Predicting Forced Financial Restatement: Evidence from the Malaysian Capital Market

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

Durham University
Business School
2018

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ABSTRACT

Historical precedent shows that forced financial restatements can have serious implications for the firm affected, investor confidence in financial markets and a country's economic development more generally. The purpose of this study is to explore factors which affect the likelihood of forced financial restatements. This issue is particularly pertinent in the Malaysian context, as, despite repeated efforts by the government to improve the corporate governance of listed companies, weak regulatory enforcement and the influence of family groups and politicians give rise to continued concerns about financial reporting quality.

This study uses the multivariate logit model to analyse firm characteristics which relate to forced financial restatement. The analysis was performed on the Malaysian listed companies from 2002 to 2012. Findings indicate that the likelihood of forced restatements was related to aggressive accounting practices. In addition, the presence of politically-connected shareholders or top executives, the proportion of independent directors on the board, firms' decreasing level internal fund and share price volatility were also related to an increased likelihood of forced restatement. More detail tests on the attributes of the different types of restatement show that the likelihood of income-increasing and zero-effect forced restatement event were affected by opportunistic earnings management practices. This contradicts with the results shown for forced income decreasing restatement as they do not imply aggressive accounting, but are more likely to result from mistakes or technical accounting matters, such as change in accounting policy.

This study contributes to our understanding by examining a much wider range of financial and non-financial factors as possible determinants of forced restatements. Moreover, compared to prior research, this study explores forced income-decreasing, income-increasing, as well as zero-effect restatements to distinguish between earnings restatements that arise from related to opportunistic behaviour and those linked to accounting errors. Methodologically, this study further contributes by applying the penalised likelihood logit and structural equation modelling approach which are scarcely

examined in accounting research, to determine factors affecting the likelihood of forced restatements.

It was not possible to develop a valid predictive model for forced financial restatements which is recognised as a limitation to the study. However, the findings in this study do provide some insights into factors which relate to the likelihood of forced restatements, which should be useful for investors, analysts, auditors, and regulators.

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DECLARATION

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree in this or any other university. I further declare that this thesis is solely base on my own research.

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ACKNOWLEDGEMENT

All praise be to Allah, the Lord of the World, and may His Blessings and Peace be upon our Prophet Muhammad. I thank Him for the blessings and for honouring me with His guidance throughout my PhD journey.

I would like to express my sincere gratitude to my supervisors, Professor Richard Slack and Dr Rebecca Stratling, for their guidance, knowledge, patience and time. They have always been supportive and encouraging during every stage of my PhD study. I am indebted to Mr. Anthony Miller for his remarkable review and comments on my paper at the early stage of my study, Professor Rosalie Hall for her invaluable comments and suggestions in methodology parts especially on Structural Equation Modelling and Dr Hong Il Yoo for his kind teaching on Stata. I greatly appreciate all suggestions and comments from the reviewers and participants of the Young Finance Scholar Conference and Corporate Governance Workshop 2015. I am also grateful to all academic and administrative staffs of the Durham Business School for their support, especially the doctoral office staffs and the IT office staffs. My thanks are also due to my main sponsors – Universiti Teknologi MARA and Kementerian Pengajian Tinggi, Malaysia – for the scholarship and study leave granted for me to pursue my PhD at Durham University. I am also grateful to all my wonderful friends who have supported me in keeping me strong to endure this very challenging PhD journey, whom I regrettably cannot acknowledge their name individually.

I would like to extend my thanks to my entire family for their moral support and prayers for me to be successful in completing my thesis within the time limits. I am deeply grateful to my parents for their prayers and great support. To my late father, Othman Nor, we may not meet after my return but may Allah reunite us all in Jannatul Firdaus. To my children – Najmaa Sofiyyah, Muhammad Sofwan, Muhammad Syahmie, Muhammad Syaakir and Najmaa Sobrinaa - they have sacrificed so much and have been supportive and loving children throughout the process. Last but certainly not least, to the one special person that recommended me to pursue a doctorate, always assisting willingfully in any way that he could, selflessly coping with life's daily challenges while being a loving father to our children and a caring husband, I would like to put on record my special thanks and gratitude to my wonderful and supportive husband, Muhammad Salahuddin Abdul Ghaffar.

CHAPTER 1

INTRODUCTION

1.1 Research background

Forced restatement is an event where a company is forced by the auditors, Securities Commission or other enforcement agency to restate its earnings due to General Accepted Accounting Practices (GAAP) violations, where the reported original financial statements at the time of issuance were incorrect (Hennes, Leone and Miller, 2008). A GAAP violation, or earnings misstatement, may be due to unintentional errors or intentional irregularities and can be misleading to the users of financial statements. Forced financial restatement reflects a company's acknowledgment that the original financial statement reported and filed by the company was not in compliance with GAAP (Palmrose and Scholz 2004), thereby raising a more general concern on the transparency and quality of a company's financial reporting (Akhigbe, Kudla and Madura, 2005). Therefore, not only is forced restatement indicative of unintentional misstatements, it is also indicative of deliberate financial manipulation, or even a fraudulent act (Abbott, Parker and Peters, 2004), an outcome of management opportunism built on the purpose of extracting private benefits of control at the expense of uninformed shareholders (Schipper, 1989; Healy and Wahlen, 1999).

Forced earnings restatement is a rare event in a company's life and can have catastrophic consequences (Agrawal and Cooper, 2015). It is often accompanied by large share price declines, bankruptcy filings, legal litigations, and even delisting from the stock exchange (see e.g., Palmrose, Richardson, and Scholz, 2004; Palmrose and Scholz, 2004; Files, 2012; Agrawal and Cooper, 2013; Files, Sharp and Thompson, 2014). The rare forced restatement event does not only lead to substantial losses for the shareholders of the firms directly affected, but also for the stock market as a whole. It therefore rightly draws attention from regulators, academics and the media (Wang and Mu, 2011). E.g., based on the US General Accounting Office (GAO) report that examined a comprehensive list of restatement firms in the GAO restatement database, the whole US stock market was estimated to have lost around US$100 billion in market capitalisation from January 1997 to June 2002 (GAO, 2002), and US$36 billion between July 2002 and September 2005 (GAO, 2006) due to earnings restatements in general.

Forced restatement creates great concern, not only in developed countries, but also in developing countries, as it erodes investors' confidence in the reliability of financial reporting, thus threatening local and foreign investments in these markets (Ye and Yu, 2017). Developing countries generally have high concentrated ownership, poor protection for minority shareholders and weak legal enforcement (Young, Peng, Ahlstrom, Bruton, and Jiang, 2008). In addition to firms that are controlled by families, other firms in the emerging economies are mainly owned and/or controlled by the government (La Porta et al., 1999). Where equity ownership is highly concentrated and there is divergence between control rights and cash flow rights, owning a small proportion of the firm's equity can be enough for the controlling shareholder to gain control over the firm (Brown, Beekes and Verhoeven, 2011). The separation of ownership and control in firms with inside/family blockholders, for example, motivates the controlling shareholder to extract private benefits at the expense of the minority shareholders (Claessens et al., 2002). Notwithstanding, firms that are controlled by government-related institutional investors tend to hold a dominating interest, leaving such firms susceptible to the risk of managerial exploitation. The government-owned/controlled firms are typically controlled by bureaucrats who have full control rights, but they do not personally own formal ownership rights. The citizens of a country may theoretically "own" the government owned/controlled firms, but practically, ownership rights lay in the hands of powerful ministries who act as the *de facto* "controlling shareholders" (Young and Ahlstrom, 2003). Overall, the above problems result in the incentives among the controlling owners/shareholders to mask the wealth effect of the rent-seeking activities by engaging in earnings manipulation and misstatement (Young et al., 2008). Studies such as Li, Selover, and Stein (2011) and Li et al. (2014) further found that firms in the emerging markets engaged in managing earnings to a greater extent than those in the developed markets.

This study is therefore motivated to examine financial and non-financial factors that can indicate the likelihood of forced restatements. It does this to identify early warning signals of firms that warrant investigation, specifically in the emerging country of Malaysia. Findings from this study would be beneficial to the auditors and regulators to intervene earlier in terms of formulating planning and strategies to minimise aggressive managerial behaviour, and investors, customers, and suppliers to identify and avoid firms at risk of requiring a forced restatement.

1.2 Research problem and motivation

Incidences of forced restatement were noted to have increased dramatically in the last decade and have continued to gain prominence (Su, Chin and Chan, 2013; Hirschey, Smith and Wilson, 2015). Following the high-profile forced restatement cases such as Xerox and WorldCom that had their earnings reduced by billions of dollars (Graham, Li and Qiu, 2008), recent cases such as Green Mountain Coffee, JP Morgan, and Tesco have focused public attention on the importance of forced restatement. Forced financial restatement that resulted from earnings misstatement is important to look at as it is indicative of a clear-cut accounting rules violation (Palmrose and Scholz, 2004). It is a symptom of firm's poor quality financial reporting that might affect investors' perceptions of the reliability of a firm's corporate reporting, and its legitimacy and trustworthiness as an actor on capital and goods markets.

The importance of looking at forced restatements can also be seen from the economic and financial aspects. Specifically, the damage that forced restatements can cause is not limited to the mere immediate announcement effect on the value of the affected firm's share price, as the practices that lead to forced restatement are often indicative of major problems with the business model of, or corruption within, firms. This might have wider, longer-term implications that can lead to bankruptcy, with the potential of transmitting problems to, e.g., customers or suppliers (Flanigan, 2001). Not only is forced restatement a serious concern in developed countries, it is also a concern in emerging countries.

Several cases that happened in developing countries demonstrated the destructive impact of forced restatement. For example, the China Aviation Oil (Singapore) Corporation (CAO) revealed that due to financial misstatements related to option valuations, it was unable to meet some margin calls as it had fraudulently overvalued options for kerosene by $550 million. CAO's forced restatement in November 2004 has not only led to the bankruptcy of the firm but investors are also selling-off their shares in Chinese-owned companies in the Singapore stock market: this led to approximately $1 billion being wiped off from those firms' market capitalisation (China Daily, 2004). In China, the most prominent case of financial restatement that impacted not only on the firm and its immediate partners but on the stock market as a whole, is the case of Yin Guang Xia, which has also been dubbed the "Enron of China". Between 1998 and 2001, the company reported fabricated profits amounting to 770 million yuan. Subsequent to a forced restatement announcement in August 2001, the company's share price dropped by 80% in a month, and each shareholder

was estimated to incur an average loss of 500,000 yuan (Wei, 2016). Another example is in Malaysia where the air cargo service provider Transmile was involved in fraudulent reporting and overstated its revenue by a total of RM530 million in 2005 and 2006. The company's shares fell from RM13 in early May 2007 to only RM8.90 at the end of May 2007, when a forced restatement announcement was made and caused more than RM1 billion in market capitalisation to be wiped off (The Star, 2007). The company's share price continued to fall to less than RM0.50 by March 2010 (Oh, 2010). Despite government intervention, Transmile had to be delisted from the Bursa Malaysia stock exchange in May 2011. Silver Bird Group, a bread and confectionery maker, is another company in Malaysia involved in financial irregularities. The company's share price once increased to RM1.10 in late 2007 but plunged to RM0.18 on 5 March 2012, when a forced restatement announcement was made (The Star, 2012); the share price continued to fall to only RM0.07 in 2014. Lembaga Tabung Haji (LTH), being the largest shareholder, once held a 29.6% stake at its peak in July 2008. However, LTH suffered a massive loss of RM48.87 million from its investment (The Malaysian Reserve, 2017) due to Silver Bird's forced restatement.

Forced financial restatement is, however, a rare event among publicly listed firms (Dutta, Dutta and Raahemi, 2017). In the US alone, the number of restatement firms almost reached 300 in the year 2005, which approximates to only 2 percent of the publicly listed firms in the US (Wang and Wu, 2011). Prior studies in the developing countries also show a very small sample size of earnings restatements relative to the publicly listed firms, which manifests the inherent comparatively rare nature of forced restatement; i.e., 1 percent in Malaysia between 2002-2005 (Abdullah, Yusof and Nor, 2010), 4 percent in China between 2000-2005 (Firth, Rui and Wu, 2011), and 1 percent in Taiwan between 1998-2006 (Zhang, Wei and Wu, 2013).

Financial restatements can be required for several reasons. On the one hand, forced financial restatement arises due to accounting errors, misunderstanding and misapplication of accounting rules, deliberate manipulation, or even fraud (e.g. Ettredge, Scholz, Smith, and Sun, 2010; Chen, Elder and Hung, 2014). It is a significant challenge to constrain financial reporting irregularities, especially for the auditors, because managers tend to hide malfeasances or fraudulent acts due to severe penalties for GAAP violations or other career consequences (Larcker, Richardson, and Tuna, 2007; Schrand and Zechman, 2012). Specific circumstances that can trigger forced restatements include those done by the firms themselves (e.g., through a company's voluntary announcement of misconduct), the firm's

auditors (e.g., through audit findings on peculiar patterns of reported revenue), the Securities and Exchange Commission (SEC) (through a routine SEC review or delayed filing of the financial statements to the SEC), or other enforcement agencies (Dechow et al., 2010). A firm is forced to make an earnings restatement by the SEC when investigations show that the firm is involved in producing false or fraudulent financial information (Files, 2012). On the other hand is an accounting restatement that normally takes place resulting from operational actions such as changes in accounting policies or principles, change of accounting period, mergers and acquisitions, dividend distributions and stock splits (Palmrose and Scholz, 2004; Agrawal and Chadha, 2005). However, this accounting restatement may not indicate financial reporting irregularities.

Based on the above discussion of forced restatement, it is the objective of this work to try to understand the factors that lead to forced restatements, and then to see whether a forced restatement prediction can be built. Prior literature suggests that while income-decreasing forced restatements are likely due to aggressive income-inflating recognition, income-increasing and zero-effect forced restatements are most likely due to accounting error (Ettredge, Huang, and Zhang, 2012) or attempts to avoid taxes (Lim, 2011). This study will further compare the attributes of income-decreasing forced restatement firms to that of the income-increasing and zero-effect forced restatement to gain insight on whether the impact of different factors on the likelihood of forced income restatements varies by type of forced restatements.

This research is on a single country context. Conducting research in a single country is in line with the fact that a:

> "more focused approach would free authors from needing variables available across a wide range of countries, allowing variables to be designed that more cleanly capture the construct being measured" (Miller, 2004, p. 266).

Developing countries may share similar features, but it is not possible to analyse pooled data across the different developing countries as each country has their own unique socio-politic-economic system. Thus, data pooling would produce meaningless results (Gul, 2006). Emerging countries differ in many aspects; these include, e.g., culture, interpretation and enforcement of regulations, and type and degrees of government intervention. These attributes are difficult to capture and measure as they can be very subtle and informal rather than formal (Ball, Robin and Wu, 2003; Miller, 2004; Fan, Wei and Zhu, 2011). This leads to limitations of research that uses samples comprising firms in multiple countries.

Hence, developing a single model of forced restatement for all South East Asian developing countries is unlikely.

This study looks into Malaysia as a single country. Malaysia is important to look at as it is a good representative of the emerging markets. Malaysia is characterised by a highly concentrated ownership, a developing and fast-growing economy, a significant number of politically-connected firms, weak legal enforcement, and poor investor protection (Hasnan et al., 2013). Another distinctive attribute that makes Malaysia relevant for this study is because of its economic policy, which is aimed at improving economic participation among the Bumiputera indigenous population, therefore minimising economic imbalance between the different ethnic groups in Malaysia (Gul, 2006). Malaysia is well known for its relationship-based economy due to the strong relationship between firms and the government; this eventually resulted in the significant presence of firms with political connections. The unusual setting in Malaysia, featured by the combination of businesses dominated by family ownership, usually dominated by owners of Chinese heritage, and politics dominated by the indigenous Malays, further offered a unique research setting that varies from other Asian developing countries. This shows the substantial implications that the Malaysian structural and institutional setting might have for corporate governance and forced restatement.

1.3 Research aims and objectives

The main aim of this study is to examine whether firms' financial or non-financial corporate governance characteristics affect the likelihood of forced restatements in Malaysia. In order to examine the factors that influence the likelihood of forced restatements, I will employ hypotheses testing. There is limited research that jointly incorporates financial and non-financial factors to examine forced restatements. In general, research has so far failed to consider how the combination of various financial and non-financial factors can be used to determine the likelihood a forced restatement. Studies such as Öğüt, Aktaş, Alp, *et al.* (2009), Dechow, Ge, Larson, *et al.* (2011) and Kim, Baik and Cho (2016), that researched the development of a model to predict financial information misstatements, mainly consider the financial variables and ratios as the explanatory variables, while neglecting the potential impact of key corporate governance factors. This study differs from prior research by examining the influence of a more comprehensive set of covariates on the likelihood of forced restatement.

The hypotheses developed for examining the determinants of the likelihood of forced restatements in this study are based on the agency theory. The agency theory is employed for this study as it emphasises potential conflicts of interest between managers (agents), that run the company, and shareholders (principals). Jensen and Meckling (1976, p. 308) defined an agency relationship as:

> "a contract 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".

Agency theory is based on two behavioural assumptions; these are (i) bounded rationality, and (ii) the potential for opportunistic behaviour. The former assumption means that individuals make rational economic decisions (e.g., to maximise their own utility) but are bounded to the extent that the decisions are made within a milieu of limited capacity to access and evaluate accurately all relevant information. They are based on different interpretations of the same information based on prior experiences, training, etc. The latter assumption implies that principals and agents might engage in opportunistic behaviour by seeking self-interest through guile (Williamson 1996) if they believe this is unlikely to be detected and sanctioned.

Berle and Means (1932) contend that the separation between firm ownership and control reduces managers' incentives to maximise corporate efficiency and shareholders' return. It would be at least difficult, if not impossible, for shareholders to observe whether managers are working towards fulfilling the shareholders' interest, or for them to monitor the riskiness of investment choices being made. Therefore, the resolution of the principal-agency conflict becomes a central issue. Based on agency theory, large owners are useful as they have greater means and incentive to monitor managers and control agency problems (Jensen and Meckling, 1976). This would mean that increased ownership concentration via large individual blockholders, for example, can help monitor managers effectively due to their high equity stakes (Dharwadkar *et al*., 2008). Accordingly, a high ownership concentration of owner-managers can help the alignment of controlling and minority shareholders' interests, because the wealth of the controlling shareholders is tied up to the firm; therefore, they have more to lose if their decisions do not maximise firm value (Fan and Wong, 2002).

While the concentrated ownership structure can be effective in mitigating the principal-agent conflict, it may, however, lead to the principal-principal conflict. The principal-

principal conflict refers to the conflict between controlling shareholders and minority shareholders, where the controlling shareholders abuse their ownership control and expropriate the assets of minority shareholders. The high concentrated ownership may lead to a situation where the minority shareholders are excluded from top managerial decision-making and their interests neglected (Young and Ahlstrom, 2003). The economic relationships might also suffer where principals with different preferences, access to information, and power, might use their influence to exploit each other. This problem is seen to be particularly prevalent with regard to the relationship between blockholders and minority shareholders.

The principal-principal conflict of the agency theory seems to be more prominent in developing countries (Young *et al.*, 2008), especially in Malaysia. There are two main modes of ownership concentration in Malaysia, i.e., domination by the CEO's family, and domination by Government-related institutional investors (Claessens *et al.,* 2000; Claessens et al. 2002; Sinnadurai, 2012). World Bank (2005) further documents that owner-managers are present in 85% of listed firms in Malaysia, more than 60% of equity is held by large shareholders, and the Chairman of the board belongs to the controlling family or a nominee. The alignment effect suggests that this concentrated ownership may align management and ownership and lead to goal congruence between the managers and shareholders. Instead of focusing on achieving short-term goals of maximising management self-interest, the managers would rather run the business with the aim of maximising shareholders wealth in the long-term (Ismail and Sinnadurai, 2012). The alignment effect helps reduce the expropriation risk borne by the minority shareholders, and therefore assists in the reduction of principal-agent problems. However, the competing view of the entrenchment effect suggests that the lack of separation between dominant large shareholders/family owners and managers increases the expropriation risk from the minority shareholders (Haniffa and Hudaib, 2006). The entrenchment effect holds that the existence of information asymmetry and control-ownership divergence among controlling shareholders provides them with the incentive to extract private benefits at the expense of the minority shareholders.

Having stronger power and discretion, entrenched managers are more inclined to pursue actions to their own advantage. This includes a tendency for wealth distribution to be made towards the controlling owners in preference over other aspects of firm performance, e.g., maximising dividend payments to outside investors (Carney and Gedajlovic, 2002). The

rent-seeking activities also involve controlling managers distorting firms' financial information to cover up their expropriation behaviour (Sue, Chin and Chan, 2013). While users of financial statements place heavy reliance on accounting numbers, the managers could convince outside parties that the firm is performing better than non-manipulative reporting would suggest. With the absence of an effective corporate governance system and poor investor protection (both of which problems are common in developing countries), the principal-principal conflict can become severe (Morck, Wolfenzon and Yeung, 2005). Eventually, a firm's inability to really perform as expected, or when the opportunities to misstate earnings are exhausted, would prompt a regulator's investigation, which then increases the likelihood of firms issuing forced restatement (Ettredge et al., 2010).

In addition to examining the determinants of forced restatements, this study aims to analyse the different attributes of income-decreasing, income-increasing, and zero-effect forced restatement firms. Ettredge *et al.* (2010) suggest that income-decreasing forced restatements are corrections of intentional misstatements, while income-increasing forced restatements are most likely corrections of unintentional errors, although attempts at tax evasion might also be an incentive (Lim, 2011). Studies examining issues relating to managerial misconduct are susceptible to making inaccurate hypotheses inferences if intentional misstatements and unintentional errors are not appropriately distinguished (Hennes *et al*., 2008). This is becoming more crucial given the fact that the relative frequency of error-related misstatements has increased as post-Enron accounting regulations have become stricter (Kim *et al*., 2016). Apart from studies such as Kim *et al*. (2016), previous research failed to differentiate forced restatements that arise due to earnings misstatement from those that arise due to accounting errors or tax evasion (e.g., Lobo and Zhao, 2013; Sue *et al*., 2013). Kim *et al*. (2016) examined the causes of intentional and unintentional misstatements by analysing both upward and downward forced restatement. However, the factors examined were again restrained to only financial variables and a limited number of CEO attributes.

This study fills the gap in the literature by examining the different attributes of income-decreasing, income-increasing, and zero-effect forced restatement firms, using a comprehensive set of covariates. In addition to identifying firms' attributes that drive earnings misstatements, this study helps to identify firms' attributes that relate to more common but less aggressive misstatements more effectively; it does this by fully utilising

information, not only by testing samples related to fraudulent misstatements but also the more frequent unintentional errors.

In achieving the above research aims, this study will examine the financial and non-financial characteristics of restatement firms during the pre-forced restatement period (t-1 to t-n) between 2002 and 2012. While the specific time gap prior to the announcement of a forced restatement in Malaysia is unknown, the study however applies a three-year lagged misstatement period prior to forced restatement for analysis purposes. This is done consistent with the analysis by Wiedman and Hendricks (2013) on a random sample of restatement firms in the 2002 GAO report, where it was found that firms' misstatement period appears to concentrate in years 0 to -2. In addition to the Malaysian enforcement law that is rather weak and comparatively lagged behind compared to the developed countries such as the US, forced restatement may therefore not be prompt (Hasnan et al. 2013). Hence, this study considers a three-year lagged misstatement period as being reasonable. The generic timeline of the study is outlined in Figure 1-1 as shown below.

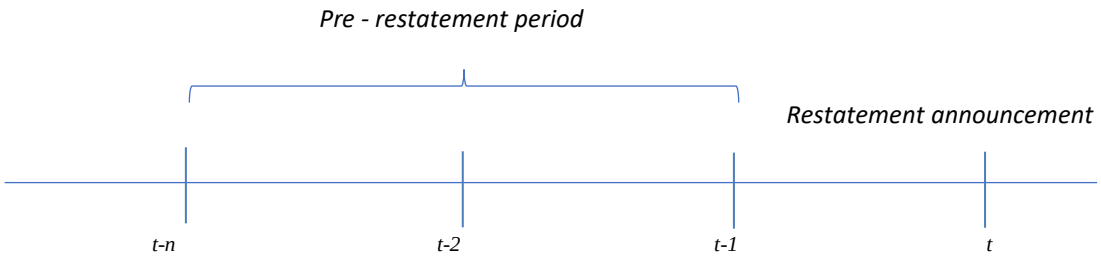

Figure 1-1: Generic Timeline of the Study

The focus of this study will be on firms with income-decreasing forced restatements. The research draws on financial data downloaded from the Datastream database, corporate governance data that are hand collected from the companies' annual reports, and accounting measures for earnings management calculated based on the Modified Jones Model (1995).

In line with the main aim of the study, the multivariate logit regression is estimated to test the hypotheses regarding the determinants of forced restatements. Specifically, the logit model will examine the pooled sample to test the effect of the accruals quality, real earnings management, market-related incentives, financial performance, and corporate governance on the likelihood of forced restatement. Following this, the multivariate logit

regression was again applied to examine the determinants of income-decreasing forced restatement, income-increasing forced restatement, and zero-effect forced restatement.

Finally, the secondary aim of this study is to develop an exploratory model to predict income decreasing forced restatements. A series of rolling out-of-sample estimations will be conducted, of which the estimated set of coefficients are then used to estimate the probability of forced restatements. Predicting the rare event of forced restatement with high accuracy is almost impossible due to the great uncertainty of events related to business activities (Makridakis, Hogarth and Gaba, 2009). Goodwin and Wright (2010) further demonstrated that the extant forecasting methods, which include statistical forecasting, the Delphi technique, prediction markets and expert judgement, contain fundamental weaknesses and are therefore problematic in producing an accurate forecasting. In view of the low degree of rare event predictability, the prediction testing in this study would be on an exploratory basis. Although prediction is not always feasible, it could be reasonable to test the predictability of forced restatement in line with prior rare event studies. Findings from this study prediction might offer valuable input for planning and strategy formulation, especially for auditors, investors, and regulators in facing the risk of firms' financial irregularities.

In relation to the main aim of this research, the following two objectives are shown:

(1) to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among public listed firms in Malaysia;
(2) to identify in particular whether the relationship between key accounting, financial and corporate governance variables, and the likelihood of forced financial restatements differs, depending on whether they are income-decreasing, income-increasing or zero-effect forced financial restatements;

Based on the above hypotheses testing, two further secondary research objectives are developed in relation to the secondary research aim:

(3) to develop an exploratory prediction model based on the key accounting financial determinants and corporate governance determinants that drive income-decreasing forced financial restatement among the public listed firms in Malaysia;
(4) to test whether the exploratory prediction model can signal potential for income-decreasing forced financial restatement among public listed firms in Malaysia.

1.4 Research expected contributions

The research that examines forced restatement differs from earnings management studies by its ability to identify firms that engage in intentional misstatements and unintentional errors (Dechow, Ge and Schrand 2010). While earnings management is "the practice of distorting the true financial performance of the company" (Klein, 2002, p. 376), forced restatement firms are distinguished as those that have admitted or been identified as making a mistake or deliberate attempt to mislead in financial reporting (Dechow *et al.*, 2011). In contrast to earnings management studies, the advantage of examining forced restatement is the ability to identify firms that violate GAAP due to unintentional error, deliberate manipulation or fraud, without the need to specify a model for detecting misstating firms.

Research that examines the characteristics and determinants of forced restatement typically analysed solely on financial factors (e.g. Dechow *et al*., 2010; Ettredge *et al.*, 2010; Dechow *et al.*, 2011) or corporate governance factors alone (Abdullah, Yusof and Nor 2010; Mohamad, Rashid and Shawtari 2012; Bao and Lewellyn 2017). While Kim *et al*. (2016) examined both financial and non-financial factors to detect misstatements, nevertheless, the scope of corporate governance being examined was restricted to only a limited number of CEO attributes. This study contributes by incorporating both types of factors jointly, thus providing a clear understanding of the financial indicators and firm-specific attributes of forced restatement. Findings from the study would allow the financial statement users to be better equipped in terms of identifying the symptoms and incentives of opportunistic accounting practices, therefore placing them in a better position to restrain future financial irregularities.

To the best of my knowledge, no research has examined the effectiveness of a forced restatement model based on financial statement information and corporate governance in the milieu of an emerging economy. Although this study is mainly a replication of prior literature using Malaysian data, however it offers the first work to examine the effect of a comprehensive set of financial and non-financial factors on the likelihood of forced restatement specifically in Malaysia. Unlike other models, the forced restatement model can be used to compare the attributes of an income-decreasing forced restatement firm against those with income-increasing forced restatements and zero-effect restatements. Examining the different types of forced restatements provides some insights into understanding the *ex-ante* factors that cause firms to eventually report non-GAAP financial

results and those that lead to accounting errors, in addition to the mere classification of accounting items due to changes in accounting policy. Findings of the study provide distinctive perspectives, which, in many respects, are different from developed countries and may enhance the concept of forced financial restatement.

Given the high power distance culture, especially in developing countries, it would be highly unlikely for enforcement agencies to rely on employees whistle-blowing for reports of financial irregularities (Hasnan *et al*., 2013). A mechanism that can be used to predict the likelihood of forced restatement can be very beneficial to capital market efficiency. It helps detection of financial manipulation at an early stage before the financial reports are published. As this study examines how certain firm-specific attributes can be useful in recognising firms that have the potential to manipulate their financial report in the future, it can also fulfil the strong needs among auditing practitioners to adjust their audit work accordingly and reduce possible legal risks. Furthermore, the empirical evidence on the drivers of forced restatements can be used by the regulators and policymakers (e.g. Bursa Malaysia and Securities Commission) to focus on investigation efforts and develop initiatives that can curb cases of misstatements, hence forced restatements (Plumlee and Yohn, 2010). Financial institutions and investors can also benefit by adjusting their exposure level to firms suspected of financial irregularities.

1.5 Key literature and theoretical base

Forced restatement is generally viewed as the corrections made to published financial statements as prompted by the auditors or regulators due to non-compliance with GAAP (Palmrose and Scholz, 2004). Forced restatements, especially those that are due to aggressive financial irregularities, lead to the impairment of investors' confidence on the quality of financial reporting, increase investors' concerns on managerial opportunistic decision-making, and cause substantial losses to shareholders. This has prompted efforts among academicians and practitioners to examine the underlying causes of forced restatement in the attempt to detect accounting irregularities (Price, Sharp and Wood, 2011).

There are numerous explanations as to why managers misstate earnings; these include inflating a firm's share prices, avoiding violation of debt covenants, reducing tax liabilities, and hiding tunnelling activities. Identifying the underlying motive of the behaviour that leads to the need to restate earnings is difficult, as managers are unlikely to admit them;

they are more likely to blame errors in following GAAP regulations than any more pernicious motivations. While the reasons for forced restatements may vary, prior research, such as Palmrose *et al*. (2004) and Hennes *et al*. (2008) tried to distinguish financial restatements that are due to unintentional error and those that are intentional misstatements. Palmrose *et al*. (2004) classify the restatements due to errors and irregularities by keyword search in the restatement database and based on firm's disclosure or SEC issuance of Accounting and Auditing Enforcement Releases (AAER). Hennes *et al*. (2008) classify restatements as irregularities when followed by fraud-related class action lawsuits and as an error when the restatement is followed by only one lawsuit. The more aggressive financial irregularities are attributed to purposeful accounting misstatements, intended to influence shareholders into believing that the firm is performing better than the actual reporting would suggest (Ettredge *et al*., 2010). Unintentional errors, such as accounting and clerical mistakes and misunderstanding of complex accounting rules, lead to a non-aggressive type of misreporting (Plumlee and Yohn, 2009). Differentiating financial restatements into its distinct types would help to increase the power of testing as the research model may effectively detect the more aggressive misstatements and discriminate them from the more frequent accounting errors (Kim *et al*., 2016).

Managers tend to utilise the flexibility available within the generally accepted accounting principles (GAAP) for them to manage accruals and report high earnings to influence shareholders' perceptions of the firm's underlying performance (Ettredge *et al*., 2010). They may resort to violating GAAP when the underlying firm's performance does not improve and the opportunities for earnings manipulation within GAAP are exhausted (Dechow *et al*., 2011). Financial indicators (e.g., financial ratios) are highly correlated with the incidence of earning misstatements (Fu and Zhu, 2014). Prior research focuses mainly on examining firms' financial variables, such as accruals quality and other financial characteristics, that act as incentives for, or are symptoms of, financial misstatements. For example, Dechow *et al*. (2011) analysed the impact of financial performance, accruals quality, market-based measures and off-balance sheet activities for identifying misstatements. They provide insights into the particular financial statement variables and financial indicators that may be useful in detecting misstatements.

While financial factors are useful in the detection of earnings misstatements, corporate governance plays a significant role in deterring financial irregularities. It is seen as a tool that ensures an effective check and balance system, such that management acts in line with

fulfilling shareholders' interests (Abdullah *et al*., 2010). Corporate governance acts as a mechanism to monitor, discipline and scrutinise management. However, within an environment with weak investor protection and poor legal enforcement, which is more pronounced in developing countries, corporate governance is likely to be ineffective (Claessens and Yurtoglu, 2013).

