.755	0.883	$\Delta\chi^2(1)$= 1.529, p=0.216	Yes
	Fully constrained	63.468	41	1.548	0.079	0.749	0.880		

Board size group: The standardised board size is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: The standardised proportion of non-executives on board is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Duality group: The CEO duality is divided into two groups: equals to 1 denotes the duality group, otherwise denotes the not duality group.

Table 4.90 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.073	0.155	-0.043	0.260	0.476
prem	<---	size	-0.073	0.210	-0.014	0.760	0.798
prem	<---	roa	-0.222	0.557	0.297	0.527	0.861
prem	<---	lnnas	0.011	0.850	0.102	0.000	1.422
prem	<---	bown	-0.174	0.556	0.340	0.066	1.476
prem	<---	level	0.400	0.284	-0.032	0.848	-1.058
prem	<---	pea	-0.002	0.639	-0.001	0.315	0.066
prem	<---	fcf	-0.503	0.267	0.094	0.863	0.842

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.073	0.155	0.108	0.089	2.215**
prem	<---	size	-0.073	0.210	0.123	0.047	2.307**
prem	<---	roa	-0.222	0.557	-0.562	0.382	-0.456
prem	<---	lnnas	0.011	0.850	-0.019	0.727	-0.375
prem	<---	bown	-0.174	0.556	-0.320	0.217	-0.373
prem	<---	level	0.400	0.284	0.608	0.035	0.440
prem	<---	pea	-0.002	0.639	0.001	0.735	0.574
prem	<---	fcf	-0.503	0.267	0.838	0.263	1.533

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	-0.043	0.260	0.108	0.089	2.038**
prem	<---	size	-0.014	0.760	0.123	0.047	1.78*
prem	<---	roa	0.297	0.527	-0.562	0.382	-1.079
prem	<---	lnnas	0.102	0.000	-0.019	0.727	-2.023**
prem	<---	bown	0.340	0.066	-0.320	0.217	-2.073**
prem	<---	level	-0.032	0.848	0.608	0.035	1.924*
prem	<---	pea	-0.001	0.315	0.001	0.735	0.709
prem	<---	fcf	0.094	0.863	0.838	0.263	0.804

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.117	0.287	0.034	0.441	-0.701
prem	<---	size	0.083	0.341	-0.060	0.132	-1.490
prem	<---	roa	-1.157	0.040	1.183	0.016	3.131***
prem	<---	lnnas	0.044	0.425	0.056	0.079	0.191
prem	<---	bown	0.165	0.576	-0.192	0.481	-0.889
prem	<---	level	0.783	0.038	-0.473	0.056	-2.78***
prem	<---	pea	-0.006	0.187	0.003	0.399	1.556
prem	<---	fcf	0.243	0.629	-1.272	0.035	-1.931*

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.117	0.287	-0.112	0.016	-1.916*
prem	<---	size	0.083	0.341	0.057	0.167	-0.272
prem	<---	roa	-1.157	0.040	-0.404	0.445	0.977
prem	<---	lnnas	0.044	0.425	-0.010	0.782	-0.819
prem	<---	bown	0.165	0.576	-0.054	0.732	-0.654
prem	<---	level	0.783	0.038	0.243	0.252	-1.245
prem	<---	pea	-0.006	0.187	-0.003	0.089	0.704
prem	<---	fcf	0.243	0.629	-0.301	0.556	-0.759

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta btenure	0.034	0.441	-0.112	0.016	-2.28**
prem	<---	size	-0.060	0.132	0.057	0.167	2.039**
prem	<---	roa	1.183	0.016	-0.404	0.445	-2.198**
prem	<---	lnnas	0.056	0.079	-0.010	0.782	-1.373
prem	<---	bown	-0.192	0.481	-0.054	0.732	0.440
prem	<---	level	-0.473	0.056	0.243	0.252	2.199**
prem	<---	pea	0.003	0.399	-0.003	0.089	-1.432
prem	<---	fcf	-1.272	0.035	-0.301	0.556	1.228

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta btenure is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.91 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(In the MBO context, high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- measurement invariance test**

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*△Chi-square*	*Invariance*
Board size groups	*Unconstrained*	64.139	60	1.069	0.026	0.972	0.892	$\Delta\chi^2(2)$= 5.053, p=0.080	No
	Fully constrained	69.192	62	1.116	0.034	0.950	0.885		
NED groups	*Unconstrained*	78.827	66	1.194	0.043	0.901	0.867	$\Delta\chi^2(2)$= 1.089, p=0.580	Yes
	Fully constrained	79.916	68	1.175	0.041	0.908	0.865		
Duality groups	*Unconstrained*	49.627	40	1.241	0.048	0.927	0.902	$\Delta\chi^2(1)$= 0.034, p=0.854	Yes
	Fully constrained	49.661	41	1.211	0.045	0.934	0.902		

Board size group: The standardised board size is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Ned group: The standardised proportion of non-executives on board is divided into three groups: the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. Duality group: The CEO duality is divided into two groups: equals to 1 denotes the duality group, otherwise denotes the not duality group.

Table 4.92 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals

(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- group differences**

Panel A: Group difference analysis of board size

			Bsize High		Bsize Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.027	0.647	-0.090	0.000	-1.818*
prem	<---	size	-0.093	0.103	-0.047	0.217	0.672
prem	<---	roa	-0.160	0.647	-0.125	0.781	0.061
prem	<---	lnnas	0.012	0.822	0.114	0.000	1.716*
prem	<---	bown	-0.209	0.446	0.595	0.000	2.545**
prem	<---	level	0.251	0.345	0.063	0.688	-0.612
prem	<---	pea	-0.001	0.765	-0.004	0.005	-0.733
prem	<---	fcf	-0.580	0.185	0.402	0.435	1.455

			Bsize High		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.027	0.647	0.009	0.838	-0.238
prem	<---	size	-0.093	0.103	0.047	0.351	1.843*
prem	<---	roa	-0.160	0.647	0.036	0.954	0.275
prem	<---	lnnas	0.012	0.822	0.011	0.823	-0.017
prem	<---	bown	-0.209	0.446	-0.174	0.477	0.095
prem	<---	level	0.251	0.345	0.433	0.115	0.475
prem	<---	pea	-0.001	0.765	-0.001	0.671	-0.064
prem	<---	fcf	-0.580	0.185	-0.584	0.224	-0.006

			Bsize Medium		Bsize Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	-0.090	0.000	0.009	0.838	1.902*
prem	<---	size	-0.047	0.217	0.047	0.351	1.491
prem	<---	roa	-0.125	0.781	0.036	0.954	0.210
prem	<---	lnnas	0.114	0.000	0.011	0.823	-1.89*
prem	<---	bown	0.595	0.000	-0.174	0.477	-2.641***
prem	<---	level	0.063	0.688	0.433	0.115	1.173
prem	<---	pea	-0.004	0.005	-0.001	0.671	0.709
prem	<---	fcf	0.402	0.435	-0.584	0.224	-1.402

Panel B: Group difference analysis of NED

			Ned High		Ned Medium		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.006	0.919	-0.046	0.299	-0.700
prem	<---	size	0.043	0.488	-0.094	0.033	-1.795*
prem	<---	roa	-0.985	0.021	0.214	0.640	1.918*
prem	<---	lnnas	0.030	0.516	0.076	0.031	0.807
prem	<---	bown	0.101	0.696	-0.093	0.754	-0.493
prem	<---	level	0.621	0.086	0.115	0.615	-1.182
prem	<---	pea	-0.006	0.197	0.005	0.201	1.814*
prem	<---	fcf	-0.104	0.712	-0.825	0.232	-0.968

			Ned High		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	0.006	0.919	0.014	0.672	0.119
prem	<---	size	0.043	0.488	0.045	0.258	0.020
prem	<---	roa	-0.985	0.021	-0.744	0.154	0.357
prem	<---	lnnas	0.030	0.516	0.016	0.657	-0.232
prem	<---	bown	0.101	0.696	-0.082	0.596	-0.608
prem	<---	level	0.621	0.086	0.440	0.022	-0.442
prem	<---	pea	-0.006	0.197	-0.003	0.116	0.653
prem	<---	fcf	-0.104	0.712	0.084	0.864	0.331

			Ned Medium		Ned Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta fe	-0.046	0.299	0.014	0.672	1.083
prem	<---	size	-0.094	0.033	0.045	0.258	2.34**
prem	<---	roa	0.214	0.640	-0.744	0.154	-1.382
prem	<---	lnnas	0.076	0.031	0.016	0.657	-1.186
prem	<---	bown	-0.093	0.754	-0.082	0.596	0.033
prem	<---	level	0.115	0.615	0.440	0.022	1.086
prem	<---	pea	0.005	0.201	-0.003	0.116	-1.776*
prem	<---	fcf	-0.825	0.232	0.084	0.864	1.071

Panel C: Group difference analysis of CEO duality

			Dual		Not dual		
			Estimate	P	Estimate	P	z-score
prem	<---	sta fe	-0.016	0.740	-0.005	0.893	-0.189
prem	<---	size	0.037	0.440	-0.039	0.300	1.250
prem	<---	roa	-0.052	0.921	-0.388	0.205	0.553
prem	<---	lnnas	-0.008	0.864	0.073	0.015	-1.428
prem	<---	bown	-0.235	0.278	0.209	0.266	-1.548
prem	<---	level	0.286	0.251	0.330	0.101	-0.138
prem	<---	pea	-0.003	0.169	0.000	0.847	-0.991
prem	<---	fcf	-0.597	0.127	-0.221	0.562	-0.689

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta fe is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.93 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness) **- measurement invariance test**

Panel A:

Groups	*Models*	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*	*△Chi-square*	*Invariance*
Board tenure groups	*Unconstrained*	139.427	76	1.835	0.097	0.549	0.784	$\Delta\chi^2(3)=6.636$, p=0.084	No
	Fully constrained	146.063	79	1.849	0.098	0.523	0.777		

Panel B:

Board effectiveness: Board tenure

Path	**High Board tenure**		**Low Board tenure**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta bsize →prem	-0.280	0.103	0.181	0.145	$\chi^2(76)=139.427$	$\chi^2(77)=143.019$	$\Delta\chi^2(1)=3.592$, p<0.1
sta ned →prem	-0.097	0.582	0.035	0.796	$\chi^2(76)=139.427$	$\chi^2(77)=139.692$	$\Delta\chi^2(1)=0.265$, p>0.1
Dual →prem	-0.146	0.367	0.308	0.013	$\chi^2(76)=139.427$	$\chi^2(77)=143.831$	$\Delta\chi^2(1)=4.404$, p<0.05

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low and high levels for sta btenure is defined as the minimum to 50^{th} percentiles for low levels, the 51^{th} to maximum for high levels.

Table 4.94 Sensitivity analysis: use alternative measure for board effectiveness (Btenure) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness) **- group differences**

			Btenure High		Btenure Low		z-score
			Estimate	P	Estimate	P	
prem	<---	sta bsize	-0.075	0.103	0.068	0.145	2.183**
prem	<---	sta ned	-0.028	0.582	0.014	0.796	0.565
prem	<---	dual	-0.086	0.367	0.264	0.013	2.451**
prem	<---	size	0.053	0.218	-0.091	0.039	-2.337**
prem	<---	roa	-0.792	0.089	-0.120	0.714	1.183
prem	<---	lnnas	0.022	0.514	0.100	0.009	1.519
prem	<---	bown	0.095	0.644	0.087	0.710	-0.026
prem	<---	level	0.201	0.294	0.631	0.038	1.194
prem	<---	pea	-0.002	0.301	0.002	0.506	1.128
prem	<---	fcf	0.225	0.742	-0.003	0.993	-0.295

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta btenure is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.95 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- measurement invariance test**

Panel A:

Groups	***Models***	***Chi-square***	***df***	***Chi-square/df***	***RMSEA***	***CFI***	***GFI***	***△ Chi-square***	***Invariance***
Financial experts groups	*Unconstrained*	150.858	76	1.985	0.097	0.645	0.804	$\Delta\chi^2(3)$= 6.636, p=0.084	Yes
	Fully constrained	154.587	79	1.957	0.096	0.641	0.801		

Panel B:

Board effectiveness: the proportion of financial experts on board (FE)

Path	**High FE**		**Low FE**		**Unconstrained**	**Fully constrained**	**Difference**
	Coefficients	*p-value*	*Coefficients*	*p-value*			
sta bsize →prem	0.293	0.020	-0.099	0.413	$\chi^2(76)$= 150.858	$\chi^2(77)$= 154.329	$\Delta\chi^2(1)$=3.471, p<0.1
sta ned →prem	0.037	0.789	-0.140	0.227	$\chi^2(76)$= 150.858	$\chi^2(77)$= 151.401	$\Delta\chi^2(1)$=0.543, p>0.1
Dual →prem	0.101	0.422	-0.010	0.938	$\chi^2(76)$= 150.858	$\chi^2(77)$= 151.292	$\Delta\chi^2(1)$=0.434, p>0.1

Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low and high levels for sta fe is defined as the minimum to 50^{th} percentiles for low levels, the 51^{th} to maximum for high levels.

Table 4.96 Sensitivity analysis: use alternative measure for board effectiveness (FE) - the multi-group test for moderating effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness) **- group differences**

			Fe High		Fe Low		
			Estimate	P	Estimate	P	z-score
prem	<---	sta bsize	0.114	0.020	-0.027	0.413	-2.395**
prem	<---	sta ned	0.014	0.789	-0.038	0.227	-0.854
prem	<---	dual	0.094	0.422	-0.006	0.938	-0.715
prem	<---	size	-0.101	0.021	0.028	0.407	2.337**
prem	<---	roa	-0.620	0.118	-0.184	0.594	0.829
prem	<---	lnnas	0.099	0.010	0.017	0.543	-1.7*
prem	<---	bown	0.214	0.348	-0.105	0.510	-1.147
prem	<---	level	0.527	0.043	0.151	0.424	-1.168
prem	<---	pea	0.004	0.191	-0.003	0.146	-1.905*
prem	<---	fcf	-0.315	0.453	-0.527	0.124	-0.391

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1
Prem: takeover premiums 4 weeks before the takeover announcement. fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardised fe in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. The low, medium and high levels for sta bsize and sta ned are defined as the minimum to 33rd percentiles for low levels, the 34th to 66th percentiles for median levels and 67th to maximum for high levels. The low and high levels for sta fe is defined as the minimum to 50th percentiles for low levels, the 51th to maximum for high levels. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1.

Table 4.97 Sensitivity analysis: use alternative measure for board effectiveness (the board tenure) - SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals *(BS→ BE→ premiums).* *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	102.355	74	1.383	0.074	0.851	0.767

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				Estimate	S.E.	C.R.	P
BS →BE	sta btenure	<---	sta bsize	-0.110	0.127	-0.868	0.385
	sta btenure	<---	sta ned	-0.027	0.127	-0.214	0.830
	sta btenure	<---	dual	0.710	0.360	1.972	0.049
BE →Prem	prem	<---	sta btenure	0.047	0.051	0.911	0.362
BS →Prem	prem	<---	sta bsize	-0.002	0.055	-0.043	0.965
	prem	<---	sta ned	-0.025	0.055	-0.459	0.646
	prem	<---	dual	-0.060	0.160	-0.373	0.709
Control variables	sta btenure	<---	sg	-0.199	0.165	-1.203	0.229
	sta btenure	<---	ceoch	-0.336	0.445	-0.755	0.450
	sta btenure	<---	big4	-0.027	0.359	-0.076	0.940
	sta btenure	<---	roa	0.857	0.802	1.068	0.285
	sta btenure	<---	size	0.002	0.080	0.023	0.982
	sta btenure	<---	bown	0.234	0.938	0.249	0.803
	prem	<---	size	-0.038	0.042	-0.902	0.367
	prem	<---	roa	-1.208	0.427	-2.830	0.005
	prem	<---	level	-0.468	0.209	-2.236	0.025
	prem	<---	lnnas	0.115	0.048	2.385	0.017
	prem	<---	pea	0.000	0.001	0.229	0.819
	prem	<---	fcf	0.389	0.563	0.692	0.489
	prem	<---	bown	0.034	0.411	0.082	0.934

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta btenure →prem	-0.012	0.907	-0.004	0.965	No mediation
Sta Ned →sta btenure →prem	-0.052	0.621	-0.048	0.646	No mediation
Dual →sta btenure →prem	-0.017	0.868	-0.040	0.709	No mediation

Panel D: Bootstrapping tests

Standardised Indirect Effects	Sta bsize	dual	Sta ned
Sta btenure	0.000	0.000	0.000
prem	-0.010 (0.484)	0.022 (0.336)	-0.002 (0.601)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta btenure
Sta btenure	-0.096 (0.467)	0.220 (0.074)	-0.024 (0.794)	0.000
prem	-0.004 (0.899)	-0.040 (0.665)	-0.048 (0.698)	0.100 (0.512)

Standardised Total Effects	Sta bsize	dual	Sta ned	Sta btenure
Sta btenure	-0.096 (0.467)	0.220 (0.074)	-0.024 (0.794)	0.000
prem	-0.014 (0.870)	-0.018 (0.788)	-0.050 (0.650)	0.100 (0.512)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.98 Sensitivity analysis: use alternative measure for board effectiveness (FE) - SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in third-party LBO deals
(BS→ BE→ premiums). *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	101.082	74	1.366	0.070	0.785	0.863