Firms with dispersed ownership are susceptible to a situation where the shareholders and managers have conflicting goals, i.e. the principal-agent conflict. The conflict arises from information asymmetry and opportunistic behaviour, whereby the self-interested managers (agents) make decisions for their own benefit at the expense of the shareholders (principals) (Arnold & de Lange, 2004). However, since high ownership concentration mainly characterised firms in the emerging market, it also gives rise to conflict between controlling shareholders and minority shareholders, known as the principal-principal agency conflict. It is difficult to mitigate such conflict by using the conventional function of the board of directors (Fan and Wong, 2003). The tightness of firm ownership allows managers' self-interested behaviour to go unchallenged, either internally by the firm's directors or externally by the takeover market. This is because the controlling owners/managers have full control of the company, thus giving them the opportunity to engage in the expropriation of minority shareholders' wealth (Hashim and Devi, 2008). Therefore, incidences of forced restatements may reveal that the corporate governance system is relatively weak, which worsens investors' concern about the possible rent extraction by the controlling shareholders (Ma *et al*., 2016).

1.6 Overview of findings

Research has examined the various financial factors that drive the financial misstatements that lead to forced restatements. For example, Ettredge *et al*. (2010) analysed 354 restatements from 1995 to 2003 and found a systematic increase of balance sheet "bloat", or abnormally high working capital accounts level, particularly for firms that later issue a fraudulent financial report. They further document that non-fraud restatement firms have higher balance sheet "bloat" when compared to the control firms of non-restatement firms for the two years preceding the initial financial misstatement. However, the balance sheet "bloat" is clearly higher for fraud restatement firms in comparison to the non-fraud restatement firms. Another study by Dechow *et al*. (2011) examined the characteristics of the US misstating firms from 1982 to 2005. They found that misstatement firms actively raise funds before and during the misstating years. They further found that a firm's soft

assets (e.g., accounts receivables and inventories) are significantly higher in the misstating years, suggesting a build-up of assets whose values are more subject to manipulation during the misstatement period. Efendi, Srivastava and Swanson (2007) examined US restatement firms from 1997 to 2002 and found that firms are more likely to misstate when they raise new equity or debt and are constricted by a debt covenant.

Other studies examined the impact of corporate governance factors on financial restatements. Agrawal and Chadha (2005), for example, examined a sample of 318 US firms based on the years 2000 and 2001. They discovered that firms having an independent director with financial expertise sitting on the board or audit committee tend to have a lower restatement probability. However, firms are more likely to restate when the CEO belongs to the founding family. A study by Chen, Firth and Gao (2006) examined 169 samples of regulatory enforcement firms from 1999 to 2003. It was found that the proportion of outside directors on the board is negatively related to the occurrence of fraud. Fraud firms, however, were found to conduct more board meetings, suggesting that managerial decisions or acts are realised to be borderline legal, resulting in more directors' debate over these issues, hence the frequent meetings. A study in Malaysia by Abdullah *et al*. (2010) examined 62 firm-years based on a matching process between restatement firms and non-restatement firms from 2002 to 2005. Results show that restatement firms tend to have a less independent nomination committee with high managerial ownership. Surprisingly, they also found that audit committee independence is significantly and positively associated with financial restatement. Managerial ownership, board independence and CEO duality nonetheless show no association with financial restatements. Baber, Liang and Zhu (2012) examined 715 US firms between 1997 and 2005 and found a significant relationship between governance measures and financial restatement probability, but only when the interaction between the internal and external governance measures is considered. The study defined internal governance as the characteristics presumed to govern the efficiency of board oversight over management, whereas the external governance as shareholders' ability to intervene in the decisions made by the board of directors and the management.

However, studies that examined the impact of both financial and non-financial variables on the likelihood of forced restatement are limited. Kim *et al*. (2016) detected financial misstatements based on the different fraud intentions using a dataset of 788 irregularities and error instances from 1992 to 2005. Various financial and non-financial variables

(including some limited corporate governance factors) were tested using different classifier models, i.e., the support vector machine, multinomial logistic regression and Bayesian networks. The study found variables including accruals quality (e.g., changes in inventory), firm-efficiency measures (i.e., estimation of firm's revenue-generating ability based on a given level of resources; e.g., research and development expenses using data envelopment analysis), industry level measures (e.g., top five industry leaders), and market variable (e.g., short term interest ratio) are useful in the detection of earnings misstatements and fraud.

This study expands prior research in the detection of forced restatement by not only examining the financial variables but also including corporate governance variables (e.g., firm ownership, board characteristics and CEO characteristics) and uses the findings to develop a forced restatement prediction model. The examination of a more comprehensive dataset and its impact on the different categories of forced restatement (i.e., income-decreasing, income-increasing and zero-effect forced restatement) may provide useful insights and a better understanding of a firm's specific financial and non-financial attributes, and its impact on the occurrence of opportunistic financial reporting.

1.7 Thesis structure

The second chapter that follows gives an overview of the overall Malaysian capital market. The chapter explores the various aspects of the Malaysian institutional setting to provide an understanding of how the complex interplay between elements of the systems may influence managers to engage in opportunistic earnings management.

The third chapter provides the theoretical framework of this study. This includes the discussion of the agency theory that forms a basis for a better understanding of the roles of corporate governance and ownership structure. The following section in the third chapter focuses on the different types of earnings misrepresentation that can lead to forced restatement. The various motivations of opportunistic earnings management that lead to financial misreporting and hence forced restatement are also discussed.

The fourth chapter mainly discusses the hypotheses that are developed specifically on finding factors that impact the likelihood of forced restatement. The conceptual framework for the study is also presented to show the relationship of the relevant explanatory factors and the likelihood of a forced restatement event.

The fifth chapter explains the research methodology. Sample selection, data collection procedure, and variable measurement will be discussed. The specification of various research models that are used to test the study's hypotheses is further explained.

The sixth chapter delineates the testing of hypotheses, data analysis, and further presents a discussion of the findings from the first study.

The seventh chapter presents an overview of a rare event and the degree of its predictability. The chapter further reports predictive ability analyses of the exploratory prediction model to predict income decreasing financial restatements among Malaysian public listed firms.

Lastly, the eighth chapter will finish the thesis with a summary of the project, a discussion of the contribution and implications of the study, research limitations, as well as recommendations for future research.

CHAPTER 2

THE CASE OF MALAYSIA

2.1 Introduction

This chapter discusses the background of the Malaysian capital market. The chapter gives an overview and understanding of how the complex interplay between various aspects of the Malaysian institutional environment may affect managerial behaviour and incentives. The Malaysian institutional structure includes the legal/judicial system, accounting standards, regulatory, market and political pressures. Insights into the complex interaction between the elements of the systems would give a better understanding of the causes that may influence managers to engage in opportunistic accounting behaviour, or symptoms that may indicate the likelihood of forced restatement. The overview may also be meaningful as it gives some hints to the set of covariates that is best captured in a prediction model so as to improve the model's power and accuracy of predicting forced restatement.

Forced restatement creates concern in Malaysia as the number of fraud cases related to earnings misstatement has notably increased since the year 2000 (for example, Malaysian Airline System Berhad, Transmile Group Berhad, Megan Media Holdings, NasionCom Holdings, Oilcorp Berhad and Silver Bird Group Berhad). The concern intensifies as investors find it almost impossible to detect accounting manipulations that act as a threat to their investments (Frédéric *et al.,* 2013). The costs that forced restatement may cause to the market are massive, among which include a decline in stock prices (GAO, 2002; Palmrose *et al*., 2004; Files *et al*., 2014), an increase of a company's cost of capital (Hribar and Jenkins, 2004), labour market penalties (e.g., loss of position on the restatement firm's board and loss of positions on other firms' boards), high executive turnover (Srinivasan, 2005; Desai *et al.,* 2006; Hennés *et al*., 2008); and regulatory enforcement proceedings (Files, 2012). The negative effect of corporate misreporting may even be contagious: Peasnell *et al.* (2011) found that firms recognised as having high-quality investors relations actually suffered worse from a large fall in stock price when triggered by other firms' corporate misdeeds.

The capability of determining the likelihood of financial restatement will help assist market participants to identify red flags of possible misconduct, misstatement or even fraudulent financial reporting at an earlier stage; in this way, firms that warrant investigation can be more easily identified. Although there is a possibility that the forced restatement model may not produce high prediction accuracy, findings from the model may still offer valuable input to related parties, such as the investors, auditors, and regulators, for future planning and strategy on how to cope with an instance of a catastrophic and rare event. The study's aim to develop a model that can indicate the likelihood of forced restatement is also in line with efforts by the Malaysian government who has invested a lot of resources trying to improve the corporate governance of listed companies (Muniandy and Ali, 2012). This is possible as awareness of a tool that can indicate the likelihood of forced restatements helps put pressure on managers to reduce their earnings management activities.

Malaysia is located in the heart of Southeast Asia. It is an emerging market that has specific characteristics. For instance, it has a multi-ethnic society with two major ethnic groups, the Malays, being the country's indigenous people (also known as Bumiputera[1]), and the Chinese. What is interesting is that the culture of these ethnic groups is, in effect, related to problems of supervision. The Malays are highly influenced by large government intervention in trading and commerce, which created a relationship-based economy system. As for the Chinese people, their business activities revolve more around informal personal relationships instead of formal legal contracts. They are found to be high in collectivism, which is manifested in *'guanxi'* or social networking, and guilds linked within the business community (Lim, 1998)[2].

The interdependence between the Malaysian economy and culture contributes heavily towards market development, as can be seen from the pervasiveness of government-controlled firms and family firms in Malaysia. However, the close interrelationship between the Malaysian economy and culture leads to the creation of intransparency in the market. The importance of networks that might be motivated differently gives rise to the same end effect, i.e., problems of supervision and the creation of information asymmetry that makes the market

[1] Bumiputera refers to a term that describes the Malay race and the indigenous people of Malaysia. The term originates from the Sanskrit word 'Bhumiputra', literally translated as being the "son of the soil" or "son of the land" (bhumi = land or earth, putra = son) (Abdul Wahab et al., 2014).

[2] *Guanxi* refers to trust, assurance, mutual obligation and understanding among group members (Hwang, Golemon, Chen, Wang, and Hung, 2009).

very intransparent. That is why the Malaysian government struggles to give much effort to strengthen the regulatory framework, corporate governance system and financial reporting system to reduce problems of intransparency and forced restatement.

Malaysia makes an interesting case study for predicting the likelihood of forced restatement due to its unique business environment. Arising from the multi-ethnic culture, the business environment in Malaysia is characterised by family-owned and government-owned firms (Ghazali, 2010). These types of highly concentrated ownership are also commonly found in other Asian developing countries, such as Thailand, Indonesia, Philippines, Hong Kong, Korea and Singapore (Claessens, Djankov, and Lang, 2000). Highly concentrated ownership leads to agency problems that arise from conflicts between controlling owners and minority shareholders. It is in contrast to the agency conflict between managers and outside shareholders in firms with diffused ownership, which is generally found in developed countries such as the United States and the United Kingdom (Claessens and Fan, 2002). Given that the controlling owners are managers themselves, concentrated ownership allows the managerial behaviour of self-interest to go unchallenged, either internally by the firm's board or externally by the takeover market. Controlling owners have the power to determine how the firm is operated, hence the likelihood that the wealth of minority shareholders might be expropriated (Hashim and Devi, 2008)

The interplay between culture and political factors give rise to other unique institutional features of the Malaysian capital market, which may have affected managerial behaviour and the integrity of financial reporting. These include the prevalent pyramidal or cross-holding share ownership structure, politically-connected firms, cross-directorships on the Malaysian listed firms' boards, poor regulatory enforcement, weak investor protection, and weak external discipline in the market (Hasnan *et al*, 2013). These institutional features are possible factors that may contribute towards aggressive earnings management and fraud taking place in Malaysia (Hasnan *et al*., 2013). This is because the lack of monitoring and disciplinary action provides controlling owners with the incentives and opportunities to exercise private control for personal gain at the expense of the minority shareholders.

The above features call into question the integrity and quality of financial reporting in Malaysia. The Malaysian institutional structure, weak enforcement, and high political

intervention give concerns regarding the quality of the corporate governance system. The prevalent ethnic culture also encourages a certain level of earnings misstatement. The political system, inadequate prosecutorial resources, and heavy state intervention further lead to a weak judicial system in Malaysia. The self-censorship practiced by the media led to low public awareness and few public debates with regard to the wrongdoing of the Malaysian publicly listed firms and the politicians (Gunasegaram, 2007). Such a unique institutional and structural environment in Malaysia may have a negative impact on managerial behaviour, making them prone to produce low quality financial reporting, leading to a lack of transparency in the market.

In light of this matter, Malaysia provides a unique setting for the development of a model that can indicate the likelihood of forced financial restatement. With the development of the forced restatement likelihood model, this study may demonstrate new evidence from a country that has different firm ownership, unique business environment and regulations (in comparison to western countries such as the US and the UK). The research findings might also represent other Asian countries with similar backgrounds (such as Thailand and Indonesia) in terms of large government intervention, which is supposed to benefit economic development and the economic empowerment of the Malay population. Findings of the study may also provide a distinctive perspective, which in many respects is different from developed countries.

The following sections are arranged accordingly. Key external factors of the Malaysian institutional environment will be discussed first. These include Sections 2.2 and 2.3 that provide discussion on the political environment and financial reporting in Malaysia. Subsequently, discussion on internal institutional factors, such as the Malaysian regulatory structure and firm ownership structure, are presented in Sections 2.4 and 2.5 respectively. It should be noted that several key issues, such as culture, the level of regulatory enforcement and corporate governance, are interdependent between a number of areas, and therefore the discussion of these key issues would emerge in several sections.

2.2 The political environment in Malaysia

More than half the Malayan population is constituted of the Malays, who are the country's indigenous people. Other ethnic groups include the Chinese and Indians, who have migrated to

Malaya since the 19th century (Verma, 2004). The Chinese became the most economically dominant among all ethnic groups as they have been involved in productive business activities. The issue of wealth inequality between races became a major issue of concern because the Malays felt insecure and were mindful of the Chinese economic dominance.

The era following the 1969 ethnic riot (due to socio-economic imbalances between ethnic groups), saw fundamental changes take place in the Malaysian political, corporate and socio-economic landscape with the implementation of the 20-year New Economic Policy (NEP) (1970-1990). It was the NEP's aim to resolve socio-economic imbalances among the different ethnic groups (Tam and Tan, 2007). Two main NEP objectives include eradicating poverty and restructuring the Malaysian multi-racial society, such that status within the economic function is no longer dictated by race (Randhawa, 2011).

The period in the 1970s saw the rising of Malay-oriented policy and leadership. The Malay political hegemony brought about by the ruling party, the United Malays National Organisation (UMNO)[3] and its coalition parties, was justified on the basis that it represents the Malay interest, being the largest Malaysian ethnic group (Gomez and Jomo, 1999). This led to the rise of "Bumiputerism", an ideology manifested by the NEP (Fraser, Zhang, and Derashid, 2006). The NEP introduced, *inter alia*, capital accumulation for the Bumiputera, an ethnic affirmative policy that favours the Bumiputera, and creation of a Bumiputera capitalist class (Fraser et al., 2006; Gomez and Jomo, 1999). The Bumiputera firms, for example, were given priority for various concessions, including access to capital and subsidies, credit schemes, and licenses, as well as business contracts (Johnson and Mitton, 2003). The implementation of the NEP has nonetheless led to active government intervention in the Malaysian economy.

Limited access to finance may impede the economic development of emerging economies (Claessens and Perotti, 2007; Fan, Wei, and Xu, 2011). In view of this, the Malaysian government often took the initiative to invest in companies so as to provide them with access to funds for business development (Lau and Tong, 2008). The implementation of the Malaysian NEP has resulted in huge political involvement in financing Malaysian firms (Johnson and Mitton, 2003). Certain Bumiputera private firms were favoured by the government for granting

[3] UMNO was established in 1946 and is the largest political party that fights for the Malayan rights. It has ruled Malaya, together with other coalition parties, without interruption since Malayan independence in 1957 (Funston, 1980).

access to finance (Perkins & Woo, 2000). For instance, the Heavy Industries Corporation of Malaysia (HICOM) received huge financial assistance from the government during the term when Dr Mahathir became the Minister for Trade and Industry in 1980. Subsequently, HICOM managed to invest in steel, cement and the auto industry. While certain firms received financial priority from the government, businessmen were seen to increasingly use their personal connections to persuade the allocations of such financial favours (Gomez and Jomo, 1997).

Following the NEP implementation, several pension and investment funds were set up by the Malaysian government to help the Bumiputera invest their pension contributions and savings in privatised firms (Bin Muhamed, Strätling, and Salama, 2014). This has led to the creation of government investment organisations that hold ownership and gain control rights in privatised firms. Government investment organisations facilitate in the supervision and improvement of the financial performance and corporate governance of their portfolio companies. At the same time, the government investment organisations assist in mobilising domestic savings and attracting foreign investment to improve their portfolio companies' access to external funds (Bin Muhamed et al., 2014).

The existence of informal ties between a leading politician or political party and the Malaysian corporations that arose following the NEP implementation became one type of political favouritism in Malaysia (Abdul Wahab et al., 2009). This has caused Malaysia to be well-known with its relationship-based economy due to firms' close relationship with the government (in contrast to the arm's length system) (Bliss and Gul, 2012). From one perspective, the relationship-based system can be seen as a mechanism to stimulate business interest among the Malaysian Bumiputras, and lessen the inequality of wealth distribution among the various ethnic groups. For example, government initiatives of establishing government investment organisations (so-called the government-linked investment companies – GLICs) has helped society to indirectly participate in the economic development by investing their pension contributions and savings in private companies. The indirect influence government officials and politicians exerted over the GLICs, as well as senior civil servants and politicians who serve on the firm's board, has greatly shaped firm's business decisions towards managing society funds in developing the Malaysian economy (Gomez and Jomo, 1999). Affirmative government actions, such as enforcing ethnic employment quotas and retaining government ownership in

strategic industries, further enforced ethnic equality in promoting economic growth (Randhawa, 2011).

From another perspective, the relationship-based system can be seen as creating cronyism, capitalism, and political patronage (Abdul Wahab et al., 2014). The NEP has created opportunities for cronies to gain benefits relatively easily, including benefit on monopoly rights, lucrative contracts, import protection and easier loan financing (Claessens et al., 2000; Johnson and Mitton, 2003). The NEP implementation has forced the Chinese businessmen to realise that cultivating close ties with influential political figures in UMNO may give them continuous access to the means of wealth accumulation. Chinese capitalists started to hire politically influential Malays to serve as company directors, while some Chinese businessmen started to fund the UMNO and its leaders (Gomez, 1999). The practice of funding ambitious politicians by Chinese entrepreneurs acted as a means of getting access to government patronage.

Malaysian state policies favouring certain connected Bumiputera firms remains to be seen as a form of institutionalised ethnicity discrimination (Johl, Subramaniam, and Mat Zain, 2012), and has led to a negative impact on the efficiency and transparency of firms' business operations (Hasnan et al., 2013; Braam *et al*., 2015). Based on the study by Faccio et al. (2006), during 1997-2002 Malaysia was found to have among the largest number of firms with a political connection in relation to its capital market size, which is nearly 20%. Studies have shown that heavy state intervention and the existence of political connections has continued to prevail among Malaysian firms (e.g. Hasnan et al., 2013; Abdul Wahab et al., 2014; Fung, Gul, and Radhakrishnan, 2015). The existence of political connections can be explained by the view held by political scholars, such as North (1990) and Olson (1993). They contend that the existence of political connections acts as a means for the government to control firms in such a way that firms are operated to attain goals consistent with the government's agenda, such as providing employment, government subsidies and other related benefits in return for supporters' votes, political support, and bribes. These politically-connected firms will then obtain benefits from the government, such as privileged access to profitable government contracts, subsidies and an exclusive business relationship with government-owned corporations, in return for their political contribution and votes (Gomez and Jomo, 1999). Overall, it was argued that politicians or political parties share policies with connected firms to stay in power and build personal

wealth (North, 1990; Olson, 1993). Crony capitalism in business affairs creates criticism due to resources misallocation in the Malaysian economy, thereby causing massive wastage, inefficiency, and intransparency in the corporate sector. This is based on the fact that politically-connected firms become rent-seekers who use their close connection with politicians and the state to acquire as much unearned benefit and reward as possible.

In the case of Malaysia, politically-connected firms are not only those firms owned by the government but also include those firms favoured by the government (Gul, 2006). Business benefits arising from a political connection may cause politically-connected firms to be inefficient, and may even inculcate a culture of inefficiency due to the 'protective shield' that the firms get against any scrutiny on deviant behaviour (Bliss and Gul, 2012). Bushman *et al*. (2004) identify several ways in which a political connection may affect financial transparency. Firstly, politicians may exploit the control they have over regulatory policies in support of their cronies who, in return, give bribes, political support, and nepotism. Secondly, politically connected firms may obscure expropriation activities carried out by the politicians and their cronies by suppressing certain firm-specific information. Studies have shown that politically-connected firms are prone to use aggressive earnings management strategies to mask the benefits that they gain from the political connection, particularly those of suspicious legality (Faccio, 2006; Chaney et al., 2011; Hasnan et al., 2013).

Notwithstanding, the Malaysian regulatory authorities lack independence, such that the enforcement of rules and regulations is largely limited due to huge political influence (Liew, 2008). Changes in the regulations are often due to political reasons (Liew, 2008). The control that political elites (who are ultimately involved in the setting of the capital market regulatory framework) have over regulatory policies is often exploited to favour their cronies in return for political support, bribes and nepotism (Gul, 2006; Liew, 2008). As highlighted by Ken (2010, p. 108):

> *"…the ruling elite and their corporate patrons/clients/proxies (most being major shareholders/owners of public-listed firms) as well as captive market regulators are involved in numerous blatant scandalous, manipulative and even fraudulent activities in the capital markets, often to the detriment of minority shareholders".*

As previously discussed, companies do have links with the government, and the regulators have links with the government. Within this view, there is a risk that the government might put

pressure on the regulator, not to force through a restatement but to allow companies to basically find an excuse.

Overall, it is concluded that huge political influence in the Malaysian economy system creates an information asymmetry environment, thus generating problems of intransparency in the Malaysian capital market. In this scenario, the Malaysian regulators may have to rely on red flags to detect misstatement firms. Hence, the aim of this study, to develop a model that can signal towards the likelihood of forced restatement, remains essentially crucial. In relation to this, the study will examine a firm's political connection as one of the likely indicators of forced restatement.

2.3 Financial reporting in Malaysia

The UK's accounting standards have substantial influence on Malaysia since, historically, the country was under British rule for over 80 years. The presence of the International Accounting Standards (IAS) in the 1970s continues to influence and shape Malaysian accounting standards (Ball, Robin, and Wu, 2003). The UK and IAS accounting standards were universally perceived as being of high quality, and are consistent with the concepts of common law of presenting accounting information that gives a true and fair view (Ball, Kothari, and Robin, 2000; Ball *et al*., 2003)). Based on the adoption of the international accounting standards alone, it is therefore expected that reported earnings of Malaysian listed firms would be of high quality.

Nonetheless, empirical evidence on the initial financial reporting quality of Malaysian firms generally shows that they are of low quality. Ball et al. (2003) did a study on financial information quality based on annual earnings announcements of four East Asian countries (Malaysia, Singapore, Thailand and Hong Kong) between 1984 and 1996. Overall, they found that there is no timely recognition of the firm's economic income[4], especially economic losses, hence reducing financial reporting quality. Leuz, Nanda, and Wysocki (2003) did a study on 1990-1999 accounting data of 31 countries and found Malaysia to be among the countries with the worst earnings management ratings.

[4] Economic income is defined as "change in the market value of equity, adjusted for dividends and capital transactions with shareholders" (Ball et al., 2003,.p. 236).

At the early stages of the Malaysian capital market development, the regulatory regime governing the financial reporting and corporate governance practices in Malaysia was a merit-based system. Under the merit-based regulatory regime, it is the regulators who decide on the propriety of firms' transactions via a regulatory assessment of the quality of securities issuance (Haniffa and Hudaib, 2006; Hasnan et al., 2013). In particular, a regulatory assessment is made on a company's viability, management's capability and quality, and overall suitability for listing prior to approving securities issuance (Wong, Fatt, and Yap, 2010). Not only did the merit-based regime have a low regulatory expectation with regard to disclosure practices, it had also effectively reduced market incentives for voluntary disclosure (Ho, Tower, and Barako, 2008).

During the era of the merit-based system, the existence of the International Accounting Standards (IAS) in the 1970s took over to shape Malaysia's formal accounting standards. Since 1978, Malaysia was among the first countries to adopt the International Accounting Standards (IAS) that were issued by the International Accounting Standards Committee (IASC) (Morris et al., 2011). The IASC (and its successor, the International Accounting Standards Board - IASB), is a private-sector and independent accounting setting body with the goal of developing a set of high quality principles-based international accounting standards (Barth et al., 2008). The IASC and IASB have taken steps to produce accounting measurements that better reflect a firm's financial position and performance, and remove any allowable accounting alternatives. The Malaysian Institute of Accountants (MIA) and the Malaysian Association of Certified Public Accountants (MACPA) were two professional Malaysian accounting bodies that endorsed the adoption of IAS in Malaysia. The IAS were reviewed by the MIA and MACPA, who then adapted the Malaysian accounting standards to the IAS. However, compliance with the IAS, or the Malaysian equivalent, was not compulsory and not enforceable until the enactment of the Financial Reporting Act (FRA) 1997 (Saleh, Iskandar, and Rahmat, 2005). As highlighted earlier in this section, prior research has nonetheless shown that improvement of the accounting standards alone (via IAS adoption) does not determine higher accounting quality among Malaysian listed firms (Fan and Wong, 2002; Ball et al., 2003; Leuz et al., 2003). Although the IAS are of high quality, the effects of other features within the financial reporting system, such as poor enforcement quality, could deter accounting quality improvement arising from the adoption of the IAS (Barth et al., 2008; Holthausen, 2009).

In 1996, the Malaysian Securities Commission enforced a new disclosure-based regulatory system (from the old merit-based regime) to promote more rigorous development of transparency and corporate disclosure in Malaysia. Under the disclosure-based regime, an emphasis is put on the timeliness and quality of financial information disclosed by the listed firms (Haniffa and Hudaib, 2006; Hasnan *et al*., 2013). The Asian financial crisis in 1997, however, had destructive implications towards Malaysian economic growth that was rooted in poor corporate governance practices, weak disclosure, transparency, and accountability.

Following the Asian financial crisis, the Malaysian Accounting Standard Board (MASB) and Financial Reporting Foundation (FRF) were established by a Malaysian Parliamentary Act under the Financial Reporting Act (FRA) 1997, with an attempt to reform the Malaysian financial reporting regime and develop an improved formal accounting framework (Morris *et al*., 2011; Wan Ismail *et al*., 2013; Kasipillai and Mahenthiran, 2013). The FRF acts as a trustee body that oversees MASB performance, funding arrangements, and becomes the initial source of views for proposed standards and pronouncements issued by the MASB (MASB, 2010). The MASB was mandated to set accounting standards and is responsible for reporting directly to the Securities Commission (Kasipillai and Mahenthiran, 2013). The MASB plays the role of reviewing, revising and adopting existing accounting standards, as well as issuing new accounting standards; it named the approved accounting standards as MASB standards (Wan Ismail et al., 2013). With the FRA (1997) force of law, all Malaysian companies were required to comply with the MASB's approved accounting standards (Liew, 2007). Overall, the two-tier financial reporting framework, comprising the FRF and MASB, provides an independent standard-setting structure that includes representatives from relevant parties, such as regulators, preparers, the accounting profession and users (Wan Ismail et al., 2013).

Enforcement of approved accounting standards among Malaysian publicly listed firms resides with the Securities Commission (SC). In cases of non-compliance, the SC has the authority to instruct firms to rectify matters, make announcements of the non-compliances, or even penalise the firms for such offences (Wan Ismail et al., 2013). The development of the improved MASB accounting standards is in line with the Malaysian Code of Corporate Governance (MCCG) from 2001 that aims to develop an optimal framework of corporate governance principles and best practices that eventually allows reliable and quality information to be reported to investors and the public in a timely manner (Lim et al., 2014). The study by

Lim et al. (2014) that was done on a panel data of 1,276 Malaysian listed firms for the period 1996 to 2009, found a shorter reporting lag in the post-MCCG implementation period. The result suggests improvement in the quality of firm's financial reporting and disclosure. The findings by Lim et al. (2014) indicate that the effectiveness of the MASB accounting standards (introduced in 1999) was partially supported by the implementation of the MCCG, which is an integral part of the Bursa Listing Requirement in 2001, hence allowing improvement in financial information disclosure.

A new step forward for the Malaysian financial reporting system was documented during the period 2004-2005 when the MASB made great efforts towards adopting the International Financial Reporting Standards (IFRS) issued by the IASB (Muniandy and Ali, 2012). The announcement for IFRS adoption was made at the end of 2004. The Financial Reporting Standards (FRS) were used to rename the MASB standards in 2005. Although the accounting standards were renamed as FRS, the standards remain in line with the IFRS, except for some minor modifications to adapt to the Malaysian settings (Yeow and Mahzan, 2013). The adoption of the Malaysian FRS standards was officially made effective on 1st January 2006. The FRS was initiated based on the MASB plan to ensure that the Malaysian accounting standards move closer towards global convergence with international accounting standards, hence promoting enhanced confidence among foreign and domestic investors (Wan Ismail et al., 2013).

A further step forward was again made when the full convergence of the Malaysian accounting standards to the IFRS took place on 1st January 2012. Following this, the Malaysian accounting standards were again renamed and are now called the Malaysian Financial Reporting Standards (MFRS). It is the main aim of the IFRS full convergence to improve the consistency and quality of financial reporting in Malaysia and promote harmonisation with global accounting standards. The full convergence also works in line with the Malaysian Capital Market Masterplan 2 (2010) to enhance the market's potential value in the future.

There were mixed findings on the quality of financial reporting as a result of the move towards a financial reporting regime since 1997 that required greater mandatory disclosure. The study by Wan Ismail *et al.* (2013) compared earnings quality of the Malaysian listed firms during the period before and after the IFRS adoption (made effective from 1st January 2006) using data

between 2002 and 2009. In comparison to the pre-IFRS adoption period, they document that earnings reported during the period post-IFRS adoption were associated with higher value relevance and lower earnings management. Abdullah *et al*. (2015) analysed 221 Malaysian listed firms in the year 2008 and found that firms' disclosure level was not value relevant, suggesting that a firm's compliance with the IFRS mandatory disclosure requirements does not affect firm value. The fact that the increased level of mandatory disclosure does not appear to be value relevant might suggest that the information is not required by the investor as they have already been informed, or they simply do not trust the information issued in a firm's financial statements.

Overall, substantial efforts have been undertaken by the regulators to improve and maintain high quality accounting standards in Malaysia. This includes the far-reaching IFRS convergence that is intended to create a set of accounting standards that can promote financial statements comparability, enhance corporate transparency, and improve the quality of financial reporting that can benefit users, especially investors and regulators (Ballas, Skoutela, and Tzovas, 2010; Karampinis and Hevas, 2011; Tsipouridou and Spathis, 2012). However, the argument on "reporting incentives" raises doubt about whether the quality of financial reporting is enhanced by merely changing standards. It is unlikely that firms opposing the adoption of the IAS, which is subject to poor enforcement, will make material amendments in their reporting policies (Ball, 2006; Daske *et al*., 2013), and whether they really disclose genuinely informative figures, even when superior accounting practices are mandated (involving more disclosure, or estimates disclosure) (Jeanjean and Stolowy, 2008). Even with common standards, reporting behaviour across various firms may differ due to dissimilar reporting incentives (Leuz and Oberholzer-Gee, 2006). From their study of four East Asian countries (including Malaysia), Ball *et al*. (2003) conclude that managers' and auditors' incentives have more effect on firms' low quality financial reporting (measured as the timeliness of income recognition), despite the high quality accounting standards that were implemented.

Managerial reporting incentives appear to dominate financial reporting standards as a determinant of the quality of corporate disclosure in Malaysia (Ball et al., 2003). Factors such as culture, high ownership concentration, and large political influence encourage incentives among controlling owners/managers to expropriate the interest of the minority investors for the sake of personal or political gain. Obscure financial information is issued so as to mask their

operational inefficiency and deviant actions of rent expropriations, thus creating information asymmetry and lack of transparency in financial reporting.

Additionally, weak investor protection and poor law enforcement feature the Malaysian legal system, a condition that may foster aggressive earnings management practices to take place (Hasnan et al., 2013). The Malaysian judicial system is weak with inadequate prosecutorial resources, weak investor protection and heavy state intervention in business activities (Gunasegaram, 2007). Shareholders' lawsuits and class-action lawsuits are uncommon in Malaysia (Hasnan et al., 2013). Moreover, the degree of punishment is inadequate and is disproportionate to the extent of corporate crime being committed (Hasnan et al., 2013). Overall, regardless of having a high quality financial reporting framework in place, the quality of corporate disclosure and earnings informativeness might be compromised by the presence of a weak enforcement mechanism.

Finally, weak corporate governance practices may also affect the effectiveness of the adoption of IFRS. Studies have questioned real board independence among the Malaysian listed firms regarding whether they are effective monitors (e.g., Haniffa and Hudaib, 2006; Hashim and Devi, 2008) (please refer to Section 2.4 for discussion). The use of aggressive accounting standards (e.g., manipulation of the fair value accounting standards that require estimates based on personal judgement) supplemented by weak board monitoring, may cause earnings management activities to be more damaging to a firm's value. Supplemented with weak regulatory enforcement, aggressive earnings management may be almost impossible to be detected and curbed.

The move taken towards establishing a reporting regime based on international accounting standards with more rigorous mandatory disclosure requirements are among the attempts by the Malaysian government to allow the disclosure of high quality corporate reporting among listed firms. High quality international accounting standards were used as a benchmark as they produce accounting measurements that better reflect a firm's financial position and performance, and remove any allowable accounting alternatives, hence improving transparency in corporate disclosure (Muniandy and Ali, 2012). Overall, there were no major breaks in the development of the financial reporting standards, rather a continuous struggle for improvement. Nonetheless, institutional features within the financial reporting system,

such as highly concentrated ownership, government-related ownership, and excessive state intervention, play a role in influencing managerial reporting incentives to be more self-interested, therefore deterring the issuance of high quality financial information (Ball *et al*., 2003). Weak governance, such as boards not being independent and poor board monitoring, aggravated by weak enforcement of laws and regulation, may provide a ripe condition for aggressive management to take place in Malaysia. Given the institutional environment, firms are initiated to issue obscure financial information to mask perverse managerial actions and inefficiency, thereby creating information asymmetry and intransparency; this ultimately reduces the efficiency and efficacy of the Malaysian capital market. Hence, this study's aim in developing a model to indicate the likelihood of forced restatement remains essentially crucial as it will help to indicate red flags for the Malaysian authorities and other related parties to detect misstatement firms.

Malaysia provides a unique setting for this study to investigate the interplay of the various institutional features towards financial reporting quality within the widely-known 'high quality' principle-based accounting standard setting. This study examines the factors that could indicate the likelihood of forced restatement within a study period from the year 2002 to 2012. The 11-year study period encompassed various development phases of the Malaysian financial reporting framework. These phases include the implementation of the MASB accounting standards (2002-2005), FRS accounting standards (2006-2011), and MFRS accounting standards (2012 to date). Gradual improvements towards enacting more rigorous mandatory disclosure level with the adoption of the international accounting standards were made throughout the study period. In view of this, it is expected that a huge proportion of the study sample would include firms with unforced accounting restatement. This is because the period of study coincided with the transition period for the full convergence of the Malaysian reporting standards with the International Financial Reporting Standards (IFRS). It would also be interesting to examine whether firms might have hidden necessary (potentially eventually forced) accounting adjustments in a more routine announcement about earnings restatement in relation to accounting standards.

2.4 Regulatory structure in Malaysia

The history of Malaysian stock trading dates back to the 1930s (Ibrahim, 2006). Table 2.1 shows the key developments in the Malaysian capital market during the period prior to the 1997 Asian financial crisis.

Table 2-1: Key Developments in the Malaysian Capital Market Pre-1997 Asian Financial Crisis

Year	Key development in the Malaysian capital market pre-1997 Asian financial crisis
1964	The Malaysian stock exchange was officially formed under the name Stock Exchange of Malaysia and Singapore (SEMS).
1973	SEMS undergoes a formal separation to become the Kuala Lumpur Stock Exchange (KLSE) for Malaysia and Stock Exchange of Singapore (SES) for Singapore.
1993	The Securities Commission (SC) was formed under the Securities Commission Act 1993.
1993	The mandatory requirement on audit committees for Kuala Lumpur Stock Exchange (KLSE) listing.
1996	The disclosure-based regime was introduced to replace the old merit-based regime.

In 1973, the Kuala Lumpur Stock Exchange (KLSE) was established and was the prime stock exchange in Malaysia. In 2005, KLSE was demutualised and renamed Bursa Malaysia. Bursa Malaysia prescribes and is empowered to enforce listing requirements, practice notes, and guidelines to market participants. This is consistent with the mission of Bursa Malaysia to ensure that the stock market operates fairly, orderly and with high transparency[5].

Under the authority of the Ministry of Finance, the Malaysian statutory body, Securities Commission (SC) was formed under the Securities Commission Act 1993. The SC plays the prime role of promoting Malaysian capital market development and helps to streamline the law and regulatory framework of the Malaysian securities market. This is to ensure professionalism, efficiency and orderly development of the futures and securities industries, therefore protecting investors' interests. The SC gives licensing to market players and monitors activities to ensure proper conduct among business institutions and several trade exchanges within Bursa Malaysia. Overall, the SC's Policies and Guidelines on Issue/Offer and KLSE Listing

[5] See Vision and Mission of Bursa Malaysia, available at: http://bursa.listedcompany.com

Requirement play a significant role in regulating investors, directors, issuers and brokers (Liew, 2007).

Regardless of the rapid growth experienced by the Malaysian capital market in the 1990s, Malaysia also has its share of corporate misconduct (Abdul Wahab et al., 2014). The Malaysian corporate sector is not free from features such as weak corporate governance, low level of corporate disclosure and transparency (Ball *et al*., 2003; Mitton, 2002). The prevalence of high ownership concentration among Malaysian firms was also seen to be among the reasons that made Malaysia vulnerable to the 1997/1998 Asian financial crisis (Jiang and Peng, 2011). According to Claessens *et al*. (1999), while most firms in Malaysia had concentrated ownership and the controlling owners also manage the firm, there is the tendency that self-interested managers would run the business in such a way that fulfil insiders' interest, although detrimental to the firm's overall profitability. The findings by Khatri, Leruth and Piesse (2002) show that poor corporate governance practices, highly concentrated ownership, and weak debt management negatively impacted firm performance, and has made Malaysian companies vulnerable and more susceptible to financial crises. Bhattacharyay (2004) highlights other key problems that undermine the effectiveness of corporate governance mechanisms in Malaysia; these include (i) heavy government intervention; (ii) weak regulatory framework and legal systems; (iii) weak investor protection; (iv) lack of quality information; and (v) poor discipline in the external market.

In the early stage, the requirements for Malaysian corporate governance were limited (Morris, Pham, and Gray, 2011). Efforts to enhance the corporate governance mechanisms started in 1993 with the mandatory requirement on audit committees for Kuala Lumpur Stock Exchange (KLSE) listing (Muniandy and Ali, 2012). With this requirement, the audit committee (a subcommittee of the firm's board) being independent of firm's management, was made responsible for monitoring and ensuring firms' proper corporate governance to reduce information asymmetry between managers and shareholders (Haniffa and Hudaib, 2006; Liew, 2007). Nonetheless, the effectiveness of the audit committee in instilling higher integrity and transparency among firm managers is questioned. Findings by Abdullah *et al*. (2010), for example, show that audit committee independence is associated with the likelihood of earnings misstatement. The study was conducted during the period prior to the amendment of the MCCG in 2007, and the CEO or finance director was not prohibited from serving on the

audit committee. The result raises a cause for concern of the ineffectiveness of the audit committee, and that having an audit committee is simply a matter of complying with the listing requirements of the Malaysian stock exchange rather than truly being a "watchdog" over a firm's financial reporting process.

The process of enhancing corporate governance practices was expedited when the Asian financial crisis hit Malaysia in 1997; this saw several corporate failures (partially due to ineffective corporate governance mechanism) (Haniffa and Hudaib, 2006). The High Level Finance Committee on Corporate Governance (FCCG) was established by the Malaysian government in March 1998 as an urgent response to the prevalent weaknesses in corporate governance of state-owned and private companies being exposed by the outbreak of the 1997 Asian financial crisis (Haniffa and Hudaib, 2006). The finance committee is chaired by the Secretary General of Treasury, Ministry of Finance, and has representatives from the government and industry[6]. The FCCG was responsible for assessing corporate governance practices and proposing legal reforms for further improvement.

There were several lapses in the Malaysian corporate governance practices identified by the FCCG; these relate to board of directors' efficacy, shareholders' passivity, directors' insufficient responsibilities awareness, ownership concentration and enforcement mechanisms (Othman, 1999). Scepticism arises as to the ability of the board to monitor management, as the non-executive directors are often perceived merely as a 'rubber stamp' for management plans; they are often hired for reasons other than monitoring (Haniffa and Cooke, 2002). In addition, the development of good governance practices is quite constrained when both domestic and foreign shareholders play a passive role in demanding better corporate governance mechanisms (Othman, 1999). Furthermore, the early 1990s recorded an economic boom that turned owners of small firms into directors overnight. This happened following firms' public floatation, where the new directors may not be fully aware and understand the complex regulations and statutory responsibilities to which they are subject. In addition, the prevalent concentrated ownership structure in Malaysia gives rise to problems where minority shareholders were being expropriated by the dominant large shareholders when exercising their control rights (Bany-Ariffin et al., 2010). Finally, the enforcement mechanism for good

[6] There are 12 members in the committee that represent almost all sectors, including the MASB, the Financial Reporting Foundation, the Securities Commission, the KLSE, the Registrar of Companies, the Federation of Public Listed Companies, the Central Bank and the Association of Banks (Shim, 2006).

governance practices is relatively weak, supplemented with relatively small penalties that are inadequate to be a deterrent (Othman, 1999).

The Malaysian Code of Corporate Governance (MCCG), which was released by the FCCG in 2000, sets out recommendations that introduce principles and best practices of good corporate governance that relate to directors' remuneration, shareholders, the board of directors, and audit and accountability (Lokman, Cotter, and Mula, 2012). The MCCG was largely based on the recommendations of the Cadbury Report (1992) and the Hampel Report (1998) in the UK (Haniffa and Hudaib, 2006, p. 1035). The MCCG was fully executed with the revamp of listing requirements of the KLSE in January 2001[7]. Listed firms are required to make full compliance and disclose the extent to which they have complied with the MCCG in the annual reports, or explain the reason for their non-compliance (Saad, 2010). The Revamped Listing Requirements signify an important milestone in the Malaysian corporate governance reform, which creates an environment that mandates a higher quality of disclosure and higher standards of conduct among publicly listed firms (Hashim and Devi, 2008).

The MCCG (2000) sets out a number of principles and best practices of corporate governance. The regulations, among others, include the minimum number of independent directors required on the board (two directors or one-third of the board, whichever is higher). Appointments of directors to the board are to be made by the nomination committee. Furthermore, the whole board should determine the optimum number of members on the board to make sure there are adequate members to perform the various functions and responsibilities. In addition, the chairman role should be separated from that of the CEO so as to ensure a balance of authority and power. The audit committee is also required to have at least three directors, that the majority are to be independent, and that an independent non-executive director should be the chairman. The principles and best practices of the MCCG are aimed at improving managerial integrity and standards of conduct, thereby enhancing the accountability and credibility of financial disclosure made by listed firms.

In 2007, the MCCG was revised where improvement was made to strengthen the roles and responsibilities of audit committees and boards of directors (Johl, Kaur, and Cooper, 2015).

[7] Malaysian publicly listed companies were mandated to disclose, among others, the statement of internal control, statement of corporate governance, audit committee composition, board composition, and audit committee quorum in their annual report (Hashim and Devi, 2008).

Revision of the codes mainly focused on the qualifications, integrity, and professionalism of the appointed directors and members of the audit committee. The revised code also requires listed firms to have an internal audit committee where all audit members should be non-executive directors. Generally, it is the aim of the MCCG (2007) to strengthen firms' boards of directors and audit committees, as well as the internal audit function, and ensures that their roles and responsibilities are being discharged effectively (Bhatt, 2016). It should be noted that the MCCG level of compliance among Malaysian listed firms is limited and changes in terms of adoption was gradual. Thus, this study anticipates no pre/post reform dummy or structural break in data.

The global financial crisis of 2007-2008 has affected the Malaysian economy very badly (Rahman, Ibrahim, and Ahmad, 2015). The weaknesses and calamity that the global crisis caused the Malaysian capital market have prompted the authorities to seek ways of improving corporate governance best practice (OECD, 2011). Furthermore, the need to revise the MCCG (2007) intensified in light of the growing trend of poor firm performance and corporate scandals post-financial crisis involving companies such as Maxbiz Corp Berhad, Megan Media Holdings Berhad, Tat Sang Berhad and Transmile Berhad[8] (Johl *et al*., 2013; Abdul Wahab *et al*., 2014). Accordingly, a newly revised MCCG was introduced in March 2012. The MCCG (2012) consists of eight main principles that cover important issues on strengthening board composition, establishing clearer roles and responsibilities of the board, upholding financial reporting integrity, reinforcing effectiveness and commitments of independent directors, recognition and management of risks, ensuring high-quality and timely disclosure, and recognising the company and shareholder relationship. The introduction of the MCCG (2012) may be seen as a step in the right direction towards achieving an optimal governance framework in Malaysia.

Prior research has, however, shown that the adoption of the Anglo-American corporate governance model (mainly existing in the US and the UK) is relatively ineffective in promoting higher integrity and transparency among the Malaysian listed firms due to the unique political,

[8] Maxbiz Corp defaulted on stock loans redemption that were previously issued for the restructuring of Geahin Engineering Berhad, a firm that formed Maxbiz. Megan Media was involved in massive collusive fraud and debt amounting to RM1billion was raked. Tat Sang inflated assets value in 2007 and was found guilty of providing deceitful information to the stock exchange to obtain an IPO in 2003. Transmile reported false receivables account, and by mid-2007, its market capitalisation was reduced to RM155 million from the previous reported amount of RM4billion (Abdul Wahab et al., 2014).

economic and corporate settings in Malaysia. For example, a study by Wan Mohammad, Wasiuzzaman and Nik Salleh (2016) on a sample of Malaysian listed firms within the manufacturing sector for the period 2004-2009, found that board independence and financial expertise are associated with higher earnings management. This may suggest the possibility that firm's boards might technically comply with the Bursa Malaysia listing requirement and the definition of 'independence', but then hire members who are supporters or from a circle of friends, causing them to be reluctant in raising questions and scrutinising the board performance effectively (Hwang and Kim, 2009). The findings by KPMG Malaysia (2013) on 100 top ranked market capitalised Malaysian firms in 2012-2013 reveal that about half of the independent directors (45%) are former politicians or retired civil servants. The result implies that having a political connection becomes an attraction for a person to be appointed as independent director. They are seen as having the capability of getting easy access to projects, funding and support for business operations, advice on nuances when dealing with government red-tape and help to navigate the myriad of agencies commonly encountered when running a business (Wan-Hussin, 2009; KPMG Malaysia, 2013). The above findings raise the argument that compliance towards corporate governance practices is merely a tick-box exercise rather than by spirit.

Overall, an immense effort was undertaken by the local government and related authorities to develop and improve the quality of the regulatory framework and corporate governance system in Malaysia. There had been criticism on the adequacy, effectiveness and transparency of enforcement by the Malaysian principal enforcement agencies, such as the SC and the Malaysian stock exchange (Liew, 2007). It was revealed at the Asian Corporate Governance Association (ACGA) Conference 2005 held in Hong Kong, that based on a scale of ten, Malaysia ranked 2nd for instituting almost all rules, but was ranked 4th for enforcements (Allen, 2005). Furthermore, the survey by the Credit Lyonnais Securities Asia (CLSA, 2006) shows that based on a scale of ten, Malaysia scored nine for instituting almost all corporate governance rules and regulations (the CLSA consists of various sub-measures of corporate governance score), but only scored 3.5 for enforcement. The Finance Committee on Corporate Governance (FCCG) further highlighted several main concerns with regard to the enforcement actions that include: (i) inadequate autonomy for law enforcement on the regulators' part; (ii) fragmented enforcement power and regulatory framework; (iii) lack of skills and experience in enforcement

efforts; (iv) lack of transparency and accountability by the regulators (Shim, 2006). According to Gunasegaram (2007a), the weak regulatory enforcement in Malaysia is considerably related to excessive political interference, to the extent that political executives have the power to be selective in the imposition of rules and regulations. The view by Gunasegaran (2007b, p.132) says that,

> *"These politicians can determine if regulatory institutions should act against businessmen, even when there is evidence of corruption. By ostensibly enforcing corporate governance provisions, politicians in control of the executive have transferred corporate assets into the hands of their allies…".*

Weak enforcement therefore appears to be the main hurdle in establishing good corporate governance practices and high transparency in corporate disclosure. Weak enforcement of rules and regulations may exacerbate with the prevalence of high ownership concentration in Malaysia that increases managerial incentives to control earnings, thereby reducing the quality of reported earnings (Fan and Wong, 2002). In short, while the financial reporting standards, the regulatory and corporate governance framework is of high quality, weak regulatory enforcement within the Malaysian milieu of excessive political intervention and high ownership concentration may suggest that opportunistic earnings management might be a huge problem in Malaysia. This leads to the creation of information asymmetry and lack of transparency in the market, which causes forced restatement to take place among the listed firms in Malaysia.

2.5 Ownership structure of listed companies in Malaysia

Malaysian public listed firms are commonly featured with highly concentrated ownership (Mohd Ghazali and Weetman, 2006; Ismail and Sinnadurai, 2012). The high concentrated ownership structure of Malaysian firms can be dated back to many years ago when, historically, the Chinese ethnic group dominated businesses in Malaysia, although the majority of the total population (60%) is accounted for by the Malay Bumiputra ethnic group (Johnson and Mitton, 2003).

Family ownership forms the main mode of ownership structure in Malaysia (Ismail and Sinnadurai, 2012). Family firms in Malaysia, i.e., families owning and controlling a huge number of firms (Almeida and Wolfenzon, 2006), are a unique group of shareholders that have great concern regarding reputation, hold poorly diversified long-term investment portfolios (multiple

generations), and full control of senior management positions (Anderson and Reeb, 2003). According to Anderson and Reeb (2003), family firms face reputation concerns that arise from the sustenance of family presence in the firm. The reputation concerns are also in regard to the effect on third parties. The long-lasting nature of family firms suggests that third parties, such as capital providers or suppliers, are prone to have business dealings with the same practices and entities for longer periods in family-owned firms compared to non-family firms. Family firms' reputation will thus develop long-term economic consequences in comparison to the non-family firms that tend to have a relatively continuous turnover of directors and managers.

Managers, cum the firm's controlling owners, have full control of the company and complete power in determining how the firm is managed and run, thus giving them the opportunity to engage in the expropriation of minority shareholders' wealth (Hashim and Devi, 2008). Family firms with founders sitting on the board are also prone to engage in deviant managerial behaviour, as these founders are contended to have a strong emotional commitment towards the firms. This would mean that they would engage in almost anything to ensure firm survival and safeguard their reputation concerning their long-term presence within the family business (Agrawal and Chadha, 2005; Fich and Shivdasani, 2007).

Government-related institutional ownership is another major form of concentrated ownership in Malaysia (Subramaniam, Samuel, and Mahenthiran, 2016). Large ownership among Government institutional investors is the result of the Malaysian National Economic Planning (NEP) implemented in 1971. The NEP was initiated mainly to lessen the imbalances of equity ownership among the different Malaysian ethnic groups, where previously Chinese people predominantly controlled the Malaysian economy (Gul, 2006). Following the NEP policy, government-related institutional investors played a main role in dominating a firm's equity ownership to promote Bumiputera's share of the nations' wealth (Gomez and Jomo, 1999). Government investment organisations (so-called government-linked investment companies – GLICs) were also established with the main aim of helping society to indirectly participate in the economic development by investing their pension contributions and savings in private companies (Bin Muhamed et al., 2014).

Three different types of government investment organisations exist in Malaysia (Bin Muhamed *et al*., 2014, p. 455): (i) investment organisations owned by the federal government (FGLICs)

with the role of promoting federal government's social and economic policies; (ii) pension and investment funds sponsored by the federal government (PIF GLICs) with the role of providing pension benefits or maximising the long-term savings of the Bumiputera depositors; and (iii) State Economic Development Corporations (SEDCs) with the role of promoting state governments' social and economic policies. Although the different types of government ownership may appear to have their own unique set of objectives, nonetheless, Bin Muhamed *et al*. (2014) found that portfolio companies of government investment organisations that are more remote from the central authority (such as the SEDC) demonstrate poor financial performance compared to those owned by more strictly supervised government investment organisations. The findings suggest that the heightened scrutiny by regulatory authorities on federal government owned investment organisations help compensate for the weaknesses in personal incentives of a firm's board members when compared to those board members of government-sponsored investment organisation with relatively looser scrutiny. Overall, while government investment organisations generally help improve the proportion of Bumiputera ownership in the capital market and facilitate firms' access to private funding, government investment organisations as blockholders in listed firms can potentially mitigate problems of transparency and expropriation of the minorities by improving their control and supervision of portfolio firms (Lau and Tong, 2008).

From another perspective, there are arguments where government investors, as large shareholders, lack the incentive to perform effective monitoring as their actions are essentially motivated by political expediency (Shleifer and Vishny, 1994). Choy, Gul and Yao (2011) contend that agency problems arise particularly when government utilises their control and influence via large ownership to favour connected parties, such as politicians and cronies, leading to the expropriation of the minority shareholders. There is also the incentive for firms to act in the interest of government-owners and expropriate rents from the minority shareholders in return for special treatment[9]. Dominant government ownership can lead to a relationship-based system that helps build a protective shield by the government against any scrutiny on actions being made by the firm (Johnson and Mitton, 2003). This would mean that government-owned firms tend to have a close political connection and benefit from

[9] Special treatment includes examples such as secured business contracts (Johnson and Mitton, 2003); access to acquire privatised assets (Johnson and Mitton, 2003); access to funding priorities and subsidies (Gul, 2006); privilege of bailout (Faccio et al., 2006); relaxed regulatory oversight (Bushman et al., 2004); and increased hurdles for competitors or new entrants (Choy et al., 2011).

government protection, such that they are less exposed to market discipline especially when the managers are involved with self-interested deviant behaviour (Lim *et al*., 2014). It is thus expected that government-owned firms tend to be more opaque in their financial disclosure so as to mask their business inefficiency and deviant behaviour of favouring certain connected parties and rent expropriation from the minority shareholders. This was supported by the findings in Gul, Kim and Qiu (2010) that show the stock price of Chinese-listed firms with government as the largest shareholders incorporate less firm-specific information.

Based on the survey by Claessens *et al*. (2000) on 238 Malaysian listed firms in 1996, 67% were in family hands while 13% were state-controlled firms. Further examples can be seen from prior research that shows that the majority of firms' top largest shareholders alone are dominated by family shareholders. For instance, based on a study in 1999, the World Bank Report (2001) found that the five largest shareholders in more than half of the listed firms owned more than 60% of the firms' equity and more than 50% of voting power. The five largest shareholders include nominee companies (46%), non-financial institutions (25%), and government-related institutional investors (17%). In another study by Capulong *et al*. (2000), it was found that most of these nominee companies and non-financial institutions belong to family shareholders. Appointing nominee companies was initially done to hide the true identity of owners, partially resulting from the government's attempt to reallocate corporate shares to the indigenous Bumiputras (Capulong *et al.*, 2000). The study by the World Bank Report (2005) in 2004 shows that Malaysian listed firms are mainly managed by owner-managers. In approximately 85% of Malaysian listed firms, the position of board chairman, vice-chairman, and CEO was held by a member of the controlling family or nominee of the controlling family.

A follow-up study was done by Carney and Child (2013) to examine the ownership and control of the Southeast Asian countries in 2008. It was found that Malaysia remains to have family ownership as its dominant form of ownership structure. More than half of the family firms were at least 25 year old. Carney and Child (2013) further found that Malaysia exhibited the largest increase of government ownership by 2008 in comparison to other South East Asian countries. They noted several changes in ownership among the listed firms from family-dominated to becoming state-dominated, possibly due to the Asian financial crisis being the precipitating factor. Some of the family firms might have been involved in financial distress or

bankruptcy during the crisis, which forced the government to intervene for financial assistance leading to the acquisition of the firm's equity (Carney and Child, 2013).

The deviation of control and cash flow rights of large blockholders is another key feature of firms with a highly concentrated ownership. This is achieved mainly via pyramidal ownership and cross-shareholding between firms (Claessens et al., 2000). High control via crossholdings and pyramidal ownership is another salient feature of listed firms in Malaysia (Faccio, Lang, and Young, 2001; Haniffa and Hudaib, 2006; Hasnan et al., 2013). A pyramidal structured firm, with separation of control and cash flow rights, is defined as "owning a majority of the stock of one corporation that, in turn, holds a majority of the stock of another corporation" (Claessens *et al*., 2000, p.93). The example given by Lemmon and Lins (2003) can be illustrated as follows. A Malaysian entrepreneur named Halim owns 28% of Renong Berhad. With the 28% stake, Halim is made the effective majority shareholder and ultimate owner of Renong Berhad. Renong Berhad, in turn, owns 33% of United Engineers Malaysia's (UEM) equity. The 33% stake makes Renong the effective controlling shareholder of UEM. Since Halim effectively controls Renong and Renong is UEM's major shareholder, Halim then appears to have effective control of UEM. In short, Halim's control right in UEM is 28% and cash flow right of (28% x 33%) 9.2%.

According to Bebchuk, Kraakman, and Triantis (2000, p. 299), in comparison to pyramidal ownership, firms within a cross-holding ownership structure are "linked by horizontal cross-holding of shares that reinforce and entrench the power of central controllers". This would mean that for a cross-holding ownership structure, the voting rights that are used to control a group are distributed over the whole group; this contradicts the pyramid ownership where voting rights are concentrated in the hands of a single shareholder or company. A study was conducted by Claessens *et al*. (1999) in December 1996 to examine the patterns of ultimate control in 2,980 listed companies in nine East Asian countries. They found that 39% of the Malaysian sample firms have a pyramidal ownership structure, while 15% of the Malaysian firms have a cross-holding ownership structure. Carney and Child (2013) did a follow up study in 2008, and document a decrease of 12% in the proportion of pyramidal ownership structured firms (from the previous 39% of pyramidal ownership documented in Claessens et al. (2000)). While the means by which ultimate owners enhance their control (via pyramidal ownership) of the Malaysian listed firms were found to be declining, the separation of ownership and control remain bounded tightly together and generally exhibited relatively little change.

Pyramidal-structured ownership may, however, lead to the separation of cash flow rights and control rights, most affecting firms positioned in the lower tier of the pyramid (Claessens et al., 2000). Pyramid-structured ownership allows the ultimate owner to exercise greater control rights that are disproportionate to the amount of ownership that becomes smaller at the lower part of the pyramid (Bany-Ariffin *et al*., 2010). Claessens *et al*. (2002) and Lemmon and Lins (2003) empirically document the devaluation of other shareholders' interests within a pyramid group as the divergence of cash flow rights and control rights allows ultimate owners to exploit and expropriate a company's resources. The problem is substantiated when the protection of minority shareholders is usually lacking, particularly in the emerging market (Young *et al*., 2008).

Research by Faccio *et al*. (2010) and Bany-Ariffin *et al*. (2010) indicates that the ultimate owners' incentives to avoid dilution of their shareholdings in firms at the bottom of the pyramid means that they prefer raising debt rather than equity to fund investments in these firms. Raising equity may give rise to the presence of multiple intermediates of other shareholdings along the line of ownership, which may dilute the ultimate owners' shareholdings (Carney and Child, 2013). The motive for protecting the ultimate owner's dominance and entrenchment may lead to excessive leverage, which may, in turn, finally put firms in financial difficulty and bankruptcy. The excessive leverage may only cause minimal impact on the ultimate owner in the event of financial distress or bankruptcy; this is because of the separation of cash flow rights and control rights, while other shareholders in the firm carry most of the financial losses.

Overall, prior research shows that managers of the highly concentrated form of ownership tend to report low informative accounting earnings so as to hide potential expropriations (Fan and Wong, 2002; Lim et al., 2014; Abdullah et al., 2015). This may lead to information asymmetry and lack of transparency in the market, thus encouraging managerial practices of opportunistic earnings management to influence firm's share price, which can be misleading to the investors. The prevalence of firms with concentrated ownership in Malaysia may also mean there is less developed public disclosure as insiders are fully informed of the company's activities and financial position (Mohd Ghazali and Weetman, 2006), leading to many cases of insider trading in Malaysia. This is evidenced by Ameer and Othman (2008) in their analysis of

264 Malaysian listed firms where there was a total of 1,629 sales and purchase of share transactions undertaken by directors in the open market from January 2007 to July 2008 alone.

To conclude, some studies may have shown that high ownership concentration reduces agency problems due to a greater alignment between owner's control and equity ownership, leading to high monitoring incentives and a more focused strategic direction of increasing firm's profitability and shareholders' return (Shleifer and Vishny, 1997; Mitton, 2002; Lins, 2003). Firms with a large family ownership, for example, have the intention of preserving family reputation and ensure long-term firm survival so as to pass the family business to future generations. There is, therefore, a tendency for family firms to disclose earnings in good faith (Wang, 2006). As large shareholders, government institutional investors also act as a controlling and monitoring mechanism to compensate for the weaknesses in board members' personal incentives.

Nonetheless, contradicting evidence was also shown by the majority of the studies, where highly concentrated ownership gives rise to agency problems (Fan and Wong, 2002; Young *et al*., 2008; Jiang and Peng, 2011). The tightness of equity ownership in family firms allows managers' self-interested behaviour to go unchallenged, either internally by the firm's directors or externally by the takeover market. Consistently, government-owned firms prefer to issue obscure financial information so as to mask their inefficiency (Shleifer and Vishny, 1997) and deviant actions of favouring specified parties, as well as their rent expropriations from the minority shareholders (Johnson and Mitton, 2003). The lack of monitoring and disciplinary action provides controlling owners with the incentive and opportunities to exercise private control for personal gain at the expense of the minority shareholders. This finally impacts the transparency and reliability of financial reporting, such that information on aggressive earnings management is concealed to deceive other shareholders (Hasnan et al., 2013). Overall, in an attempt to develop a model that can indicate the likelihood of forced restatement, this study would examine how ownership factors, e.g., family firms and government-controlled firms, may link to the possibility of earnings misstatement, hence forced restatement.

2.6 Summary

The Malaysian market and institutional environment play a major role in influencing managerial behaviour and the resulting quality of a firm's financial reporting. The overall Malaysian corporate governance framework and regulatory system is of high quality and provides very good support to Malaysian business activities (Arshad et al., 2016). Nonetheless, there remain certain weaknesses that create a condition that is conducive for aggressive earnings management to take place. Highly concentrated ownership that is prevalent in Malaysia gives great influence towards opportunistic managerial behaviour, resulting in frequent conflicts between both controlling shareholders and minority shareholders (Hashim and Devi, 2008). The conflict becomes worse with the absence of effective investor protection, weak legal enforcement, weak board independence, strong political connection, and government interference within the Malaysian economy. Even disciplinary actions, such as penalties imposed for corporate control, are sometimes small enough to become an effective deterrent. This has led to the pervasive cases of earnings misstatements among the Malaysian listed firms.

Overall, the weaknesses in the Malaysian institutional structure have led to problems of information asymmetry. With poor information transparency, accounting manipulation can be used to influence a firm's share price (Efendi *et al*., 2007). This, in fact, can be misleading to the investors, thus preventing them from effective investment decision-making.

The overview given in this chapter gives insights into the complex interaction between the elements of the Malaysian institutional structure that in turn could give a better understanding of the causes that may influence managers to engage in opportunistic earnings management, or symptoms that may indicate the likelihood of financial misstatement. The overview of the Malaysian capital market environment might also give some early ideas on the type of firm-specific factors (such as financial performance) or corporate governance factors (such as firm's ownership structure and political connection) that could help predict the likelihood of forced restatement.

CHAPTER 3

THEORETICAL FRAMEWORK AND EARNINGS MISREPRESENTATION

3.1 Introduction

This chapter considers the theoretical framework for the study. Based on the main objective of the study, which is to examine whether firms' financial or non-financial corporate governance characteristics affect the likelihood of forced restatements in Malaysia, this chapter starts with a discussion of agency theory to support a better understanding of managerial opportunism, the incentive for earnings misstatement, and the consequential forced restatement. Section 3.2 firstly explains the definition and behavioural assumptions of agency. Section 3.3 then presents the concept of the agency problem, and its relationship with financial reporting. Section 3.4 discusses how ownership structure, financial reporting discretion, and corporate governance may relate to each other.

Following the discussion on how agency conflict may influence managers' incentives in the financial reporting process, the next section of this chapter further highlights the importance of forced restatement. Specifically, Section 3.5 begins by discussing the definition of the different types of financial restatement and the destructive effect of forced restatement. Section 3.6 discusses earnings misrepresentation; this covers all of those areas, some of which are allowed (earnings manipulation), some of which are not allowed (earnings misstatement), and some of which are fraudulent. The discussion on the various types of earnings misrepresentation may help provide a better understanding of the differentiation between each particular earnings attribute, and identify which of the earnings attributes are more likely to lead to forced restatement. Subsequently, the different motivations of earnings management are presented in Section 3.7. Earnings management represents an important subject matter in this whole study; this is because incidences of earnings misstatement normally arise from opportunistic earnings management, which then tends to shift towards more aggressive accounting practices that cross the non-GAAP boundary. This marks the point when firms are likely to issue forced restatement. The final Section 3.8 provides the summary for this chapter.