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	sta fe	<---	sta bsize	-0.351	0.117	-2.994	0.003
	sta fe	<---	sta ned	0.150	0.121	1.238	0.216
	sta fe	<---	dual	-0.016	0.348	-0.045	0.964
BE →Prem	prem	<---	sta fe	-0.076	0.051	-1.504	0.133
BS →Prem	prem	<---	sta bsize	-0.053	0.055	-0.966	0.334
	prem	<---	sta ned	-0.038	0.054	-0.706	0.480
	prem	<---	dual	-0.028	0.154	-0.182	0.856
Control variables	sta fe	<---	sg	0.156	0.143	1.094	0.274
	sta fe	<---	ceoch	-0.295	0.431	-0.683	0.495
	sta fe	<---	big4	-0.133	0.315	-0.422	0.673
	sta fe	<---	roa	-0.297	0.757	-0.392	0.695
	sta fe	<---	size	0.153	0.076	2.024	0.043
	sta fe	<---	bown	1.463	0.890	1.644	0.100
	prem	<---	size	-0.032	0.041	-0.780	0.435
	prem	<---	roa	-1.152	0.420	-2.745	0.006
	prem	<---	level	-0.369	0.197	-1.868	0.062
	prem	<---	lnnas	0.133	0.046	2.897	0.004
	prem	<---	pea	0.000	0.001	0.337	0.736
	prem	<---	fcf	0.752	0.537	1.399	0.162
	prem	<---	bown	0.249	0.405	0.614	0.540

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta fe →prem	-0.052	0.609	-0.102	0.334	No mediation
Sta Ned →sta fe →prem	-0.096	0.353	-0.072	0.480	No mediation
Dual →sta fe →prem	-0.015	0.880	-0.018	0.856	No mediation

Panel D: Bootstrapping tests

Standardised Indirect Effect	Sta bsize	dual	Sta ned
Sta fe	0.000	0.000	0.000
prem	0.051 (0.123)	0.001 (0.829)	-0.022 (0.217)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta fe
Sta fe	-0.313 (0.044)	-0.005 (0.970)	0.132 (0.316)	0.000
prem	-0.102 (0.367)	-0.018 (0.685)	-0.072 (0.679)	-0.164 (0.301)

Standardised Total Effects	Sta bsize	dual	Sta ned	Sta fe
Sta fe	-0.313 (0.044)	-0.005 (0.970)	0.132 (0.416)	0.000
prem	-0.051 (0.640)	-0.017 (0.709)	-0.094 (0.525)	-0.164 (0.301)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. . fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.99 Sensitivity analysis: use alternative measure for board effectiveness (the board tenure) - SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals ***(BS→ BE→ premiums).*** *(In the third-party LBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	70.507	62	1.137	0.044	0.930	0.888

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta btenure	-0.060	0.085	-0.711	0.477
	sta ned	<---	sta btenure	-0.038	0.101	-0.375	0.708
	dual	<---	sta btenure	0.068	0.036	1.901	0.057
BS →Prem	prem	<---	sta bsize	-0.002	0.065	-0.037	0.971
	prem	<---	sta ned	-0.025	0.056	-0.449	0.653
	prem	<---	dual	-0.060	0.160	-0.374	0.709
BE →Prem	prem	<---	sta btenure	0.047	0.051	0.920	0.358
Control variables	dual	<---	big4	0.002	0.116	0.021	0.984
	dual	<---	sg	-0.018	0.053	-0.342	0.732
	dual	<---	size	0.000	0.026	-0.015	0.988
	dual	<---	roa	-0.163	0.261	-0.626	0.531
	dual	<---	bown	-0.033	0.300	-0.111	0.912
	dual	<---	ceoch	0.106	0.144	0.739	0.460
	sta ned	<---	ceoch	0.317	0.407	0.779	0.436
	sta ned	<---	big4	0.126	0.328	0.383	0.701
	sta ned	<---	sg	0.099	0.151	0.654	0.513
	sta ned	<---	size	0.006	0.074	0.086	0.931
	sta ned	<---	roa	-0.958	0.739	-1.296	0.195
	sta ned	<---	bown	-0.940	0.849	-1.108	0.268
	sta bsize	<---	ceoch	0.499	0.341	1.461	0.144
	sta bsize	<---	big4	-0.529	0.275	-1.925	0.054
	sta bsize	<---	sg	-0.079	0.126	-0.626	0.531
	sta bsize	<---	size	0.351	0.062	5.667	0.000
	sta bsize	<---	roa	0.049	0.619	0.079	0.937
	sta bsize	<---	bown	1.349	0.711	1.897	0.058
	prem	<---	size	-0.038	0.048	-0.789	0.430
	prem	<---	roa	-1.208	0.432	-2.800	0.005
	prem	<---	level	-0.468	0.211	-2.219	0.027
	prem	<---	lnnas	0.115	0.048	2.391	0.017
	prem	<---	pea	0.000	0.001	0.229	0.819
	prem	<---	fcf	0.389	0.561	0.693	0.488

	prem <--- bown	0.034	0.418	0.081	0.935

Panel C:

Relationship	Direct without Mediator		Direct with Mediator		Indirect
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Btenure →sta bsize →prem	0.093	0.380	0.093	0.382	No mediation
Sta Btenure →sta ned →prem	0.093	0.380	0.091	0.390	No mediation
Sta Btenure →dual →prem	0.093	0.380	0.102	0.347	No mediation

Panel D: Bootstrapping tests

	Sta Btenure →sta bsize →prem		**Sta Btenure →sta ned →prem**		**Sta Btenure →dual →prem**	
Standardised Indirect Effects		Sta btenure		Sta btenure		Sta btenure
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	0.000 (0.776)	prem	0.002 (0.542)	prem	-0.008 (0.343)

Standardised Direct Effects		Sta btenure		Sta btenure		Sta btenure
	dual	0.000	dual	0.000	dual	0.220 (0.078)
	Sta ned	0.000	Sta ned	-0.043 (0.633)	Sta ned	0.000
	Sta bsize	-0.067 (0.393)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.093 (0.589)	prem	0.091 (0.578)	prem	0.102 (0.473)

Standardised Total Effects		Sta btenure		Sta btenure		Sta btenure
	dual	0.000	dual	0.000	dual	0.220 (0.083)
	Sta ned	0.000	Sta ned	-0.043 (0.633)	Sta ned	0.000
	Sta bsize	-0.067 (0.393)	Sta bsize	0.000	Sta bsize	0.000
	prem	0.093 (0.543)	prem	0.093 (0.555)	prem	0.093 (0.545)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.100 Sensitivity analysis: use alternative measure for board effectiveness (FE) - SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in third-party LBO deals ***(BE→ BS→ premiums).*** *(In the third-party LBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	71.740	62	1.157	0.046	0.896	0.923

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				Estimate	S.E.	C.R.	P
BE →BS	sta bsize	<---	sta fe	-0.232	0.086	-2.706	0.007
	sta ned	<---	sta fe	0.136	0.098	1.397	0.162
	dual	<---	sta fe	-0.003	0.035	-0.097	0.923
BS →Prem	prem	<---	sta bsize	-0.053	0.062	-0.862	0.389
	prem	<---	sta ned	-0.038	0.056	-0.688	0.492
	prem	<---	dual	-0.028	0.155	-0.181	0.856
BE →Prem	prem	<---	sta fe	-0.076	0.051	-1.506	0.132
Control variables	dual	<---	big4	0.002	0.104	0.021	0.983
	dual	<---	sg	-0.029	0.047	-0.614	0.539
	dual	<---	size	-0.001	0.025	-0.037	0.970
	dual	<---	roa	-0.087	0.251	-0.348	0.727
	dual	<---	bown	0.012	0.290	0.043	0.966
	dual	<---	ceoch	0.079	0.143	0.551	0.582
	sta ned	<---	ceoch	0.371	0.394	0.940	0.347
	sta ned	<---	big4	0.138	0.287	0.480	0.631
	sta ned	<---	sg	0.039	0.130	0.301	0.763
	sta ned	<---	size	0.009	0.069	0.129	0.897
	sta ned	<---	roa	-1.087	0.693	-1.569	0.117
	sta ned	<---	bown	-1.160	0.801	-1.449	0.147
	sta bsize	<---	ceoch	0.352	0.347	1.017	0.309
	sta bsize	<---	big4	-0.557	0.252	-2.206	0.027
	sta bsize	<---	sg	0.037	0.114	0.321	0.748
	sta bsize	<---	size	0.341	0.061	5.597	0.000
	sta bsize	<---	roa	-0.451	0.609	-0.741	0.459
	sta bsize	<---	bown	1.506	0.704	2.140	0.032
	prem	<---	size	-0.032	0.046	-0.698	0.485
	prem	<---	roa	-1.152	0.428	-2.690	0.007
	prem	<---	level	-0.369	0.198	-1.866	0.062
	prem	<---	lnnas	0.133	0.046	2.906	0.004
	prem	<---	pea	0.000	0.001	0.337	0.736
	prem	<---	fcf	0.752	0.539	1.395	0.163

	prem <--- bown		0.249	0.409	0.608	0.543

Panel C:

Relationship	**Direct without Mediator** *Coefficients*	*p-value*	**Direct with Mediator** *Coefficients*	*p-value*	**Indirect**
Sta Fe →sta bsize →prem	-0.147	0.143	-0.170	0.107	No mediation
Sta Fe →sta ned →prem	-0.147	0.143	-0.138	0.179	No mediation
Sta Fe →dual →prem	-0.147	0.143	-0.148	0.142	No mediation

Panel D: Bootstrapping tests

	Sta Fe →sta bsize →prem		**Sta Fe →sta ned →prem**		**Sta Fe →dual →prem**	
Standardised Indirect Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	0.025 (0.275)	prem	-0.010 (0.504)	prem	0.000 (0.963)

Standardised Direct Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	-0.011 (0.968)
	Sta ned	0.000	Sta ned	0.153 (0.251)	Sta ned	0.000
	Sta bsize	-0.247 (0.030)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.170 (0.244)	prem	-0.138 (0.310)	prem	-0.148(0.271)

Standardised Total Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	-0.011 (0.968)
	Sta ned	0.000	Sta ned	0.153 (0.251)	Sta ned	0.000
	Sta bsize	-0.247 (0.030)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.145 (0.282)	prem	-0.148 (0.276)	prem	-0.148(0.277)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. . fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.101 Sensitivity analysis: use alternative measure for board effectiveness (the board tenure) - SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(BS→ BE→ premiums). *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	131.004	74	1.770	0.094	0.658	0.836

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	sta btenure	<---	sta bsize	-0.106	0.093	-1.135	0.256
	sta btenure	<---	sta ned	-0.236	0.098	-2.410	0.016
	sta btenure	<---	dual	0.171	0.227	0.753	0.452
BE →Prem	prem	<---	sta btenure	-0.033	0.038	-0.869	0.385
BS →Prem	prem	<---	sta bsize	0.000	0.034	0.009	0.992
	prem	<---	sta ned	-0.002	0.037	-0.049	0.961
	prem	<---	dual	0.086	0.079	1.093	0.275
Control variables	sta btenure	<---	sg	-0.066	0.038	-1.713	0.087
	sta btenure	<---	ceoch	0.353	0.316	1.118	0.263
	sta btenure	<---	big4	0.059	0.190	0.309	0.757
	sta btenure	<---	roa	1.246	0.768	1.622	0.105
	sta btenure	<---	size	0.100	0.082	1.225	0.221
	sta btenure	<---	bown	0.605	0.442	1.368	0.171
	prem	<---	size	-0.014	0.034	-0.406	0.685
	prem	<---	roa	-0.310	0.305	-1.016	0.310
	prem	<---	level	0.260	0.182	1.425	0.154
	prem	<---	lnnas	0.058	0.028	2.112	0.035
	prem	<---	pea	-0.001	0.002	-0.724	0.469
	prem	<---	fcf	-0.018	0.339	-0.053	0.958
	prem	<---	bown	0.101	0.169	0.600	0.549

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta btenure →prem	0.016	0.881	0.001	0.992	No mediation
Sta Ned →sta btenure →prem	0.018	0.870	-0.006	0.961	No mediation
Dual →sta btenure →prem	0.120	0.293	0.125	0.275	No Mediation

Panel D: Bootstrapping tests

Standardised Indirect Effects	Sta bsize	dual	Sta ned
Sta btenure	0.000	0.000	0.000
prem	0.011 (0.381)	-0.008 (0.316)	0.024 (0.291)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta btenure
Sta btenure	-0.116 (0.401)	0.086 (0.432)	-0.252 (0.031)	0.000
prem	0.001 (0.951)	0.125 (0.351)	-0.006 (0.998)	-0.096 (0.418)

Standardised Total Effects	Sta bsize	dual	Sta ned	Sta btenure
Sta btenure	-0.116 (0.401)	0.086 (0.432)	-0.252 (0.031)	0.000
prem	0.012 (0.893)	0.117 (0.406)	0.019 (0.868)	-0.096 (0.418)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.102 Sensitivity analysis: use alternative measure for board effectiveness (FE) - SEM approach for mediation analysis: the mediation effects of board effectiveness on the relationship between board structures and takeover premiums in MBO deals
(BS→ BE→ premiums). *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	132.757	74	1.794	0.087	0.717	0.861

Panel B: The unconstrained model for mediation analysis (BS →BE →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BS →BE	sta fe	<---	sta bsize	-0.022	0.102	-0.219	0.827
	sta fe	<---	sta ned	0.009	0.101	0.088	0.930
	sta fe	<---	dual	-0.303	0.244	-1.241	0.215
BE →Prem	prem	<---	sta fe	-0.012	0.028	-0.415	0.678
BS →Prem	prem	<---	sta bsize	0.009	0.029	0.296	0.767
	prem	<---	sta ned	-0.009	0.029	-0.297	0.767
	prem	<---	dual	0.064	0.069	0.928	0.353
Control variables	sta fe	<---	sg	0.038	0.046	0.833	0.405
	sta fe	<---	ceoch	-0.208	0.361	-0.575	0.565
	sta fe	<---	big4	-0.226	0.211	-1.068	0.285
	sta fe	<---	roa	0.952	0.746	1.276	0.202
	sta fe	<---	size	0.001	0.089	0.013	0.990
	sta fe	<---	bown	0.113	0.509	0.222	0.824
	prem	<---	size	-0.027	0.03	-0.908	0.364
	prem	<---	roa	-0.333	0.269	-1.237	0.216
	prem	<---	level	0.291	0.157	1.851	0.064
	prem	<---	lnnas	0.053	0.026	2.066	0.039
	prem	<---	pea	-0.001	0.002	-0.590	0.555
	prem	<---	fcf	-0.268	0.252	-1.064	0.287
	prem	<---	bown	0.055	0.154	0.357	0.721

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Bsize →sta fe →prem	0.029	0.763	0.029	0.767	No mediation
Sta Ned →sta fe →prem	-0.028	0.773	-0.029	0.767	No mediation
Dual →sta fe →prem	0.097	0.325	0.093	0.353	No mediation

Panel D: Bootstrapping tests

Standardised Indirect Effects	Sta bsize	dual	Sta ned
Sta fe	0.000	0.000	0.000
prem	0.001 (0.597)	0.005 (0.345)	0.000 (0.904)

Standardised Direct Effects	Sta bsize	dual	Sta ned	Sta fe
Sta fe	-0.022 (0.854)	-0.136 (0.207)	0.009 (0.993)	0.000
prem	0.029 (0.900)	0.093 (0.460)	-0.029 (0.825)	-0.038 (0.633)

Standardised Total Effect	Sta bsize	dual	Sta ned	Sta fe
Sta fe	-0.022 (0.854)	-0.136 (0.207)	0.009 (0.993)	0.000
prem	0.030 (0.882)	0.098 (0.424)	-0.029 (0.834)	-0.038 (0.633)

Robust pval in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Prem: takeover premiums 4 weeks before the takeover announcement. . fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: In total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: In non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.103 Sensitivity analysis: use alternative measure for board effectiveness (the board tenure) - SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(BS→ BE→ premiums). *(In the MBO context, longer board tenure tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	100.680	62	1.624	0.084	0.768	0.873

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				Estimate	S.E.	C.R.	P
BE →BS	sta bsize	<---	sta btenure	-0.093	0.108	-0.863	0.388
	sta ned	<---	sta btenure	-0.243	0.100	-2.422	0.015
	dual	<---	sta btenure	0.090	0.050	1.793	0.073
BS →Prem	prem	<---	sta bsize	0.000	0.035	0.009	0.993
	prem	<---	sta ned	-0.002	0.036	-0.049	0.961
	prem	<---	dual	0.086	0.074	1.161	0.246
BE →Prem	prem	<---	sta btenure	-0.033	0.037	-0.882	0.378
Control variables	dual	<---	big4	0.099	0.097	1.017	0.309
	dual	<---	sg	0.050	0.019	2.682	0.007
	dual	<---	size	-0.106	0.043	-2.485	0.013
	dual	<---	roa	-0.107	0.404	-0.264	0.792
	dual	<---	bown	-0.117	0.221	-0.529	0.597
	dual	<---	ceoch	-0.310	0.160	-1.933	0.053
	sta ned	<---	ceoch	0.884	0.321	2.756	0.006
	sta ned	<---	big4	0.152	0.194	0.780	0.435
	sta ned	<---	sg	-0.027	0.037	-0.716	0.474
	sta ned	<---	size	0.248	0.085	2.912	0.004
	sta ned	<---	roa	0.108	0.809	0.133	0.894
	sta ned	<---	bown	-0.429	0.443	-0.968	0.333
	sta bsize	<---	ceoch	0.151	0.345	0.438	0.661
	sta bsize	<---	big4	-0.178	0.209	-0.851	0.395
	sta bsize	<---	sg	0.062	0.040	1.563	0.118
	sta bsize	<---	size	0.346	0.092	3.782	0.000
	sta bsize	<---	roa	0.673	0.870	0.774	0.439
	sta bsize	<---	bown	0.128	0.476	0.269	0.788
	prem	<---	size	-0.014	0.038	-0.367	0.714
	prem	<---	roa	-0.310	0.309	-1.002	0.316
	prem	<---	level	0.260	0.183	1.421	0.155
	prem	<---	lnnas	0.058	0.028	2.114	0.035
	prem	<---	pea	-0.001	0.002	-0.724	0.469
	prem	<---	fcf	-0.018	0.336	-0.053	0.958

	prem	<---	bown	0.101	0.165	0.614	0.539

Panel C:

Relationship	**Direct without Mediator**		**Direct with Mediator**		**Indirect**
	Coefficients	*p-value*	*Coefficients*	*p-value*	
Sta Btenure →sta bsize →prem	-0.075	0.467	-0.078	0.452	No mediation
Sta Btenure →sta ned →prem	-0.075	0.467	-0.084	0.428	No mediation
Sta Btenure →dual →prem	-0.075	0.467	-0.094	0.369	No mediation

Panel D: Bootstrapping tests

	Sta Btenure →sta bsize →prem		**Sta Btenure →sta ned →prem**		**Sta Btenure →dual →prem**	
Standardised Indirect Effects		sta btenure		sta btenure		sta btenure
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	0.002 (0.718)	prem	0.010 (0.638)	prem	0.022 (0.171)
Standardised Direct Effects		sta btenure		sta btenure		sta btenure
	dual	0.000	dual	0.000	dual	0.175 (0.102)
	Sta ned	0.000	Sta ned	-0.228 (0.014)	Sta ned	0.000
	Sta bsize	-0.083 (0.410)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.078 (0.521)	prem	-0.084 (0.462)	prem	-0.094 (0.374)
Standardised Total Effects		sta btenure		sta btenure		sta btenure
	dual	0.000	dual	0.000	dual	0.175 (0.102)
	Sta ned	0.000	Sta ned	-0.228 (0.014)	Sta ned	0.000
	Sta bsize	-0.083 (0.410)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.076 (0.462)	prem	-0.075 (0.477)	prem	-0.071 (0.485)

Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. btenure: the average tenure of board of directors in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta btenure: the standardised btenure in year Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Table 4.104 Sensitivity analysis: use alternative measure for board effectiveness (FE) - SEM approach for mediation analysis: the mediation effects of board structures on the relationship between board effectiveness and takeover premiums in MBO deals
(BE→ BS→ premiums). *(In the MBO context, the high proportion of financial experts on board tends to indicate a high level of board effectiveness)*

Panel A: The model fit for the unconstrained model

Models	*Chi-square*	*df*	*Chi-square/df*	*RMSEA*	*CFI*	*GFI*
Unconstrained	98.191	62	1.584	0.075	0.826	0.895

Panel B: The unconstrained model for mediation analysis (BE →BS →Prem)				**Estimate**	**S.E.**	**C.R.**	**P**
BE →BS	sta bsize	<---	sta fe	0.019	0.090	0.217	0.828
	sta ned	<---	sta fe	0.035	0.092	0.377	0.706
	dual	<---	sta fe	-0.055	0.041	-1.342	0.180
BS →Prem	prem	<---	sta bsize	0.009	0.032	0.277	0.782
	prem	<---	sta ned	-0.009	0.029	-0.296	0.767
	prem	<---	dual	0.064	0.067	0.955	0.340
BE →Prem	prem	<---	sta fe	-0.012	0.028	-0.415	0.678
Control variables	dual	<---	big4	0.073	0.090	0.812	0.417
	dual	<---	sg	0.044	0.019	2.345	0.019
	dual	<---	size	-0.071	0.039	-1.841	0.066
	dual	<---	roa	0.016	0.323	0.049	0.961
	dual	<---	bown	0.069	0.213	0.327	0.744
	dual	<---	ceoch	-0.294	0.154	-1.910	0.056
	sta ned	<---	ceoch	0.668	0.342	1.951	0.051
	sta ned	<---	big4	0.042	0.201	0.209	0.835
	sta ned	<---	sg	-0.018	0.042	-0.434	0.664
	sta ned	<---	size	0.162	0.086	1.877	0.060
	sta ned	<---	roa	-0.825	0.719	-1.148	0.251
	sta ned	<---	bown	-0.893	0.473	-1.887	0.059
	sta bsize	<---	ceoch	0.115	0.334	0.344	0.731
	sta bsize	<---	big4	-0.034	0.197	-0.173	0.862
	sta bsize	<---	sg	0.050	0.041	1.217	0.223
	sta bsize	<---	size	0.370	0.084	4.398	0.000
	sta bsize	<---	roa	-0.272	0.702	-0.387	0.698
	sta bsize	<---	bown	0.368	0.462	0.796	0.426
	prem	<---	size	-0.027	0.033	-0.836	0.403
	prem	<---	roa	-0.333	0.272	-1.227	0.220
	prem	<---	level	0.291	0.157	1.849	0.064
	prem	<---	lnnas	0.053	0.026	2.070	0.038
	prem	<---	pea	-0.001	0.002	-0.590	0.555

	prem	<---	fcf	-0.268	0.252	-1.065	0.287
	prem	<---	bown	0.055	0.153	0.360	0.719

Panel C:

Relationship	**Direct without Mediator** *Coefficients*	*p-value*	**Direct with Mediator** *Coefficients*	*p-value*	**Indirect**
Sta Fe →sta bsize →prem	-0.049	0.593	-0.049	0.592	No mediation
Sta Fe →sta ned →prem	-0.049	0.593	-0.048	0.598	No mediation
Sta Fe →dual →prem	-0.049	0.593	-0.038	0.681	No mediation

Panel D: Bootstrapping tests

	Sta Fe →sta bsize →prem		**Sta Fe →sta ned →prem**		**Sta Fe →dual →prem**	
Standardised Indirect Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	0.000
	Sta ned	0.000	Sta ned	0.000	Sta ned	0.000
	Sta bsize	0.000	Sta bsize	0.000	Sta bsize	0.000
	prem	0.000 (0.857)	prem	-0.002 (0.592)	prem	-0.011 (0.238)

Standardised Direct Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	-0.124 (0.167)
	Sta ned	0.000	Sta ned	0.035 (0.761)	Sta ned	0.000
	Sta bsize	-0.019 (0.796)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.049 (0.553)	prem	-0.048 (0.550)	prem	-0.038(0.623)

Standardised Total Effects		Sta fe		Sta fe		Sta fe
	dual	0.000	dual	0.000	dual	-0.124 (0.167)
	Sta ned	0.000	Sta ned	0.035 (0.761)	Sta ned	0.000
	Sta bsize	-0.019 (0.796)	Sta bsize	0.000	Sta bsize	0.000
	prem	-0.049 (0.553)	prem	-0.050 (0.529)	prem	-0.049 (0.521)

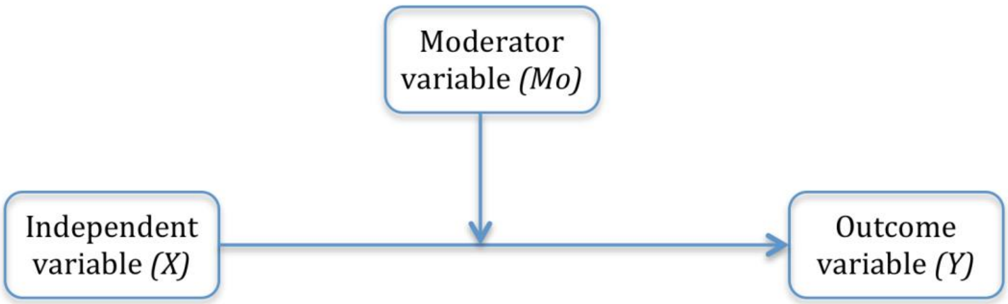
Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1

Prem: takeover premiums 4 weeks before the takeover announcement. . fe: the proportion of financial experts on the board in year Y-1 (one year before the announcement of takeovers). Bsize: the total number of the board of directors in year Y-1. Ned: the proportion of non-executives on boards in year Y-1. Dual: dummy variable equal to 1 when firm' CEO and chairman is the same person, otherwise 0 in year Y-1. Sta fe: the standardise fe at yeat Y-1. Sta bsize: the standardised board size in year Y-1. Sta ned: the standardised ned in year Y-1. Size: ln total assets in year Y-1. Roa: return on assets in year Y-1. Bown: board ownership in year Y-1. Lnnas: ln non-audit fees in year Y-1. Level: total debts divided by total assets in year Y-1. Fcf: free cash flow in year Y-1. Pea: price-earnings ratio in year Y-1. big4: dummy variable, does firms' audit belongs to big six, five or four audit firms in year Y-1. ceoch: dummy variable, CEO change equals to 1, otherwise 0 in year Y-1. Sg: sales growth in year Y-1.

Appendix 4.105: Moderation & Mediation Analysis

A moderator is a variable (*Mo*) that affects the strength and/or the direction of the relationship between independent (*X*) and outcome (*Y*) variables (Figure 4.19) (Baron and Kenny, 1986). The moderator demonstrates the changes in the relation between independent (*X*) and outcome (*Y*), illustrating the conditions under which the association is enhanced, reduced, or directionally changed (Fairchild and McQuillin, 2010). Moderation analysis could be used in research to explain whether or when the circumstances that strengthen or weaken the association between the independent (*X*) and outcome (*Y*) variables, especially when this association is unexpectedly weak or inconsistent (Ro, 2012; Fairchild and MacKinnon, 2009).

Figure 4.19 Moderating relationship among variables

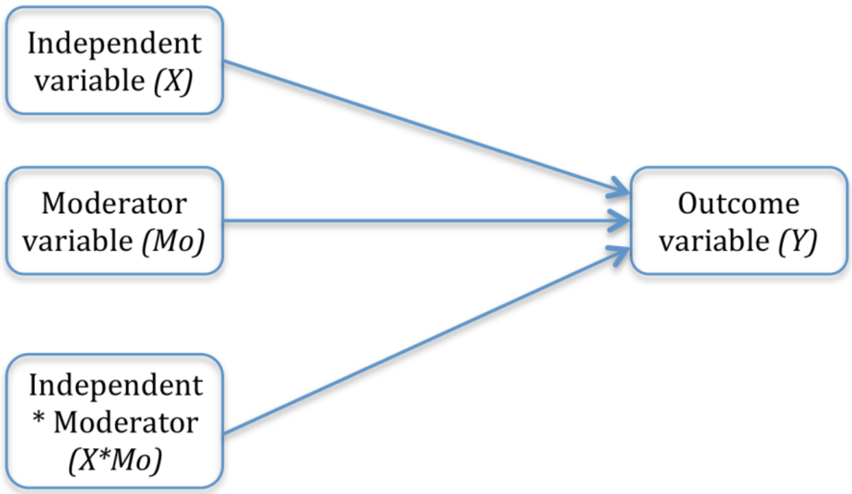


From an econometric perspective, a moderating effect is typically expressed as the interaction between independent (*X*) and moderator (*Mo*) variables (Ro, 2012; Fairchild and McQuillin, 2010). The term 'interaction' represents a joint effect that accounts for additional variance in the outcome variable beyond that which is explained by the independent (*X*) and moderator (*Mo*) variables (Figure 4.20) (Ro, 2012). The basic moderation model is estimated via the following multiple regression equation:

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 Mo + \alpha_3 X * Mo + \varepsilon \quad (4.25)$$

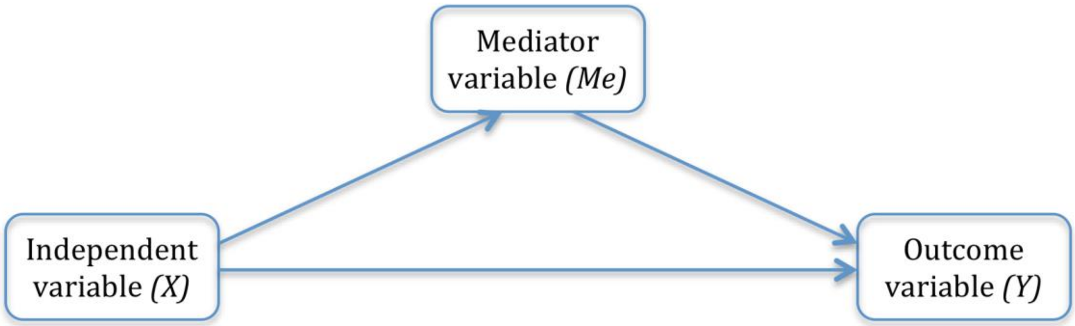
To test for the presence of moderation, a constrained model where the independent (*X*) and moderator (*Mo*) variables are entered into the model as predictors of the outcome variable (*Y*), is compared with an unconstrained model where an interaction term, the product of the independent and moderator variables (*X**Mo*), is added (Ro, 2012). If the unconstrained model is a better fit to the data, then there is evidence for the moderating effect.

Figure 4.20 Statistical model of a moderating effect



By contrast, a mediating analysis explains the causal link between independent variables (*X*), mediators (*Me*) and outcome variables (*Y*) (Figure 4.21) (Baron and Kenny, 1986). In the model, *Me* is typically called a mediator variable or, stated differently, an intermediary variable, through which an independent variable (*X*) is able to influence an outcome variable (*Y*) (Rose et al., 2004; Fairchild and MacKinnon, 2009; Hayes, 2013). Since a mediational analysis produces a story about a sequence of effects, the process of mediation implies a causal chain where the mediator variable (*Me*) is assumed to be caused by the independent variable (*X*) and to cause the outcome variable (*Y*) (Ro, 2012; Kenny, 2008). It follows, then, that mediators are usually investigated when there is a significant relationship between the independent variable (*X*) and the outcome variable (*Y*) (Baron and Kenny, 1986).

Figure 4.21 Mediating relationship among variables



A mediating effect in its simplest form represents an intermediate variable in the relation between independent (*X*) and outcome (*Y*) variables, whereby the independent (*X*) causes the mediator (Me), and the mediator (Me) causes the outcome (*Y*), so *X*→ *Me*→ *Y* (MacKinnon et al., 2007). To model mediating effect, the overall effect between *X* and *Y* can be decomposed into component parts called the direct effect of *X* on *Y* and the indirect (i.e. mediated) effect of *X* on *Y* through *Me* (Figure 4.22) (Fairchild and McQuillin, 2010; Fairchild and MacKinnon, 2009). The basic mediation model is defined by three equations as follows (Baron and Kenny, 1986):

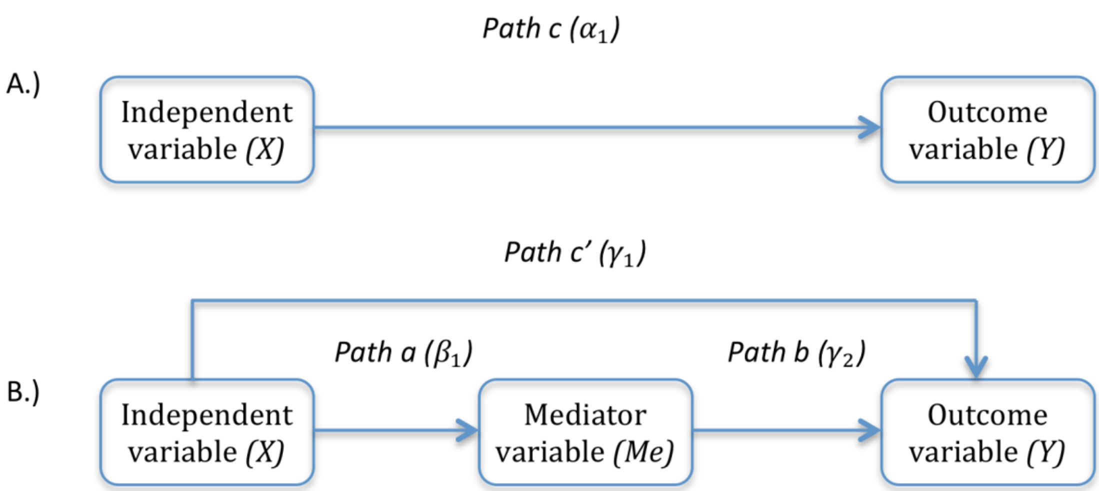
$$Y = \alpha_0 + \alpha_1 X + \varepsilon \quad (4.26)$$

$$Me = \beta_0 + \beta_1 X + \varepsilon \quad (4.27)$$

$$Y = \gamma_0 + \gamma_1 X + \gamma_2 Me + \varepsilon \quad (4.28)$$

The first regression model (Eq. 4.26) is to test the overall effect of the independent variable (*X*) on the outcome variable (*Y*). Consequently, the mediation model uses regression Equations 4.27 and 4.28 to decompose the overall effect into direct and indirect components. Specifically, the second regression model (Eq. 4.27) tests the relationship between the independent variable (*X*) and the mediator variable (*Me*) to establish Path a (indirect effects) in the mediation chain. The third regression model (Eq. 4.28) tests the direct effects (Path c') and contains both the independent and mediator variables entered simultaneously, with the outcome (*X*, *Me*→ *Y*) (Fairchild and McQuillin, 2010; Ro, 2012; Holbert and Stephenson, 2003; Fairchild and MacKinnon, 2009).

Figure 4.22 Statistical model of a mediating effect



To test the significance of the mediating effect, early studies (e.g. Baron and Kenny, 1986; Judd and Kenny, 1981a; Judd and Kenny, 1981b) illustrate the causal step approaches to test for mediation, which detail four criteria for complete mediation. First, mediating effects should only be tested when the relationship between the independent and the outcome variables is statistically significant; otherwise, there is no relationship to mediate. However, Kenny et al. (1998) and Zhao et al. (2010) suggest that this first step is not required, because when direct and indirect effects have opposite signs, it could be the case that Step 1 would not be met, but mediation still exists. Shrout and Bolger (2002) argue in favour of skipping the first step in cases in which the independent is distal to the outcome, because such studies often lack power to detect the direct relation between independent and outcome. Second, the independent variable (*X*) should have a significant influence on the mediator variable (*Me*). Third, the mediator (*Me*) must be significantly related to the outcome variable (*Y*). Fourth, the effect of the independent variable (*X*) on the outcome variable (*Y*) should become zero once the role of the mediator (*Me*) is taken into account (full mediation) (Baron and Kenny, 1986; Holbert and Stephenson, 2003).