3.2 Agency theory

Modern corporations have evolved to become an entity that is established based on the operational skills of a qualified management team combined with an amount of capital funded by a dispersed pool of shareholders (Koh 2003). This has led to the existence of an agency relationship. An agency relationship is defined by Jensen and Meckling (1976, p. 308) as

> "a contract 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".

In particular, managers (agents) are involved in initiating and executing exchanges between the nexus of shareholders (principals), customers, suppliers, employees, creditors and other relevant stakeholders (Fama, 1980; Fama and Jensen, 1983). The agency theory emphasises that shareholders become the residual claimants to the remaining payoffs once the contractual rewards have been delivered to relevant parties such as executives, debtholders, and possibly other stakeholders (Walker, 2013).

Agency theory, which was developed based on the contractual framework, focuses on incentive problems that arise from the divergence of risk preferences and objectives among the contract parties (Eisenhardt, 1989). Agency theory is developed based on two behavioural assumptions: (i) bounded rationality, and (ii) opportunism. Firstly, it is assumed that both principals and agents are intendedly rational but boundedly so. This means that economic decisions are made rationally by individuals (e.g., to maximise their own utility), but it is bounded to the extent that the decisions are not made within a milieu of perfect knowledge; this is because an individual's capacity to retrieve and assess all relevant information accurately is limited (due to cognitive limitation, for example).

Secondly, both principals and agents can get involved in the problem of opportunism, where there is a propensity for an individual to seek self-interest through guile (Williamson 1996). Individuals would rather "strive rationally to advance their own personal goals" than prioritising those of the firm due to the "human selfishness and struggles for power" that form part of their self-interest behaviour (Simon, 1997, p.88). Given the opportunities, rational individuals typically opt for choices that make them better off. When engaged in opportunism, hidden actions, such as shirking, perquisites consumption, and reporting manipulated

information, may result in one party (agents) enjoying self-benefits but at the expense of other parties (principals) (Jensen and Meckling, 1976; Schipper, 1989).

Overall, agency theory highlights a major problem in establishing and preserving mutually satisfactory behaviour among the potentially self-interested agents, when information about their actions is incomplete, uncertain, costly and asymmetrically disseminated among the principals (Oviatt, 1988).

3.3 Agency problem

The delegation of power to agents by principals to take control and use a firm's assets give rise to an agency problem. An agency problem occurs when, (a) there are conflicting goals or desires between principals and agents, and (b) it is hard or costly for principals to observe and verify agents' actions (Eisenhardt, 1989). Asymmetric information and transaction cost are thus seen to be the key factors of the agency problem. In the event where these two constraints are absent, both principal and agent may possess the same information, in such a way that the principal is able to observe and verify actions undertaken by the agent without any cost.

Agency theory highlights that the condition of uncertainty in which a firm operates gives rise to possible information asymmetries between managers who control the firms and the shareholders. Information asymmetry potentially leads to the divergence of interest between shareholders and managers. There are two main forms of information asymmetry (Walker 2013). First is the moral hazard problem (hidden actions) that arises when external shareholders are not able to scrutinise the actions and decision-making made by the managers. It would be at least difficult, if not impossible, for shareholders to observe whether managers are working towards fulfilling the shareholders' interests, or for them to monitor the riskiness of investment choices being made. Second is the adverse selection problem that represents agents' misrepresentation of ability. Adverse selection arises when a principal has limited ability to completely verify the skills and abilities that the agents claimed to have, either when the agent is working or during the hiring period. For instance, adverse selection takes place when an employer cannot assess whether a research scientist really has experience in a scientific specialty that he claimed to have (Eisenhardt, 1989).

Principals may minimise agency problems by incurring some agency costs. According to Jensen (2005, p. 6), agency cost represents “the sum of the contracting, monitoring and bonding costs undertaken to reduce the costs due to conflicts of interest plus the ''residual loss'' that occurs”, based on the fact that it is almost impossible to perfectly align the interests of the agents to that of the principals. Solving the agency problem may require contracts that “are not costlessly written and enforced” (Fama and Jensen, 1983, p. 307). A comprehensive contract may be written covering all aspects of possible future events to ensure objectives align between principals and agents. However, transaction costs that arise from uncertainty, negotiating, harmonising and enforcing the contract between the two parties tends to restrict the principal’s scope of writing a complete contract (Oviatt, 1988; Hart, 1995). Due to the costliness of writing a complete contract, an incomplete contract may be written by a principal that contains gaps and missing provisions (Hart 1995). As a result, an information gap may remain between the principal and agent.

Other than a written contract, bonding and monitoring activities may also help minimise agency problems. Monitoring costs are typically incurred by the principals when monitoring activities are undertaken to control agents’ behaviour; this includes instances such as appointing a board of directors, auditing, incentive plans and budget restrictions. As for bonding costs, these are incurred by the agents to guarantee that agents do not engage in activities that can harm principals’ interests. For example, the cost of the internal audit incurred by the managers acts as a signal to the owners that managers are performing in a manner that is consistent with the employment contract and are acting responsibly.

Nonetheless, implementing bonding and monitoring activities are all costly, meaning that the total elimination of agents opportunistic behaviour is almost impossible (Dechow and Sloan, 1991). The cost that remains from the divergence between agents’ decisions and the decisions that would maximise principal’s wealth is called residual loss (Jensen and Meckling 1976). Residual loss refers to the ultimate loss in firm value that cannot be further reduced by either incurring additional bonding or additional monitoring expenditures.

3.3.1 Agency problem: Dispersed ownership vs concentrated ownership

Since the 1930s, many large firms in the US are mainly owned by many small shareholders. According to Berle and Means (1932), shareholders make small investments in each firm to

diversify their investment risks. The dispersion of ownership across a huge number of public shareholders results in the effective separation of ownership of residual claims (vested in the shareholders) and control of corporate decisions (vested in the management team) (Berle and Means, 1932). The widely-scattered ownership implies that no dominant working control can be maintained. Generally, the widely dispersed shareholders have no power to effectively exercise control over the wealth that they themselves contributed to the company (Berle and Means 1932). In this condition, the power to operate the business's day-to-day activities is delegated by the shareholders to the managers who possess relevant, valuable and specific skills and knowledge. Management acts on behalf of shareholders' interests as the firm's coordinator in making decisions related to resources allocation (Fama, 1980).

The separation of ownership and control creates a condition where the interest of shareholders and managers often do diverge. The divergent interest gives rise to incentives among managers, who have the power of control, to maximise their own utility and extract private gain at the expense of the shareholders; this gives rise to the term principal-agent conflict (Young et al., 2008). Writing contracts that perfectly align the objectives of both managers and shareholders is very costly (Healy and Palepu, 1993), and relying on contracts alone is insufficient to resolve agency conflicts (Hart, 1995).

In developed markets, concentrated ownership is widely viewed as a mechanism that could possibly address traditional principal-agent conflicts (Demsetz and Lehn, 1985; Grossman and Hart, 1986). Ownership concentration is where a large portion of shares with voting rights are owned by certain individuals or a few groups of shareholders (Young and Ahlstrom, 2003). Agency theory postulates that dominant shareholders are more inclined to monitor managers' actions due to the significant loss of wealth they might incur if a firm performs poorly, and that they have enough power to monitor activites at a low cost. Monitoring further supports the alignment of interest, where minority shareholders can further benefit from the dominant shareholders' oversight (Holderness, 2003).

Nonetheless, if the dominant shareholders are more concerned about their own interests, it is likely that they will pressure managers to act for their own personal benefit (Holderness, 2003; Young et al., 2008). There are various forms of personal benefit; these may include transfer

pricing through related party transactions, or even those relating to gaining reputation and personal satisfaction (Hart, 1995).

Many listed firms, especially in the emerging economies, are mainly dominated by highly concentrated ownership. The uniqueness of the institutional background in emerging economies with high concentrated ownership and poor legal protection of minority shareholders, calls for two key types of agency problems. The first is the common traditional principal-agent problem that involves conflict between shareholders and managers. The second, which is more pronounced in developing countries than in developed countries, is the principal-principal conflict that take place between two different types of principals, i.e., controlling shareholders and minority shareholders (Young et al., 2008).

Generally, shareholders' behaviour towards a firm might be affected by the extent of control (voting) rights and cash flow (ownership) rights associated with their common shareholdings. Specifically, cash flow rights may affect the wealth of shareholders (via capital gain or distribution of dividends), while the control rights give shareholders the power to observe and monitor managerial action, as well as protection from being exploited by a firm's managers (Shleifer and Vishny, 1997). In this view, shareholders' power and incentive to oversee managers and maximise profit should intensify when a substantial proportion of ownership rights is retained in addition to control. Such incentives may also help in restraining controlling shareholders from the diversion of a firm's resources, as well as increasing share value of the minority investors (Jensen and Meckling, 1976; Shleifer and Vishny, 1986). Overall, it is postulated that concentrated ownership creates effective monitoring by the dominant shareholders (Demsetz and Lehn, 1985; Shleifer and Vishny, 1997).

In the East Asian emerging economies, firms with concentrated ownership exhibit huge divergence between control rights and ownership rights; this is due to the fact that dominant shareholders often exercise great control over a firm, regardless of their small stake in ownership rights (Claessens et al., 2000, 2002). A shareholder is considered as a controlling or dominant shareholder when the person has indirect or direct ownership of substantial voting shares and obtains effective control over a firm's policies and operations (La Porta et al., 1999). This would mean the substantial number of shares owned by the controlling shareholders should increase their ability and incentive to control the firm's policies and major decisions. In

most cases, these controlling shareholders participate in undertaking a certain managerial role, such as becoming the firm's chairman or chief executive officer (La Porta et al., 1999). The high overlap between management and controlling shareholders may not only weaken discipline towards management, but it also creates an opportunity for rent-seeking activities to take place (Filatotchev et al., 2005). Furthermore, the excess control rights over ownership rights often give rise to the expropriation of minority shareholders wealth (Faccio et al., 2001). This principal-principal agency problem mainly arises due to the goal incongruence between the majority and minority shareholders, resulting in the majority investors abusing their control rights by extracting private benefit of control at the expense of the minority shareholders (Shleifer and Vishny, 1997).

It was documented that the vast majority of public listed firms in Asia are controlled by families as the largest investor (Claessens et al., 2000; Heugens et al., 2009; Steier, 2009). Claessens et al. (2000) further found that over two-thirds of East Asian companies, including Malaysia, have a single shareholder as the largest controlling shareholder. Claessens et al. (2000) also discovered that in most parts of the world, ultimate owners of most listed firms have control rights that significantly exceed their cash flow rights; this is usually via pyramidal ownership or cross-stockholdings. Thus, the ability of the dominant shareholders to exercise control over a firm's operations, despite their small stake in cash flow rights, is inevitable in developing countries. It is the separation of control rights and cash flow that has motivated controlling shareholders to go for asset expropriation (e.g. poor strategies or shirking) for personal benefit (e.g., hiring unqualified family members).

With regard to the discussion above, the agency theory, in particular, the principal-principal agency theory is used in this study as a theoretical background to justify incidences of managerial opportunism and misstatement, and therefore the forced restatement that occurs in Malaysia. This is further explained in the next Sub-section 3.3.2 and Section 3.4. Consequently, the implementation of a high quality corporate governance mechanism becomes important to help monitor managerial activities, limit deviant managerial behaviour, and finally mitigate these agency conflicts. As noted by Hermanson (2003, p.44), "Good governance goes in-hand with reduced risk of financial reporting problems and other bad accounting outcomes".

3.3.2 Financial reporting and agency problem

The demand for financial information arises due to information asymmetry and incentives misalignment between principals and agents (Healy and Palepu, 2001). Corporate reporting serves as a monitoring tool that helps reduce the information gap that arises due to the separation of ownership and control, where principals do not have full rights in decision making and where the agents' behaviour is unobservable (due to adverse selection or moral hazard). Ideally, corporate reporting and auditing help provide shareholders with reliable and relevant information that is used to assist in the effective monitoring of agents' behaviour and thus reduce principal-agent problems (Armstrong et al., 2010).

Companies started to report financial information even before it was legally required. The 19th century provides evidence of an unregulated economy where corporations in the US and the UK present their financial statements to the shareholders, although not legally required to do so (Watts, 1977). In alleviating agency conflicts, the implicit and explicit principal-agent contracts typically use accounting information that includes aspects such as business decisions taken, usage of resources, and returns generated from investments (Beyer *et al.*, 2010). This enables shareholders to monitor agents' compliance with the contractual agreements and to determine whether a firm's resources are managed in line with the shareholders' interests.

However, misalignment of incentives between principals and agents (principal-agent conflict) can impede managers from conveying reliable information. In a business environment with concentrated firm ownership that is prevalent in emerging countries such as Malaysia, the principal-principal conflict is more likely to prevail. The controlling shareholders (who are also the firm's managers) have superior firm-specific information than the minority shareholders, i.e., by virtue of being closer to a firm's production process and other aspects of the firm's business activities; this gives rise to information asymmetry. Due to the informational advantage that controlling shareholders have over the minority shareholders, they are prone to selectively and strategically disclose information, and may not voluntarily disclose all private information. Controlling shareholders often do not report information that is harmful to their personal interests, e.g. information that indicates extraction of private benefits or firm's poor performance (Verrecchia, 2001). The minority shareholders are typically at an informational disadvantage, which thus creates or exacerbates principal-principal conflicts (Armstrong et al.,

2010). The information gap that exists may hinder even highly skilled board members from monitoring and evaluating controlling shareholder's actions effectively (Jensen, 1993).

The regulation of disclosure and auditing is among the mechanisms that help regulate controlling shareholders/managers in the disclosure of certain accounting information levels and improves information credibility. Accounting standards and disclosure regulations are used to regulate financial reporting choices that are available to the managers in preparing the financial statements. For instance, local and international accounting standards are designed to increase the level of transparency and quality of financial information. The accounting standards probably fail because there are forced restatements, but they only fail in extreme circumstances and are therefore actually fulfilling their functions. The reasons why there are rare cases of earnings misstatements, or why their systems generally work, are that the standards are well thought through and are of high quality; hence there are these outliers of misstatements and forced restatements.

Disclosures can be effectively enforced by the regulators (where shareholders are unable to enforce on their own) as regulators can execute certain sanctions that are not available in private contracting (Beyer *et al.*, 2010). For example, stock market supervision in Malaysia is performed by the Securities Commission (SC) by setting certain disclosure rules for listed firms. In cases of non-compliance, the SC have the authority to instruct firms to take rectifying actions, make announcements of the non-compliances, or even penalise the firms for such offences (Wan Ismail et al., 2013). Furthermore, by having minimum disclosure requirements as imposed by the ruling accounting standards, the information gap between controlling shareholders and minority shareholders can be reduced (Healy and Palepu, 2001).

Alternatively, monitoring expenditure incurred by the shareholders in hiring reputable information intermediaries, such as auditors, may help align principal-principal interests by scrutinising the credibility of financial statements. External auditors may provide independent assurance on the quality of financial information being disclosed publicly, thereby limiting managers' ability to engage in earnings manipulation, and thus the incentive to extract minority shareholders' wealth (Fan and Wong, 2005). Establishing an internal audit within companies acts as an adjunct to the external audit function, the difference being that internal audit costs are incurred by the managers (Adams, 1994). Incurring internal audit costs (i.e.,

bonding expenditure) may signal to the shareholders that managers are behaving responsibly and fulfil shareholders' demand for accountability. Ideally, disclosure regulations and auditing are among the corporate governance mechanisms that can reduce information asymmetry.

Nonetheless, the ineffectiveness of financial reporting regulations and auditing may hinder the efforts of curbing agency problems and information asymmetry in capital markets. Problems specific to Malaysia, such as weak regulatory enforcement, may limit the efficacy of regulations to impede managerial opportunism in financial reporting. Poor audit quality may also render auditing to be ineffective. When there are imperfections in accounting regulations and auditing, among others, it is likely that managers may trade-off between implementing and disclosing accounting decisions to disseminate their superior information on the firm's performance to the shareholders, and to manage financial information that suits managers' self-interests.

In the case of Malaysia, notable cases of forced restatement that have emerged indicate the continued failure to ensure that there is reliable and credible financial reporting. In effect, unscrupulous shareholders or blockholders use corporate reporting as a medium to increase information asymmetry by not reporting accurately. Overall, incidences of forced restatement that occur in Malaysia can also be taken as symptoms of poor corporate governance (further discussed in Chapter 2). The Malaysian government, as well as international agencies, advocated that improving Malaysian corporate governance practices is a crucial reform; it is also a significant way of making the Malaysian corporations resilient to any opportunistic behaviour and deviant actions, thus enhancing the quality and credibility of a firm's financial reporting. As advocated by the World Bank (2000, p. 69), "Deficiencies in corporate governance did not constrain the impressive pre-crisis performance of East Asia's emerging market economies – but they amplified the subsequent downturns".

3.4 Ownership structure, financial reporting discretion, and corporate governance

Malaysia is well known with its highly concentrated ownership among most of the listed corporations (Claessens et al., 2000, 2002). The proportion of listed firms with family ownership in Malaysia is among the highest in the world (Claessens et al., 2000, 2002). Other investing parties, such as regulators and institutional investors (private sector and government-related), also hold dominating interests in Malaysian listed companies (Ismail and Sinnadurai,

2012). Other forms of ownership, such as crossholdings and pyramidal structure, present as another salient feature of listed firms in Malaysia (Faccio et al., 2001; Haniffa and Hudaib, 2006; Hasnan et al., 2013).

The deviation of control and cash flow rights of controlling shareholders is a key feature of firms with highly concentrated ownership. As discussed in Section 3.3.1 earlier, the divergence between control rights and cashflow rights among controlling shareholders exacerbates agency costs. This is due to the incentives and opportunities that arise among controlling shareholders to engage in extracting private benefits of control at the expense of the minority investors (Claessens et al., 2000; Young et al., 2008). Various ways were employed for extracting private control benefits, which include the appropriation of a firm's assets, perquisite consumptions, or even outright theft.

These private control benefits are considered to be part of an opaque information environment that lead to controlling shareholders (who are also the managers/insiders) abusing private information (Peng and Jiang 2010). The opaque information environment within highly concentrated firm ownership creates the incentives among dominating shareholders to employ aggressive accounting practices to conceal the firm's true underlying performance; it also masks their deviant behaviour of extracting the wealth of minority investors (Leuz et al., 2003; Haw et al., 2004). Prior research has shown that expropriation activities lead to practices of opportunistic earnings management that result in poor quality of public disclosure, especially among firms where owners have more control rights than the cash flow rights (Fan and Wong, 2002; Filatotchev et al., 2011; Ismail and Sinnadurai, 2012; Hou et al., 2015). Managers'/owners' adoption of aggressive accounting practices results in earnings manipulation and misstatements; this then leads to the likelihood of firms being issued with forced restatement (Ma et al., 2014; Abdul Wahab et al., 2014).

A variety of external and internal mechanisms have been introduced to curb and limit agency costs, through what is called corporate governance. Good corporate governance practices affect the way a firm is managed and the efficacy of its governance structure (Haniffa and Hudaib, 2006). Various governance mechanisms were suggested; these include debt financing, board structure, market for corporate control, and shareholdings by outsiders and insiders (Haniffa and Hudaib, 2006). Gregory and Simms (1999) assert that the implementation of

effective corporate governance mechanisms is crucial as it promotes an efficient allocation of resources and facilitates in attracting productive investment capital for firms and economy growth, via increased confidence among creditors and investors, locally and internationally. Good corporate governance also helps improve a firm's responsiveness towards fulfilling societal needs and expectations, which could lead to a better long-term performance for the firm (Gregory and Simms, 1999).

Lack of transparency of firm's business operations to the shareholders increases the demand of corporate governance mechanisms that can alleviate mainly the moral hazard agency problem (Fan and Wong, 2002; Bushman et al., 2004). Cohen et al. (2004) highlight the interrelationships between the various mechanisms within the corporate governance mosaic for financial reporting quality. There are two mechanisms: (i) internally, which comprise of internal auditors, external auditors, audit committee, the board of directors, and management; and (ii) externally, comprising regulators, the legal system, stock exchanges, legislators, financial analysts, and stockholders.

One aspect of internal corporate governance mechanisms is auditing, as has been discussed earlier in Section 3.3.2. Auditing is nonetheless essential as it helps scrutinise managerial actions. The external audit may provide independent assurance on the credibility of financial information. In support of the external audit, an internal audit helps maintain cost-efficient contracting between managers and shareholders. The audit committee is another monitoring mechanism that mainly comprises of independent directors that oversee the firm's financial reporting process. The contribution of these various auditing mechanisms may improve managerial monitoring activities and enhance the effectiveness of aligning the interests between owners and managers.

Fama and Jensen (1983) illustrate the role of the board of directors as another monitoring device for managerial opportunistic behaviour. The board retains the ultimate control rights (delegated from the shareholders) over the agents, including monitoring, hiring and firing, as well as setting compensation plans for the top management. The board of directors acts as an information system that can be used by shareholders of large corporations to monitor and supervise managerial behaviour. The firm board tends to have rich firm-specific information, which initiates a firm's top management to act in the best interest of the shareholders (Fama

and Jensen, 1983). The board's richness of information can be measured operationally in terms of its specific characteristics, such as board meeting frequency, board independence and the proportion of financial expertise on the board (Eisenhardt, 1989). The inclusion of an outside non-executive director further enhances the board's ability to monitor managerial behaviour efficiently. The outside directors reduce any potential collusion with the top management, consistent with their incentive to uphold the reputation as being experts in decision control. Overall, board monitoring that is done in combination with efforts from non-executive and outside directors (who are independent from managerial influences) may enhance the integrity and reliability of accounting information.

In addition, substantial efforts were made by regulators and relevant authorities to improve corporate governance practices; these included introducing improved accounting rules that use international standards of good practice as a benchmark, and high quality corporate governance codes of conduct (Filatotchev et al., 2011). Nonetheless, the increasing cases of high-profile accounting scandals and corporate failures that took place, especially in emerging countries such as Citic Pacific in China, SK Networks in South Korea, Satyam in India, and Transmile in Malaysia (Filatotchev et al., 2011; Chen et al., 2014), have highlighted the possibility that firm-level corporate governance practices might have failed to curb abuses of private information and improve corporate transparency in developing stock markets (Filatotchev et al., 2011).

The mere imitation of governance structures and mechanisms in developed countries without properly considering the socio-politic-economic environment in that developing country might not help mitigate corporate scandals, especially in Malaysia (Haniffa and Hudaib, 2006). The presence of an asymmetric information environment and the separation of control rights and cash flow rights among concentrated ownership firms in emerging economies, are among the factors that might have contributed towards the failure of the firm-level corporate governance system. Such phenomena introduce the likelihood of principal-principal conflicts as the controlling shareholders' (who also tend to be the manager) self-interest may result in the misappropriation of corporate assets, e.g., by pursuing imprudent or overly risky investment projects at the expense of the minority capital providers (Young et al., 2008).

Furthermore, the possibility of detecting accounting misstatements in developing countries is relatively low due to their less effective governance mechanism when compared to developed countries. Regulatory enforcement and legal protection are relatively weak in developing countries, especially in Malaysia (Gunasegaram, 2007a), resulting in difficulties for detecting and curbing the acts of earnings misstatement. This is in contrast to developed countries where firms with alleged financial misstatements will restate their earnings promptly as they are highly scrutinised and are impacted largely by the reputational and financial penalties imposed by the capital market (Johnson et al., 2000; Cheng et al., 2010). In view of this matter, this study finds it essentially important to investigate factors that could indicate the likelihood of forced restatement that is rarely documented, especially in developing countries (Bany-Ariffin et al., 2010).

Within the Malaysian economic background of highly concentrated ownership, the tightness of firm ownership may leave the behaviour of self-interested managers to go unchallenged, either internally by the firm's board or externally by firm takeover in the market. This is because controlling shareholders, who also act as the firm's managers, acquire effective control over the firm and gain high power in determining how the company is operated, thus the likelihood of them expropriating the wealth of minority shareholders. Hence, it is the study's main objective to examine the financial and corporate governance determinants of forced restatement firms. Findings from the research will later be used as a basis to develop an exploratory forced restatement prediction model, which forms the secondary objective of this study. With this, the impact of weaknesses in corporate governance factors, such as ownership structure, the board of directors and audit, among others, on managerial opportunistic reporting can then be determined.

3.5 Definition of forced restatement

A financial restatement is typically issued when a firm's initial financial information is non-compliant with the Generally Accepted Accounting Principles (GAAP), or provides material misleading information. For the purpose of this study, financial restatement is identified in two different forms, i.e., (i) accounting restatement, and (ii) forced restatement. The first type, accounting restatement, may take place resulting from operational actions and may not indicate financial irregularities (Efendi et al., 2007). A firm's operational actions that give rise to

accounting restatement include changes in accounting policies or principles, dividend distributions, stock splits, mergers and acquisitions, and change of accounting period (Palmrose and Scholz, 2004; Agrawal and Chadha, 2005). The second type, forced restatement, refers to an event where a company is forced by the auditors, Securities Commission or other enforcement agencies to restate its earnings due to GAAP violations, where the reported original financial statements at the time of issuance were incorrect (Hennes et al., 2008). The GAAP violation or earnings misstatement may be due to unintentional errors or intentional irregularities, and can be misleading to the users of financial statements. The seriousness of forced restatement may extend to be due to earnings misstatement and even outright fraud (Chen et al., 2014).

Forced financial restatement is an outcome of management opportunism built on the purpose of extracting private benefits of control at the expense of uninformed shareholders (Schipper, 1989; Healy and Wahlen, 1999), thereby raising a more general concern about the quality of a company's financial reporting (Akhigbe et al., , 2005). In contrast to bankruptcy and firm failures, forced restatement signals a lacking in credibility of a firm's prior financial reporting as it fails to uphold integrity in public disclosure, which prevents investors from making informative investment decisions (Chen et al., 2014). It is unlikely that sceptical investors can detect any accounting manipulations that act as a threat to their investments absolutely (Frédéric et al., 2013). Therefore, not all misstating firms end up with forced restatement as some of them are likely left unidentified, while some are unknown misstatements (Dechow et al., 2011).

Although forced earnings restatement rarely occurs, it is considered a significant accounting event (Ettredge et al., 2012). This can be explained by the destructive consequences that happen when a firm is forced to restate. The impact is damaging, not only to the firm but also to other main market players including the investors, auditors, regulators and financial analysts. Prior empirical research has also shown that forced restatement gives rise to a high cost of capital (Hribar and Jenkins 2004), significant penalties and reputational cost (Karpoff et al., 2004), high executive turnover, and labour market penalties (e.g., poor employment prospects) (Srinivasan, 2005; Desai et al., 2006; Hennés et al., 2008), an increase in shareholder lawsuits and firm litigation (Palmrose and Scholz 2004), huge stock price declines (Agrawal and

Cooper, 2015), massive investor loss (Palmrose et al., 2004; Hennés et al., 2008), and bankruptcy filings (Palmrose and Scholz 2004).

In view of the destructive nature of forced restatement, the development of a research model that can identify factors that affect the likelihood of forced restatements seems crucial, so that firms that warrant investigation can be more easily identified. Findings of the study on the likelihood of forced restatement may then be used to assist investors in making more efficient investment decisions, financial analysts in producing reliable investment planning and strategy, auditors in identifying red flags of misstatement firms, and regulators in improving laws and regulations for better investor protection.

3.6 Types of earnings misrepresentation

Prior research has identified various attributes of low accounting quality that can lead to forced financial restatement. These include accounting errors (Defond and Jiambalvo, 1991), earnings manipulation (Beneish, 1999), earnings misstatement (Dechow et al., 2011), and fraud (Ettredge et al., 2010; Hasnan et al., 2013). Stolowy and Breton (2004) explain the distinction between fair presentation, earnings manipulation, and fraud. This study, however, extends the different categories of earnings misrepresentation by including not only earnings manipulation and fraud (Stolowy and Breton, 2004) but also earnings misstatement. Figure 3-1, as shown below, is adapted from Stolowy and Breton (2004). The figure explains the difference between fair presentation, earnings manipulation, earnings misstatement, and fraud. It is essential to define and discuss the various terms of low accounting quality so as to enable differentiation between each particular earnings attribute on which this study focuses.

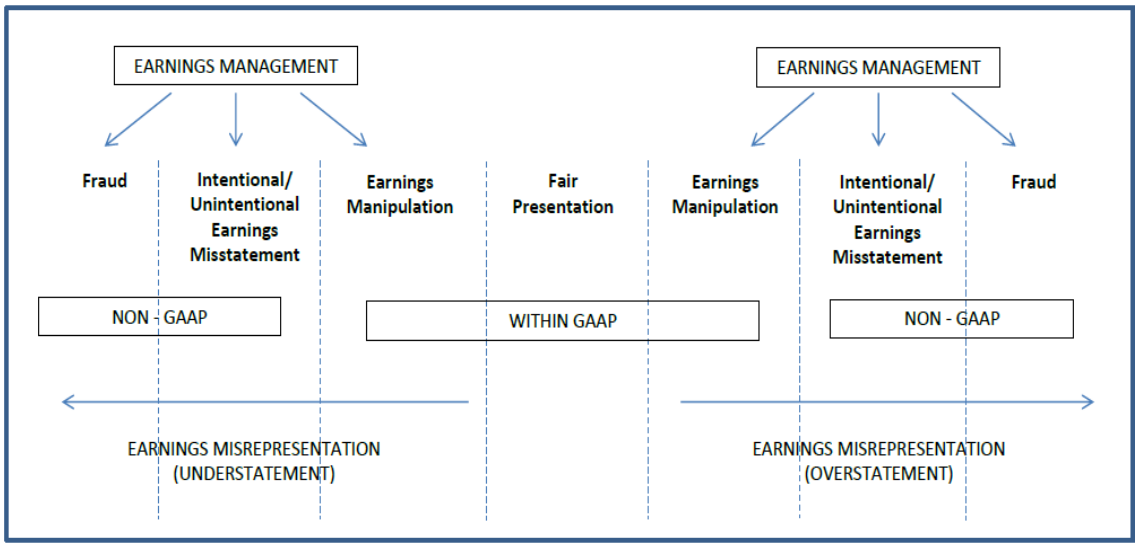

Figure 3-1: Earnings misrepresentations and fair presentation

Source: Adapted from Stolowy and Breton (2004).

Financial statements should be prepared with a fair presentation in compliance with the Generally Accepted Accounting Principles (GAAP) (GAO, 2002). The IASB (2010, p.86) describes fairly presented financial statements to be showing "a true and fair view of, or as presenting fairly, the financial position, performance and changes in financial position of an entity". The financial position of an entity represents the expectation of future economic benefits that will flow to or from the entity, whereas financial performance represents the net measure of increases or decreases in economic benefits during the accounting period. In accordance with the objective of financial reporting, financial statements with fair presentation should provide useful and valuable information for users to make more efficient and informed decisions.

The concept of faithful presentation is violated when a firm's reported earnings are misrepresented. Earnings misrepresentation comes in three different forms: (i) earnings manipulation, (ii) earnings misstatement, and (iii) fraud. The first type of earnings misrepresentation is earnings manipulation. A firm's reported financial information is distorted when there is earnings manipulation (Healy and Wahlen, 1999; Schipper, 1989). Earnings manipulation arises when managers are involved in altering financial information to mislead users of a firm's underlying economic performance, or to opportunistically influence a contractual outcome that depends on a firm's reported earnings (Healy and Wahlen, 1999). The distortion of financial information is considered as earnings manipulation when the

earnings figure is still prepared and presented within the boundary of GAAP (Stolowy and Breton 2004). When financial information is manipulated, a firm's business operation's results and financial position are no longer within the "fair presentation" zone, indicating that the reported profit no longer represents a firm's long-term capacity to generate earnings (Stolowy and Breton 2004); this makes it difficult for investors to predict a firm's future performance (Habib et al., 2013).

The (within-GAAP) earnings manipulation can be performed either by accounting manipulation (through managerial discretionary choices and application of accounting methods) or by real activities manipulation (performing actions that deviate from normal business practices) (Jiambalvo, 1996). Managing the accruals component of earnings is one common way of accounting manipulation. In certain circumstances, managers adjust accruals to convey private information and improve the informativeness and accuracy of financial statements (Defond and Jiambalvo, 1994, Fields et al., 2001). Alternatively, managers may discretionarily exercise accounting choices to mask a firm's true economic performance; this includes opportunistically managing the abnormal or discretionary accruals of earnings (Fields et al., 2001). The idea of opportunistically exercising accounting choices is consistent with the concept of earnings management, which will be further discussed in Section 3.7.

As shown in Figure 3.1, accounting manipulation occurs in one of two ways, i.e., by understating or overstating reported earnings (Defond and Jiambalvo, 1994; Stolowy and Breton, 2004). There are several explanations why managers manipulate earnings downward and understate earnings. It might be because managers opt to shift high abnormal earnings to a future period so that it is easier for them to meet or beat future earnings' targets. Alternatively, managers avoid reporting large gains due to the possibility that it increases their future earnings-based performance targets (Peasnell et al., 2005).