However, more recent research has supported tests for statistical mediation based on coefficients from the regression Equations 4.3 and 4.4. Sobel's (1982) z-test is one of the most well-known methods. The product of coefficients β_1 and γ_2 computed from Eqs. 4.3 and 4.4 is divided by its standard effort term, to yield a z-score ($Z = \beta_1 * \gamma_2 / S_{\beta_1 \gamma_2}$). Specifically, $S_{\beta_1 \gamma_2} = \sqrt{\beta_1^2 * S_{\gamma_2}^2 + \gamma_2^2 * S_{\beta_1}^2}$ is the variance of the $\beta_1 * \gamma_2$ coefficient; β_1 is the coefficient for Path a, which predicts the mediator (*Me*) from independent variable (*X*); S_{β_1} is the variance of the β_1 coefficient; γ_2 is the coefficient for Path b, which predicts the outcome variable (*Y*) from mediator (*Me*) when controlling for the independent variable (*X*); and S_{γ_2} is the variance of the γ_2 coefficient (Fairchild and MacKinnon, 2009; Fairchild and McQuillin, 2010).

Recently, an alternative procedure, the bootstrapping procedure, has been suggested to assess the magnitude of the indirect effects (Cheung and Lau, 2008; Hayes, 2009; Ro, 2012). The bootstrapping approach is a non-parametric method based on repeated resampling during the analysis (Hayes, 2009). Once a resample is constructed, β_1 and γ_2 are estimated from this resampled data set and the product of the path coefficient is recorded. This procedure will yield a bias-corrected confidence interval. If zero is not included in the confidence interval, then the indirect effect is different from zero (MacKinnon et al., 2007; Hayes, 2009).

Bibliography

Abdallah, W., Goergen, M. and O'Sullivan, N., (2015). "Endogeneity how failure to correct for it can cause wrong inferences and some remedies." *British Journal of Management*, 26(4): 791-804.

Adams, R. B. and Ferreira, D., (2007). "A theory of friendly boards." *The journal of finance*, 62(1): 217-250.

Adkins, L. C. and Hill, R. C., (2011). *Using Stata for Principles of Econometrics*: Wiley.

Agrawal, A. and Chadha, S., (2005). "Corporate governance and accounting scandals*." *Journal of law and economics*, 48(2): 371-406.

Agrawal, A. and Knoeber, C. R., (1996). "Firm performance and mechanisms to control agency problems between managers and shareholders." *Journal of Financial and Quantitative Analysis*, 31(03): 377-397.

Agrawal, A. and Walkling, R. A., (1994). "Executive Careers and Compensation Surrounding Takeover Bids." *The Journal of Finance*, 49(3): 985-1014.

Aguilera, R. V., Williams, C. A., Conley, J. M. and Rupp, D. E., (2006). "Corporate Governance and Social Responsibility: a comparative analysis of the UK and the US*." *Corporate Governance: An International Review*, 14(3): 147-158.

Aguinis, H., Boik, R. J. and Pierce, C. A., (2001). "A generalized solution for approximating the power to detect effects of categorical moderator variables using multiple regression." *Organizational Research Methods*, 4(4): 291-323.

Ahangar, R. G., (2011). "The relationship between intellectual capital and financial performance: An empirical investigation in an Iranian company." *African Journal of Business Management*, 5(1): 88-95.

Ahmed, A. S., Billings, B. K., Morton, R. M. and Stanford-Harris, M., (2002). "The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs." *The Accounting Review*, 77(4): 867-890.

Ahmed, A. S. and Duellman, S., (2007). "Accounting conservatism and board of director characteristics: An empirical analysis." *Journal of Accounting and Economics*, 43(2): 411-437.

Ahmed, A. S. and Duellman, S., (2011). "Evidence on the role of accounting conservatism in monitoring managers' investment decisions." *Accounting & Finance*, 51(3): 609-633.

Ahmed, A. S. and Duellman, S., (2013). "Managerial Overconfidence and Accounting Conservatism." *Journal of Accounting Research*, 51(1): 1-30.

Ahmed, K. and Henry, D., (2012). "Accounting conservatism and voluntary corporate governance mechanisms by Australian firms." *Accounting & Finance*, 52(3): 631-662.

Aho, K. A., (2013). *Foundational and Applied Statistics for Biologists Using R*: Taylor & Francis.

Aiken, L. S., West, S. G. and Reno, R. R., (1991). *Multiple regression: Testing and interpreting interactions*: Sage.

Ajinkya, B., Bhojraj, S. and Sengupta, P., (2005). "The association between outside directors, institutional investors and the properties of management earnings forecasts." *Journal of Accounting Research*, 43(3): 343-376.

Al Farooque, O., Van Zijl, T., Dunstan, K. and Karim, A., (2007). "Corporate governance in Bangladesh: link between ownership and financial performance." *Corporate Governance: An International Review*, 15(6): 1453-1468.

Alchian, A. A. and Demsetz, H., (1972). "Production, information costs, and economic organization." *The American Economic Review*, 62(5): 777-795.

Alderfer, C. P., (1986). "The invisible director on corporate boards." *Harvard Business Review*, 64(6): 38-&.

Aldwin, C. M. and Werner, E. E., (2012). *Stress, Coping, and Development, Second Edition: An Integrative Perspective*: Guilford Publications.

Alford, A. W., (1992). "The Effect of the Set of Comparable Firms on the Accuracy of the Price-Earnings Valuation Method." *Journal of Accounting Research*, 30(1): 94-108.

Ali-Ahmed, H. J., (2009). "Managerial Ownership Concentration and Agency Conflict Using Logistic Regression Approach: Evidence from Bursa Malaysia."

Journal of Management Research, 1(1): 1-10.

Allison, P., (2012). "When can you safely ignore multicollinearity?". Retrieved 11-07, 2014, from http://www.statisticalhorizons.com/multicollinearity.

Amess, K. and Wright, M., (2012). "Leveraged buyouts, private equity and jobs." *Small Business Economics*, 38(4): 419-430.

Amorim, L. D. A. F., Fiaccone, R. L., Santos, C. A. S., Santos, T. N. d., de Moraes, L. T. L., Oliveira, N. F., Barbosa, S. O., Santos, D. N. d., Santos, L. M. d. and Matos, S., (2010). "Structural equation modeling in epidemiology." *Cadernos de Saúde Pública*, 26(12): 2251-2262.

Anderson, R. C., Mansi, S. A. and Reeb, D. M., (2003). "Founding family ownership and the agency cost of debt." *Journal of Financial Economics*, 68(2): 263-285.

Anderson, R. C., Mansi, S. A. and Reeb, D. M., (2004). "Board characteristics, accounting report integrity, and the cost of debt." *Journal of Accounting and Economics*, 37(3): 315-342.

Anderson, R. C. and Reeb, D. M., (2003). "Founding-family ownership and firm performance: Evidence from the S&P 500." *Journal of Finance*: 1301-1328.

Andrade, G. and Kaplan, S. N., (1998). "How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed." *the Journal of Finance*, 53(5): 1443-1493.

Appel, K., Schwahn, C., Mahler, J., Schulz, A., Spitzer, C., Fenske, K., Stender, J., Barnow, S., John, U. and Teumer, A., (2011). "Moderation of adult depression by a polymorphism in the FKBP5 gene and childhood physical abuse in the general population." *Neuropsychopharmacology*, 36(10): 1982-1991.

Arthur, N., (2001). "Board composition as the outcome of an internal bargaining process: empirical evidence." *Journal of Corporate Finance*, 7(3): 307-340.

ASB (A. S. Board), (2000). Financial reporting standard 18 'accounting policies'. in A. S. Board (ed.): Accounting Standards Board (ASB).

Bøhren, Ø. and Strøm, R. Ø., (2010). "Governance and politics: Regulating independence and diversity in the board room." *Journal of Business Finance & Accounting*, 37(9‐10): 1281-1308.

Badertscher, B. A., (2011). "Overvaluation and the choice of alternative earnings management mechanisms." *The Accounting Review*, 86(5): 1491-1518.

Baek, H. Y., Johnson, D. R. and Kim, J. W., (2009). "Managerial Ownership, Corporate Governance, and Voluntary Disclosure." *Journal of Business & Economic Studies*, 15(2): 44-61.

Bagnoli, M. and Watts, S. G., (2005). "Conservative accounting choices." *Management science*, 51(5): 786-801.

Baliga, B., Moyer, R. C. and Rao, R. S., (1996). "CEO duality and firm performance: what's the fuss?" *Strategic Management Journal*, 17(1): 41-53.

Ball, R., (2001). "Infrastructure requirements for an economically efficient system of public financial reporting and disclosure." *Brookings-Wharton papers on financial services*, 2001(1): 127-169.

Ball, R., Kothari, S. and Robin, A., (2000). "The effect of international institutional factors on properties of accounting earnings." *Journal of Accounting and Economics*, 29(1): 1-51.

Ball, R., Kothari, S. P. and Nikolaev, V. V., (2013a). "On Estimating Conditional Conservatism." *Accounting Review*, 88(3): 755-787.

Ball, R., Kothari, S. P. and Nikolaev, V. V., (2013b). "Econometrics of the Basu asymmetric timeliness coefficient and accounting conservatism." *Journal of Accounting Research*, 51(5): 1071-1097.

Ball, R. and Shivakumar, L., (2005). "Earnings quality in UK private firms: comparative loss recognition timeliness." *Journal of Accounting and Economics*, 39(1): 83-128.

Bange, M. M. and Mazzeo, M. A., (2004). "Board composition, board effectiveness, and the observed form of takeover bids." *Review of Financial Studies*, 17(4): 1185-1215.

Banker, R., Basu, S., Byzalov, D. and Chen, J. Y., (2012). "Direction of sales change and asymmetric timeliness of earnings." *Working Paper*.

Bargeron, L. L., Schlingemann, F. P., Stulz, R. M. and Zutter, C. J., (2008). "Why do private acquirers pay so little compared to public acquirers?" *Journal of financial economics*, 89(3): 375-390.

Baron, D. P., (1983). "Tender Offers and Management Resistance." *The Journal* *of Finance*, 38(2): 331-343.

Baron, R. M. and Kenny, D. A., (1986). "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations." *Journal of personality and social psychology*, 51(6): 1173.

Bassett, M., Koh, P.-S. and Tutticci, I., (2007). "The association between employee stock option disclosures and corporate governance: Evidence from an enhanced disclosure regime." *The British Accounting Review*, 39(4): 303-322.

Basu, S., (1997). "The conservatism principle and the asymmetric timeliness of earnings." *Journal of Accounting and Economics*, 24(1): 3-37.

Basu, S., (2005). "Discussion of "Conditional and UnconditionalConservatism: Concepts and Modeling"." *Review of Accounting Studies*, 10(2-3): 311-321.

Bates, T. W. and Becher, D. A., (2015). Bid Resistance by Takeover Targets: Managerial Bargaining or Bad Faith? AFA 2012 Chicago Meetings Paper.

Bauguess, S. W., Moeller, S. B., Schlingemann, F. P. and Zutter, C. J., (2009). "Ownership structure and target returns." *Journal of Corporate Finance*, 15(1): 48-65.

Baum, C. F., (2006). *An Introduction to Modern Econometrics Using Stata*: Taylor & Francis.

Baysinger, B. D. and Butler, H. N., (1985). "Corporate governance and the board of directors: Performance effects of changes in board composition." *Journal of Law, Economics, & Organization*: 101-124.

Bear, S., Rahman, N. and Post, C., (2010). "The impact of board diversity and gender composition on corporate social responsibility and firm reputation." *Journal of Business Ethics*, 97(2): 207-221.

Beasley, M. S., (1996). "An empirical analysis of the relation between the board of director composition and financial statement fraud." *Accounting Review*: 443-465.

Beaver, W. H. and Ryan, S. G., (2005). "Conditional and unconditional conservatism: Concepts and modeling." *Review of Accounting Studies*, 10(2-3): 269-309.

Becker, C. L., DeFond, M. L., Jiambalvo, J. and Subramanyam, K., (1998). "The effect of audit quality on earnings management*." *Contemporary Accounting Research*, 15(1): 1-24.

Becker, T. E., (2005). "Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations." *Organizational Research Methods*, 8(3): 274-289.

Bedard, J., Chtourou, S. M. and Courteau, L., (2004). "The effect of audit committee expertise, independence, and activity on aggressive earnings management." *Auditing: A Journal of Practice & Theory*, 23(2): 13-35.

Beekes, W., Pope, P. and Young, S., (2004). "The link between earnings timeliness, earnings conservatism and board composition: evidence from the UK." *Corporate Governance: An International Review*, 12(1): 47-59.

Begley, J., Eaton, T. V. and Peck, S., (2003). "Managers' Incentives to Manipulate Earnings in Management Buyout Contests: An Examination of How Corporate Governance and Market Mechanisms Mitigate Earnings Management." *Journal of Forensic Accounting*.

Belkhir, M., (2009). "Board of directors' size and performance in the banking industry." *International Journal of Managerial Finance*, 5(2): 201-221.

Belot, F., (2009). Do target shareholder agreements induce bidders to pay higher premiums? Available at:http://basepub.dauphine.fr/xmlui/bitstream/handle/123456789/2941/EFMA2009_0546_fullpaper.pdf?sequence=1, [Accessed 3/7/2012].

Bender, R., (2003). "How Executive Directors' Remuneration is Determined in Two FTSE 350 Utilities." *Corporate Governance: An International Review*, 11(3): 206-217.

Berle, A. A. and Means, G. C., (1932). *The modern corporation and private property*. New York: Transaction Pub.

Bhagat, S. and Black, B., (2001). "The Non-Correlation between Board Independence and Long-Term Firm Performance." *Journal of Corporation Law*, 27: 231-274.

Bhojraj, S. and Sengupta, P., (2003). "Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors*." *The Journal of Business*, 76(3): 455-475.

Black, B. S. and Coffee, J. C., (1994). "Hail Britannia: institutional investor behavior under limited regulation." *Michigan Law Review*, 92(7): 1997-2087.

Black, F. and Scholes, M., (1973). "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy*, 81(3): 637-654.

Bliss, M. A., (2011). "Does CEO duality constrain board independence? Some evidence from audit pricing." *Accounting & Finance*, 51(2): 361-380.

Blunch, N., (2012). *Introduction to Structural Equation Modeling Using IBM SPSS Statistics and Amos*: SAGE Publications.

Bollen, K. A., (2014). *Structural Equations with Latent Variables*: Wiley.

Bondt, W. F. and Thaler, R., (1985). "Does the stock market overreact?" *the Journal of Finance*, 40(3): 793-805.

Bonner, S. E. and Sprinkle, G. B., (2002). "The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research." *Accounting, Organizations and Society*, 27(4-5): 303-345.

Boone, A. L., Casares Field, L., Karpoff, J. M. and Raheja, C. G., (2007). "The determinants of corporate board size and composition: An empirical analysis." *Journal of Financial Economics*, 85(1): 66-101.

Borisova, G., Brockman, P., Salas, J. M. and Zagorchev, A., (2012). "Government ownership and corporate governance: Evidence from the EU." *Journal of Banking & Finance*, 36(11): 2917-2934.

Bowen, R. M., Rajgopal, S. and Venkatachalam, M., (2008). "Accounting Discretion, Corporate Governance, and Firm Performance*." *Contemporary Accounting Research*, 25(2): 351-405.

Boyd, B., (1990). "Corporate linkages and organizational environment: A test of the resource dependence model." *Strategic Management Journal*, 11(6): 419-430.

Bradley, M., Desai, A. and Kim, E. H., (1983). "The rationale behind interfirm tender offers: Information or synergy?" *Journal of financial economics*, 11(1–4): 183-206.

Breivik, E. and Olsson, U. H., (2001). "Adding variables to improve fit: The effect of model size on fit assessment in LISREL." *Structural equation modeling: Present and future*: 169-194.

Brenner, S. and Schwalbach, J., (2009). "Legal institutions, board diligence, and top executive pay." *Corporate Governance: An International Review*, 17(1): 1-12.

Brickley, J. A., Coles, J. L. and Jarrell, G., (1997). "Leadership structure: Separating the CEO and chairman of the board." *Journal of Corporate Finance*, 3(3): 189-220.

Brickley, J. A., Lease, R. C. and Smith Jr, C. W., (1988). "Ownership structure and voting on antitakeover amendments." *Journal of Financial Economics*, 20: 267-291.

Briginshaw, J., (2008). "What will the International Financial Reporting Standards (IFRS) mean to businesses and investors?" *Graziadio Business Review*, 11(4).

Browne, M. and Cudeck, R., (1993). Alternative ways of assessing model fit. InK. A. Bollen & JS Long (Eds.), Testing structural equation models (pp. 136-162), Newbury Park, CA: Sage.

Brush, T. H., Bromiley, P. and Hendrickx, M., (2000). "The free cash flow hypothesis for sales growth and firm performance." *Strategic Management Journal*, 21(4): 455-472.

Buchholtz, A. K. and Ribbens, B. A., (1994). "Role of chief executive officers in takeover resistance: Effects of CEO incentives and individual characteristics." *Academy of Management Journal*, 37(3): 554-579.

Bugeja, M., (2005). "Effect of independent expert reports in Australian takeovers." *Accounting & Finance*, 45(4): 519-536.

Bugeja, M., (2011). "Takeover premiums and the perception of auditor independence and reputation." *The British Accounting Review*, 43(4): 278-293.

Burns, N. and Kedia, S., (2006). "The impact of performance-based compensation on misreporting." *Journal of financial economics*, 79(1): 35-67.

Bushee, B. J. and Noe, C. F., (2000). "Corporate disclosure practices, institutional investors, and stock return volatility." *Journal of Accounting Research*: 171-202.

Bushman, R., Chen, Q., Engel, E. and Smith, A., (2004). "Financial accounting information, organizational complexity and corporate governance systems."

Journal of Accounting and Economics, 37(2): 167-201.

Bushman, R. M. and Smith, A. J., (2001). "Financial accounting information and corporate governance." *Journal of Accounting and Economics*, 32(1): 237-333.

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S. and Munafò, M. R., (2013). "Power failure: why small sample size undermines the reliability of neuroscience." *Nature Reviews Neuroscience*, 14(5): 365-376.

Byrd, J. W. and Hickman, K. A., (1992). "Do outside directors monitor managers?: Evidence from tender offer bids." *Journal of Financial Economics*, 32(2): 195-221.

Callen, J. L. and Segal, D., (2013). "An analytical and empirical measure of the degree of conditional conservatism." *Journal of Accounting, Auditing & Finance*, 28(3): 215-242.

Cameron, A. C. and Trivedi, P. K., (2010). "Microeconometrics using stata."

Campbell, L., Liu, L. and Martin, K., (2015). "Accrual Earnings Management Prior to Delisting." *Journal of Accounting and Finance*, 15(3): 53.

Canavan, J., Jones, B. and Potter, M. J., (2004). "Board tenure: How long is too long?" *Directors and Boards-American Edition*, 28(2): 39-42.

Cao, J. X., (2011). "IPO Timing, Buyout Sponsors' Exit Strategies, and Firm Performance of RLBOs." *Journal of Financial and Quantitative Analysis*, 46(4): 1001.

Carline, N., Linn, S. and Yadav, P., (2011). Corporate Governance and Takeover Resistance. AFA 2012 Chicago Meetings Paper.

Carline, N. F., Linn, S. C. and Yadav, P. K., (2016). The Nature of Takeover Resistance: Aggressive Post-Offer Actions to Frustrate Takeover Bids vs. Passive Resistance. American Finance Association Meetings Working Paper.

Carline, N. F. and Yadav, P. K., (2008). Decoupling the Motives for Takeover Resistance, and the Implications for Stockholders, Managers and Bidders. Available at:https://www.ou.edu/dam/price/Finance/CFS/paper/pdf/SeminarPaper_Carline.pdf, [Accessed 25 June 2016].

Carpenter, M. A. and Westphal, J. D., (2001). "The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making." *Academy of Management Journal*, 44(4): 639-660.

Carter, D. A., Simkins, B. J. and Simpson, W. G., (2003). "Corporate governance, board diversity, and firm value." *Financial review*, 38(1): 33-53.

Cassar, G. and Holmes, S., (2003). "Capital structure and financing of SMEs: Australian evidence." *Accounting and Finance*, 43(2): 123-147.

Chan, A. L.-C., Lin, S. W. and Strong, N., (2009). "Accounting conservatism and the cost of equity capital: UK evidence." *Managerial Finance*, 35(4): 325-345.

Chen, P. and Zhang, G., (2007). "How do accounting variables explain stock price movements? Theory and evidence." *Journal of Accounting and Economics*, 43(2): 219-244.

Cheng, S., (2008). "Board size and the variability of corporate performance." *Journal of Financial Economics*, 87(1): 157-176.

Chenhall, R. H. and Moers, F., (2007). "The issue of endogeneity within theory-based, quantitative management accounting research." *European Accounting Review*, 16(1): 173-196.

Cheung, G. W. and Lau, R. S., (2008). "Testing Mediation and Suppression Effects of Latent Variables Bootstrapping With Structural Equation Models." *Organizational Research Methods*, 11(2): 296-325.

Chi, W., Liu, C. and Wang, T., (2009). "What affects accounting conservatism: A corporate governance perspective." *Journal of contemporary accounting & economics*, 5(1): 47-59.

Chin, W. W. and Todd, P. A., (1995). "On the use, usefulness, and ease of use of structural equation modeling in MIS research: a note of caution." *MIS quarterly*: 237-246.

Christie, A. A. and Zimmerman, J. L., (1994). "Efficient and opportunistic choices of accounting procedures: corporate control contests." *Accounting Review*: 539-566.

Cohen, J., (2003). *Applied Multiple Regression/correlation Analysis for the Behavioral Sciences*: Taylor & Francis.

Cohen, J., Cohen, P., West, S. G. and Aiken, L. S., (2013). *Applied multiple* *regression/correlation analysis for the behavioral sciences*: Routledge.

Coles, J. L., Daniel, N. D. and Naveen, L., (2008). "Boards: Does one size fit all?" *Journal of Financial Economics*, 87(2): 329-356.

Coles, J. L., Lemmon, M. L. and Meschke, J. F., (2012). "Structural models and endogeneity in corporate finance: The link between managerial ownership and corporate performance." *Journal of Financial Economics*, 103(1): 149-168.

Core, J. E., Holthausen, R. W. and Larcker, D. F., (1999). "Corporate governance, chief executive officer compensation, and firm performance." *Journal of Financial Economics*, 51(3): 371-406.

Cornett, M. M., Marcus, A. J. and Tehranian, H., (2008). "Corporate governance and pay-for-performance: The impact of earnings management." *Journal of Financial Economics*, 87(2): 357-373.

Cornforth, C., (2001). "What Makes Boards Effective? An examination of the relationships between board inputs, structures, processes and effectiveness in non‐profit organisations." *Corporate Governance: An International Review*, 9(3): 217-227.

Cotter, J. F. and Peck, S. W., (2001). "The structure of debt and active equity investors: The case of the buyout specialist." *Journal of Financial Economics*, 59(1): 101-147.

Cotter, J. F., Shivdasani, A. and Zenner, M., (1997). "Do independent directors enhance target shareholder wealth during tender offers?" *Journal of Financial Economics*, 43(2): 195-218.

Cotter, J. F. and Zenner, M., (1994). "How managerial wealth affects the tender offer process." *Journal of Financial Economics*, 35(1): 63-97.

Cragg, J. G. and Donald, S. G., (1993). "Testing identifiability and specification in instrumental variable models." *Econometric Theory*, 9(02): 222-240.

Custódio, C. and Metzger, D., (2014). "Financial expert CEOs: CEO′s work experience and firm′s financial policies." *Journal of Financial Economics*, 114(1): 125-154.

Daily, C. M. and Dalton, D., (2001). "Signaling firm value through board structure: An investigation of initial public offerings." *Entrepreneurship Theory Practice*, 26: 33-50.

Daily, C. M. and Dalton, D. R., (1994a). "Corporate governance and the bankrupt firm: An empirical assessment." *Strategic Management Journal*, 15(8): 643-654.

Daily, C. M. and Dalton, D. R., (1994b). "Bankruptcy and corporate governance: The impact of board composition and structure." *Academy of Management Journal*, 37(6): 1603-1617.

Daily, C. M. and Dalton, D. R., (1995). "CEO and director turnover in failing firms: An illusion of change?" *Strategic Management Journal*, 16(5): 393-400.

Daily, C. M. and Schwenk, C., (1996). "Chief executive officers, top management teams, and boards of directors: Congruent or countervailing forces?" *Journal of Management*, 22(2): 185-208.

Dalton, D. R., Daily, C. M., Ellstrand, A. E. and Johnson, J. L., (1998). "Meta-analytic reviews of board composition, leadership structure, and financial performance." *Strategic Management Journal*, 19(3): 269-290.

Dalton, D. R., Daily, C. M., Johnson, J. L. and Ellstrand, A. E., (1999). "Number of directors and financial performance: A meta-analysis." *Academy of Management Journal*, 42(6): 674-686.

Davila, A., Foster, G. and Gupta, M., (2003). "Venture capital financing and the growth of startup firms." *Journal of Business Venturing*, 18(6): 689-708.

Davis, J. H., Schoorman, F. D. and Donaldson, L., (1997). "Toward a stewardship theory of management." *Academy of Management Review*, 22(1): 20-47.

De Bondt, W. F. M. and Thaler, R., (1985). "Does the Stock Market Overreact?" *The Journal of Finance*, 40(3): 793-805.

De Maeseneire, W. and Brinkhuis, S., (2012). "What drives leverage in leveraged buyouts? An analysis of European leveraged buyouts' capital structure." *Accounting & Finance*, 52(s1): 155-182.

De Villiers, C., Naiker, V. and van Staden, C. J., (2011). "The effect of board characteristics on firm environmental performance." *Journal of Management*.

DeAngelo, H. and DeAngelo, L., (1985). "Managerial ownership of voting rights: A study of public corporations with dual classes of common stock." *Journal of Financial Economics*, 14(1): 33-69.

Dechow, P. M., Sloan, R. G. and Sweeney, A. P., (1996). "Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the sec." *Contemporary Accounting Research*, 13(1): 1-36.

Defond, M. L., Hann, R. N. and Hu, X., (2005). "Does the Market Value Financial Expertise on Audit Committees of Boards of Directors?" *Journal of Accounting Research*, 43(2): 153-193.

Defond, M. L., Raghunandan, K. and Subramanyam, K., (2002). "Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions." *Journal of Accounting Research*, 40(4): 1247-1274.

Demsetz, H. and Lehn, K., (1985). "The Structure of Corporate Ownership: Causes and Consequences." *Journal of Political Economy*, 93(6): 1155-1177.

Demsetz, H. and Villalonga, B., (2001). "Ownership structure and corporate performance." *Journal of Corporate Finance*, 7(3): 209-233.

Desai, A., Kroll, M. and Wright, P., (2003). "CEO duality, board monitoring, and acquisition performance: A test of competing theories." *Journal of Business Strategies*, 20(2): 137.

Desbrières, P. and Schatt, A., (2002). "The impacts of LBOs on the performance of acquired firms: the French case." *Journal of Business Finance & Accounting*, 29(5 - 6): 695-729.

Dhaliwal, D. A. N., Naiker, V. I. C. and Navissi, F., (2010). "The Association Between Accruals Quality and the Characteristics of Accounting Experts and Mix of Expertise on Audit Committees*." *Contemporary Accounting Research*, 27(3): 787-827.

Dhole, S., (2010). On the firm-specific component of conservatism and its determinants. The Faculty of the C.T. Bauer College of Business, University of Houston. **Doctor of Philosophy**.

Diamond, D. B. and Tolley, G. S., (2013). *The Economics of Urban Amenities*: Elsevier Science.

Dietrich, J. R., Muller III, K. A. and Riedl, E. J., (2007). "Asymmetric timeliness tests of accounting conservatism." *Review of Accounting Studies*, 12(1): 95-124.

Dimopoulos, T. and Sacchetto, S., (2014). "Preemptive bidding, target resistance, and takeover premiums." *Journal of Financial Economics*, 114(3): 444-470.

Donaldson, L. and Davis, J. H., (1991). "Stewardship theory or agency theory: CEO governance and shareholder returns." *Australian Journal of management*, 16(1): 49-64.

Dopuch, N. and Simunic, D., (1980). "The nature of competition in the auditing profession: a descriptive and normative view." *Regulation and the accounting profession*, 34(2): 283-289.

Dunn, P., (2012). "Breaking the boardroom gender barrier: the human capital of female corporate directors." *Journal of Management & Governance*, 16(4): 557-570.

Edgerton, J., (2012). "Agency problems in public firms: Evidence from corporate jets in leveraged buyouts." *the Journal of Finance*, 67(6): 2187-2213.

Eisenberg, T., Sundgren, S. and Wells, M. T., (1998). "Larger board size and decreasing firm value in small firms." *Journal of Financial Economics*, 48(1): 35-54.

Eisenhardt, K. M., (1989). "Agency theory: An assessment and review." *Academy of Management Review*: 57-74.

Eisenhardt, K. M. and Schoonhoven, C. B., (1996). "Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms." *organization Science*, 7(2): 136-150.

Elitzur, R., Halpern, P., Kieschnick, R. and Rotenberg, W., (1998). "Managerial incentives and the structure of management buyouts." *Journal of Economic Behavior & Organization*, 36(3): 347-367.

Elsaid, E. and Davidson, W. N., (2009). "What happens to CEO compensation following turnover and succession?" *The Quarterly Review of Economics and Finance*, 49(2): 424-447.

Elsayed, K., (2007). "Does CEO duality really affect corporate performance?" *Corporate Governance: An International Review*, 15(6): 1203-1214.

Ertimur, Y., Ferri, F. and Stubben, S. R., (2010). "Board of directors' responsiveness to shareholders: Evidence from shareholder proposals." *Journal of Corporate Finance*, 16(1): 53-72.

Ettredge, M., Huang, Y. and Zhang, W., (2012). "Earnings restatements and differential timeliness of accounting conservatism." *Journal of Accounting and Economics*, 53(3): 489-503.

Etzioni, A., (1975). *Comparative Analysis of Complex Organizations, Rev*: Simon and Schuster.

Fadzil, F. H. B. and Ismail, S. S. B. S., (2014). "The Influence of Corporate Ownership Structure and Board Members' Skills on the Accounting Conservatism: Evidence from Non-Financial Listed Firms in Amman Stock Exchange." *International Journal of Accounting and Financial Reporting*, 4(1): Pages 177-201.

Fairchild, A. J. and MacKinnon, D. P., (2009). "A general model for testing mediation and moderation effects." *Prevention Science*, 10(2): 87-99.

Fairchild, A. J. and McQuillin, S. D., (2010). "Evaluating mediation and moderation effects in school psychology: A presentation of methods and review of current practice." *Journal of school psychology*, 48(1): 53-84.

Fama, E. F., (1980). "Agency Problems and the Theory of the Firm." *The journal of political economy*: 288-307.

Fama, E. F. and Jensen, M. C., (1983). "Separation of ownership and control." *Journal of law and economics*, 26(2): 301-325.

Fan, J. P., Wong, T. J. and Zhang, T., (2007). "Politically connected CEOs, corporate governance, and Post-IPO performance of China's newly partially privatized firms." *Journal of Financial Economics*, 84(2): 330-357.

Fan, X., Thompson, B. and Wang, L., (1999). "Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes." *Structural equation modeling: a multidisciplinary journal*, 6(1): 56-83.

Farrell, K. A. and Whidbee, D. A., (2002). "The impact of forced CEO turnover on committee structure." *Journal of Managerial Issues*: 49-67.

FASB, (1975). "Statement of financial accounting standards no.5: accounting for contigencies." *Financial Accounting Standards Board*.

FASB, (1980). "Statement of financial accounting concepts no.2: qualitative characteristics of accounting informaiton." *Financial Accounting Standards Board*.

FASB, (2010). "Statement of financial accounting concepts No.8 " *Financial Accounting Standards Board*.

Ferris, S. P., Jagannathan, M. and Pritchard, A. C., (2003). "Too busy to mind the business? Monitoring by directors with multiple board appointments." *Journal of Finance*: 1087-1111.

Finkelstein, S., (1992). "Power in top management teams: Dimensions, measurement, and validation." *Academy of Management Journal*, 35(3): 505-538.

Finkelstein, S. and Mooney, A. C., (2003). "Not the usual suspects: How to use board process to make boards better." *The Academy of Management Executive*, 17(2): 101-113.

Fitzsimons, G. J., (2008). "Death to dichotomizing." *Journal of consumer research*, 35(1): 5-8.

Flanagan, D. J. and O'Shaughnessy, K. C., (2003). "Core-related acquisitions, multiple bidders and tender offer premiums." *Journal of Business Research*, 56(8): 573-585.

Florackis, C. and Ozkan, A., (2009). "The impact of managerial entrenchment on agency costs: An empirical investigation using UK panel data." *European Financial Management*, 15(3): 497-528.

Forbes, D. P. and Milliken, F. J., (1999). "Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups." *Academy of Management Review*, 24(3): 489-505.

Fox, I. and Marcus, A., (1992). "The causes and consequences of leveraged management buyouts." *Academy of Management Review*, 17(1): 62-85.

Francis, J., Huang, A. H., Rajgopal, S. and Zang, A. Y., (2008). "CEO Reputation and Earnings Quality*." *Contemporary Accounting Research*, 25(1): 109-147.

Francis, J., LaFond, R., Olsson, P. and Schipper, K., (2005). "The market pricing of accruals quality." *Journal of Accounting and Economics*, 39(2): 295-327.

Francis, J. R. and Martin, X., (2010). "Acquisition profitability and timely loss recognition." *Journal of Accounting and Economics*, 49(1): 161-178.

Francis, J. R., Maydew, E. L. and Sparks, H. C., (1999). "The role of Big 6 auditors in the credible reporting of accruals." *Auditing: A Journal of Practice & Theory*, 18(2): 17-34.

Francis, J. R. and Yu, M. D., (2009). "Big 4 office size and audit quality." *The Accounting Review*, 84(5): 1521-1552.

Frankfort-Nachmias, C. and Leon-Guerrero, A., (2014). *Social Statistics for a Diverse Society*: SAGE Publications.

Frazier, P. A., Tix, A. P. and Barron, K. E., (2004). "Testing moderator and mediator effects in counseling psychology research." *Journal of counseling psychology*, 51(1): 115.

FRC, (2012). The UK corporate governance code. Available at:http://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-September-2012.pdf, [Accessed Accessed in: 16/01/2014].

Freiman, J. A., Chalmers, T. C., Smith Jr, H. and Kuebler, R. R., (1978). "The importance of beta, the type II error and sample size in the design and interpretation of the randomized control trial: Survey of 71 negative trials." *New England Journal of Medicine*, 299(13): 690-694.