Other examples, as shown by Gong et al. (2008), reveal that managers of stock repurchasing firms manipulate earnings downward to reduce the repurchase price prior to an open-market repurchase announcement. Jackson and Liu (2010) discover that managers have the incentives to manipulate earnings downward to slightly beat the earnings benchmark. This is to allow the creation of hidden reserves (e.g., cookie jar reserves) that enable future upward earnings

management[10]. Others, such as Liao and Lin (2016), found that repurchasing firms that operate in low competitive industries engage in more intensive downward earnings management compared to those firms within highly competitive industries. Liao and Lin (2016) contend that repurchasing firms within low competitive industries are subject to less market disciplinary power, hence the firm's association with lower earnings quality.

There are other instances where managers manipulate earnings upward and overstate earnings (Ayers et al., 2006; Cohen et al., 2008). Research, such as Teoh et al. (1998a, b), Shivakumar (2000) and Teoh and Wong (2002), show that managers inflate earnings prior to seasoned equity offerings and initial public offerings with the aim of increasing the offer price and improve investors' expectations of a firm's future performance. Franz et al. (2014) found that firms with restrictive debt covenants tend to manipulate earnings upward to avoid the costs associated with loan default and hide their distressed condition. Hou et al. (2015) also found that managers manipulate earnings upward to meet performance targets when a firm's true performance is lacking.

Earnings manipulation can also be accomplished through real activities. Real activities manipulation refers to managerial actions that deviate from normal business operating activities (Roychowdhury, 2006; Cohen and Zarowin, 2010). With the aim of boosting reported profit, managers may engage in real activities manipulation, such as cutting down activities on advertising and research and development (Roychowdhury, 2006; Osma and Young, 2009), selling assets that a firm would otherwise keep (Bartov, 1993; Poitras et al., 2002), offering more lenient credit terms and high price discount, and increasing production (that can lower the fixed overhead cost per unit leading to lesser cost of goods sold) (Roychowdhury, 2006). Nevertheless, all these actions are costly in that they negatively impact a firm's future cash flows. Real activities manipulation reduces firm value in the long-run and appears to be more costly than accounting manipulations (Peasnell et al., 2005).

The second type of financial misrepresentation is earnings misstatement. This is different from earnings manipulation as it involves GAAP violation or aggressive accounting practices; these may be done unintentionally, or intentionally to mislead investors. The GAO definition of

[10] A "cookie jar" reserve is created by managers as a hidden account used to expand earnings in later years when economic events unfold that lead to actual losses to be realised (Levitt, 1998).

"aggressive" accounting practices captures specifically "intentional and unintentional misuse of facts applied to financial statements, oversight or misinterpretation of accounting rules, and fraud" (GAO, 2002, p.76). Both unintentional or intentional financial misstatement can give rise to forced restatement as both incidences constitute a violation of the General Accepted Accounting Principles (GAAP) (Ettredge et al., 2010).

Unintentional earnings misstatement, which comprises material accounting errors, may arise due to ineffective financial reporting controls and standards that are in place (Abdullah et al., 2010; Dechow et al., 2010). The Accounting Principles Board (Opinion No. 20, 1971) specifies material accounting errors as items arising from mistakes in the application of accounting principles, mathematical mistakes, the oversight or misjudgement of accounting rules, and unintentional misuse of facts that existed at the time the financial statements were prepared. Examining the likelihood of forced restatements due to material errors remains crucial as the findings might help identify firms with poor internal control systems and weak management information systems. These typically result from poor corporate governance practices and directors' ineffectiveness in discharging their monitoring duties.

Intentional misstatement involves non-GAAP financial reporting, which indicates a lack of management integrity (Palmrose et al., 2004). An intentional misstatement is typically engaged by managers to obscure a firm's suboptimal operating policies and investments. Earnings misstatement creates uncertainty with regard to the credibility and reliability of management representations, thus increasing information asymmetry between managers and shareholders (Palmrose et al., 2004). In most circumstances, managers commit misstatement to reverse prior income inflation or deflation that was done via earnings management (Ettredge et al., 2010). For example, there is a tendency for managers to manipulate accounting figures to meet specific firm goals via earnings management by using the flexibility available within GAAP[11]. Income-increasing (or income-decreasing) accruals are generated and reverse over time. When the opportunities to exercise within-GAAP discretion to reverse prior income-increasing or income-decreasing earnings management are exhausted, at this point managers are prone to

[11] Managers may manipulate accounting figures by overstating reported earnings to achieve specific goals; for example, to conceal a firm's financial distress (Pryshchepa et al., 2013), to avoid breaching debt covenants (Franz et al., 2014), or to seek low-cost external funding (Feltham et al., 2007).

cross the boundary of non-GAAP accounting (Ettredge et al., 2010). This is when managers perpetrate earnings misstatement.

The idea of the separation between unintentional and intentional misstatement might be an odd construct arising from prior literature (Dechow et al., 2010; Badertscher and Burks, 2011). It might be hard to distinguish whether earnings misstatement is committed intentionally or unintentionally. While a firm's earnings misstatements might actually be due to errors (unintentional), others might declare it as an error when actually it was deliberate, as it is easier to admit to mistakes than cheating. Due to this, in this research, intentional and unintentional earnings misstatements are not separated, as the whole idea of earnings misstatements itself may give rise to forced restatement.

Overall, the above discussion indicates that earnings misstatement could potentially involve earnings management practices, to the extent that earnings are managed outside the boundary of GAAP before earnings are considered to be misstated. Aggressive earnings management that leads to earnings misstatement typically involves a firm's use of a variety of aggressive gimmickry techniques (e.g., misapplication of GAAP and accounting rules) to distort a firm's true performance for the sake of achieving desired earnings targets (Magrath and Weld 2002). The detection of financial errors by auditors may help trigger managers' involvement in earnings misstatement. Otherwise, firms' deviant behaviour of misstating earnings may be left undetected, the firm gets away with their behaviour and there is no forced restatement.

The third type of earnings misrepresentation is fraud. Earnings misstatement can develop into fraud when there is detrimental reliance by the users of financial statements (Hennés et al., 2008). In empirical research, fraud cases are usually reserved when a firm's accounting irregularities are subject to legal action (Hasnan et al., 2013; Finnerty et al., 2016). Technically, the difference between earnings misstatement and fraud is that fraud is when earnings misstatement is subject to legal action, whether it is intentional or not. As defined by the Treadway Commission (1987), fraudulent financial reporting is:

> ''intentional or reckless misconduct, whether act or omission, that results in materially misleading financial statements. It may entail gross and deliberate distortion of corporate records as well as the misapplication of accounting principles".

Fraudulent financial reporting is typically perpetrated to conceal corporate fraud activities, or to enhance the appearance of a firm's financial performance (Hasnan et al., 2013). Fraudulent acts would include instances such as altering or falsifying documents, recording forged transactions, omitting transactions from records, and concealing significant information (Stolowy and Breton, 2004). The consequences of fraudulent financial reporting can be very severe, such that firms may be confronted with the possibility of filing for bankruptcy, delisted from the stock exchange, or suffer a significant drop in stock value (Rezaee, 2005).

Overall, this study adapts the grouping of the different types of earnings misrepresentation by Stolowy and Breton (2004) to include earnings manipulation, earnings misstatement and fraud. For the purpose of this study, the sample of forced restatement firms is based on Malaysian listed firms that restate due to intentional and unintentional earnings misstatement (which include material error) and fraud (all of which are aggressive accounting practices that violate GAAP). This is in line with the definition of forced restatement itself, which reflects a company's acknowledgment that the original financial statement reported and filed by the company was not in compliance with the General Accepted Accounting Practices (GAAP) (Palmrose and Scholz, 2004). In particular, the identification of forced restatement firms in this study follows Abdullah et al. (2010) by distinguishing financial statements that were deemed to have restated according to the definition outlined by GAO (refer to Appendix 1). The GAO definition of "aggressive" accounting practices captures specifically the, "intentional and unintentional misuse of facts applied to financial statement, oversight or misinterpretation of accounting rules, and fraud" (GAO, 2002, p.76). GAO's restatement category mainly includes restatements that are due to improper accounting of:

(i) Mergers and acquisitions
(ii) costs or expenses;
(iii) research and development;
(iv) reclassification of accounting items;
(v) related party transactions;
(vi) restructuring, assets or inventory;
(vii) revenue recognition; and
(viii) securities related items.

The data collection in this study is based on a sample of 121 Malaysian forced restatement firms (please refer to Section 5.2.2 of Chapter 5 on sample selection). In line with the main objective of this study, the sample will be used to analyse both financial and non-financial characteristics of a forced restatement firm. Subsequently, in line with the study's secondary objective, the findings will be used to develop an exploratory model to predict the likelihood of forced restatement.

3.7 Motives of earnings management

Managers use their discretion opportunistically in financial reporting to increase managerial wealth at the expense of the shareholders (Call et al., 2014). Practices of opportunistic earnings management are typically favoured among self-interested managers, for instance via manipulation of operating accruals, as it has relatively no direct impact on cash flow and is generally hard to detect (Peasnell et al., 2005).

The definition by Schipper (1989, p. 92) claims earnings management as "… a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain…,". Healy and Wahlen (1999, p. 368) explains that earnings management takes place when managers alter financial reports based on judgement in financial reporting with the purpose of misleading the stakeholders about a firm's underlying performance, or influencing contractual outcomes that basically rely on reported accounting figures.

Dechow et al. (1996) show evidence that firms engage in earnings misstatement or fraudulent reporting when the opportunities to engage in within-GAAP earnings management are limited. When all the within-GAAP flexibilities are exhausted, firms eventually employ aggressive accounting practices that violate GAAP to perpetuate an artificial performance of a firm's growth. Although managers might not have the incentives to cross the GAAP boundary, many do, whether unintentionally or not (Ettredge et al., 2010). An example can be seen from the study by Ettredge et al. (2010) that reveals a systematic increase of balance sheet "bloat", or abnormally high working capital accounts level, particularly for firms that later issue a fraudulent financial report. They further document that non-fraud restatement firms have higher balance sheet "bloat" when compared to the control firms of non-restatement firms for the two years preceding the initial financial misstatement. However, the balance "bloat" is clearly higher for fraud restatement firms in comparison to the non-fraud restatement firms.

Their findings provide some insight into the circumstances that lead to non-GAAP financial reporting.

In reality, however, the situation may be more complicated. The transition from within-GAAP earnings management to more aggressive accounting practices may not be clear cut. Managers may, however, shift from managing earnings in the ordinary course of business to managing earnings fraudulently. Magrath and Weld (2002) contend that once improper revenue recognition practices has started, the pressure exists for firms to continue with exercising within-GAAP and/or non-GAAP earnings management activities to achieve increasing sales targets and analysts' earnings expectations. Earnings manipulation, misstatement or fraudulent reporting generates a firm's need to engage in more sophisticated and complex accounting techniques so that analysts' earnings expectations are achieved. Consequently, managers are coerced into getting involved in manipulating earnings or otherwise engage in fraudulent activities, such as applying creative acquisition accounting practices, understating reserve liabilities, or creating artificial reserves, to perpetuate the myth of a firm's artificial growth.

It may be a common practice for managers to use earnings management opportunistically, but the reason they end up in the area of forced restatement is either because they manage earnings in huge amounts or due to the cumulative effect, where managers manage earnings in only one direction. This is where this study differs from prior research. Prior studies often look at the absolute value (or size) (e.g., Tong, 2007; Wan Ismail et al., 2013; Lennox et al., 2016), rather than the signs of earnings management as it gives them the idea of how much managerial opportunistic behaviour is going on. The size or extent of earnings management is, however, subject to the transitory nature of discretionary accruals which, in fact, means reverting since discretionary accruals may eventually reverse. Conversely, this study particularly examines the signs of earnings management, in such a way that earnings are managed in one direction and get accumulated to the point where managers can no longer hide it and are forced to make a financial restatement.

There are many potential motivations that influence managers to employ opportunistic earnings management (Watts and Zimmerman, 1990; Dechow et al., 1996; Healy and Wahlen, 1999; Walker, 2013). Overall, the literature indicates the three main sets of motivations, which

are: (i) contracting motives, (ii) capital market motives and (iii) political costs (e.g. regulatory and tax-based motives).

3.7.1 Contracting motives

The divergence of objectives between managers and owners may lead the managers to make financial reporting decisions based on self-interest. Hence, contracting mechanisms, for instance management compensation that tie managerial rewards to share value, act as a device to mitigate the agency conflict (shareholder-manager conflict) problem (Healy and Palepu, 1993). Accounting data are used to help regulate and monitor the contracts between a firm and its stakeholders (Healy and Wahlen, 1999).

Executive compensation plans are introduced to provide managers with the incentive to perform in line with shareholders' best interests. Early studies on managerial compensation and earnings management focused on the association between cash bonuses and firm performance. The classic article by Healy (1985) shows that managers manage earnings upward to earn large bonuses. There is also an incentive for managers to manage earnings downward, especially when the current reported earnings fall short of the minimum threshold for a bonus payment. Such technique of "taking a bath" may help managers to achieve the threshold for bonus payments in the succeeding period, although this may mean no bonus payment for the current period[12] (Healy, 1985; Watts and Zimmerman, 1990).

Following this, research examining the link between executive compensation plans and accounting measures increases (Walker, 2013). Many empirical studies have shown that management compensation plans are positively associated with the maximisation of firm value (Rajgopal and Shevlin, 2002; Benson and Davidson, 2010). At the same time, other studies have shown that asymmetric payoffs from stock options encouraged managers of high growth firms to take risks, thus reducing problems of agency costs (Baber et al., 1996; Hanlon et al., 2003). However, since compensation rewards are tied to reported accounting numbers, this creates an initiative for managers to exercise accounting discretion (Watts and Zimmerman, 1990). There is the desire for managers to artificially boost earnings to ensure that stock prices are

[12] According to the big bath theory, firms having low earnings in the current period tend to undertake large write downs to further lower reported earnings. This practice makes it easier for managers to report higher profits in future years. This is based on the notion that the managers will not be penalised proportionately more due to boosting earnings on the already depressed earnings (Jordan and Clark, 2011).

high and keep rising; this, in effect, improves the chances for managers to benefit from highly paid stock-based compensation.

For example, Cheng and Warfield (2005) found that firms with relatively high equity incentives tend to produce earnings that meet or just beat analyst consensus forecasts. Furthermore, it is less likely for these firms with high equity incentives to report a huge positive earnings surprise. The findings indicate that firms manage earnings upward to prevent having a fall in share price due to the failure of meeting an earnings forecast, but otherwise engage in smoothing firm's earnings in order to have continuous high value option payouts. Their findings are supported by Feng et al. (2011) who documented in the US that CEOs of manipulation firms tend to have relatively greater equity incentives compared to CEOs of non-manipulation firms.

Another contract-based motivation is when managers may be motivated to manage earnings to prevent them from violating debt covenants. The debt covenant hypothesis asserts that managers engage in income-increasing earnings management when firms are close to violation of a debt covenant, where shareholders' wealth (for example, debt to equity ratio) or measures of earnings (for example, interest cover) are involved (Watts and Zimmerman, 1990; Ghosh and Moon, 2010). However, the evidence to support the debt covenant hypothesis is mixed. For instance, a major review of the earnings management literature by Fields et al. (2001) revealed that the motivation by debt covenants for managers to make accounting choices is inconclusive. Nonetheless, more recent literature found contradicting evidence. Dichev and Skinner (2002) found that, based on a sample of 2,810 borrowers, US firms are found to avoid breaching debt covenants by making accounting choices. Daniel et al. (2008) documented that firms who have debt manage earnings upward when their pre-managed earnings are lower than the expected dividend level. The finding indicates that firms with debt manage earnings upward to prevent breaching debt covenants that limit the maximum level of dividend payout based on accounting earnings, e.g., interest cover ratio.

3.7.2 Capital market motives

Managers of publicly listed firms are exposed to capital market pressure; this increases the incentive for them to manage earnings so that earnings targets are achieved (Hope et al., 2013). Essentially, a firm's accounting information is used by market participants, such as

investors, securities analysts and market regulators, to evaluate firm performance. This creates the motivation for managers to exercise accounting discretion in order to fulfil the needs deriving from instances such as short-term capital gains, equity financing, and meeting investors' expectations.

Teoh et al. (1998b), for example, show that US initial public offering (IPO) firms use discretionary accruals to manage earnings upward, by which investors are deceived into overpaying for the IPO. Morsfield and Tan (2006) support the above findings by documenting lower earnings management among IPO firms backed by venture capitalists who serve as a monitoring incentive[13]. Kothari et al. (2016) further reveal that both accruals management and real earnings management jointly forecast negative future returns for US seasoned equity offering (SEO) firms.

Firms are also motivated to make accounting choices when raising external finance. Dechow et al. (2011) found that misstatement firms actively raise funds before and during the misstating years. The problems of obtaining finance has encouraged managers of misstatement firms to manage earnings opportunistically in the earlier years; this turns to aggressive accounting practices during the misstating years.

Additionally, meeting or beating analyst forecasts has become of great importance over time (Brown and Caylor, 2005). Managers are motivated to manage earnings to meet market expectation and thus manipulate investors' perceptions towards a firm's high growth performance. This, in turn, could lead to an increase in the short-term stock price (Dechow et al., 1996), for example, thus benefiting the firm from capital gains as a result of selling stocks at a higher price. Studies undertaken by Daske et al. (2006) in the EU, and Gore et al. (2007) in the UK, show empirical evidence that EU and UK firms manage accruals to meet or just beat earnings forecasts. Doyle et al. (2013) further provide evidence where managers use their discretion to define non-GAAP earnings opportunistically (e.g., actual recurring expenses reclassified as non-recurring exclusions) for the sake of meeting or beating analyst expectations.

[13] A venture capital organisation typically consists of various investment funds. The funds are raised by the venture capitalists from passive shareholders for a particular investment strategy. The fund is governed by a contract that is intended to protect the interests of the passive shareholders (Morsfield and Tan, 2006).

Badertscher (2011) investigated how management's practices of earnings management are affected by firm overvaluation. It was found that managers manage discretionary accruals of earnings in the early period of overvaluation before shifting to real earnings management practices, consistent with attempts to sustain a firm's overvaluation. Badertscher (2011) further found that the longer the firm is overvalued, the higher the likelihood for the managers to employ non-GAAP or fraudulent accounting practices.

3.7.3 Political costs motives

The motive of avoiding political cost may also influence managers to make earnings management choices (Walker, 2013). According to Watts and Zimmerman (1978), political costs are comprised of expected costs imposed on a firm (wealth transfer) from possible adverse political actions such as regulation, government subsidies, tariffs, and taxes.

Larger firms may incur greater political costs than smaller firms due to greater investor scrutiny and analyst following (Watts and Zimmerman, 1978). The political cost hypothesis (Watts and Zimmerman, 1986) implies that publicly visible, large firms may have the incentive to manage reported profits; this is interpreted by political pressure groups as monopoly rents. Firms confronted by price pressure from powerful trades unions, large customers, or large suppliers may also find it expedient to manage earnings downward, thus reporting a lower profit. A common incidence that took place, particularly in Asian countries, is where the ethnic minorities-controlled firms are faced with political costs when reporting a large profit, as they are pressured to have their wealth redistributed to the majority ethnic groups (Ball et al., 2003). Alternatively, firms are pressured by the government to prevent or delay their reporting of financial losses by earnings management, as the government seeks to avoid bearing the public blame for business failure (Ball et al., 2003).

The imposition of regulations by the law or capital regulators may also encourage firms to engage in accounting discretion so as to meet regulatory requirements; these include instances such as antitrust investigations, industry regulation or other regulatory requirements that are tied to reported accounting numbers. An example is shown by Jones (1991) who found firms managing earnings to influence public policy so it was in their favour. There is evidence that firms exercise accounting discretion to reduce earnings during the period of US import relief investigation, thus increasing the possibility of them being granted import relief or increasing

the amount of relief obtained. Other examples include regulations imposed in the US on the banking industry (that require banks to maintain a minimum level of capital), the insurance industry (that requires insurance companies to maintain good financial conditions), and the utilities industry (that require utility companies to earn just a normal return on invested assets). Such imposition of regulations create the motivations for firms to use their discretion for managing financial information that is of interest to the regulators (Healy and Wahlen 1999). Prior studies have provided empirical evidence on banks' practices of earnings management over loan loss provisions with the intention of avoiding capital requirement violations (Kanagaretnam et al., 2003; Leventis et al., 2011).

Managers may also have the initiative to exercise opportunistic earnings management for tax purposes. Managers may in fact discretionarily choose accounting methods or policies in order to minimise tax expenses, rather than report a firm's actual performance. For instance, managers tend to manage earnings (by deferring revenue recognition or overstating accrual expenses) so as to postpone income recognition in the succeeding year with lower tax rate so that future tax payments will be much lower (Guenther, 1994; Holthausen et al., 1995; Mahenthiran and Kasipillai, 2012). While other studies show that managers manipulate earnings by managing the component of tax expenses, i.e., deferred tax expenses. Prior research shows empirical evidence that high deferred tax expenses or book-tax income differences are linked to low earnings quality (Phillips et al., 2003), low earnings persistence (Hanlon, 2005), and low ability to predict future earnings growth (Lev and Nissim, 2004). The study by Kasipillai and Mahenthiran (2013) on Malaysian firms shows that the accrual component of deferred tax liabilities is managed to prevent a decline in earnings. They claim that Malaysian listed firms manage earnings to mask declining performance by manipulating the pre-tax earnings that relate to the accruals component of revenue and expenses.

Overall, the above discussion shows the various incentives that could induce managers to engage in earnings management. Essentially, the motivation for earnings management may arise from almost any contract that exists between a firm and its stakeholders (Walker, 2013). Failure to mitigate agency conflicts that arise among contracting parties may intensify managerial incentives for opportunistic earnings management, which aims to protect and satisfy managers' self-interest. Based on the evidence shown earlier, this may lead to earnings management practices based on contracting motivations or capital market motivations. Other

motivations, such as political cost, may indicate that incentives for accounting discretions are driven by external factors such as regulations and taxes.

3.8 Summary

Agency theory forms the theoretical underpinning for this study that mainly examines the effect of a firm's financial and corporate governance attributes on the likelihood of forced restatement. This chapter presented the discussion of agency theory to support a better understanding of managerial opportunism, the incentives for earnings misstatement, and consequential forced restatement. Agency theory thereby lays the foundation for the study hypotheses developed in the following chapter.

The separation between ownership and control may give rise to managerial opportunism. This leads to agency conflicts between shareholders and managers, better known as the principal-agent conflict, which often takes place in diffused ownership firms. In addition, conflicts between controlling shareholders and minority shareholders, also known as the principal-principal conflict, are more likely to occur in the concentrated ownership firms that are prevalent in emerging economies, especially in Malaysia. The divergence of control rights and cash flow rights that is common in the concentrated ownership system arises due to asymmetric information environment, thus creating incentives among controlling shareholders to expropriate the wealth of minority investors. Consequently, aggressive accounting practices and opportunistic earnings management result, based on the managers' intention to conceal their deviant behaviour, and therefore the increased likelihood of forced restatement.

Various corporate governance practices, such as accounting standards, stock market supervision, auditing and board of directors, were viewed as monitoring mechanisms that help alleviate the principal-agent and principal-principal conflicts. Nonetheless, deficiencies in such mechanisms may impede attempts to curb agency problems. Controlling shareholders or managers may take advantage of the imperfection in corporate governance to reduce transparency in financial reporting by disclosing inaccurate information.

Earnings misstatement is unlikely to be easily detected in a developing country with relatively weak investor protection and poor law enforcement. Hence, the findings of this study would be of great interest, especially to the regulators, investors, financial analysts and other relevant

parties, as it highlights warning signals of forced restatement firms, especially in the unique setting of an emerging economy that is characterised by a highly concentrated ownership structure. This study might also provide unique findings different from those documented in developed countries.

CHAPTER 4

HYPOTHESES DEVELOPMENT

4.1 Introduction

Based on the discussion of the theoretical framework and the particularities of Malaysian corporate governance in Chapter 3, this chapter develops and justifies the key hypotheses explored in this thesis. The hypotheses development is presented in Section 4.2. Seven hypotheses are proposed based on both financial and non-financial factors that may affect the likelihood of a forced restatement.

The subsequent Section 4.3 discusses the study's conceptual framework based on the hypotheses. The study's conceptual framework shows the interrelationship of the relevant explanatory factors and the likelihood of forced restatement events among Malaysian publicly listed firms. The chapter ends with a summary presented in Section 4.4.

4.2 Hypotheses development

Forced restatement is an event where a company is forced by the auditors, Securities Commission or other enforcement agencies to restate its earnings due to GAAP violations, where the reported original financial statements at the time of issuance were incorrect (Hennes et al., 2008). Forced restatement may arise due to intentional misstatement or unintentional error. Specifically, self-interested managers make intentional attempts to misstate earnings to mislead shareholders by showing that the firm's performance is better than the actual reporting would suggest, e.g., to ensure an increase in a firm's share price or to avoid violation of debt covenants (Ettredge et al., 2010). This would involve managers inflating earnings during the misstatement period that leads to income-decreasing forced restatement. Alternatively, managers make intentional attempts to misstate earnings to make the firm look worse than its actual performance, e.g., to reduce tax burdens (Lim 2011). This would involve managers reducing earnings during the misstatement period that leads to income-increasing forced restatement. Notwithstanding, managers might get involved in earnings misstatement due to unintentional error such as accounting and clerical mistakes and misunderstanding of complex accounting rules (Plumlee and Yohn,

2009). In such case, managers might be issued with income-increasing, income-decreasing or zero-effect forced restatement.

Managers may hide their deviant behaviour of fraudulent reporting due to fear of serious penalties imposed for GAAP violations (Schrand and Zechman 2012). It is, thus, a great challenge, especially for the auditors, to constrain and detect financial irregularities. Indications of financial misstatements commonly surface when a trigger event takes place. Trigger events may occur through a firm's self-disclosure (e.g., a company's voluntary announcement of misconduct or accounting error), which is commonly followed by a formal investigation undertaken by the enforcement agencies, the firm's auditors (e.g., audit findings showing peculiar patterns of reported revenue), or the Securities and Exchange Commission (SEC) (e.g., delayed filing of the financial statements to the SEC). A firm is forced to make an earnings restatement by authorities when investigations show that the firm is involved in producing false or fraudulent financial information (Files, 2012).

Several examples of misreporting cases have shown how forced restatement is triggered. For example, the renowned case of Enron showed that forced restatement was triggered when, in 2001, the firm itself announced that it was actually worth $1.2 billion less than previously reported. Enron further disclosed that it made a massive $618 million loss for the quarter, in relation to reported profits in prior years. The firm's self-disclosure alerted the SEC; this led to the exposure of fraudulent financial reporting, hence forcing them to make a restatement. Another example can be seen from Transmile in Malaysia. In this case, forced restatement was triggered when the firm's external auditors, Deloitte and Touche, found deficiencies in the firm's supporting documents, such that the auditors refused to approve the company's annual accounts. Following this, a special audit was conducted by Moores Rowland Risk Management; it was later found that the firm's revenue, amongst others, were heavily overstated by RM530 million in 2005 and 2006. Due to the material misstatement, Transmile was forced to restate its earnings in 2007 by the special auditors.

Agency theory considers the relationship between principals and the agents they hire to act on their behalf. In the context of listed companies in countries where shareholders are legally the owners of firms and hold the rights to the residual profits, shareholders are generally identified as the principals whereas managers are the agents. The issue of "agency problem" lies in ensuring that agents act in line with the principals' interests rather than merely fulfilling the agents' own interests. It is in the shareholders' interest to have their investment return being maximised, however, this is not perfectly aligned with the

agents' who are prone to maximise their own personal wealth. Furthermore, agents, who control the firm, have access to better information than the principals in terms of decision situation and consequences of actions (Ross, 1973). With such information asymmetry and the inability for the shareholders to fully observe managers, agents tend to abuse their private access to information to fulfil their own self-benefit at the expense of the shareholders.

Governance factors, such as the distribution of ownership and control, might serve to reduce agency problems. In particular, dominant shareholders or blockholders can exercise their power to influence managers by means of the threat of using shareholders' concentrated control rights. Dominant shareholders may induce or even coerce managers to work in fulfilling their interest. Although dominant shareholders may have high power and control to induce managers towards running the business in their interest, nonetheless, these interests might not align with those of the minority shareholders. Misappropriation of wealth at the expense of the minority shareholders may be even easier when the dominant shareholders are also the director or part of the firm's top management. In this case, the intent to detriment minority shareholders goes concurrently with top executives' authority to make business decisions on corporate transactions.

Specifically, within the Malaysian background of highly concentrated ownership, the effectiveness of this internal control mechanism can be questioned. While controlling blockholders are beneficial such that they can assist in enhancing the effectiveness of the board's monitoring (Shleifer and Vishny 1997), nevertheless, the control that insiders have can also provide them with the opportunity to misuse their power and extract private benefits at the expense of the minority shareholders. In this case, corporate governance factors, such as the presence of founders on the board and a family CEO, can become ineffective and may exacerbate managers-shareholders conflicting interests and information asymmetry. Not only do controlling owners make decisions that deprive minority shareholders of their rights, they may even have the incentive and ability to manipulate the firm's corporate reporting to conceal their opportunistic behaviour and mislead the shareholders, thus increasing information asymmetry. With the concentrated ownership among listed firms in Malaysia, which are typically managed by families of high status and are politically well-connected (Rachagan and Kuppusamy 2013), it would be highly unlikely for the firm to whistle blow themselves against any aggressive behaviour due to fear of retaliation by the controlling shareholders.

Based on the above situation, Malaysian firms may rely on external authorities as their alternative resort to identifying earnings misstatement, hence forced restatements. There is the possibility that supervision by external shareholders or authorities might either deter or lead to a detection of earnings misstatement. Supervision by external blockholders (e.g., institutional investors) can be effective due to the large investment they have made in the firm, which induces them to monitor managers more closely. Firm supervision can also be done by financial analysts, auditors and regulators. External auditors, for example, can closely supervise firms as they have the capacity to probe a firm's accounts in order to determine whether the firm is reporting the true picture of its performance. The fact that these external parties are watching the firm can itself be a deterrent to aggressive accounting behaviour (Degeorge et al., 2013). In supervising firms, the regulators might also rely on the fluctuation or volatility of a firm's share price as it acts as an indicator that investors suspect a firm's high risk and poor reporting, which prompt closer monitoring and supervision.

Accordingly, the following section presents the hypotheses being developed based on the grouping of explanatory variables. These include:

(1) board quality and
(2) audit committee quality – to discuss the impact of the quality of the board of directors and audit committee on the likelihood of forced restatement;
(3) family ownership and control – to discuss how family blockholders, and other ways founding families may affect management, hence the likelihood of forced restatement;
(4) government-related institutional ownership and political connection – to discuss how government-related blockholders and political connection may affect management behaviour leading to forced restatement;
(5) corporate reporting quality – to discuss financial reporting quality that might be a reasonable proxy for opportunistic behaviour by managers or blockholders, as not all managers or blockholders behave opportunistically;
(6) firm performance and demand for external financing – to discuss whether a firm's financial performance and the demand for external financing might either affect managers' and blockholders' ability to hide or detract from problems, hence the likelihood of forced restatement; and finally,

(7) share price volatility – to discuss whether investors' perceptions of a firm's behaviour might affect forced restatements. This is because share price variability is an indication of risk perception, and might alert regulators to potential problems in firms and therefore increase the possibility that they monitor the firm more closely[14].

With regard to the above discussion, the main aim of this study is to examine whether firms' financial or non-financial corporate governance characteristics affect the likelihood of forced restatements in Malaysia. The hypotheses developed in this section are based on explanatory variables that represent the incentives and symptoms of earnings misstatement, hence forced restatement, while some of the corporate governance variables represent constraint factors of forced restatement.

4.2.1 Board quality

Based on agency theory, the divergence of interest that arises from the separation between ownership and control lead to the possibility that managers might be tempted to behave opportunistically to pursue their own interests at the expense of the shareholders[15]. The writing and enforcement of contracts between principals and agents may not always be enough to resolve the agency conflicts (Hart, 1995). As discussed in Section 3.3 of Chapter 3, the monitoring mechanism plays an important role in controlling agents' behaviour and thus helps minimise agency problems. It is presumed that the board of directors performs the monitoring function on behalf of the shareholders due to the investors' inability to exercise full control over the corporation.

Agency theory posits that firms' boards of directors play an important role for internal governance in monitoring managers and ensuring principal-agent incentive alignment (Fama and Jensen 1983). The ability to perform effective oversight duties thus indicates a quality board. The activities of a quality board involve a framework of effective and prudent control, thereby enabling close monitoring of the corporation's management and control system, the assessment and management of risks faced by the firm, and the approval of the corporation's strategy (Rizzotti and Greco 2013). With this monitoring activity, a quality board may thus ensure that managers' actions are in line with the shareholders' interests thus reduces the likelihood of forced restatement.

[14] In relation to the conceptual framework presented in Section 4.3, corporate governance variables include (1) board quality, (2) audit committee quality, (3) family control, and (4) political connection, while blockholder ownership variables include (5) family ownership, and (6) government-related institutional ownership.