Freund, R. J., Wilson, W. J. and Sa, P., (2006). *Regression Analysis*: Elsevier Science.

Fried, V. H., Bruton, G. D. and Hisrich, R. D., (1998). "Strategy and the board of directors in venture capital-backed firms." *Journal of Business Venturing*, 13(6): 493-503.

Gales, L. M. and Kesner, I. F., (1994). "An analysis of board of director size and composition in bankrupt organizations." *Journal of Business Research*, 30(3): 271-282.

Geddes, R., (2011). *An Introduction to Corporate Finance: Transactions and Techniques*: Wiley.

Gefen, D., Straub, D. and Boudreau, M.-C., (2000). "Structural equation modeling and regression: Guidelines for research practice." *Communications of the association for information systems*, 4(1): 7.

Geletkanycz, M. A. and Hambrick, D. C., (1997). "The external ties of top executives: Implications for strategic choice and performance." *Administrative science quarterly*: 654-681.

Gertner, R. and Kaplan, S., (1996). The value-maximizing board. University of Chicago and NBER Working Paper Available at:http://faculty.chicagobooth.edu/steven.kaplan/research/gerkap.pdf, [Accessed 17 July 2016].

Gigler, F. B. and Hemmer, T., (2001). "Conservatism, optimal disclosure policy, and the timeliness of financial reports." *The Accounting Review*, 76(4): 471-493.

Gilson, R. J. and Kraakman, R., (1991). "Reinventing the outside director: An agenda for institutional investors." *Stanford Law Review*, 43(4): 863-906.

Givoly, D. and Hayn, C., (2000). "The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative?" *Journal of Accounting and Economics*, 29(3): 287-320.

Givoly, D., Hayn, C. K. and Natarajan, A., (2007). "Measuring reporting conservatism." *The Accounting Review*, 82(1): 65-106.

Gonzalez, A. and André, P., (2014). "Board Effectiveness and Short Termism." *Journal of Business Finance & Accounting*, 41(1-2): 185-209.

Goodstein, J., Gautam, K. and Boeker, W., (1994). "The effects of board size and diversity on strategic change." *Strategic Management Journal*, 15(3): 241-250.

Goyal, V. K. and Park, C. W., (2002). "Board leadership structure and CEO turnover." *Journal of Corporate Finance*, 8(1): 49-66.

Grant, R. M., (2005). *Contemporary Strategy Analysis*: Blackwell Pub.

Greene, W. H., (2011). *Econometric Analysis*: Pearson Education.

Grinstein, Y. and Tolkowsky, E., (2004). The role of the board of directors in the capital budgeting process-evidence from S&P 500 firms. EFA 2005 Moscow Meetings.

Grossman, S. J. and Hart, O. D., (1988). "One share-one vote and the market for corporate control." *Journal of Financial Economics*, 20(0): 175-202.

Guay, W. and Verrecchia, R., (2006). "Discussion of an economic framework for conservative accounting and Bushman and Piotroski (2006)." *Journal of Accounting and Economics*, 42(1): 149-165.

Gul, F. A., (2007). *Hong Kong auditing : economic theory and practice*. Hong Kong: City University of Hong Kong Press.

Guo, L. and Masulis, R. W., (2015). "Board structure and monitoring: New evidence from CEO turnovers." *Review of Financial Studies*, 28(10): 2770-2811.

Guo, Z. and Kga, U. K., (2012). "Corporate governance and firm performance of listed firms in Sri Lanka." *Procedia-Social and Behavioral Sciences*, 40: 664-667.

Hackman, J., Morris, C. and Berkowitz, L., (1975). "Group tasks, group interaction process, and group performance effectiveness: A review and proposed integration." *Advances in experimental social psychology (Vol. 8)*.

Hadri, K. and Mikhail, W., (2014). *Econometric Methods and Their Applications in Finance, Macro and Related Fields*.

Hafzalla, N. M., (2009). "Managerial incentives for discretionary disclosure: evidence from management leveraged buyouts." *Review of accounting studies*, 14(4): 507-533.

Hagendorff, J. and Vallascas, F., (2011). "CEO pay incentives and risk-taking: Evidence from bank acquisitions." *Journal of Corporate Finance*, 17(4): 1078-1095.

Hair, J. F., (1995). *Multivariate data analysis with readings*: Prentice Hall.

Hair, J. F., (1998). *Multivariate Data Analysis*: Prentice Hall.

Hair, J. F., Black, W. C. and Babin, B. J., (2010). *Multivariate Data Analysis: A Global Perspective*: Pearson Education.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E., (2013). *Multivariate Data Analysis*: Pearson Education Limited.

Halpern, P., Kieschnick, R. and Rotenberg, W., (1999). "On the heterogeneity of leveraged going private transactions." *Review of Financial Studies*, 12(2): 281-309.

Hambrick, D. C. and D'Aveni, R. A., (1992). "Top team deterioration as part of the downward spiral of large corporate bankruptcies." *Management Science*, 38(10): 1445-1466.

Han, H., Hsu, L.-T. J. and Lee, J.-S., (2009). "Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process." *International Journal of Hospitality Management*, 28(4): 519-528.

Harris, M. and Raviv, A., (1988). "Corporate governance: Voting rights and majority rules." *Journal of Financial Economics*, 20(0): 203-235.

Harris, M. and Raviv, A., (2008). "A theory of board control and size." *Review of Financial Studies*, 21(4): 1797-1832.

Hartzell, J. C., Ofek, E. and Yermack, D., (2004). "What's In It for Me? CEOs Whose Firms Are Acquired." *Review of Financial Studies*, 17(1): 37-61.

Hashim, U. J. and Abdul Rahman, R., (2011). Board independence, board diligence, board expertise and impact on audit report lag in Malaysian market. Finance and Corporate Governance Conference.

Hayduk, L., Cummings, G., Boadu, K., Pazderka-Robinson, H. and Boulianne, S., (2007). "Testing! testing! one, two, three–Testing the theory in structural equation models!" *Personality and Individual Differences*, 42(5): 841-850.

Hayes, A. F., (2009). "Beyond Baron and Kenny: Statistical mediation analysis in the new millennium." *Communication monographs*, 76(4): 408-420.

Hayes, A. F., (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*: Guilford Press.

He, D., Yang, D. C. and Guan, L., (2010). "Earnings management and the performance of seasoned private equity placements: Evidence from Japanese issuers." *Managerial Auditing Journal*, 25(6): 569-590.

He, L., Labelle, R., Piot, C. and Thornton, D. B., (2009). "Board monitoring, audit committee effectiveness, and financial reporting quality: Review and synthesis of empirical evidence." *Journal of Forensic & Investigative Accounting*, 1(2).

Healy, P. M., (1985). "The effect of bonus schemes on accounting decisions." *Journal of Accounting and Economics*, 7(1): 85-107.

Healy, P. M., Hutton, A. P. and Palepu, K. G., (1999). "Stock performance and intermediation changes surrounding sustained increases in disclosure*." *Contemporary Accounting Research*, 16(3): 485-520.

Hermalin, B. E. and Weisbach, M. S., (1988). "The Determinants of Board

Composition." *The Rand Journal of Economics*, 19(4): 589-606.

Hermalin, B. E. and Weisbach, M. S., (1991). "The effects of board composition and direct incentives on firm performance." *Financial Management*, 20(4): 101-112.

Hermalin, B. E. and Weisbach, M. S., (1998). "Endogenously chosen boards of directors and their monitoring of the CEO." *American Economic Review*: 96-118.

Hermalin, B. E. and Weisbach, M. S., (2001). *Boards of directors as an endogenously determined institution: A survey of the economic literature*: National Bureau of Economic Research.

Hillman, A. J., Cannella, A. A. and Paetzold, R. L., (2000). "The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change." *Journal of Management Studies*, 37(2): 235-256.

Hillman, A. J. and Dalziel, T., (2003). "Boards of directors and firm performance: Integrating agency and resource dependence perspectives." *Academy of Management Review*, 28(3): 383-396.

Hillman, A. J., Withers, M. C. and Collins, B. J., (2009). "Resource dependence theory: A review." *Journal of Management*, 35(6): 1404-1427.

Himmelberg, C. P., Hubbard, R. G. and Palia, D., (1999). "Understanding the determinants of managerial ownership and the link between ownership and performance." *Journal of Financial Economics*, 53(3): 353-384.

Hirshleifer, D., (1993). "Managerial Reputation and Corporate Investment Decisions." *Financial Management*, 22(2): 145-160.

Hirshleifer, D. and Titman, S., (1990). "Share Tendering Strategies and the Success of Hostile Takeover Bids." *Journal of Political Economy*, 98(2): 295-324.

Hitt, M. A., Hoskisson, R. E. and Kim, H., (1997). "International diversification: Effects on innovation and firm performance in product-diversified firms." *Academy of Management Journal*, 40(4): 767-798.

Holbert, R. L. and Stephenson, M. T., (2003). "The importance of indirect effects in media effects research: Testing for mediation in structural equation modeling." *Journal of Broadcasting & Electronic Media*, 47(4): 556-572.

Holderness, C. G., Kroszner, R. S. and Sheehan, D. P., (1999). "Were the good old days that good? Changes in managerial stock ownership since the great depression." *The Journal of Finance*, 54(2): 435-469.

Holmbeck, G. N., (1997). "Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: examples from the child-clinical and pediatric psychology literatures." *Journal of consulting and clinical psychology*, 65(4): 599.

Hooper, D., Coughlan, J. and Mullen, M., (2008). "Structural equation modelling: Guidelines for determining model fit." *Articles*: 2.

Hox, J. and Bechger, T., (1998). "An introduction to structural equation modelling." *Family Science Review*, 11(354-373).

Hoyle, R. H., (2014). *Handbook of Structural Equation Modeling*: Guilford Publications.

Hoyle, R. H. and Smith, G. T., (1994). "Formulating clinical research hypotheses as structural equation models: a conceptual overview." *Journal of consulting and clinical psychology*, 62(3): 429.

Hsiao, C., (2003). *Analysis of Panel Data*: Cambridge University Press.

Hsu, A., O'Hanlon, J. and Peasnell, K., (2012). "The Basu measure as an indicator of conditional conservatism: Evidence from UK earnings components." *European Accounting Review*, 21(1): 87-113.

Hu, L. t. and Bentler, P. M., (1999). "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives." *Structural equation modeling: a multidisciplinary journal*, 6(1): 1-55.

Huijgen, C. and Lubberink, M., (2005). "Earnings Conservatism, Litigation and Contracting: The Case of Cross ‐ Listed Firms." *Journal of Business Finance & Accounting*, 32(7 ‐ 8): 1275-1309.

Hunt, P. A., (2009). *Structuring Mergers & Acquisitions: A Guide to Creating Shareholder Value*: Wolters Kluwer Law & Business.

Iacobucci, D., Saldanha, N. and Deng, X., (2007). "A meditation on mediation: Evidence that structural equations models perform better than regressions." *Journal of Consumer Psychology*, 17(2): 139-153.

Iatridis, G. E., (2011). "Accounting disclosures, accounting quality and conditional and unconditional conservatism." *International Review of Financial Analysis*, 20(2): 88-102.

Irwin, J. R. and McClelland, G. H., (2001). "Misleading heuristics and moderated multiple regression models." *Journal of Marketing Research*, 38(1): 100-109.

Jöreskog, K. G., (2004). On chi-squares for the independence model and fit measures in LISREL. Available at:http://www.ssicentral.com/lisrel/techdocs/ftb.pdf, [Accessed 17 July 2016].

Jöreskog, K. G. and Sörbom, D., (1989). *LISREL 7: a guide to the program and applications*: SPSS Inc.

Jaccard, J. and Wan, C. K., (1996). *LISREL approaches to interaction effects in multiple regression*: Sage Publications.

Jackling, B. and Johl, S., (2009). "Board Structure and Firm Performance: Evidence from India's Top Companies." *Corporate Governance: An International Review*, 17(4): 492-509.

Jackson, D. L., (2003). "Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis." *Structural Equation Modeling*, 10(1): 128-141.

Jaggi, B., Leung, S. and Gul, F., (2009). "Family control, board independence and earnings management: Evidence based on Hong Kong firms." *Journal of Accounting and Public Policy*, 28(4): 281-300.

Jarrell, G. A. and Poulsen, A. B., (1987). "Shark repellents and stock prices: The effects of antitakeover amendments since 1980." *Journal of Financial Economics*, 19(1): 127-168.

Jennings, R. H. and Mazzeo, M. A., (1993). "Competing bids, target management resistance, and the structure of takeover bids." *Review of Financial Studies*, 6(4): 883-909.

Jensen, M., (1986b). "The Take-over Controversy: Analysis and Evidence." *Midland Corporate Finance Journal*, 4: 323-329.

Jensen, M. C., (1986a). "Agency costs of free cash flow, corporate finance, and takeovers." *The American Economic Review*, 76(2): 323-329.

Jensen, M. C., (1993). "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems." *The Journal of Finance*, 48(3): 831-880.

Jensen, M. C. and Meckling, W. H., (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure." *Journal of Financial Economics*, 3(4): 305-360.

Jensen, M. C. and Murphy, K. J., (1990). "Performance Pay and Top-Management Incentives." *Journal of Political Economy*, 98(2): 225-264.

Jensen, M. C. and Ruback, R. S., (1983). "The Market for Corporate Control: The Scientific Evidence." *Journal of financial economics*, 11(1-4): 5-50.

Jiraporn, P., Davidson III, W. N. and Qian, H., (2004). "MBO withdrawals and determinants of stockholders' wealth." *Quarterly Journal of Business and Economics*: 13-29.

John, K. and Senbet, L. W., (1998). "Corporate governance and board effectiveness." *Journal of Banking & Finance*, 22(4): 371-403.

Johnson, J. L., Daily, C. M. and Ellstrand, A. E., (1996). "Boards of directors: A review and research agenda." *Journal of Management*, 22(3): 409-438.

Johnson, R. A., Hoskisson, R. E. and Hitt, M. A., (1993). "Board of director involvement in restructuring: The effects of board versus managerial controls and characteristics." *Strategic Management Journal*, 14(S1): 33-50.

Judd, C. M. and Kenny, D. A., (1981a). *Estimating the effects of social intervention*. Cambridge, UK: Cambridge University Press.

Judd, C. M. and Kenny, D. A., (1981b). "Process analysis estimating mediation in treatment evaluations." *Evaluation review*, 5(5): 602-619.

Kahneman, D. and Tversky, A., (1979). "Prospect theory: An analysis of decision under risk." *Econometrica: Journal of the Econometric Society*: 263-291.

Kang, H., Cheng, M. and Gray, S. J., (2007). "Corporate governance and board composition: Diversity and independence of Australian boards." *Corporate Governance: An International Review*, 15(2): 194-207.

Kaplan, S. N. and Strömberg, P., (2009). "Leveraged buyouts and private equity." *Journal of Economic Perspectives*, 23(1): 121-146.

Kawanishi, T., Saito, T. and Kawamoto, S., (2014). An Empirical Study on the Sources of Acquisition Premiums: The Case of Management Buy-outs in Japan. Available at:http://www.meijigakuin.ac.jp/econ/academics/publications/pdf/201305.pdf, [Accessed 22 Jan 2016].

Keasey, K., Thompson, S. & Wright, M., (2005). "Corporate Governance : Accountability, Enterprise and International Comparisons."

Keil, P., (2005). Principal agent theory and its application to analyze outsourcing of software development, ACM.

Kenny, D. A., (2008). "Reflections on mediation." *Organizational Research Methods*, 11(2): 353-358.

Kenny, D. A., (2014, 6 Oct). "Measuring Model Fit." Retrieved 22 Nov, 2015, from http://davidakenny.net/cm/fit.htm.

Kenny, D. A., Kashy, D. A. and Bolger, N., (1998). Data analysis in social psychology. in D. Gilbert, Fiske, S.T., Lindzey, G. (ed.), *Handbook of Social Psychology*. New York: McGraw Hill. 1**:** pp. 233-265.

Khan, M. and Watts, R. L., (2009). "Estimation and empirical properties of a firm-year measure of accounting conservatism." *Journal of Accounting and Economics*, 48(2): 132-150.

Kim, D.-S. and Dong-Ku, S., (1999). "A standardization technique to reduce the problem of multicollinearity in polynomial regression analysis." *Bulletin of the International Statistical Institute, 52 Session, Tome LVIII, Finland*.

Kim, J.-S., Kaye, J. and Wright, L. K., (2001). "Moderating and mediating effects in causal models." *Issues in Mental Health Nursing*, 22(1): 63-75.

Kim, K.-H., Al-Shammari, H. A., Kim, B. and Lee, S.-H., (2009). "CEO duality leadership and corporate diversification behavior." *Journal of Business Research*, 62(11): 1173-1180.

Kim, S. K. and Suh, Y. S., (1992). "Conditional monitoring policy under moral hazard." *Management Science*: 1106-1120.

Kim, Y., (2005). "Board network characteristics and firm performance in Korea." *Corporate Governance: An International Review*, 13(6): 800-808.

Kirkpatrick, I., Vallascas, F. and Veronesi, G., (2015). "Board human capital, business expertise and the performance of public service organizations." *Academy of Management Proceedings*, 2015(1): 10791.

Klein, A., (1998). "Firm performance and board committee structure 1." *The Journal of Law and Economics*, 41(1): 275-304.

Klein, A., (2002a). "Audit committee, board of director characteristics, and earnings management." *Journal of Accounting and Economics*, 33(3): 375-400.

Klein, A., (2002b). "Economic determinants of audit committee independence." *The Accounting Review*, 77(2): 435-452.

Kline, R. B., (2011). *Principles and Practice of Structural Equation Modeling*: Guilford Press.