[15] It should be noted that not every agent would behave opportunistically all the time, neither can every agent be trusted at all times.

In Malaysia, the Malaysian Code of Corporate Governance – MCCG (2000) and MCCG (2007) – highlight the attributes of a quality board; these include independence, expertise, and diligence to ensure a strong internal control environment. The MCCG recommends that at least one-third of the board consists of independent non-executive directors to ensure that directors are subject to less management interference, and that independent judgement is given within the decision-making process. The MCCG further highlights the importance for directors to be financial experts so they are able to exercise their skills and knowledge in discharging their monitoring function effectively. More specifically, board diligence signals board quality. Not only is a diligent board is willing to devote substantial time to monitoring, but it also shows that the directors are fully committed and vigilant in discharging their oversight duties. A diligent board thus reflects board quality and is essential to minimising agency problems.

Given the characteristics of being independent, expert, and diligent, a board is viewed as high quality, such that they have a strong incentive to monitor, and thus reduce, the likelihood of forced restatement. Three factors may potentially drive such incentives. First, directors may want to protect their reputation as independent and expert monitors, because the market punishes directors associated with poor performance or corporate disaster (e.g., Fama 1980; Fama and Jensen 1983; Gilson 1990). Secondly, directors are subject to heavy penalties when they fail to exercise reasonable care in performing their monitoring duties. Thirdly, directors seek to protect shareholder wealth due to the significant losses they might incur from financial irregularities (e.g., Gilson 1990).

Prior studies have shown that board independence, expertise, and diligence, as direct measures of board quality, are related to a more effective monitoring function. Klein (2002) in the US, Peasnell et al. (2000) and Peasnell et al. (2005) in the UK, and Marra et al. (2011) in Italy found that board independence can better constrain discretionary accounting practices and reduce the extent of earnings management. Agrawal and Chadha (2005) further found that the presence of financially expert independent directors on a firm's board reduces the possibility of financial misstatement. Ferris et al. (2003) found no evidence of shirking when directors with multiple directorships (diligent) are on the board. Johl et al. (2013) further showed that the interaction between board quality and audit quality is positively and significantly associated with abnormal accruals. The result suggests that board quality and audit quality can be substituted between each other to maintain the

quality of financial reporting. Overall, results from prior studies indicate that board quality helps improve managerial monitoring, thus reducing the likelihood of forced restatement.

For the purpose of this study, three different measures are used as proxies for board quality. First is the independence of the board of directors (Johl *et al*., 2013; Ang *et al*. 2014; Chakravarthy *et al*., 2014). With board independence, the directors have no interest to perform in order to win management's good graces, thus, they are free to speak out regarding management misdeeds and protect shareholders' interests (Clarke, 2006). There are concerns among independent directors to secure their reputation of being experts in decision control, thus there is a low likelihood for them to collude with the management for the expropriation of shareholders' wealth (Fama and Jensen 1983). Overall, board independence improves monitoring of managers, which reduces the likelihood of forced restatement.

Second are financially expert directors (Badolato *et al*., 2014). A financially sophisticated board is an important factor that helps constrain managerial propensity to engage in opportunistic financial reporting (Xie *et al.*, 2003; Bedard *et al.*, 2004). Board members with financial expertise are valuable since the firm's board is responsible for monitoring duties that require a certain degree of accounting sophistication. A financially expert board improves corporate governance since the board is expected to be able to understand how the accounting policies applied may affect a firm's financial position and performance, review whether the accounting policies are conservative or aggressive, assess the acceptability of certain judgement and estimates applied (for example on a company's reserves and assets valuation), and evaluate the quality of a firm's financial reports. The presence of financial expertise on the board may improve the overall evaluation of a firm's financial reporting quality since more attention and time will be devoted to discussing imperative issues that relate to the credibility and reliability of financial information, which reduces the likelihood of forced restatement (McDaniel *et al.*, 2002).

Third are multiple directorships which are a proxy for board diligence (Saleh et al., 2005; Sharma and Iselin, 2012). Multiple directorships provide directors with the incentive for more diligent monitoring due to the diverse knowledge and experiences that they gained from different management practices and policies of different companies (Beasley, 1996). Multiple directorships are even indicative of high directorial diligence as the appointment to various firms' boards are due to superior performance demonstrated by the director in previous firms (Fama and Jensen, 1983; Vafeas, 1999). With high diligent quality, it is

unlikely for directors with multiple directorships to shirk from their responsibilities as they might suffer from a reputation loss (Wan Hussin and Ibrahim, 2003; Sharma and Iselin, 2012). Therefore, directors with multiple directorships tend to carry out better monitoring which may reduce the likelihood of forced restatement taking place.

In addition to this, this study takes board size and board meetings as control variables. Board size is included to control for the effect that it might have on forced restatement. This is because the number of board members would determine that sufficient members are available to carry out various corporate functions and the discharge of responsibilities (MCCG 2000), thus the ability to constrain earnings misstatement and reduce the possibility of forced restatement. For example, large-sized boards are believed to improve synergetic monitoring due to various expertise on the board (Zahra & Pearce II 1989), thus reducing incidences of forced restatement (Cao, Myers & Omer 2012). However, there is also the possibility that a large board size gives rise to problems of free-riding and communication breakdown, resulting in monitoring inefficiency (Jensen 1993). Board size is, in particular, an important control variable for methodological reasons. Previous research suggests that omission of this variable leads to omitted variable bias and the distortion of the coefficient for board independence (see e.g., Knyazeva *et al*., 2013). Board meetings are also included to control for the effect that the number of board meetings might have on the occurrence of forced restatement. Xie et al. (2003) claim that the frequency of board meetings is expected to constrain aggressive accounting activities, hence forced restatement, due to the time allocated by the board to meet and discuss issues on firm's financial reporting. Alternatively, the frequency of board might also indicate firms' ongoing financial problems which in turn increase the possibility of forced restatement (Sharma *et al.*, 2009). Hence, board meetings might impact on the likelihood of forced restatement.

Based on the above discussion, this study posits that board quality improves the effectiveness of a board's oversight duties that helps minimise reporting errors and deter the management from engaging in opportunistic behaviour. This means that there is less likelihood for income-decreasing, income-increasing or zero-effect forced restatement to take place. Overall, a quality board is capable of constraining utility maximising managerial behaviour, which might lead to a reduction in the likelihood of forced restatement. The following hypothesis is thus developed:

H1: There is a negative relationship between board quality and the occurrence of forced financial restatement.

4.2.2 Audit quality committee

The misalignment of incentives between principals and agents (principal-agent conflict) can impede managers from conveying reliable information. Managers may opt to disclose opaque financial information in order to conceal managers' deviant behaviour and to mislead shareholders that the firm is performing well. This situation may give rise to increased principal-agent information asymmetry. In dealing with information asymmetry, another monitoring mechanism, i.e., an audit committee, assumes an important role. An audit committee, which is part of a firm's internal control, helps to minimise information asymmetry by improving the credibility of financial disclosures.

An audit committee is a sub-committee of a firm's board of directors, and thus accountable to the board (Abdullah and Mohd-Nasir 2004; Chen *et al.*, 2015). A quality audit committee is essential as it effectively oversees a firm's financial reporting process and monitors the relationship between the management and the firm's external auditor (Abdullah and Mohd-Nasir, 2004). In particular, an audit committee facilitates the communication between external auditors and firm's internal auditors in reviewing a firm's internal accounting systems and control, audit processes and financial statements. It is typical for the management to discuss and negotiate a firm's financial results with the external auditors (Nelson et al., 2003). In this situation, the audit committee acts as an arbitrator between the management and the external auditors. A quality audit committee may be willing to disagree with the management on issues (Hadani et al., 2011), including matters related to the application of GAAP. A quality audit committee may demand a wider audit scope from the external auditors, or additional audit procedures (and incur a high audit fee) for areas of uncertainty and high risk. This would improve the detection of accounting misstatement and reporting errors, which then triggers and increases the likelihood of income-decreasing, income-increasing or zero-effect forced restatement.

In Malaysia, publicly listed firms are required to have an audit committee to ensure effective monitoring of the firm's financial and audit functions so that financial misstatements can be prevented. The Malaysian Code of Governance (MCCG) specifies that at least three directors should make up an audit committee, the majority of whom should be independent and the chairman should be an independent non-executive director. The MCCG further highlights the relevant skills and knowledge an audit committee member should have for them to be able to detect opportunistic management reporting practices. This is consistent with the contention by Abbott *et al.* (2004) that the effectiveness of an

audit committee in reducing financial restatement is due to two reasons. First, the effectiveness of an audit committee is enhanced when it does not involve any former or current managerial member. Second, the audit committee undertakes more thorough oversight duties and will insist on a greater scope for the external audit to ensure high quality financial reporting. In this case, a quality audit committee can be reflected through its independence, expertise and audit fee.

Prior studies documented several findings with regard to the quality of an audit committee. Baber *et al.* (2012) and Abdul Wahab *et al.* (2014) reveal that a higher level of audit committee independence lowers the possibility of firms restating their financial statements. Similar studies conducted in the emerging market, such as Malaysia, produced mixed findings. Abdullah and Mohd-Nasir (2004), Saleh *et al.* (2005) and Rahman and Ali (2006) found no association between audit committee characteristics and financial reporting quality. The study by Abdullah et al. (2010), which examined a sample of Malaysian restatement firms from 2002 to 2005, however, found that audit committee independence is positively correlated with the probability of financial restatement. The findings indicate that the audit committee independence is effective in discharging their duties such that they are able to identify misstatements that require the need for earnings restatement.

In this case, the first proxy for audit committee quality is audit committee independence, which ensures that an audit committee is effective and of quality. If the audit committee is dominated by insiders, this may cause the audit committee to ignore internal problems and the potential of not issuing a clean opinion on firm's financial reporting system (Zhang *et al.*, 2004). Independence further ensures that the audit committee provides objective and independent oversight of a firm's financial reporting process (Abdullah and Mohd-Nasir, 2004), enabling them to detect errors or aggressive accounting practices more effectively, hence triggering income-decreasing, income-increasing or zero-effect forced restatement.

The second proxy is audit committee expertise (Badolato *et al*., 2014). Having an accounting or finance background is important for audit committee members to be able to address a firm's financial reporting or accounting risk. This is possible as a financially expert audit committee may strongly justify the negotiations made by the external auditors to the firm's management about issues related to accounting estimates and judgements, and accounting principles application (DeZoort and Salterio, 2001; Ng and Tan, 2003). A financially expert audit committee demonstrates a more structured discussion on financial reporting quality, and gives greater focus to concerns that are critical for a company's

reporting quality (McDaniels *et al.,* 2002). In this case, a financially expert audit committee may lead to the discovery of opportunistic earnings or material accounting errors, thus triggering the need for income-decreasing, income-increasing or zero-effect forced restatement.

In relation to prior research that examined audit committee expertise, the US studies by Agrawal and Chadha (2005) and Carcello *et al*. (2011) show that higher financial expertise sitting on the audit committee is associated with lower financial restatement, while Farber (2005) revealed fewer financial experts in the audit committee among fraud firms compared to the control firms. Hoitash and Bedard (2009) further show that a higher proportion of financial experts on the audit committee is related to a lower likelihood of material weakness disclosure related to financial reporting control problems.

The third proxy is the audit fee. Carcello *et al.* (2002) reveal that a more rigorous and thorough audit, which reflects audit quality, is signalled through higher audit fees. In relation to this, an audit committee would demand more extensive external auditing to gain additional assurance on financial reporting quality. Therefore, a high audit fee thus gives greater assurance through greater audit effort, where the examination of a client's accounts and transactions is conducted in great detail. With such a vigilant audit, it is more likely that the auditors will detect errors and misstatements, which trigger the need for income-decreasing, income-increasing or zero-effect forced restatement.

In addition to the above proxies, control variables, such as audit committee size and audit committee meetings, are included in the study. The size of the audit committee ensures that optimal or sufficient resources are available to control and oversee a firm's financial reporting process: the larger the audit committee, the more likely it is to uncover potential problems in the financial reporting system that increase the likelihood of forced restatement (Bédard *et al*., 2004). There is also the possibility that the pooling of experts in large audit committees increases monitoring effectiveness thus reduces the likelihood of forced restatement (Sharma *et al.,* 2009). As for audit committee meetings, this allows more time for the directors to perform their monitoring duties (Karamanou and Vafeas 2005) which reduces the likelihood of forced restatement. In another perspective, the time spent to meet allows audit committee members to discuss and resolve any outstanding accounting issues that require a restatement (Sharma et al., 2009). In this case, the frequency of audit committee meeting allows the detection of fraudulent financial

reporting more effectively, hence increases the likelihood of income-decreasing, income-increasing or zero-effect forced restatement.

Given the above assertions, this study posits that audit committee quality improves the effectiveness of its oversight of a firm's financial reporting process. As such, a quality audit committee is deemed to improve the detection of earnings misstatement and errors, which may trigger income decreasing, income increasing, or zero-effect forced restatement. It is therefore hypothesised that:

H2: There is a positive relationship between audit committee quality and the occurrence of forced financial restatement.

4.2.3 Family ownership and control

According to Berle and Means (1932), the separation of ownership and management in widely dispersed ownership firms commonly give rise to principal-agent conflicts. The misalignment of interest between agents and principals may create information asymmetry (Farrer and Ramsay 1998) whereby agents may withhold information and divert a firm's resources for their own benefit, rather than the principals' interests. Corporate governance mechanisms, such as corporate reporting and external auditing, may help reduce information asymmetry. However, managers' opportunism of manipulating financial information may further increase information asymmetry, thus hindering shareholders' ability to supervise and incentivise them effectively.

Agency theory suggests that monitoring by large owners or blockholders is an essential governance solution to the agency problem. It is more likely for blockholders to assume monitoring costs compared to the free-riding small shareholders, especially when the monitoring benefits exceed the monitoring costs and allow blockholders to recoup their investments (Gillan and Starks 2000, Shleifer and Vishny 1986). Notwithstanding, high ownership concentration of large shareholders helps align both majority and minority shareholders' interests, because the wealth of the large shareholders is tied up with the firm. They therefore have more to lose if their decisions do not maximise firm value (Fan and Wong, 2002).

While the concentrated ownership structure can be effective in mitigating principal-agent conflict, it may, however, lead to principal-principal conflict. Principal-principal conflict refers to the conflict between controlling shareholders and minority shareholders, where

the controlling shareholders abuse their ownership control and expropriate the assets of minority shareholders. Misalignment of interest between large and minority shareholders often leads to wealth expropriation from the small investors' wealth for private gain (Young and Ahlstrom, 2003). Information asymmetry and high costs of observing and verifying managers' actions result in aggravating the principal-principal agency problem, which eventually results in weak corporate governance.

Family ownership is considered one of the major forms of concentrated ownership (La Porta *et al*., 1999). There are two competing theories to explain how family ownership may affect forced restatement; these are the alignment effect and the entrenchment effect (Wang 2006). On one hand, the alignment effect holds that family blockholders have the incentive to engage in more effective monitoring (Shleifer and Vishny, 1997) and are more inclined to report in good faith and preserve good reputation (Wang, 2006). As individuals who have developed their business from the ground-up, it is argued that family owners exhibit high confidence in their ability to run the business, and own great control over the business; this suggests that family blockholders are less likely to commit illicit behaviour that could be harmful to the firm's survival (Anderson *et al.*, 2012). Family shareholders are less likely to take up the short-term benefit of opportunistic reporting; this is based on their incentive to safeguard the family's reputation and have their business passed on to future generations (Wang, 2006). Accordingly, family firms tend to report earnings faithfully to ensure long-term performance. Therefore, firms with family ownership are less likely to have forced restatement.

The entrenchment effect, on the other hand, holds that interest divergence and the existence of information asymmetry between family blockholders and minority shareholders provides them with the incentives to extract private benefits at the expense of the small investors. Fan and Wong (2002) contend that ownership concentration limits the flow of accounting information to the minority shareholders. The information asymmetry gives the opportunity for family members to be involved in the misstatement of accounting figures for personal benefit. Therefore, it is posited that firms with family ownership are more likely to have forced restatement.

Accordingly, findings from prior research have shown consistency with the expectation of the alignment effect. For example, Wang (2006) and Ali *et al.* (2007) found that family firms produce higher quality reported earnings relative to non-family firms. Martin *et al*. (2016) reveal that family shareholders are less likely to engage in earnings management due to the

potential damaging reputational consequences from such opportunistic practices. In the context of a less developed market in Taiwan, Sue *et al.* (2013) documented that the financial reporting quality of family firms and non-family firms shows no significant difference. However, when family firms are detected with financial irregularities, these inappropriate accounting practices would generally impact in more serious accounting failure. The findings based on a study in Hong Kong by Filatotchev *et al*. (2011), however, show consistency with the entrenchment effect, where family ownership and the high control over a firm's board heighten the exploitation risk of private information. Family shareholders take the opportunity from firm opacity to exploit their dominant position to extract the wealth of the minority shareholders, which results in lower earnings quality.

In Malaysia, the perspective of blockholding is specific as family firms are prevalent in the country. Relatively, family blockholders mainly hold a dominating interest in Malaysian listed companies. For example, Claessens *et al*. (1999) examined 2,980 listed firms in nine East Asian countries and found that 67.2 percent of the Malaysian firm sample was family owned. The highly concentrated family ownership among Malaysian firms can be dated back many years where, historically, the Chinese ethnic group dominated businesses in Malaysia, although the majority of 60 percent of the total population is accounted for by the Malay Bumiputra ethnic group (Johnson and Mitton, 2003). Therefore, many of the family firms are of Chinese origin. By nature, the Chinese family is high in collectivism where their business activities revolve closely around informal personal relationships. Based on this culture, Chinese families tend to pass their successful business to future generations, thereby adopting a long-term investment approach in business (Ma *et al*., 2016).

Accordingly, this study will examine the effect of family ownership on the likelihood of forced restatement. For the purpose of measuring family ownership, this study takes family ownership *per se*. This is because family ownership in Malaysia is a highly insider ownership. The World Bank (2001) reported that in half of Malaysian listed firms, the five largest shareholders owned an average of 60 percent of outstanding shares, and over 50 percent of voting shares. Malaysian family firms are heavily attached to the family for funding and employment (Jasni, 2002). The pervasive pyramidal ownership and cross-holding structure in Malaysia further leverage family blockholders' control in the companies (Claeesens, 2002).

Consistent with Filatochev *et al*. (2011), Sue *et al*. (2013) and Hasnan *et al*. (2013), this study measures family ownership by using the proxy of a dummy variable equal to one if at least 20% of the firm's equity is owned by the family members, and zero otherwise. Prior empirical research claims that ownership blocks as small as 20% are considered adequate for the owner to exercise full control over a company (La Porta *et al*., 1999; Claessens *et al.*, 2000; Faccio et al., 2001; Faccio and Lang, 2002). High concentrated ownership and control via crossholdings and pyramiding are ubiquitous in Malaysia (Claessens et al., 2000; Faccio et al., 2001; Haniffa and Hudaib, 2006; Hasnan et al., 2013), which leverage the controlling power of family shareholders. La Porta et al. (1999) document that the probability of becoming a single controlling owner via the holding of only 20% of a company's stock is really high (above 80%) in East Asian countries, as it was found that control can be attained with substantially lesser share ownership via pyramiding as well as cross-ownership structure. Some leading families are also politically well-connected, which gives them more power to exercise control over a firm (Rachagan and Kuppusamy 2013). Family blockholders, especially among the Chinese, are also found to be high in collectivism; this is manifested in their wide social networking and guilds linked within the business community (Lim, 1998), thus further intensifying family control in businesses. With the presence of a large family shareholding, the family blockholder has more incentive and capability to influence managers to divert firm resources for their own benefit at the expense of the minority investors, which leads to the likelihood for forced restatement to occur. Although a dummy variable is used to measure family ownership, a sensitivity test will be performed (as shown later in Chapter 6), where family ownership is measured in terms of the percentage of equity shareholdings held by family members from the top ten largest equity shareholders (Hasnan *et al*., 2013)[16].

Family firms in Malaysia are mainly family-controlled firms as the family members commonly hold important positions in the management team and on the board (Anderson and Reeb, 2003; Wang, 2006; Hasnan *et al*., 2013). Having large shareholders holding managerial positions enables them to exert influence and control over the firm. Two competing arguments arise on how family control may impact on forced restatement. First, family can readily align the interests of the firm with the family's. It is argued that a controlling family tends to monitor managers' actions more effectively (Shleifer and Vishny, 1997). A controlling owner would ensure that managers act in line with maximising

[16] The sensitivity analysis of family ownership was done on the ten largest shareholders as many studies have found it to represent a large proportion of shares ownership (more than 50%) in Malaysian listed companies (see for example, Zulkafli *et al*., 2005; Tam and Tan, 2007;. Rachagan and Kuppusamy, 2013).

shareholders' wealth, thus reducing the likelihood of forced restatement. Second, controlling family owners may encounter less severe principal-agent conflicts, but rather more severe principal-principal conflict, in relation to non-family firms (Sue et al., 2013). Bennedsen and Nielson (2010) argue that a controlling owner has no incentive to monitor managers, i.e., themselves. Thus, huge family control on the board does not improve monitoring efficiency. There is also the likelihood that only family members are appointed to hold a firm's management position at the expense of hiring more talented outside professional managers, which may result in suboptimal decision making (Anderson and Reeb 2003). Firms with a controlling family may thus mask information to outsiders, especially minority investors, to enable the expropriation of larger assets for private benefit, thus increasing the likelihood of forced restatement.

Studies such as Chen (2005) have shown that controlling family owners were able to detect earnings manipulation very quickly, and that they do not rely too much on the firm's accounting-based performance measures to compensate managers. Ma *et al.* (2016) further found that family control in Chinese family firms is less likely to misstate earnings. In this case, controlling owners help to minimise managerial opportunistic behaviour in financial reporting. The overall findings above support the view that the dominant power of controlling family owners over non-family management leads them to becoming effective monitors. Contrarily, Filatotchev *et al.* (2011) provide evidence of negative effects that a controlling family has on firm performance. They show that controlling families abuse private information at the expense of minority investors.

In addition to family ownership, this study will also examine the effect that family control has on the likelihood of forced restatement. In measuring family control over the firm, this study uses four different proxies. First, is founder(s) on the board (e.g., Hasnan *et al*., 2013, Sue *et al.*, 2013, Ho and Kang, 2013). The influence of founders on the board facilitates in perpetuating a firm's existing culture that tolerates opportunistic managerial behaviour (Agrawal and Chadha, 2005; Fich and Shivdasani 2007). As founders have been part of the business from the start, it is typical for them to have a strong emotional commitment and attachment to the firm. Due to such strong commitment, founders would safeguard the firm by doing almost anything, including shutting their eyes to opportunistic managerial behaviour such as boosting earnings performance (Hasnan *et al*., 2013), thus increasing the likelihood of income-decreasing forced restatement. Bennedson and Nielson (2010) found that in relation to non-family firms, family firms' value is discounted almost five times

greater where the manager belongs to the family owners. Their finding suggests that family blockholders have no incentive to monitor, such that the increase in their power of control leads to the incentive for them to divert a firm's resources for their own benefit.

Second, is founder CEO (e.g., Carcello *et al*., 2011, Ho and Kang, 2013). Dechow *et al.* (1996) contend that founder CEOs tend to be less accountable to the firm's board since they have high influence over business affairs and decision-making. A founder CEO has the power to control a firm regardless of the percentage of their shareholdings, leading to expropriation of assets for their own benefit (Morck *et al.*, 1988). They might even collude with the management to inflate earnings in order to conceal their deviant behaviour and portray that their company is doing well. This would lead to the possibility of income-decreasing forced restatement.

Third, is CEO serving on the board's nominating committee (e.g., Carcello *et al.,* 2011). A controlling owner often exerts huge influence over corporate affairs by using their power to nominate family members to the board (Hansmann and Kraakman, 2001, Filatotchev *et al*., 2005). When a CEO sits on the nominating committee, they are more inclined to appoint incompetent directors, more gray directors (e.g., having a family relationship) and fewer independent outside directors (Shivdasani and Yermack, 1999). The CEO uses their power to pick the board and appoint any directors he thinks suitable, especially among family members, to curb performance pressure. This provides opportunity for management to collude and engage in opportunistic behaviour, which includes producing false information, thus creating the likelihood for forced restatement.

Fourth, is CEO duality (e.g., Efendi *et al*., 2007, Baber *et al*., 2012, Lobo and Zhao, 2013). Family owners may want to increase their managerial monitoring by holding a duality CEO-Chairman position on the board (Tam and Tan 2007). Being the figurehead of the company, the controlling family owner could concentrate better on management control and improve firm performance by virtue of their high power (Haniffa and Cooke, 2000). The duality position also gives power to the family to take control in ensuring timely and forceful intervention in cases of mismanagement or deterioration of a firm's performance (Rachagan and Satkunasingam, 2009). However, CEO duality may give rise to conflict of interest between the board chairman (monitor) and the CEO (implementer of board's decision). The CEO who serves as the board chairman may monitor and gain high influence over various firm-related matters such as board agendas, managerial compensation, and nomination of board members, although they might not formally be involved in serving on

the committees charged with the respective responsibilities (O'Connor *et al.*, 2006). Such high influence may compromise a CEO's integrity and their tendency to expropriate firm's assets and misreport growth in earnings for private benefit, which eventually lead to the possibility for income-decreasing forced restatement to occur.

Whether the entrenchment or alignment effect dominates is an empirical issue; this study develops the hypothesis from the entrenchment view. The detrimental effect of the principal-principal agency problem on forced restatement may be larger in family firms relative to non-family firms, especially in Malaysia that has weak investor protection. The control that family blockholders have over firms can be leveraged through the use of cross-shareholdings and stock pyramid structures. It is thus expected that family ownership may pose a threat of intervention via family power of exerting pressure on the managers to report artificial favourable firm performance, which is detrimental to the small shareholders, hence the likelihood of income-decreasing forced restatement to occur. The following hypothesis is therefore posited:

H3: There is a positive relationship between the existence of a family blockholder and family control and the occurrence of forced financial restatement.

4.2.4 Government-related institutional ownership and political connection

It is postulated that a firm's equity ownership structure may affect the principal-agent conflict. In particular, large shareholdings help align managers' and shareholders' interests more closely. This is because blockholders have higher incentives and ability to monitor due to their large stake, especially when the monitoring benefits exceed the monitoring costs, thus allowing the blockholders to recoup their investments (Shleifer and Vishny, 1986). Concentrated ownership acts as a means for blockholders to influence managers by using their power of concentrated voting rights and direct access strategies, thus enabling blockholders to motivate or even force the management to work for their interests (Shleifer and Vishny, 1986).

Institutional ownership has emerged to become one of the main forms of a firm's ownership structure (Mitra and Cready, 2005). Institutional shareholders are depicted as sophisticated investors who have the advantage of possessing value-relevant information, and therefore an ability to monitor managerial behaviour (Lev, 1988; Hand, 1990; Jiambalvo *et al.*, 2002). The institutional shareholders, via their large shareholdings, enjoy high economic benefit from their monitoring activities based on the economies of scale in

collecting information; this results in increased returns outweighing the monitoring costs (Gillan and Starks 2000). The institutional investors further enjoy the huge voting power that assists the implementation of necessary corrective actions. Provided that these institutional shareholders are keen on a firm's long-term success, the investors are in a position to restrain opportunistic managerial behaviour by encouraging managers' involvement in long-run profitable business activities (Dharwadkar *et al*., 2008).

Studies have shown that institutional investors are good monitors and help mitigate agency problems. For example, Mitra and Cready (2005) found that firms with large institutional ownership engage in less discretionary accounting than those having a low level of institutional ownership, suggesting that substantial institutional ownership acts as a deterrent tool from earnings management practices. Hadani *et al*. (2011) also show that monitoring by large institutional investors is negatively associated with earnings management.

In the context of Malaysia, the institutional ownership structure is quite unique as it is closely linked to the government. The so called "government-related institutional ownership" forms another main mode of ownership among listed firms in Malaysia (Ismail and Sinnadurai, 2012). Initially, reforms were introduced by emerging economies to increase transparency and enhance the protection for minority investors; nonetheless, the effectiveness of relevant regulatory enforcement is rather limited (Bin Muhamed *et al*., 2014). However, in addressing this dilemma, Malaysia offers a particularly distinctive institutional setting such that government-related institutional ownership is established, not only to facilitate savings of the public but also to provide effective supervision and control over their portfolio firms. The blockholders therefore have the ability to mitigate agency problems and help in the improvement of firms' corporate governance. As such, the hypothesis proposed in this section looks on the impact of government-related institutional ownership on the likelihood of forced restatement as particularly unique as it has not or cannot be tested in any other institutional setting.

The establishment of government-related institutional ownership can be dated back to 1971 when the Malaysian government implemented the 20-year New Economic Policy (NEP). The NEP's main objective was to balance the wealth among the different ethnic groups, especially between the indigenous Malays (Bumiputras) and the Chinese who were then dominating the economy (Gomez and Jomo, 1999). Following implementation of the NEP, several pension and investment funds were set up by the Malaysian government to

help the Bumiputera invest their pension contributions and savings in privatised firms, thereby allowing the Bumiputera to participate in the country's economic growth (Bin Muhamed *et al*., 2014). This has led to the creation of government investment organisations that hold ownership and gain control rights in privatised firms.

There are three different types of government investment organisations that exist in Malaysia (Bin Muhamed *et al.*, 2014, p. 455):

(i) investment organisations owned by the federal government (FGLICs) with the role of promoting federal government's social and economic policies;
(ii) pension and investment funds sponsored by the federal government (PIF GLICs) with the role of providing pension benefits or maximising the long-term savings of the Bumiputera depositors; and
(iii) State Economic Development Corporations (SEDCs), with the role of promoting state governments' social and economic policies.

Generally, the government investment organisations assist in mobilising domestic savings and attracting foreign investment to improve their portfolio companies' access to external funds (Bin Muhamed *et al*., 2014). While government investment organisations generally help improve the proportion of Bumiputera ownership in the capital market and facilitate firms' access to private funding, government investment organisations as blockholders in listed firms can potentially mitigate problems of transparency and expropriation practices by improving their control and supervision of portfolio firms (Lau and Tong, 2008).

The government-related institutional investors hold huge fiduciary responsibility, especially to the contributors as the pools of funds get larger. Government-related institutional blockholders can exercise huge controlling power to urge managers to pursue policies that promote the interests of the society and the small shareholders. The government-related blockholders become more active in determining the governance of their shareholdings (Abdul Wahab *et al.*, 2009) in a way that that their close supervision and control efforts help reduce agency costs.

A counter-argument to this is that government-related institutional investors normally lack the incentive to undertake effective monitoring as their actions are motivated for serving the government and fulfilling public policy objectives at the expense of minority shareholders (Shleifer and Vishny, 1994). Substantial investment further provides

government-related institutional investors with access to private information that is later manipulated for self-benefit (Koh, 2003). In this view, government-controlled firms tend to produce defective financial reporting so as to hide potential expropriations (Lim et al., 2014), possibly by misstating earnings downward to reduce political costs, thus leading to the possibility of income-increasing forced restatement.

Consistent with other Malaysian studies, such as Haniffa and Cooke (2002), no evidence was found by Wan-Hussin (2009) to support the assertion that institutional shareholders promote corporate reporting transparency. Nonetheless, Hashim and Devi (2012) provide evidence that institutional investors show greater incentives to monitor firms' activities closely.

Based on the above discussion, this study will examine the impact of government-related institutional ownership on the likelihood of forced restatement. In measuring government-related institutional ownership, this study uses the proxy of the percentage of equity shareholdings held by the institutional investors from the top ten largest equity shareholders. The percentage of shareholding is used to prevent multicollinearity problems that might arise when a dummy is applied for both family ownership and government-related institutional ownership; this is due to insufficient firms that fit into neither of the two categories. The proxy of government institutional ownership is used as government blockholders might use their power of control to influence a firm's management to pursue policies that help promote their political interests at the expense of the minority shareholders (La Porta et al., 1999). In this case, there is a possibility for a downward earnings misstatement to take place, perhaps for the management to reduce political cost, thus leading to the likelihood of income-increasing forced restatement.

Despite attempts by the government to assist in enhancing the Bumiputera's wealth, the increased government intervention required for the implementation of the Malaysian NEP has, however, given way to heavy political involvement, especially in terms of firm financing. Certain Bumiputera's private firms were favoured by the government for granting access to finance (Perkins and Woo, 2000). While certain firms receive financial priority from the government, businessmen were seen to increasingly use their personal connections to persuade the allocations of such financial favours (Gomez and Jomo, 1997). Various other benefits are also gained from a firm's close political connection; these include tax discounts, government subsidies and market power, which assist in improving firm

performance (Faccio *et al*., 2006). The informal ties between the Malaysian political elite and businessmen can be mutually lucrative for wealth accumulation (Fraser et al., 2006).

Theoretically, having a political connection may assist firms to mitigate agency costs. The involvement of politicians or key government servants on a firm's board may further enhance patron-client relationships between the government and the business (Faccio, 2006). Such political relationships may discourage value-reducing tendencies through closer supervision, thus helping in mitigating agency costs.

Nonetheless, the close ties that firms have with the government may not always be beneficial as they may lead to agency cost. There are two main ways in which firms' political connections may create agency costs in the Malaysian context (Al-Dhamari and Ku Ismail, 2015). First, agency costs are created when managers of politically connected firms are inclined to conceal information that relates to the benefits gained from the government, and used to maximise their own wealth at the expense of the shareholders (Chaney *et al*., 2011). Second, agency costs can be exacerbated when the government puts pressure on the politically connected firms to mask information that relates to expropriation activities carried out by the government and their cronies (Bushman *et al*., 2004). Politically connected firms are subject to high public scrutiny and public monitoring relative to non-connected firms (Chaney *et al*., 2011). Therefore, any gains benefited from political connection and expropriation activities need to be concealed, especially when it involves large benefits that are of dubious legality (Fisman 2001). In such situations, managers might become engaged in earnings misstatement to mislead shareholders, thus increasing the tendency for forced restatement to occur.

Prior studies, such as Chaney *et al.* (2011), show that politically connected firms report much poorer earnings quality relative to non-connected firms. Abdul Wahab *et al.* (2014) further found that politically connected firms are more likely to issue earnings restatements compared to non-connected firms, possibly due to connected firms carrying high risk and being operationally inefficient. Al-Dhamari and Ku Ismail (2015) document that the reported earnings of politically connected firms are perceived to be of low quality by the investors. Politically connected firms in Malaysia further experience low earnings conservatism (Mohammed et al., 2011) and are more likely to manipulate earnings, as reflected by the firms' high audit fees (Gul, 2006).

In terms of measuring a firm's political connection, this study follows prior studies (e.g., Faccio, 2006; Hasnan *et al*., 2013; Lim *et al*., 2014) by taking a proxy of a dummy variable equal to one if the company is identified as being connected with a politician, if at least one of its large shareholders (anyone controlling at least 10% of voting shares) or one of its top officers (CEO, president, vice-president, chairman or secretary) is a member of a parliament, a minister, or is closely related to a top politician or party; and zero otherwise. The existence of a political connection is taken as a proxy as politically connected firms may be exploited for the government to achieve objectives that are against firm value maximisation. The government may consume firms' resources for the benefit of cronies and supporters, who give political contributions, votes and even bribes in return *(Bushman et al*., 2004; Gul, 2006). Managers may thus intentionally misstate earnings to mislead the shareholders in relation to the profits generated or losses incurred from the firm's political connections, thus increasing the likelihood of income-decreasing or income increasing forced restatement.

In summary, this study takes the view that government-related institutional investors are responsible for myopically achieving public policy objectives and serve the government, rather than maximising shareholder wealth (Shleifer and Vishny 1997). Furthermore, huge political influence and government interference in firms' business activities may drive the agents away from working towards maximising principals' return. Rather, managers in politically-connected firms tend to expropriate firms' assets at the expense of shareholders for the sake of fulfilling a certain political agenda (Bliss and Gul, 2012). This study posited that:

H4: There is a positive relationship between government-related institutional ownership and a firm's political connection and the occurrence of forced financial restatement.

4.2.5 Corporate reporting quality

The divergence of ownership and control gives rise to agency conflict where agents tend to perform actions that are not in line with principals' interests. This misalignment of interests leads to information asymmetry, such that the agents as the insiders have better access to information in relation to the firm's present and likely future performance that is superior to those acquired by the principals. In such situations, agents may take advantage of their

unobservable actions to engage in opportunistic behaviour for personal benefit (Ho Tower and Barako, 2008).

It is viewed that the corporate governance mechanism of legal corporate reporting becomes a necessity as it is intended to reduce information asymmetry and monitor managerial behaviour. The demand for corporate reporting arises as shareholders are unable to completely observe and verify managers' actions. Quality corporate reporting is thus essential as it acts as a tool to evaluate a firm's performance level and serve as a guide for a firm's value (Dechow, 1994).

The quality of corporate reporting may be impaired when managers use corporate reporting to report artificial firm performance to obscure the firm's true financial situation. Managers might manipulate corporate reporting to increase information asymmetry in order to inhibit shareholders' ability to supervise and incentivise them appropriately. While managers and blockholders might engage in opportunistic behaviour, agency theory highlights that not all investors do this, it is merely a possibility.

Prior literature has identified that earnings management can prevent the attainment of a high quality corporate report. It is also seen as evidence of a financial reporting process breakdown (Cohen *et al*., 2004). This is possible as earnings management is commonly used by managers to camouflage a firm's actual financial performance for rent seeking purposes at the expense of the shareholders. In this view, managers or blockholders might engage in earnings management to intentionally boost reported profits (e.g., to portray good performance) or reduce earnings (e.g., to reduce tax payable), thus increasing the likelihood for income-decreasing or income-increasing forced restatement to take place.

In view of this, earnings management is taken as a proxy in this study for opportunistic behaviour by managers and blockholders. One of the earnings management techniques used by managers is accruals-based earnings management. On the one hand, accrual-based earnings management can be used to deliver value-relevant information (Healy and Palepu, 1993; Subramanyam, 1996). Ghosh and Moon (2010), for example, found that accruals were used by managers as a tool to communicate private information about a firm's future prospects. On the other hand, accrual-based earnings management can be used to mask a firm's true underlying performance (Dechow and Skinner, 2000). Numerous earnings management literature document that accruals are being managed opportunistically by self-interested managers to conceal poor firm performance (Rangan, 1998; Jones *et al.*,

2008; Dechow *et al*., 2011). In contrast to the non-discretionary component of accruals, which are standard accounting adjustments to operating cash flows (such as salary and rental expenses), the discretionary component of accruals are exposed to managerial discretion. This is because the GAAP allows considerable flexibility for managerial judgement and discretion (e.g., by manipulating accounting estimates or changing accounting methods); this leaves substantial leeway for managers to engage in opportunistic management or manipulation of discretionary accruals (Marra *et al*., 2011). Accruals based earnings management is typically favoured among self-interested managers as it has relatively no direct impact on cash flow and is generally hard to detect (Peasnell *et al.*, 2005).

This study uses several proxies to measure accruals-based earnings management. One of the proxies used to examine discretionary accruals is the Modified Jones model (1995) (DAMJ). The DAMJ is chosen over the Jones (1991) model because the explanatory power of the Jones model is relatively low. Specifically, Jones (1991) provides evidence on the correlation between accruals and firm attributes, but found that the explanatory power only explains approximately 10 percent of the variation in accruals. The Jones model is also subject to high Type I and Type II errors (Dechow et al., 2010). Type I error refers to false positive, where accruals are classified as abnormal when in fact they represent a firm's fundamental performance. Type II error refers to false negative, where accruals are classified as normal when in fact they represent managerial discretion. The DAMJ by Dechow et al. (1995) is derived by adjusting for credit sales growth to reduce Type II errors. Since manipulation often involves credit sales, such modification improves the explanatory power of the DAMJ at a level where the residual is uncorrelated with normal revenue accruals. In such cases, the Modified Jones model is seen to help improve the detection of revenue manipulation, which triggers the likelihood of forced restatement.

Deferred tax accrual is taken as another proxy. Using deferred tax accrual to measure earnings management is likely to be more appealing than other accruals for several reasons. First, the potential for other accruals, such as depreciation or non-operating accruals, as an earnings management instrument is rather limited because of its rigidity and visibility (Young, 1999, p. 11; Beneish, 1998, p. 5). Second, Young (1999) found that the Modified Jones model produces systematic measurement error in the estimation of abnormal accruals when depreciation is included in the accruals measure. Third, other accruals are based on historical cost and can be manipulated through the various GAAP

chosen by the managers for financial reporting. Deferred tax accrual is incrementally useful beyond other accruals as it can better measure managerial accrual discretion, because the tax law generally allows less discretion of accounting choices compared to the discretion available under GAAP (Mills and Newberry, 2001; Phillips *et al.,*2003). It is expected that managers or blockholders might want to manage earnings to achieve certain objectives (e.g., avoiding a decline in earnings) by exploiting the flexibilities under GAAP available for financial reporting purposes, vis-a-vis tax reporting. The possibility for managers to manage earnings upward, for example, may increase book income but not taxable income. Thus, managing income upward generates temporary-book-tax differences, indicating that deferred tax expense is likely to be more informative and a useful measure for detecting opportunistic accrual-based earnings management compared to other accruals measures, which increases the likelihood of forced restatement.

This study further examines working capital accruals as a proxy to measure accruals-based earnings management. It is defined as the change in non-cash current assets less change in current liabilities (excluding short-term debt and tax), deflated by average assets (Dechow *et al*., 2011; Allen *et al*., 2013; Lobo and Zhao, 2013). The measure is restricted and focuses solely on 'working capital' accruals; any non-current accruals (e.g., including depreciation expenses) are excluded from the definition. As Beneish (1998) and Young (1999) have discussed, the possibility for depreciation to become an earnings management tool is limited (particularly over multiple periods) due to its rigidity, predictability and visibility. More specifically, it is not possible to change depreciation policy frequently without prompting adverse attention from the auditors, thus the limitation for depreciation as an instrument for systematic earnings management (Beneish, 1998).

Working capital accruals are more susceptible to opportunistic management and misstatement, relative to non-working capital accruals (Kreutzfeldt and Wallce, 1986; Defond and Jiambalvo, 1994; Botsari and Meeks, 2008). Manipulating working capital accruals is relatively hard to detect and appears attractive as it involves judgemental estimates (e.g., McNichols and Wilson, 1988) and does not have any direct cash flow consequences (Abdullah and Mohd-Nasir, 2004). Therefore, the overstatement or understatement of working accruals may indicate opportunistic behaviour and may lead to the likelihood for misstating firms to be issued with income-decreasing or income-increasing forced restatement.

Generally firms tend to manipulate working capital accruals, such that it increases firms' earnings figure (reported performance) thus making firm's growth prospect (economic performance) to appear more favourable. Based on prior studies, Burgstahler and Dichev (1997), for example, provide evidence that changes in working capital are used to achieve increased earnings. This is supported by Defond and Jiambavlo (1994) when they examined 94 firms that violated their debt covenants; they found that working capital accruals are significantly positive, hence producing favourable earnings, in the year prior to and the year of debt violation. Based on an analysis of misstating firms, Dechow *et al*. (2011; 2012) consistently show that working capital accruals are unusually high during the misstatement years, but are then reversed based on a significant decrease in the accruals after the misstatement years. Rangan (1998) and Teoh *et al*. (1998) found, however, that firms with high discretionary working capital accruals show poor future reported earnings.

From the perspective of the impact of working capital accruals management on economic performance, prior studies show mixed findings. For example, Dechow et al. (2011) discover that, in addition to reporting high working capital accruals, misstatement firms also have a high price-earnings and market-to-book ratio, suggesting that the market is optimistic about the future potential growth of the companies. Ettredge et al. (2010) further reveals a systematic increase of balance sheet "bloat", or abnormally high working capital accounts levels among fraud restatement firms compared to non-fraud restatement firms. However, it was found that the fraud firms report a high book-to-market ratio, indicating that firms have poor growth expectation.

To a certain extent, the impact of opportunistic management or misstatement of working capital accruals on economic performance can be catastrophic; this can be seen from the example of some real cases. Transmile, an air cargo service provider in Malaysia has been managing its working capital, which included inflating its accounts receivables from RM111 million to RM381 million in 2005. This has resulted in an 80 percent increase of its revenue and doubling of its net profit. By the time forced restatement was announced in May 2007, its share price had dropped from RM13 in early May 2007 to only RM8.90 at the end of May, with an estimated total paper loss of RM3.4 billion (Abdullah et al., 2010).

Another example is Megan Media, considered to be the largest data storage product manufacturer in Malaysia. In 2007, the company was found managing and misstating both accounts receivables and accounts payable amounting to RM456 million. The company's financial performance deteriorated and it reported a negative cash flow of RM897 and net

loss of RM1.27 billion for the financial year ending 2007. The company's share price plunged 43 percent to only 6 cents in July 2007 when the announcement of a forced restatement was made; the company was finally delisted in April 2008.

Guenther (1994) further argues on the tendency of opportunistic management of operating accruals due to its material value and states that it is routinely incurred in daily business operations. Therefore, in addition to working capital accruals, four other operating accruals metrics are tested. This includes the proxy of non-cash net operating asset accruals. Pryshchepa *et al*. (2013), who applied the non-cash net operating asset accruals measure, document significant higher accruals for the incorrectly identified healthy firms in comparison to those correctly identified. The finding indicates that aggressive accruals management is typically engaged by incorrectly identified healthy firms to signal the firm's future prospects to be much better than that assessed by the investors. Based on this view, it is argued that firms with a high level of non-cash operating asset accruals are more likely to engage in upward earnings management, and therefore there is the likelihood of income-decreasing forced restatement.

Further current accruals proxies include change in receivables, change in inventories, and soft assets[17]. The overstatement of receivables and inventory is another way of manipulation used to artificially boost a firm's sales and assets value (Thomas and Zhang, 2002; Dichev *et al.*, 2013). Receivables misstatements may improve a firm's sales growth, while inventory misstatements may improve a firm's gross profit margin, both of which metrics (sales and gross profit) are closely tracked by investors (Dechow *et al.*, 2011). Dechow *et al.* (2011) further found that a firm's soft assets are significantly higher in the misstating years, suggesting a build-up of assets whose values are more subject to manipulation during the misstatement period. Overall, the above findings suggest that firms that report positive changes in receivables and inventories, and have more soft assets on the balance sheet, have more discretion in opportunistically managing accruals to report higher earnings, hence the likelihood for a firm to be issued with income-deceasing forced restatement.

Another technique that can be used by managers to manage earnings is real earnings management. Unlike accrual-based earnings management that is performed by changing accounting estimates or methods used in the presentation of a transaction in a firm's

[17] A soft asset is defined as the percentage of assets on the balance sheet that are neither cash nor property, plant, and equipment (PPE); it includes examples such as accounts receivables and inventories.

financial statements, real earnings management involves managers altering the execution of real business transactions. Firms manipulate real activities by adapting the structure or timing of real transactions in order to achieve a firm's short-term goals (e.g., to meet or beat earnings expectations or avoid a breach of debt covenants). While accruals management is confined within the flexibility of accounting practices allowed by the GAAP, no such framework exists for real business operations. Managers are thus expected to use their judgement in deciding the best possible course of action given the economic circumstances. Opportunities thus arise for managers to engage in real earnings management in addition to, or in lieu of, opportunistic accruals management in an attempt to manipulate a firm's reported earnings. The detection of real earnings management might seem to be more challenging relative to the opportunistic practices of accruals management (Kothari *et al.,* 2016). Real earnings management has direct cash flow consequences, and causes a more damaging economic impact on the firm's long-term underlying value (Gunny, 2010). Hence, there is a possibility that professional managers might be more prepared to use real earnings management rather than long-term family owners or managerial shareholders.

Prior studies document that firms employ accruals-based and real activities management as substitutes for managing earnings (Cohen *et al*., 2008; Cohen and Zarowin, 2010; Badertscher, 2011; Zang, 2012). Prior research also shows that firms will either stop managing earnings or substitute another type of earnings management when the ability to manage earnings is constrained (Ettredge *et al*., 2010). Accordingly, Badertscher (2011) argued that firms resort to engaging real earnings manipulation when all choices of accrual management are exhausted.

In the perspective of real earnings management, Roychowdhury (2006) and Cohen and Zarowin (2010) contend that firms that engage in managing earnings upwards will possibly have certain accounting effects including:

(i) an abnormally low level of cash flow from operations resulting from lenient credit terms or increased price discounts in order to improve current period sales;

(ii) an abnormally low level of discretionary expenses resulting from an aggressive cut in research and development, advertising, and administrative expenses in order to boost current period reported earnings; and

(iii) an abnormally high level of production costs to cut down the costs of goods sold, which in turn improves the current period operating margin. (According to Cohen and Zarowin (2010), a firm over produces and allocates fewer overheads to cost of goods sold but more to inventory, thereby leading to a lower cost of goods sold and higher operating margin).

In view of this, three metrics are examined as proxies for real earnings management, including abnormal cash flow from operations, abnormal production costs, and abnormal discretionary expenses.

In general, this study posits that while not all managers/blockholders are opportunistic, the possibility exists that some managers/blockholders are prone to engage in accounting manipulation to mislead outsiders, either to show that the company is performing well (e.g., to increase share price) or poorly (e.g., to reduce tax liability). In this case, managers use their discretion to manipulate accrual earnings based on the flexibilities available under GAAP. Alternatively, managers may adjust real transaction activities to distort earnings. Managers may even use accruals-based and real earnings management jointly to meet market expectations, which increases the propensity for the firms involved to be issued with income-decreasing or income-increasing forced restatement. Overall, the distortion of corporate reporting may increase the likelihood of forced restatement. In this view, the following hypothesis is developed:

H5: There is a positive relationship between the distortion of corporate reporting quality and the occurrence of forced financial restatement.

4.2.6 Firm performance and demand for external

Principals would expect that managers work towards maximising shareholder wealth. However, the principal-agent misalignment of interest results in managers pursuing self-interests at the expense of the shareholders, thus impeding them from delivering a good performance (Rachagan and Satkunasingam, 2009). Pressure may arise for the managers to meet market expectations, explaining their attempts to disguise a firm's underlying performance to make the firm appear more profitable or less risky than it really is (Zhao and Chen, 2008).

Managers prefer reporting positive growth in earnings to exhibit good firm performance (Graham et al., 2005; Huang and Scholz, 2012). Managers do not seek earnings growth for

its own sake but rather to increase their own welfare (Badertscher, 2011). This is possible as a firm's growth increases managers' power due to the increase of resources under their control (Jensen, 1986). More specifically, managers are often rewarded when they report increasing earnings and keep the share price high and rising (Badertscher 2011). Firms would be penalised in the share market if they fail to meet market expectations, hence the pressure to report consistent and predictable growth (Jensen, 2004; Brown, 2011). The pressure intensifies particularly among firms in a distressed financial condition to report earnings growth for them to convince creditors and shareholders of their favourable performance (Saleh and Ahmed 2005). In such situations, there is a tendency for firms to show their ability to meet or beat earnings targets and maintain a high share price, which further helps improve a firm's credibility within the market (Graham *et al*., 2005). Overall, firm managers might succumb to the pressure of reporting continuous strong financial results and maintaining a high firm valuation, which increases the likelihood of income-decreasing forced restatement.

The following presents findings of prior literature on firms' reported performance (defined as firm's earnings performance reported in their financial report), in comparison to firm's fundamental economic performance (defined as firm's growth performance). Findings generally show that firms tend to report positive earnings to ensure that they can maintain high stock return, thus demonstrating firm's healthy growth prospect.

Relatively, prior research documented the reported performance of firms that strive to achieve or maintain positive earnings growth (including the impact of accounting misstatements). Myers et al. (2007), for example, found 746 US firms reporting increasing earnings between 1962 and 2004 in order to achieve their defined earnings target. From the perspective of economic performance, Myers et al. (2007) discovered that these firms benefited from significant abnormal returns. Misstatement firms were also found by Schrand and Zechman (2012) to report increasing earnings. Based on a sample of 49 SEC sanctioned firms from 1996 to 2003, they document that misstatement firms reported growth in earnings to show good firm performance. In the perspective of distressed firms, Chen et al. (2010) discovered that these firms commonly reported increasing earnings. It was further revealed that firms are penalised by the market when they show a deteriorating earnings pattern with negative abnormal returns (DeAngelo, 1996).

In extreme cases, firms' incentives to maintain and extend positive growth can eventually lead to a destructive economic performance. WorldCom, for example, overstated its

earnings by falsely increasing outputs and sub-optimal price cutting to catch up with their superior financial performance, which resulted in potential bankruptcy impacting the entire industry. Reliance on WorldCom's inflated earnings caused its rivals to overinvest, involving $90 billion of sub-optimal and misallocated investment (The Eastern Management Group, 2001). Another case is Enron, where the company was involved in fraudulent financial reporting to maintain its credit rating at investment rates for it to continue its business. While Enron was not making sufficient profit, they engaged in aggressive misstatements when they treated the sale and purchase of investments held for trading by including it in firm's operating cash flow (and free cash flow). Enron managed to boost its operating and free cash flow, which looked good to the investors. In October 2001, Enron announced that the firm was actually worth $1.2 billion less than previously reported. Enron further disclosed that it made a $618 million loss for the quarter, and had overstated earnings by $586 million since 1997. A $40 billion lawsuit was filed by Enron's shareholders, after the company's share price plummeted 99.5 percent from its highest of $91 in 2000, to less than $1 by November 2001. However, the deal failed and Enron filed for bankruptcy in December 2001 (Benston, 2003).

For the purpose of this study, four proxies will be used as a measure for firm performance. The first proxy, change in earnings, is based on the contention by Defond and Jiambalvo (1991) and Graham *et al*. (2005) that firms are inclined towards reporting high growth in earnings; there is, therefore, an incentive for firms to produce positive earnings growth during the misstatement periods. The fact that managers report positive earnings growth to meet market expectations may increase the likelihood of income-decreasing forced restatement.

The second and third proxies are book-to-market ratio and price-earnings ratio, which measure a firm's growth prospects. Essentially, the spread between a firm's book value and market value is taken as a measure of a firm's perceived ability to pay returns to its shareholders, an amount in the future in excess of the expected return (Rappaport, 1981). Managers have strong incentives to show persistent growth in order to maintain high stock valuations. Dechow et al. (2011) found that misstating firms report high price-earnings and market-to-book ratios, suggesting that managers really strive to avoid disappointing shareholders and losing firms' high valuation. This is consistent with the findings by Skinner and Sloan (2002) that firms are heavily penalised by the market when they fail to meet targeted earnings after a period of continuous growth. Even in period of downturn, firms

experiencing rapid growth may report to show that they appear to be experiencing a stable growth (Beasler 1996). Managers of growth firms may therefore have the incentive to sustain high growth to manifest good firm performance, which may lead to the possibility of income-decreasing forced restatement to occur.

The fourth proxy is financial distress. According to Jensen and Meckling (1976), financial distress creates a condition that incentivises managers to show a favourable firm performance by reporting growth in earnings. The incentive arises due to the pressure of meeting the expectations of shareholders and analysts for firms to report positive earnings (Habib *et al.*, 2013). In this view, it is thus expected that managerial action of reporting earnings growth among financially distressed firms may eventually lead to the likelihood of the firm being issued with income-decreasing forced restatement.

In addition to the four proxies of firm performance, a control variable, i.e., leverage, is included to control for the effect that the variable has on the likelihood of forced restatement. It is argued that firms with high leverage have the incentive to misstate earnings to enhance a firm's financial performance for the purpose of raising new debt, based on favourable terms or preventing violations of covenants in the existing debt contracts (Defond and Jiambalvo, 1994; Minton and Schrand, 1999). Ettredge *et al.* (2010), for example, found that firms with higher leverage are associated with core earnings misstatement. Following Sharma and Iselin (2012), this study controls for leverage as it captures misstatement and thus restatement risk associated with a high debt level.

Certain control variables such as sales growth, profitability, and income volatility may also affect the likelihood of forced restatement (Subramanyam 1996; Sue, Chin, & Chan, 2013; Correia 2014). However, these control variables are excluded from the hypotheses testing model due to high collinearity between these variables and change in earnings. Statistically, the pairwise correlations between the control variables and change in earnings are relatively low (coefficient below 0.30). However, conceptionally, since sales growth, profitability, and income volatility are measured by sales and earnings performance which are represented in change in earnings, it is thus argued that there is a high correlation between these items. In this case, introducing the control variables, sales growth, profitability, and income volatility into the equation can gives rise to a multicollinearity problem which hinders from accurate estimations of variable coefficients and significance levels (Hamilton 1992).

Within a different perspective, the attempt to ensure growth in a firm's performance may give rise to the demand for external finance to improve a firm's capital base and to expand the scale of business operation (Dechow *et al*., 2011). The intention to raise new capital may exist in some firms, but they could not just proceed with raising funds due to the inability of securing favourable terms (Dechow et al., 2011). Thus, as the internal funds are near to getting exhausted, managers are more inclined towards reporting higher profitability with the anticipation of getting access into the capital market (Erickson *et al*., 2006; Lennox and Pittman, 2010). By reporting good earnings performance, the firm's share price may increase, thus reducing the cost of issuing new equity. This explains why managers tend to report positive earnings when raising external funds that, in turn, increases the likelihood of income-decreasing forced restatement.

Prior studies revealed that managers disclose a firm's good prospects in order to allow the managers to raise the external funds necessary for investment. Research has shown that misstatement firms frequently issue shares or bonds in the capital market (see e.g., Efendi et al., 2007). Dechow et al. (2011) found that misstatement firms actively raise funds before and during the misstating years. They suggest that the concern to obtain finance has encouraged managers of misstatement firms to report favourable earnings during the misstating years. Overall, the above research findings show that firms relying on external financing are more likely to issue forced restatement.

In measuring a firm's demand for external finance, three metrics are used as proxies. The first is change in free cash flow. Free cash flow is "cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital" (Jensen, 1986, p.323). A lesser free cash flow would mean that the ability of a firm to cover its capital expenditures by using internal funds held by the company is reduced. When free cash flow reduces, a firm has the incentive to attract external finance at low cost (Dechow et al., 1996). In such situations, there would be an incentive for managers to report and show good firm performance, allowing them access to the capital market at low cost. As such, firms having a lower free cash flow are more likely to be issued with income-decreasing forced restatement. In a similar vein, a firm's incentive on raising new capital (FINR) is examined as the second proxy to measure the demand for external funds. Following Dechow et al. (1996), FINR, which represents an *ex-ante* measure of finance need, is measured by a firm's free cash flow deflated by current assets. When FINR becomes more negative, i.e., less than -0.5, a firm is nearer to exhausting its own internal

funds and thereby prone to show favourable earnings, which increases the likelihood for income-decreasing forced restatement.

The third proxy is the actual issuance that represents the *ex-post* measure of finance need. The actual issuance proxy helps to identify whether the firm has issued new equity or debt prior to the forced restatement event. While there is evidence that the issuance of debt and stock does not motivate earnings misstatements (Beneish, 1999), more recent research has shown that debt and equity issuance is associated with the probability of fraudulent accounting (Efendi *et al*., 2007; Lennox and Pittman 2010). It is suggested that management's concerns regarding obtaining finance might trigger managers to report favourable earnings during the misstatement period. Efendi et al. (2007) and Dechow et al. (2011), for example, show corroborating evidence that firms are active in raising finance during their misstatement years with the incentive to keep their cost of capital to the minimum. In summary, it is contended that companies that are raising external funds have the propensity to be issued income-decreasing forced restatement.

Overall, there is tendency for managers to report favourable earnings to meet market expectations. Furthermore, in an attempt to maintain a growth trend, the need for external funds might arise to support business operations. In this situation, there is a tendency for managers to report higher profits to portray good firm performance, hence reducing the cost of issuing new capital and enabling the firm to have easy access into the capital market. Overall, the attempt of portraying firm growth and the demand for raising external funds may increase the likelihood of income-decreasing forced restatement. Hence, the following proposition is developed:

H6: There is a positive relationship between firm performance and demand for external finance and the occurrence of forced financial restatement.

4.2.7 Share price volatility

Based on the agency theory, principals and agents are assumed to act rationally and will make use of the contracting process to maximise their wealth. With the existence of information asymmetry and the inability of the shareholders to fully observe managers, there is a tendency for agents to abuse their private access to information to fulfil their own self-benefit at the expense of the shareholders. Agents would use a firm's assets for self-interest, including diverting the assets for personal benefits that compromise the quality of a firm's performance (Rachagan and Satkunasingam, 2009). This increases firm risk, hence

the fluctuation in firm value. This is possible as the low predictability and uncertainty of a firm's future performance explains the fluctuation in a firm's share price (Wei and Zhang, 2006). Since investors are heavily affected by share price, the volatility might result in poor investment return.

Share price is a function of future expected earnings, hence share price volatility signals high uncertainty about a firm's future earnings (Chen *et al*., 2002). From the investor's point of view, the volatility in share price might as well indicate a firm's perceived risk (Froot *et al*., 1992) and is undesirable to the investors (Bushee and Noe, 2000). The volatility in share price may create market awareness of a firm's ongoing problems. This does not only prompt more intense public scrutiny, but also closer monitoring by the regulators so as to minimise the probability of poor firm returns. In effect, the close monitoring by the external authorities on these high risk firms may trigger forced restatement.

Prior studies have shown that high risk firms exhibit high volatility in share price. For example, Wei and Zhang (2006) document that stock volatility is driven by the firm's uncertainty of future profits. Zhang (2010) further shows a positive association between a firm's stock price volatility and sales growth volatility. He also found that firms with high leverage tend to be more volatile, indicating that highly levered firms are susceptible to higher bankruptcy risk. The fact that a firm is high risk prompts a more effective monitoring by the market and regulators as they are suspicious of a firm's business problems; and investors are heavily affected by the volatility in a firm's share price. Jones and Weingram (1996) revealed that firms experiencing large return volatility and large negative returns are subject to closer monitoring by the regulators because investors are disappointed with their low investment return. Markarian and Gill-de-Albornoz (2012), however, revealed that income smoothing to reduce stock return volatility tends to reduce as external monitoring by institutional investors increases.

Share price volatility is taken as a proxy for investors' concerns about the riskiness of an asset (Anderson *et al*., 2004). Share price volatility also implies a lack of confidence in the information produced by the firm, so investors rely on, and respond strongly to, private information, which explains the fluctuations of the share price. While high risk firms exhibit high stock price volatility, it is postulated that this might alert institutional investors, auditors and regulators to potential problems in firms, and therefore increases the intensity

of close firm monitoring. This close monitoring would eventually trigger the need for forced restatement. Hence, the following hypothesis is developed:

H7: There is a positive relationship between share price volatility and the occurrence of forced financial restatement.

4.3 Conceptual framework

It is the study's main aim to examine whether firms' financial or non-financial corporate governance characteristics affect the likelihood of forced restatements in Malaysia. Relatively, the conceptual framework for the hypotheses testing in identifying factors that affect the likelihood of forced restatements is shown in Figure 4-1.

In testing the first main objective of this study, the hypotheses testing is performed whereby variables will be examined to assess their ability in determining the likelihood of forced restatement among the Malaysian listed firms (please refer to Figure 4-1). These variables include including corporate governance variables, blockholder ownership variables, corporate reporting quality variables, firm performance and demand for external finance variables, and share price volatility variables.

In relation to the second main objective of this study, the hypotheses testing will examine all these explanatory variables to determine the specific attributes of income-decreasing forced restatement firms in comparison to firms with income increasing forced restatement and zero effect forced restatement. By definition, income-decreasing forced restatement is where restated income is lower than the reported income, income-increasing forced restatement is where restated income is higher than reported income, and zero-effect forced restatement is where restated income equals reported income. With this, characteristic differences between firms that engage in misstatement and firms that unintentionally commit accounting errors may be identified.

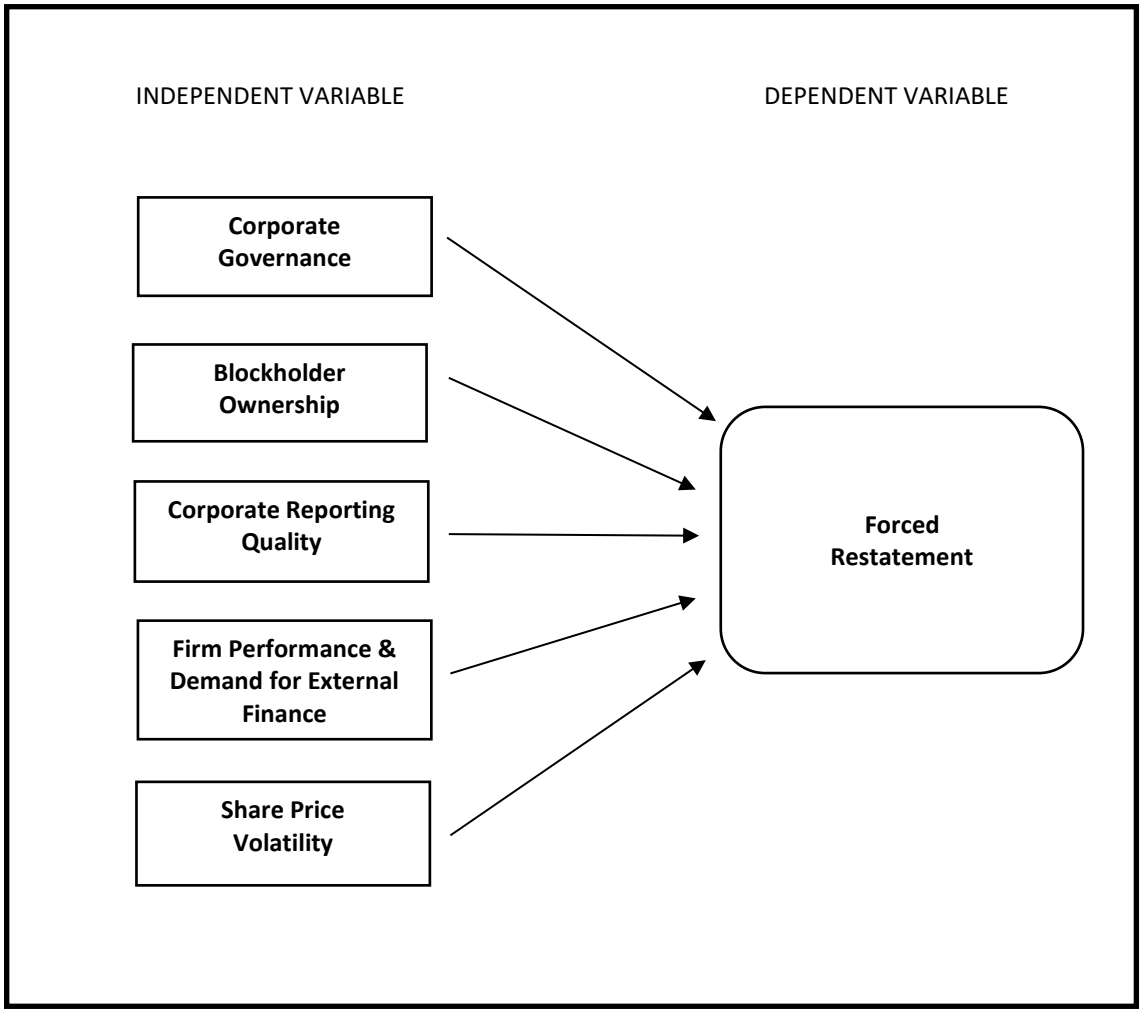

Figure 4-1: A conceptual framework on the association of corporate governance, blockholder ownership, corporate reporting quality, firm performance and demand for external finance and share price volatility, being symptomatic of a forced financial restatement

4.4 Summary

In line with the main aim of this study, which is to examine whether firms' financial or non-financial corporate governance characteristics affect the likelihood of forced restatements in Malaysia, this chapter begins with the development of hypotheses that posited on the various incentives, symptoms and constraints factors that could possibly indicate towards incidences of forced restatement in Malaysia. The explanatory variables are grouped accordingly and include: (i) corporate governance variables; (ii) blockholder ownership variables; (iii) corporate reporting quality variables; (iv) firm performance and demand for external finance variables; and (v) share price volatility variables.