Kline, R. B., (2015). *Principles and Practice of Structural Equation Modeling, Fourth Edition*: Guilford Publications.

Kole, S., (1996). "Managerial ownership and firm performance: incentives or rewards?" *Advances in Financial Economics*, 2.

Kor, Y. Y. and Misangyi, V. F., (2008). "Outside directors' industry - specific experience and firms' liability of newness." *Strategic Management Journal*, 29(12): 1345-1355.

Kor, Y. Y. and Sundaramurthy, C., (2009). "Experience-Based Human Capital and Social Capital of Outside Directors." *Journal of Management*, 35(4): 981-1006.

Kosnik, R. D., (1990). "Effects of Board Demography and Directors' Incentives on Corporate Greenmail Decisions." *The Academy of Management Journal*, 33(1): 129-150.

Kothari, S. P., Shu, S. and Wysocki, P. D., (2009). "Do managers withhold bad news?" *Journal of Accounting Research*, 47(1): 241-276.

Krishnan, G. and Visvanathan, G., (2009). "Do auditors price audit committee's expertise? The case of accounting versus nonaccounting financial experts." *Journal of Accounting, Auditing & Finance*, 24(1): 115-144.

Krishnan, G. V. and Visvanathan, G., (2007). Does the SOX definition of an accounting expert matter? The association between audit committee directors' accounting expertise and accounting conservatism. Available at:http://papers.ssrn.com/sol3/papers.cfm?abstract_id=866884&download=ye

s, [Accessed 17 July 2016].

Krishnan, G. V. and Visvanathan, G., (2008). "Does the sox definition of an accounting expert matter? The association between audit committee directors' accounting expertise and accounting conservatism*." *Contemporary Accounting Research*, 25(3): 827-858.

Krivogorsky, V., (2006). "Ownership, board structure, and performance in continental Europe." *The International Journal of Accounting*, 41(2): 176-197.

Kroll, M., Walters, B. A. and Wright, P., (2008). "Board vigilance, director experience, and corporate outcomes." *Strategic Management Journal*, 29(4): 363-382.

Kuiper, S., (2008). "Introduction to Multiple Regression: How Much Is Your Car Worth?" *Journal of Statistics Education*, 16(3).

Kumar, N. and Singh, J., (2013). "Effect of board size and promoter ownership on firm value: some empirical findings from India." *Corporate Governance: The international journal of business in society*, 13(1): 88-98.

Lafond, R. and Roychowdhury, S., (2008). "Managerial ownership and accounting conservatism." *Journal of Accounting Research*, 46(1): 101-135.

LaFond, R. and Watts, R. L., (2008). "The information role of conservatism." *The Accounting Review*, 83(2): 447-478.

Langley, A., (1997). *Senior Executives and Their Long Term Incentive Plans*: Pitman Publishing.

Lara, J. G., Osma, B. G. and Penalva, F., (2009). "Accounting conservatism and corporate governance." *Review of Accounting Studies*, 14(1): 161-201.

Lara, J. M. G., Osma, B. G. and Penalva, F., (2007). "Board of directors' characteristics and conditional accounting conservatism: Spanish evidence." *European Accounting Review*, 16(4): 727-755.

Lara, J. M. G., Osma, B. G. and Penalva, F., (2011). "Conditional conservatism and cost of capital." *Review of Accounting Studies*, 16(2): 247-271.

Larcker, D. F. and Rusticus, T. O., (2010). "On the use of instrumental variables in accounting research." *Journal of Accounting and Economics*, 49(3): 186-205.

Larmou, S. and Vafeas, N., (2010). "The relation between board size and firm performance in firms with a history of poor operating performance." *Journal of Management & Governance*, 14(1): 61-85.

Lasfer, M. A., (2006). "The Interrelationship Between Managerial Ownership and Board Structure." *Journal of Business Finance & Accounting*, 33(7-8): 1006-1033.

Lawrence, A., Minutti-Meza, M. and Zhang, P., (2011). "Can Big 4 versus Non-Big 4 Differences in Audit-Quality Proxies Be Attributed to Client Characteristics?" *The Accounting Review*.

Lee, H.-Y., (2008). "The association between audit committee and board of director effectiveness and changes in the nonaudit fee ratio." *Applied Financial Economics*, 18(8): 629-638.

Lee, J., (2009). "Executive performance-based remuneration, performance change and board structures." *The International Journal of Accounting*, 44(2): 138-162.

Lefort, F. and Urzúa, F., (2008). "Board independence, firm performance and ownership concentration: Evidence from Chile." *Journal of Business Research*, 61(6): 615-622.

Lehn, K. M., Patro, S. and Zhao, M., (2009). "Determinants of the Size and Composition of US Corporate Boards: 1935 ‐ 2000." *Financial Management*, 38(4): 747-780.

Leland, H. E. and Pyle, D. H., (1977). "Informational Asymmetries, Financial Structure, and Financial Intermediation." *The Journal of Finance*, 32(2): 371-387.

Lemieux ‐ Charles, L., Murray, M., Ross Baker, G., Barnsley, J., Tasa, K. and Ibrahim, S. A., (2002). "The effects of quality improvement practices on team effectiveness: a mediational model." *Journal of Organizational Behavior*, 23(5): 533-553.

Leuz, C., Nanda, D. and Wysocki, P. D., (2003). "Earnings management and investor protection: an international comparison." *Journal of Financial Economics*, 69(3): 505-527.

Levi, M., Li, K. and Zhang, F., (2014). "Director gender and mergers and acquisitions." *Journal of Corporate Finance*, 28(0): 185-200.

Levrau, A. and Van den Berghe, L. A. A., (2007). "Corporate governance and

Board Effectiveness: beyond formalism." *ICFAI Journal of Corporate Governance*, 6(4): 58-85.

Lewis, M., (2012). *Applied Statistics for Economists*: Routledge.

Lichtenstein, S., Higgins, L. and Dade, P., (2011). Integrity in the Boardroom: A Case for Further Research. in (ed.), *Corporate Governance and Business Ethics*: Springer: pp. 307-326.

Lim, R., (2011). "Are corporate governance attributes associated with accounting conservatism?" *Accounting & Finance*, 51(4): 1007-1030.

Linck, J. S., Netter, J. M. and Yang, T., (2008). "The determinants of board structure." *Journal of Financial Economics*, 87(2): 308-328.

Lipton, M. and Lorsch, J. W., (1992). "A modest proposal for improved corporate governance." *The business lawyer*: 59-77.

Liti, S., (2014). *Current business english usage: Lexical tests for advanced students*: EDUCatt Università Cattolica.

Lobo, G. J. and Zhou, J., (2006). "Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence." *Accounting horizons*, 20(1): 57-73.

Long, W. F. and Ravenscraft, D. J., (1993). "LBOs, debt and R&D intensity." *Strategic Management Journal*, 14(S1): 119-135.

Lowenstein, L., (1985). "Management Buyouts." *Columbia Law Review*, 85(4): 730-784.

Luoma, P. and Goodstein, J., (1999). "Research Notes. Stakeholders and corporate boards: Institutional influences on board composition and structure." *Academy of Management Journal*, 42(5): 553-563.

MacCallum, R. C., Browne, M. W. and Sugawara, H. M., (1996). "Power analysis and determination of sample size for covariance structure modeling." *Psychological methods*, 1(2): 130.

MacCallum, R. C., Zhang, S., Preacher, K. J. and Rucker, D. D., (2002). "On the practice of dichotomization of quantitative variables." *Psychological methods*, 7(1): 19.

Mace, M., (1986). "Directors: Myth and Reality (Boston, MA: Harvard Business

School Press)." *MaceDirectors: Myth and Reality1986*.

MacKinnon, D. P., Fairchild, A. J. and Fritz, M. S., (2007). "Mediation Analysis." *Annual Review of Psychology*, 58(1): 593-614.

MacKinnon, D. P., Warsi, G. and Dwyer, J. H., (1995). "A simulation study of mediated effect measures." *Multivariate Behavioral Research*, 30(1): 41-62.

Maheswaran, K. and Pinder, S., (2005). "Australian evidence on the determinants and impact of takeover resistance." *Accounting & Finance*, 45(4): 613-633.

Mallin, C., Mullineux, A. and Wihlborg, C., (2005). "The Financial Sector and Corporate Governance: the UK case." *Corporate Governance: An International Review*, 13(4): 532-541.

Mande, V., Park, Y. K. and Son, M., (2012). "Equity or Debt Financing: Does Good Corporate Governance Matter?" *Corporate Governance: An International Review*, 20(2): 195-211.

Manganaris, P., Spathis, C. and Dasilas, A., (2015). "Journal of International Accounting, Auditing and Taxation." *Journal of International Accounting, Auditing and Taxation*, 24: 72-81.

Mao, Y. and Renneboog, L., (2015). "Do managers manipulate earnings prior to management buyouts?" *Journal of Corporate Finance*, 35: 43-61.

Marsh, H. W., Balla, J. R. and McDonald, R. P., (1988). "Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size." *Psychological bulletin*, 103(3): 391.

Maury, B., (2006). "Family ownership and firm performance: Empirical evidence from Western European corporations." *Journal of Corporate Finance*, 12(2): 321-341.

McGuire, J. B., (1988). "Agency theory and organizational analysis." *Managerial Finance*, 14(4): 6-9.

McNichols, M. and Stubben, S., (2014). "The effect of target-firm accounting quality on valuation in acquisitions." *Review of accounting studies*: 1-31.

McNichols, M. F. and Stubben, S. R., (2009). "The role of target firms' accounting information in acquisitions."

Mehdi Karimimalayer, A. and Anuar, M. K., (2012). "Structural equation modeling VS multiple regression. The first and second generation of multivariate techniques." *Engineering Science and Technology: An International Journal*, 2(2): 326-329.

Mehran, H., (1995). "Executive compensation structure, ownership, and firm performance." *Journal of Financial Economics*, 38(2): 163-184.

Moeller, T., (2005). "Let's make a deal! How shareholder control impacts merger payoffs." *Journal of Financial Economics*, 76(1): 167-190.

Moore, G., (2012). "Virtue in business: Alliance boots and an empirical exploration of MacIntyre’s conceptual framework." *Organization Studies*, 33(3): 363-387.

Mora, M., (2012). *Research Methodologies, Innovations and Philosophies in Software Systems Engineering and Information Systems*: Information Science Reference.

Morck, R., Shleifer, A. and Vishny, R. W., (1988a). Characteristics of targets of hostile and friendly takeovers. in A. J. Auerbach (ed.), *Corporate takeovers: Causes and consequences*. Chicago: University of Chicago Press: pp. 101-136.

Morck, R., Shleifer, A. and Vishny, R. W., (1988b). "Management ownership and market valuation: An empirical analysis." *Journal of financial economics*, 20: 293-315.

Mueller, E. and Spitz‐Oener, A., (2006). "Managerial ownership and company performance in German small and medium‐sized private enterprises." *German Economic Review*, 7(2): 233-247.

Mukherjee, C., White, H. and Wuyts, M., (2013). *Econometrics and Data Analysis for Developing Countries*: Taylor & Francis.

Munro, B. H., (2005). *Statistical Methods for Health Care Research*: Lippincott Williams & Wilkins.

Muth, M. and Donaldson, L., (1998). "Stewardship theory and board structure: a contingency approach." *Corporate Governance: An International Review*, 6(1): 5-28.

Muthén, L. K. and Muthén, B. O., (1998). "Mplus user’s guide: The comprehensive modeling program for applied researchers." *Los Angeles: Muthën & Muthën*.

Nadler, D. A. and Tushman, M. L., (1980). "A model for diagnosing organizational behavior." *Organizational Dynamics*, 9(2): 35-51.

Nash, A., (2011). *The MBO Guide for Management Teams 2e: Real-life lessons from 20 years in the front line of private equity*: Harriman House Limited.

Nayak, B. K., (2010). "Understanding the relevance of sample size calculation." *Indian journal of ophthalmology*, 58(6): 469.

Nevitt, J. and Hancock, G. R., (2004). "Evaluating small sample approaches for model test statistics in structural equation modeling." *Multivariate Behavioral Research*, 39(3): 439-478.

Nguyen, B. D., (2012). "Does the Rolodex matter? Corporate elite's small world and the effectiveness of boards of directors." *Management science*, 58(2): 236-252.

Nicholson, G. J. and Kiel, G. C., (2004). "A framework for diagnosing board effectiveness." *Corporate Governance: An International Review*, 12(4): 442-460.

Nicholson, G. J. and Kiel, G. C., (2007). "Can Directors Impact Performance? A case-based test of three theories of corporate governance." *Corporate Governance: An International Review*, 15(4): 585-608.

Nikoskelainen, E. and Wright, M., (2007). "The impact of corporate governance mechanisms on value increase in leveraged buyouts." *Journal of Corporate Finance*, 13(4): 511-537.

O'connell, V., (2006). "The impact of accounting conservatism on the compensation relevance of UK earnings." *European Accounting Review*, 15(4): 627-649.

O'Donnell, C., Cook, J. M., Thompson, R., Riley, K. and Neria, Y., (2006). "Verbal and physical aggression in World War II former prisoners of war: Role of posttraumatic stress disorder and depression." *Journal of Traumatic Stress*, 19(6): 859-866.

Olsson, U. H., Foss, T. and Breivik, E., (2004). "Two equivalent discrepancy functions for maximum likelihood estimation: Do their test statistics follow a non-central chi-square distribution under model misspecification?" *Sociological Methods & Research*, 32(4): 453-500.

Osborne, J. W., (2012). *Best Practices in Data Cleaning: A Complete Guide to Everything You Need to Do Before and After Collecting Your Data*: SAGE Publications.

Ozkan, N., (2011). "CEO Compensation and Firm Performance: an Empirical Investigation of UK Panel Data." *European Financial Management*, 17(2): 260-285.

Pacini, C., Hillison, W. and Marlett, D., (2008). "Board size and firm performance in the propertyliability insurance industry." *Research in Finance*, 24: 249-285.

Pahuja, A., (2011). "Linkage Between Board Effectiveness and Quality of Corporate Governance: Indian Evidence." *IUP Journal of Corporate Governance*, 10(3): 7.

Patatoukas, P. N. and Thomas, J. K., (2011). "More evidence of bias in the differential timeliness measure of conditional conservatism." *The Accounting Review*, 86(5): 1765-1793.

Patton, A. and Baker, J. C., (1987). "Why won't directors rock the boat?" *Harvard Business Review*, 65(6): 10-18.

Payne, G. T., Benson, G. S. and Finegold, D. L., (2009). "Corporate board attributes, team effectiveness and financial performance." *Journal of Management Studies*, 46(4): 704-731.

Pearce, J. A. and Zahra, S. A., (1992). "Board composition from a strategic contingency perspective." *Journal of Management Studies*, 29(4): 411-438.

Pearson, R. K., (2005). *Mining Imperfect Data: Dealing with Contamination and Incomplete Records*: Society for Industrial and Applied Mathematics (SIAM, 3600 Market Street, Floor 6, Philadelphia, PA 19104).

Peasnell, K. V., Pope, P. and Young, S., (2000). "Accrual management to meet earnings targets: UK evidence pre-and post-Cadbury." *The British Accounting Review*, 32(4): 415-445.

Peasnell, K. V., Pope, P. F. and Young, S., (2003). "Managerial equity ownership and the demand for outside directors." *European Financial Management*, 9(2): 231-250.

Peasnell, K. V., Pope, P. F. and Young, S., (2005). "Board monitoring and earnings management: do outside directors influence abnormal accruals?"

Journal of Business Finance & Accounting, 32(7‐8): 1311-1346.

Pedhazur, E. J., (1997). *Multiple Regression in Behavioral Research: Explanation and Prediction*: Harcourt Brace College Publishers.

Pedhazur, E. J. and Schmelkin, L. P., (2013). *Measurement, Design, and Analysis: An Integrated Approach*: Taylor & Francis.

Perry, S. E. and Williams, T. H., (1994). "Earnings management preceding management buyout offers." *Journal of Accounting and Economics*, 18(2): 157-179.

Pfeffer, J., (1972). "Size and composition of corporate boards of directors: The organization and its environment." *Administrative science quarterly*: 218-228.

Pfeffer, J., (1973). "Size, composition, and function of hospital boards of directors: A study of organization-environment linkage." *Administrative science quarterly*: 349-364.

Pfeffer, J. and Salancik, G. R., (1978). *The external control of organisations: a resource dependence perspective*. New York: Harper and Row.

Pfeffer, J. A., (2003). *The external control of organizations: A resource dependence perspective*: Stanford University Press.

Phillips, J. S. and Levitin, M. J., (2010). The role of the board in mergers & acquisitions. Available at:http://www.srr.com/assets/pdf/role-board-mergers-acquisitions.pdf, [Accessed 24 June 2016].

Press, E. G. and Weintrop, J. B., (1990). "Accounting-based constraints in public and private debt agreements: Their association with leverage and impact on accounting choice." *Journal of Accounting and Economics*, 12(1): 65-95.

PricewaterhouseCoopers, (2012). IFRS and US GAAP: Similarities and Differences Available at:https://www.pwc.com/us/en/issues/ifrs-reporting/publications/assets/ifrs-and-us-gaap-similarities-and-differences-2014.pdf, [Accessed 17 July 2016].

Pugliese, A., Bezemer, P.-J., Zattoni, A., Huse, M., Van den Bosch, F. A. J. and Volberda, H. W., (2009). "Boards of Directors' Contribution to Strategy: A Literature Review and Research Agenda." *Corporate Governance: An International Review*, 17(3): 292-306.

Qiang, X., (2007). "The effects of contracting, litigation, regulation, and tax costs on conditional and unconditional conservatism: cross-sectional evidence at the firm level." *The Accounting Review*, 82(3): 759-796.

Raheja, C. G., (2005). "Determinants of board size and composition: A theory of corporate boards." *Journal of Financial and Quantitative Analysis*, 40(02): 283-306.

Ramalingegowda, S. and Yu, Y., (2012). "Institutional ownership and conservatism." *Journal of Accounting and Economics*, 53(1): 98-114.

Rechner, P. L. and Dalton, D. R., (1991). "CEO duality and organizational performance: A longitudinal analysis." *Strategic Management Journal*, 12(2): 155-160.

Renneboog, L., Simons, T. and Wright, M., (2007). "Why do public firms go private in the UK? The impact of private equity investors, incentive realignment and undervaluation." *Journal of Corporate Finance*, 13(4): 591-628.

Report, C., (1992). The report of the committee on the financial aspects of corporate governance London.

Rindova, V. P., (1999). "What corporate boards have to do with strategy: A cognitive perspective." *Journal of Management Studies*, 36(7): 953-975.

Ro, H., (2012). "Moderator and mediator effects in hospitality research." *International Journal of Hospitality Management*, 31(3): 952-961.

Roberts, J., McNulty, T. and Stiles, P., (2005). "Beyond Agency Conceptions of the Work of the Non-Executive Director: Creating Accountability in the Boardroom." *British Journal of Management*, 16: S5-S26.

Roberts, M. R. and Whited, T. M., (2012). Endogeneity in empirical corporate finance. 1-97 Available at:http://papers.ssrn.com/sol3/Papers.cfm?abstract_id=1748604, [Accessed 14 July 2016].

Robinson, C. and Schumacker, R. E., (2009). "Interaction effects: centering, variance inflation factor, and interpretation issues." *Multiple Linear Regression Viewpoints*, 35(1): 6-11.

Roche, O. P., (2009). *Corporate governance & organization life cycle : the changing role and composition of the board of directors*. Amherst, N.Y.: Cambria Press.

Rose, B. M., Holmbeck, G. N., Coakley, R. M. and Franks, E. A., (2004). "Mediator and moderator effects in developmental and behavioral pediatric research." *Journal of Developmental & Behavioral Pediatrics*, 25(1): 58-67.

Rosenstein, S. and Wyatt, J. G., (1990). "Outside directors, board independence, and shareholder wealth." *Journal of Financial Economics*, 26(2): 175-191.

Rosenstein, S. and Wyatt, J. G., (1997). "Inside directors, board effectiveness, and shareholder wealth." *Journal of Financial Economics*, 44(2): 229-250.

Roussos, L. A. and Stout, W. F., (1996). "Simulation Studies of the Effects of Small Sample Size and Studied Item Parameters on SIBTEST and Mantel - Haenszel Type I Error Performance." *Journal of Educational Measurement*, 33(2): 215-230.

Roychowdhury, S. and Watts, R. L., (2007). "Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting." *Journal of Accounting and Economics*, 44(1): 2-31.

Sánchez, A. A., Marín, G. S. and Morales, A. M., (2015). "The mediating effect of strategic human resource practices on knowledge management and firm performance." *Revista Europea de Dirección y Economía de la Empresa*.

Saam, N. J., (2007). "Asymmetry in information versus asymmetry in power: Implicit assumptions of agency theory?" *Journal of Socio-Economics*, 36(6): 825-840.

Sanders, G., (2001). "Behavioral Responses of CEOs to Stock Ownership and Stock Option Pay." *The Academy of Management Journal*, 44(3): 477-492.

Sanders, W. G. and Carpenter, M. A., (1998). "Internationalization and firm governance: The roles of CEO compensation, top team composition, and board structure." *Academy of Management Journal*, 41(2): 158-178.

Schepers, J. and Wetzels, M., (2007). "A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects." *Information & Management*, 44(1): 90-103.

Schillhofer, A., (2003). Corporate governance and expected stock returns : Empirical Evidence from Germany. Wiesbaden, Dt. Univ.-Verl.

Schroeder, R. G., Clark, M. and Cathey, J. M., (2010). *Financial accounting theory and analysis : text and cases*. Hoboken, N.J.: Wiley.

Schwab, D. P., (2013). *Research Methods for Organizational Studies*: Taylor & Francis.

Shleifer, A. and Vishny, R. W., (1986). "Large shareholders and corporate control." *The Journal of Political Economy*: 461-488.

Shleifer, A. and Vishny, R. W., (1987). Management buyouts as a response to market pressure. in (ed.), *Mergers and acquisitions*: University Of Chicago Press: pp. 87-102.

Shleifer, A. and Vishny, R. W., (1997). "A survey of corporate governance." *The journal of finance*, 52(2): 737-783.

Short, H. and Keasey, K., (1999). "Managerial Ownership and the Performance of Firms: Evidence from the UK." *Journal of corporate finance*, 5(1): 79-101.

Shrivastava, P., (1986). "Postmerger integration." *Journal of business strategy*, 7(1): 65-76.

Shrout, P. E. and Bolger, N., (2002). "Mediation in experimental and nonexperimental studies: new procedures and recommendations." *Psychological methods*, 7(4): 422.

Shukeri, S. N., Shin, O. W. and Shaari, M. S., (2012). "Does board of director's characteristics affect firm performance? Evidence from Malaysian public listed companies." *International Business Research*, 5(9): 120.

Shuto, A. and Takada, T., (2010). "Managerial ownership and accounting conservatism in Japan: A test of management entrenchment effect." *Journal of Business Finance & Accounting*, 37(7 - 8): 815-840.

Singh, J. V., House, R. J. and Tucker, D. J., (1986). "Organizational change and organizational mortality." *Administrative science quarterly*: 587-611.

Sitkin, S. B. and Weingart, L. R., (1995). "Determinants of risky decision-making behavior: A test of the mediating role of risk perceptions and propensity." *Academy of Management Journal*, 38(6): 1573-1592.

Smith, J. L., (2008). *The Auditor's Loss Function and Investors' Perceptions of Audit Effectiveness: Effects of Regulatory Change*: ProQuest.

Sobel, M. E., (1982). "Asymptotic confidence intervals for indirect effects in structural equation models." *Sociological methodology*, 13(1982): 290-312.

Solomon, J., (2013). *Corporate Governance and Accountability*: Wiley.

Song, M. H. and Walkling, R. A., (1993). "The Impact of Managerial Ownership on Acquisition Attempts and Target Shareholder Wealth." *The Journal of Financial and Quantitative Analysis*, 28(4): 439-457.

Spector, P. E. and Brannick, M. T., (2011). "Methodological urban legends: The misuse of statistical control variables." *Organizational Research Methods*, 14(2): 287-305.

Sprinkle, G. B., (2000). "The effect of incentive contracts on learning and performance." *Accounting Review*: 299-326.

Sproull, N. L., (2002). *Handbook of Research Methods: A Guide for Practitioners and Students in the Social Sciences*: Scarecrow Press.

Sridharan, U. V. and Reinganum, M. R., (1995). "Determinants of the choice of the hostile takeover mechanism: An empirical analysis of tender offers and proxy contests." *Financial Management*: 57-67.

St-Pierre, J., Gagnon, J.-M. and Saint-Pierre, J., (1996). "Concentration of voting rights and board resistance to takeover bids." *Journal of Corporate Finance*, 3(1): 45-73.

Staiger, D. O. and Stock, J. H., (1994). Instrumental variables regression with weak instruments, National Bureau of Economic Research Cambridge, Mass., USA.

Stock, J. and Yogo, M., (2005). Testing for Weak Instruments in Linear IV Regression. in W. K. A. Donald (ed.), *Identification and Inference for Econometric Models*. New York: Cambridge University Press: pp. 80-108.

Strömsten, T. and Waluszewski, A., (2012). "Governance and resource interaction in networks. The role of venture capital in a biotech start-up." *Journal of Business Research*, 65(2): 232-244.

Stulz, R., (1988). "Managerial control of voting rights: Financing policies and the market for corporate control." *Journal of Financial Economics*, 20: 25-54.

Sudarsanam, S. and Sorwar, G., (2010). "Determinants of Takeover Premium in Cash Offers: An Option Pricing Approach." *Journal of Business Finance & Accounting*, 37(5-6): 687-714.

Summers, S. L. and Sweeney, J. T., (1998). "Fraudulently misstated financial statements and insider trading: an empirical analysis." *Accounting Review*: 131-146.

Tabachnick, B. G. and Fidell, L. S., (2007). *Using Multivariate Statistics*: Pearson/Allyn & Bacon.

Tabachnick, B. G. and Fidell, L. S., (2013). *Using Multivariate Statistics*: Pearson Education.

Tiggemann, M., (1997). "Dieting in Moderation The Role of Dietary Restraint in the Relationship between Body Dissatisfaction and Psychological Well-being." *Journal of Health Psychology*, 2(4): 501-507.

Tomarken, A. J. and Waller, N. G., (2005). "Structural equation modeling: Strengths, limitations, and misconceptions." *Annu. Rev. Clin. Psychol.*, 1: 31-65.

Toms, S. and Wright, M., (2005). "Divergence and Convergence within Anglo-American Corporate Governance Systems: Evidence from the US and UK, 1950–2000." *Business History*, 47(2): 267-295.

Tricker, B., (2009). *Corporate Governance Principles, Policies and Practices*: Prentice Hall.

Tufano, P., (1996). "Who manages risk? An empirical examination of risk management practices in the gold mining industry." *the Journal of Finance*, 51(4): 1097-1137.

Tuggle, C. S., Schnatterly, K. and Johnson, R. A., (2010). "Attention patterns in the boardroom: How board composition and processes affect discussion of entrepreneurial issues." *Academy of Management Journal*, 53(3): 550-571.

Turk, T. A., (1992). "Takeover Resistance, Information Leakage, and Target Firm Value." *Journal of Management*, 18(3): 503-522.

Vafeas, N., (2003). "Length of board tenure and outside director independence." *Journal of Business Finance & Accounting*, 30(7 ‐ 8): 1043-1064.

Vafeas, N., (2005). "Audit Committees, Boards, and the Quality of Reported Earnings." *Contemporary Accounting Research*, 22(4): 1093-1122.

Vallascas, F. and Hagendorff, J., (2013). "CEO bonus compensation and bank default risk: evidence from the US and Europe." *Financial Markets, Institutions & Instruments*, 22(2): 47-89.

Valluzzi, J., Larson, S. and Miller, G., (2003). Indications and limitations of structural equation modeling in complex surveys: Implications for an application in the Medical Expenditure Panel Survey (MEPS). 4345-4352 Available at:http://www.amstat.org/sections/srms/proceedings/y2003/files/jsm2003-000198.pdf, [Accessed 17 July 2016].

Van de Gucht, L. M. and Moore, W. T., (1998). "Predicting the duration and reversal probability of leveraged buyouts." *Journal of Empirical Finance*, 5(4): 299-315.

van der Walt, N. and Ingley, C., (2000). "Evaluating board effectiveness: The changing context of strategic governance." *Journal of Change Management*, 1(4): 313-331.

Van Ees, H., Gabrielsson, J. and Huse, M., (2009). "Toward a Behavioral Theory of Boards and Corporate Governance." *Corporate Governance: An International Review*, 17(3): 307-319.

Vancil, R. F., (1987). *Passing the baton: Managing the process of CEO succession*: Harvard Business School Pr.

Vandenberg, R. J., Richardson, H. A. and Eastman, L. J., (1999). "The impact of high involvement work processes on organizational effectiveness a second-order latent variable approach." *Group & Organization Management*, 24(3): 300-339.

Veenman, D., Hodgson, A., Van Praag, B. and Zhang, W., (2011). "Decomposing executive stock option exercises: Relative information and incentives to manage earnings." *Journal of Business Finance & Accounting*, 38(5‐6): 536-573.

Walkling, R. A. and Long, M. S., (1984). "Agency Theory, Managerial Welfare, and Takeover Bid Resistance." *The Rand Journal of Economics*, 15(1): 54-68.

Wan, D. and Ong, C. H., (2005). "Board Structure, Process and Performance: evidence from public‐listed companies in Singapore." *Corporate Governance: An International Review*, 13(2): 277-290.

Wang, D., (2006). "Founding family ownership and earnings quality." *Journal of Accounting Research*, 44(3): 619-656.

Warfield, T. D., Wild, J. J. and Wild, K. L., (1995). "Managerial ownership, accounting choices, and informativeness of earnings." *Journal of Accounting and Economics*, 20(1): 61-91.

Watts, R. and Zimmerman, J., (1986). *Positive accounting theory*: Englewood Cliffs, NJ: Prentice Hall.

Watts, R. L., (2003a). "Conservatism in accounting part I: Explanations and implications." *Accounting horizons*, 17(3): 207-221.

Watts, R. L., (2003b). "Conservatism in accounting part II: Evidence and research opportunities." *Accounting horizons*, 17(4): 287-301.

Watts, R. L., (2006). "What has the invisible hand achieved?" *Accounting and Business Research*, 36(sup1): 51-61.

Watts, R. L. and Zimmerman, J. L., (1978). "Towards a positive theory of the determination of accounting standards." *Accounting Review*: 112-134.

Weir, C., Jones, P. and Wright, M., (2013). "Public to private transactions, private equity and financial health in the UK: an empirical analysis of the impact of going private." *Journal of Management & Governance*: 1-22.

Weir, C., Laing, D. and McKnight, P. J., (2002). "Internal and external governance mechanisms: their impact on the performance of large UK public companies." *Journal of Business Finance & Accounting*, 29(5 - 6): 579-611.

Weir, C., Laing, D. and Wright, M., (2005a). "Incentive effects, monitoring mechanisms and the market for corporate control: An analysis of the factors affecting public to private transactions in the UK." *Journal of Business Finance & Accounting*, 32(5-6): 909-943.

Weir, C., Laing, D. and Wright, M., (2005b). "Undervaluation, private information, agency costs and the decision to go private." *Applied Financial Economics*, 15(13): 947-961.

Weir, C. and Wright, M., (2006). "Governance and takeovers: are public-to-private transactions different from traditional acquisitions of listed corporations?" *Accounting and Business Research*, 36(4): 289-307.

Weisbach, M. S., (1988). "Outside directors and CEO turnover." *Journal of Financial Economics*, 20: 431-460.

Westphal, J. D. and Zajac, E. J., (1995). "Who shall govern? CEO/board power, demographic similarity, and new director selection." *Administrative science quarterly*: 60-83.

Williamson, O., (1984). "Corporate Governance." *The Yale Law Journal*, 93(7): 1197-1230.

Williamson, O. E., (1988). "Corporate Finance and Corporate Governance." *the Journal of Finance*, 43(3): 567-591.

Wooldridge, J., (2015). *Introductory Econometrics: A Modern Approach*: Cengage Learning.

Wright, M., (1991). *Buy-ins and buy-outs: new strategies in corporate management*: Graham & Trotman.

Wright, M., Renneboog, L., Simons, T. and Scholes, L., (2006). "Leveraged buyouts in the UK and Continental Europe: Retrospect and Prospect." *Journal of Applied Corporate Finance*, 18(3): 38-55.

Wright, M., Thompson, S., Chiplin, B. and Robbie, K., (1991). *Buy-ins and Buy-outs: New Strategies in Corporate Management*: Graham & Trotman.

Wu, Y., (2004). "The impact of public opinion on board structure changes, director career progression, and CEO turnover: evidence from CalPERS'corporate governance program." *Journal of Corporate Finance*, 10(1): 199-227.

Xie, B., Davidson Iii, W. N. and DaDalt, P. J., (2003). "Earnings management and corporate governance: the role of the board and the audit committee." *Journal of Corporate Finance*, 9(3): 295-316.

Yermack, D., (1996). "Higher market valuation of companies with a small board of directors." *Journal of Financial Economics*, 40(2): 185-211.

Yuan, K.-H., (2005). "Fit indices versus test statistics." *Multivariate Behavioral Research*, 40(1): 115-148.

Yuan, K.-H., Bentler, P. M. and Zhang, W., (2005). "The Effect of Skewness and Kurtosis on Mean and Covariance Structure Analysis The Univariate Case and Its Multivariate Implication." *Sociological Methods & Research*, 34(2): 240-258.

Yunos, R. M., Smith, M. and Ismail, Z., (2010). "Accounting conservatism and ownership concentration: Evidence from Malaysia." *Journal of Business and Policy Research*, 5(2): 1-15.

Zahra, S. A. and Pearce, J. A., (1989). "Boards of directors and corporate financial performance: A review and integrative model." *Journal of Management*, 15(2): 291-334.

Zattoni, A. and Cuomo, F., (2010). "How Independent, Competent and Incentivized Should Non - executive Directors Be? An Empirical Investigation of Good Governance Codes." *British Journal of Management*, 21(1): 63-79.

Zemzem, A. and Ftouhi, K., (2013). "Moderating Effects of Board of Directors on the Relationship between Tax Planning and Bank Performance: Evidence from Tunisia." *European Journal of Business and Management*, 5(32): 148-154.

Zhang, J., (2004). "Efficiency gains from accounting conservatism: Benefits to lenders and borrowers." *Unpublished paper, MIT*.

Zhang, X.-J., (2000). "Conservative accounting and equity valuation." *Journal of Accounting and Economics*, 29(1): 125-149.

Zhao, X., Lynch, J. G. and Chen, Q., (2010). "Reconsidering Baron and Kenny: Myths and truths about mediation analysis." *Journal of consumer research*, 37(2): 197-206.

Zona, F., (2015). "Board ownership and processes in family firms." *Small Business Economics*, 44(1): 105-122.

Zona, F. and Zattoni, A., (2007). "Beyond the black box of demography: Board processes and task effectiveness within Italian firms." *Corporate Governance: An International Review*, 15(5): 852-864.