These explanatory variables are expected to have an impact and therefore the ability to signal the likelihood of a firm's forced restatement. Following this, the research conceptual frameworks are laid out to consider the impact of various financial and non-financial factors that may potentially signal the likelihood of forced restatement.

Based on the developed hypotheses and conceptual framework, Chapters 5 will delineate the research methodology whereas Chapter 6 will present an empirical analysis and findings on the determinants of forced restatement among publicly listed firms in Malaysia. Table 4-1, as shown below, summarises the hypotheses developed in the study, together with the related variables and the predicted effect on forced restatement.

Table 4-1: Summary of developed hypotheses

No	Formulated hypothesis	Proxies	Predicted effect on forced restatement
H1	There is a negative relationship between board quality and the occurrence of forced financial restatement.	1) Board independence (BI) 2) Financial expert directors (FL) 3) Multiple directorships (MULTI)	-
H2	There is a positive relationship between audit committee quality and the occurrence of forced financial restatement.	1) Audit committee independence (ACIND) 2) Audit committee expertise (ACEXP) 3) Audit fees (AF)	+
H3	There is a positive relationship between the existence of a family blockholder and family control and the occurrence of forced financial restatement.	1) Family ownership (FM) 2) Founders on the board (FB) 3) CEO belongs to the founding family (CEOF) 4) CEO serves on the board's nominating committee (CEON) 5) CEO duality (CEOB)	+
H4	There is a positive relationship between government-related institutional ownership and a firm's political connections and the occurrence of forced financial restatement.	1) Government institutional ownership (INST) 2) Political connection (PC)	+
H5	There is a positive relationship between the distortion of corporate reporting quality and the occurrence of forced financial restatement.	1) Modified Jones model discretionary accruals (DAMJ) 2) Deferred tax expense (DT) 3) Working capital accruals (WCAC) 4) Change in non-cash net operating assets (RSST) 5) Change in receivables (CHAR) 6) Change in inventories (CHINV) 7) Soft assets (SFAST)	+

		8) Abnormal cash flow from operations (ABCFO) 9) Abnormal level of production costs (ABPROD) 10) Abnormal level of discretionary expenditures (ABDISX)	
H6	There is a positive relationship between firm performance and demand for external finance, and the occurrence of forced financial restatement.	1) Change in earnings (CHROA) 2) Book-to-market ratio (BM) 3) Price-earnings ratio (PE) 4) Financial distress (DISTRESS) 5) Change in free cash flows (CHFCF) 6) Incentive on raising new capital (FINR) 7) Actual issuance (AI)	+
H7	There is a positive relationship between share price volatility and the occurrence of forced financial restatement.	1) Share price volatility (SDW)	+

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

The development of hypotheses was delineated in the previous Chapter 4, in line with the study's main objective, i.e. to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced restatements. The current Chapter 5 proceeds by discussing the research methodology of the study used for testing the hypotheses. The chapter begins by presenting the study's data collection procedure and sample selection, followed by the discussion on variable measurement. Finally, this chapter explores in depth the specification of key research models applied in the study.

The need for identifying the determinants of forced restatement appears crucial specifically in Malaysia due to its unique institutional and structural environment which may have significant implications on the quality of financial reporting. Weak law enforcement, poor investor protection, poor monitoring and sanctions by the Malaysian regulators on firm behaviour feature the Malaysian economic background (Hasnan *et al.* 2013; Johl *et al.*, 2013). The existence of politically connected firms, firms with pyramidal ownership structures, companies with family ownership concentration, the presence of cross-directorship on the companies' board, concealment of influential shareholders identities through the use of nominees, are among the common institutional features of publicly listed firms in Malaysia (Hasnan et al., 2013). All these unique features may initiate ripe conditions for financial misstatements to take place.

It is, therefore, the main objective of the study to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among public listed firms in Malaysia. The model may provide input to the auditors, financial analysts, investors, and regulators to identify possible misconduct, misstatement, manipulation or even fraudulent financial reporting at an earlier stage. This study further contributes to the literature by responding to the call of Dechow et al. (2011) and extend their study by incorporating both financial measures and corporate governance factors in developing a model to identify forced restatement. Although this study is a replication of prior research on Malaysian data, it is however believed that this is the first

work of developing and providing evidence on the effectiveness of a forced restatement model based on financial statement information and corporate governance in the milieu of an emerging economy, specifically in Malaysia. The model tested in this study uses Malaysian data but nonetheless may be applicable in other emerging capital market. The tested model differs from the US papers (e.g. Dechow et al., 2011; Hribar et al., 2014) as it takes into account specific characteristics of the emerging economies in general and Malaysia in particular (such as highly concentrated ownership and heavy state intervention in the economy - La Porta *et al*., 1999; Stijn Claessens *et al*., 2000; Lins, 2003; Ray Ball *et al*., 2003).

Given the above justification and significance for a forced restatement model in Malaysia, this chapter serves to discuss the research approach adopted in the study.

5.2 Research approach

5.2.1 Data collection

This study uses two main types of data which are financial and non-financial data. The collection of data is made from two sources. The first source is the Datastream database which is mainly used to retrieve financial data. The collection of financial statement data is based on originally reported numbers (not restated). The purpose for using originally reported numbers is to identify the extent to which the financial measure representing aggressive accounting behaviour is associated with the likelihood of forced restatement (see e.g. Ettredge et al. 2010). Since the financial statement numbers are originally reported figures, they are in fact not in compliance with GAAP and are effectively misstated numbers, which require the issuance of forced restatement. In such situation, the approach of examining originally reported data may give rise to the possibility of a mechanical positive association with the likelihood of forced restatement. This is most likely to happen especially in tests that involve variables such as earnings quality and firm performance. The reason why the mechanical association problem might arise is because forced restatement is itself an evidence of aggressive accounting practices or earnings misstatements that are present in financial reports. For example, while this study interprets a positive association between the distortion of corporate reporting quality and the likelihood of forced restatement as the propensity for firms to issue forced restatement when managers engage in aggressive accounting behaviour, an alternative explanation is that by employing aggressive accounting practices, managers are essentially involved in GAAP violation in

producing financial report leaving the firm susceptible to forced restatement. The same applies to the association between firm performance and the likelihood of forced restatement, as the relationship may implies the pressure for firms to meet market expectation, hence, their attempt to disguise firm's underlying performance to make the firm appears more profitable or less risky than it really is which increases the risk for firms to issue forced restatement. In this case, results of test analyses might be due to mechanical relation that exists between the variable of interest and the likelihood of forced restatement. This study is aware of the mechanical relationship problem and recognises this as part of the study limitation. However, later in examining the effect of financial factors on the likelihood of forced restatement in Chapter 6, I do examine accruals-based earnings management as a proxy for the accuracy of financial data in corporate report (the variable measurement is explained in Section 5.2.3). Literally, the proxy help indicates the extent to which accrual earnings are discretionarily managed. In this respect, this study would expect that a high level of accruals reported by the firms to be an indicator that they might have engaged in earnings manipulation and misstatement, that lead to a forced restatement.

The second source is companies' annual reports which are used to hand manually collect non-financial or corporate governance data. The annual reports were downloaded online from the Bursa Malaysia website and are accessible via the following link: http://www.bursamalaysia.com/market/listed-companies/company-announcements/. The hand collection involves data that relates to the quality of board of directors and audit committee, firm ownership, political connection and family control.

It should be noted that variables including multiple directorships (MULTI) and director expertise (FL and ACEXP) rely on annual report disclosures that are voluntary. Ghazali & Weetman (2006) have highlighted that the high ownership concentration that is prevalent in Malaysia means that firm's voluntary disclosure is poor because insiders are better informed about firm's business activities and financial position. In relation to this matter, the reliance made on voluntary disclosure may induce potential endogeneity problems in test analyses due to spurious correlation as both accounting misstatements (leading to forced restatement) and poor disclosure quality may be driven by the same omitted variable. More specifically, managers with the incentive and ability to misreport earnings could be reluctant to voluntarily disclose to mask their deviant reporting behaviour. There is thus the possibility for the low voluntary disclosure firms to misstate earnings and issue

forced restatement. Overall, the reliance made on the low voluntary disclosure may give rise to endogeneity problem in test analysis due to spurious correlation and is thus recognised as part of the study limitation.

5.2.2 Sample selection

Data sample used in this study is based on the Malaysian public companies that are listed on Bursa Malaysia. The sample focuses on four major sectors that include (i) the trading and services sector; (ii) consumer products sector; (iii) properties sector; and (iv) industrial products sector. These four sectors made up approximately 72% of the total public companies listed on Bursa Malaysia). The four sectors constitute the considerable number of forced restatement cases, and this is in accordance with the relative size of these industries. Firms from the financial sector are excluded from the sample of the study. These financial institutions are regulated separately under the Banking and Financial Institutions Act (1989). Firms from the utility industry are also excluded since they are so much regulated by the government, thus they possess different opportunities and incentives of earnings management (Peasnell *et al.,* 2005).

The research sample comprises of two different groups which are (i) forced restatement firms (treatment group) and (ii) non-forced restatement firms (control group). In identifying the treatment group, firms with forced restatement were identified manually through the corporate annual report. In line with previous research (e.g. Callen *et al.,* 2006; Abdullah *et al*., 2010), the search attempt for evidence of forced restatement was done by searching for keywords of “restate”, “restated”, “restatement”, or “prior year adjustments” in each company’s annual report. Due to the absence of a restatement database in Malaysia, the study follows Abdullah *et al*. (2010) by including financial statements that were deemed to have restated according to the definition outlined by GAO (refer Appendix 1). The GAO definition of “aggressive” accounting practices captures specifically “intentional and unintentional misuse of facts applied to financial statement, oversight or misinterpretation of accounting rules, and fraud” (GAO, 2002, p.76). GAO’s restatement category mainly include restatements that are due to improper accounting of (i) mergers and acquisitions; (ii) cost or expenses; (iii) research and development; (iv) reclassification of accounting items; (v) related party transactions; (vi) restructuring, assets or inventory; (vii) revenue recognition; and (viii) securities related item. Restatements due to changes in a firm’s own accounting policies are also included in the forced restatement sample due to the possibility that a firm may previously misapply accounting policies for private gain.

As for the control group, it covers those Malaysian listed companies that have no financial restatement due to prior period accounting error or misstatement. The control group further includes firms that restate their reported earnings due to the implementation of the new Malaysian Accounting Standards (accounting restatement). Restatement announcements due to changes in accounting standards, stock splits and other restatements that were made not to correct accounting errors (GAO, 2006) are also included. Restatements due to these items are included in the control group because they do not indicate the likelihood of opportunistic behaviour engagement that may lead towards earnings misstatement.

Using lagged data in this study may help avoid endogeneity issues and the risks of reverse causality. The lagged explanatory variables were collected from the financial year 2002. The Asian financial crisis of 1997/1998 was declared over in 1999, thus it is argued that any confounding effect from the financial crisis will not be present in the sample of the study (Abdullah, Yusof, & Nor, 2010). Furthermore, the introduction of the Malaysian Code of Corporate Governance (2000) has been implemented for two years, giving ample time to allow the study to examine the importance of corporate governance and its effect on practices of aggressive accounting. Since lagged data is required, the collection of forced restatement data will then commence in 2003 until 2013. Period of the study ends in the year 2013 which is the most recent period for the study as we carried out the data collection in 2014.

The population of listed firms in Bursa Malaysia consists of 937 firms with 8,350 firm-year observations throughout the study period. From the total population, this study focuses only on four major sectors[18] deriving a sample data consisting of 634 firms with 6,052 firm-year observations (approximately 72% of the total public companies listed on Bursa Malaysia). This sample data is further refined, in which the data is firstly screened for any missing values[19]. Data with negative earnings (including negative PE and market-to-book ratio) is also eliminated due to firms' negative net worth which is not meaningful (Lam, 2002). In total, 1,293 firm-year observations are eliminated due to missing data and negative earnings. The sample is finally reduced to 626 firms with 4,759 firm-year observations. The following explanation presents the detail breakdown of the sample selection process.

[18] As discussed earlier, the four major sectors being studied are trading and services sector, consumer products sector, properties sector, and industrial products sector.

[19] I have tried examining various sources of data collection including the Thomson One database and individual company annual report. Nonetheless no data is available for the missing observations.

Table 5-1 below outlines the summary of the sample observations. With regard to forced restatement data, a total of 206 firm-year observations were initially collected. Out of this, 36 multiple forced restatement cases that took place in consecutive years were eliminated[20]. 49 forced restatement cases with untraceable missing observations and negative earnings were dropped. This leaves a net total of 121 forced restatement firm-years observations.

In addition to this, there are 1,909 accounting restatement observations that are due to the implementation of the new Malaysian Accounting Standards. 404 were dropped due to untraceable missing observations and negative earnings. Overall, the accounting restatement data totaled to 1,505 firm-years observations.

Finally, the firm-years observations with no restatement totaled to 3,973. 840 which are untraceable missing observations and negative earnings were eliminated. The net total for non-restatement observation reached to 3,133 firm-years.

Altogether, the net sum of forced restatement, accounting restatement and no restatement observations equals to 4,759 firm-years observations. Data being eliminated due to missing observations and negative earnings approximates to 21% of the total sample. I have tested for sample representativeness of which the independent sample t-test shows insignificant difference between the sample mean and population mean for key variables including: (i) natural logarithm of total asset (sample mean: 12.75, population mean: 12.74); and (ii) natural logarithm of revenue (sample mean: 12.30, population mean: 12.29); both of which has a significance level of $p > 0.10$. Moreover, I found that earnings variable shows equal distribution between the sample and the population, with $p > 0.10$. Overall, results from the test indicate that the sample size used in our study (number of firms = 626, number of observations = 4,759) is representative of the firms listed on Bursa Malaysia.

[20] Consistent with prior studies (for example; Srinivasan, 2005; Wiedman and Hendricks, 2013; Hennes *et al*., 2014), this research retains only one restatement for every firm unless there is at least a five year gap between multiple restatements. This is to ensure that the statistical results are not driven by the multiple restatements of certain firms (firm-level effect). It is very unlikely that firm's subsequent restatement will cause firm-level effect across observation if there is at least five year gap due to the extensive length between two events of restatement.

Table 5-1: Sample Selection of Forced Financial Restatement (2002 -2012)

	Number of firm-years	Number of firm-years	Number of firm-years
1) Forced restatement observations			
Total forced restatement observations	206		206
Less:			
Restatement in consecutive years / multiple restatement	(36)		(36)
	170		170
Missing observations and negative earnings		(49)	(49)
Total forced restatement observations (A)			**121**
2) Accounting restatement observations			
Restatement observations due to implementation of changes in the Malaysian Accounting Standards (MASB)	1,909		1,909
Missing observations and negative earnings		(404)	(404)
Total accounting restatement observations (B)			**1,505**
3) Non-restatement observations			
Non-restatement observations	3,973		3,973
Missing observations and negative earnings		(840)	(840)
Total non-restatement observations (C)			**3,133**
Total missing data due to missing observations and negative earnings		**(1,293)**	**(1,293)**
Total number of observations (gross)	**6,052**		
Total number of observations (net) A+B+C			**4,759**

Table 5-2 below presents the breakdown for the classification of forced financial restatement data. Following Palmrose *et al.* (2004) and Agrawal and Chadha (2005), core accounts represent earnings associated with firm's core business operations; for example, revenue, cost of sales and operating expenses. Earnings associated with non-core business activities of a company, such as pension funds, merger-related items, and non-recurring items, are classified as non-core accounts. Table 5-2 shows that the 121 forced financial restatements comprise of 51 restatement cases which involved core accounts, 64 restatements cases which involve non-core accounts and six cases involving both accounts. From the total of 121 forced restatement cases, 52 are income-decreasing restatements, 43 cases are income-increasing restatements, whilst 26 are forced restatements with zero impact on net income[21]. Finally, out of the total 121 cases of forced restatements, eight cases are due to accounting irregularity, 86 restatements are due to error while 27 restatements are due to the changes in the firm's own accounting policy.

Table 5-2: Classification of Forced Financial Restatement

Type of forced restated accounts:	
Core	51
Non-core	64
Mixed	6
Total	121
Effect of forced financial restatement:	
Decrease in income	52
Increase in income	43
Zero net effect on income	26
Total	121
Reasons for forced financial restatement:	
Accounting irregularity	8
Error	86
Change in firm's accounting policy	27
	121

Table 5-3 displays the financial restatement distribution by year and by industry. Overall, the financial restatement frequency presented in Panel A of Table 5-3 shows a relatively small number of annual forced restatement cases. The largest in a year is 18 while the

[21] The study includes forced restatements with zero income impact as these restatements normally involve income acceleration or expenses delay across quarters (Kedia *et al.*, 2015).

smallest is three forced restatement cases. As for the accounting restatement data, it can be noted that there is a substantial proportion of accounting restatements in relation to the whole data sample, most probably due to the period of the study (year 2002 – 2012) that coincides with the transition period for the full convergence of the Malaysian reporting standards with the International Financial Reporting Standards (IFRS). The highest number of accounting restatement can be seen in the year 2003 at 67%, while the smallest is 12% in the year 2005 and 2009.

Panel B of Table 5-3 presents the industry distribution of financial restatement. The mining and construction industry, and the durables industry account for nearly half the forced restatements, but this is in line with the relative size of these industries. The mining and construction industry is overrepresented in forced restatement, forming 14% of the total sample and 22% of forced restatement. On the other hand, the durables industry is underrepresented accounting for 34% of firm-year observations but only 25% of forced restatement. The majority of accounting restatements due to changes in the Malaysian Accounting Standards (MASB) comes from the biggest industry which is the durable industry accounting for 35% of the total accounting restatement.

Table 5-3: Classification of Financial Restatement

Panel A: By Year							
Year	**Total**	**Forced Financial Restatement**		**Accounting Restatement**		**Non-forced restatement**	
		Firm-years	%	Firm-years	%	Firm-years	%
2003	237	7	*3*	159	*67*	71	*30*
2004	302	10	*3*	93	*31*	199	*66*
2005	320	8	*3*	39	*12*	273	*85*
2006	362	13	*4*	160	*44*	189	*52*
2007	437	18	*4*	262	*60*	157	*36*
2008	482	16	*3*	143	*30*	323	*67*
2009	478	11	*2*	57	*12*	410	*86*
2010	514	8	*2*	189	*37*	317	*62*
2011	525	11	*2*	231	*44*	283	*54*
2012	544	3	*1*	89	*16*	452	*83*
2013	558	16	*3*	83	*15*	459	*82*
Total	**4,759**	**121**		**1,505**		**3,133**	

Panel B: By Industry						
Industry and Two-Digit SIC Code	Total Sample		Forced Financial Restatement		Accounting Restatement	
	n	(%)	n	(%)	n	(%)
Mining and construction (13,15)	668	*14*	27	*22*	181	12
Food and tobacco (20)	356	*7*	10	*8*	159	11
Lumber, furniture and printing (24-27)	765	*15*	15	*12*	241	16
Chemicals (28)	289	*6*	6	*5*	98	6
Durables (30-37)	1634	*34*	30	*25*	527	35
Transportation (44)	94	*2*	3	*2*	30	2
Sanitary (49)	39	*1*	0	*0*	7	1
Retail (50-51)	381	*8*	13	*11*	125	8
Security Brokers and Real Estate (65)	372	*8*	12	*10*	107	7
Services (73, 87)	161	*3*	5	*4*	30	2
Total	**4,759**	**100**	**121**	**100**	**1,505**	**100**

5.2.3 Empirical model and variable measurement

Subsequent to the hypotheses development in Chapter 4, the multivariate logit model shown in Equation (1) is employed to examine the study's objective of testing the hypotheses in determining which financial variables and corporate governance variables can provide better insight on the likelihood of forced financial restatement among public listed firms in Malaysia. The dependent variable RESTATE equals one for firm-years with forced restatement, and zero otherwise. It is unknown whether a misstatement is a one-time event or it accumulates over a certain period of time, hence the inability to predefine the misstatement period prior to firm's forced restatement announcement. Nonetheless, this study applies a 3-year lagged misstatement period prior to forced restatement for analysis purposes. This is done consistent with the findings by Wiedman & Hendricks (2013), where they analyse a random sample of restatement firms in the 2002 GAO report and found that the misstatement period appears to concentrate in years 0 to -2. Richardson et al. (2002) found a mean of 454 days (median: 564 days) between the end of the year of the alleged earnings manipulation and the date of restatement. Furthermore, in comparison to the US with its relatively effective law enforcement, especially in dealing with securities violance (Reffett, 2010; Dechow, Ge, Larson, & Sloan, 2011), the Malaysian enforcement law is rather weak and comparatively lagged behind, thus forced restatement may not be prompt (Hasnan et al. 2013). In such case, I would assume that the 3-year lagged period prior to forced restatement is reasonable. The use of lagged data in the

model estimation helps to avoid the problem of endogeneity and reverse causality. The empirical model is shown in Equation (1) below:

$$\begin{aligned} RESTATE_i(0,1) = {} & \alpha + \beta_1 BI_i + \beta_2 FL_i + \beta_3 MULTI_i + \beta_4 ACIND_i + \beta_5 ACEXP_i + \beta_6 AF_i + \beta_7 FM_i + \beta_8 FB_i \\ & + \beta_9 CEOB_i + \beta_{10} CEOF_i + \beta_{11} CEON_i + \beta_{12} INST_i + \beta_{13} PC_i + \beta_{14} DAMJ_i + \beta_{15} DT_i \\ & + \beta_{16} WCAC_i + \beta_{17} RSST_i + \beta_{18} CHAR_i + \beta_{19} CHINV_i + \beta_{20} SFAST_i + \beta_{21} ABCFO_i + \\ & \beta_{22} ABPROD_i + \beta_{23} ABDISX_i + \beta_{24} CHROA_i + \beta_{25} BM_i + \beta_{26} PE_i + \beta_{27} DISTRESS_i + \\ & \beta_{28} CHFCF_i + \beta_{29} FINR_i + \beta_{30} AI_i + \beta_{31} SDW_i + \beta_{32} BDSIZE_i + \beta_{33} BDMEET_i + \\ & \beta_{34} ACSIZE_i + \beta_{35} ACMEET_i + \beta_{36} FEM_i + \beta_{37} LEV_i + \beta_{38} LNTA_i + \beta_{39} AGE_i + \\ & \sum_{K=1}^{56} \beta_K IND_{i \in K} + \sum_{t=1}^{11} \beta_t YEAR_t + \varepsilon_{it-1} \end{aligned} \quad (1)$$

The variables included in Equations (1) are firm-specific attributes based on financial factors and corporate governance factors. The variables are identified in line with the study's theoretical framework and hypotheses developed in previous chapters, and are expected to have an impact on the likelihood on forced restatement. The following discusses the variables examined and their related proxies.

1. Board quality

Firstly, the board quality variable is examined. A quality board ensures that an effective monitoring is undertaken such that managers act in the best interest of the shareholders. This, in effect, minimises the risk of forced restatement. A number of proxies are used to measure board quality. The first proxy for board quality is board independence (BI). It is argued that a board comprising a majority of outside directors would reduce moral hazard problem due to the board being an effective monitoring mechanism (Fama & Jensen, 1983). This is based on the contention that having outside directors on the board ensures no collusion with the top management on expropriation of shareholder's wealth due to the attempt of securing their reputation as being experts in decision control. In line with previous studies (Baber *et al*., 2012; Chakravarthy *et al*., 2014), this study measures BI as the proportion of independent non-executive directors on the firm's board.

The second proxy for board quality is financial expert directors (FL). A financial expert director is seen to be more familiar with how earnings are managed. The financial expert director can take essential measures to curb opportunistic earnings management activities (Lin and Hwang, 2010) and, therefore, reduces the likelihood of forced restatement. In line with studies such as Badolato *et al.* (2014), FL is measured as the proportion of board members with financial expertise (e.g. a certified public accountant, a chartered financial

analyst or a member having experience in corporate financial management or other comparable experiences such as being a CFO, treasurer or other senior position that may result in the person's financial sophistication).

The third proxy for board quality is multiple directorships (MULTI). Beasley (1996) proposes that having multiple directorships give directors the opportunity to obtain insights on how different companies pursue new business approaches, compare management practices and policies and being exposed to the various management styles. With the wide range of experience, directors become skilful and tend to be more diligent in carrying out their monitoring duties, thus their ability to minimise the risk of forced restatement. MULTI is measured by the proportion of directors on the firm's board who have at least one additional directorship in another company (Hasnan *et al.*, 2013, Sharma and Kuang, 2014).

2. Audit committee quality

Equation (1) further examines audit committee quality variable. A quality audit committee ensures that an effective monitoring of a firm's financial reporting process is performed (Abdullah and Mohd-Nasir, 2004). In discharging their duties, a quality audit committee would insist for a wider scope of external audit or more intense audit procedures in areas of high uncertainty or risk. This increases the likelihood of detecting earnings misrepresentation which triggers the need for forced restatement. Three proxies are used to measure audit committee quality.

The first proxy is audit committee independence (ACIND). Being independent of the firm's management is very crucial for the audit committee. This is to ensure that the audit committee performs an objective and independent oversight duty over a firm's financial reporting process. It further allows a more effective detection of deficiencies in financial reports (Klein 2002; Le *et al.,* 2006) which triggers the need for forced restatement. This study measures ACIND as the proportion of independent non-executive directors in the audit committee (Carcello *et al*., 2011; Baber *et al*., 2012; Lobo and Zhao, 2013).

The second proxy for audit committee quality is audit committee expertise (ACEXP). A financially expert audit committee strengthens the negotiations handed in by external auditors to the management surrounding the issues of accounting principles application, accounting judgment and accounting estimates (DeZoort & Salterio, 2001; Ng & Tan, 2003). An expert audit committee is thus regarded as an effective monitoring mechanism that can enhance financial reporting quality as they are expected to discover earnings

misrepresentation more effectively which increases the risk of forced restatement (Agrawal & Chadha, 2005; Carcello et al. 2011). ACEXP is measured as the proportion of financially expert directors on the audit committee (Carcello *et al.*, 2011; Baber *et al.*, 2012; Lobo and Zhao, 2013).

The third proxy for audit committee quality is audit fees (AF). High audit fees are incurred when an audit committee demand for a more extensive external auditing to gain additional assurance on the firm's financial reporting quality. With a more vigilant external audit that is signalled through high audit fees, the likelihood of detecting deficiencies in financial reporting increases, which in turn, triggers the need for forced restatement. In measuring AF, the following formula applies:

$$AF_{it} = AF_{it} / TA_{it} \quad (2)$$

where AF_{it} is audit fees for firm *i* in year *t* (annual Datastream data item WC01801) and TA_{it} is total assets for firm *i* in year *t* (annual Datastream data item WC02999).

It is noted that the audit fees variable is influenced by the different size and complexity of sample firms (Barth & Kallapur, 1996). This would mean that small (large) firms have small (large) values for the audit fee variable. This is consistent with prior literature which indicates that firm size is closely correlated with audit fees, possibly due to the increased volume of work for the auditor or due to the increased potential for reputational damage for auditors if problems emerge in large and therefore highly visible forms (e.g. Hasnan et al. 2013). In addressing the problem of scaling effect that may give rise to coefficient bias and heterocedasticity, audit fees are deflated by firm size. This is done to prevent firm size from having unduly influence on findings of the study.

3. Family blockholder and control

The presence of a family blockholder (FM) is also included in Equation (1). The opportunities for earnings manipulation are considered more open in firms with family ownership. This is due to the information asymmetry that exists between family and non-family shareholders (Filatotchev, Zhang & Piesse 2011). Family members are prone to manipulate earnings for their own benefit (Sue *et al.,* 2013), hence leading to the risk of forced restatement.

The measurement of family ownership data creates a potential concern where some families may just require a minimal fractional ownership to exert control, while others need larger ownership stakes to be able to exert the same control level due to differences in

business practices, product placement, firm size and industry (Anderson *et al.,* 2003). Based on this contention, this study uses a binary variable to denote firms with family ownership. Specifically, FM is measured as a dummy variable that takes the value of one if at least 20% of the firm's equity is owned by the family members, and zero otherwise (Chu, 2009; Hasnan *et al*., 2013; Ho and Kang, 2013). As discussed earlier in Section 4.2.3 of Chapter 4, ownership blocks as little as 20% is considered adequate for the owner to exercise full control over a company (La Porta *et al*., 1999; Claessens *et al.,* 2000; Faccio *et al.,* 2001; Faccio and Lang, 2002).

In addition to family ownership, the variable for family control was also examined in Equation (1). While controlling owners manage to exercise full control over a firm, there is likelihood that their large control may not improve monitoring efficiency. They rather use their capability from holding managerial positions to divert firm resources for their own benefit at the expense of the minority investors, which increases the risk of forced restatement (Agrawal and Chadha, 2005; Fich and Shivdasani, 2007).

Four proxies were examined in Equation (1) that measure family control. The first proxy is founders on the board (FB). Founders have a huge emotional commitment towards the firm irrespective of their ownership interest. Having such a great commitment, founders would safeguard the firm by doing almost anything including shutting one's eye to managerial opportunistic behaviour (Hasnan *et al.,* 2013) which increases the likelihood of forced restatement. This study measures FB as the percentage of firms' founders on the board of directors (Hasnan *et al.*, 2013; Sue *et al.*, 2013; Ho and Kang, 2013).

The second proxy is CEO duality (CEOB). Family owners may want to exercise huge control over the company by holding the CEO-Chairman duality position. However, the duality position gives rise to conflict of interest. The CEO who serves as the board chairman may monitor and gain high influence over various firm-related matters, although they might not formally involve in serving the committees charged with the respective responsibilities (O'Connor *et al.,* 2006). Such high influence may impair CEO's integrity and that board members may fail to discharge their duties effectively in monitoring the management which increases the risk of forced restatement. The proxy CEOB is measured as a dummy coded one if CEO chairs the board, and zero otherwise (Baber *et al*., 2012; Lobo and Zhao, 2013; Ang *et al*., 2014).

The third proxy is founder CEO (CEOF). Dechow *et al.* (1996) contended that a founder CEO tend to be less accountable to the firm's board since they have high influence over business affair and decision-making. There is a tendency for a self-interest founder CEO to expropriate assets for private gain, thus increasing the possibility for forced restatement to take place. Based on Equation (1), CEOF is measured as a dummy which equals to one if the CEO belongs to the founding family, and zero otherwise (Baber *et al*., 2012; Lobo and Zhao, 2013; Ang *et al*., 2014).

The fourth proxy is CEO serving on the board's nominating committee (CEON). Controlling owner often exert huge influence over corporate affairs by using their power to nominate family members, or even appoint incompetent and less independent outside directors on the board (Shivdasani & Yermack, 1999). As such, board members selected by nominating committee where the family CEO is part of it, might not be effective monitors. It provides opportunity for the management to collude in reporting aggressive earnings, which creates the risk for forced restatement. CEON is measured as a dummy variable equals one if the CEO serves on the board's nominating committee or if the board has no such committee; and zero otherwise (Efendi *et al.,* 2007; Ho and Kang, 2013; Ang *et al.*, 2014).

4. Government-related institutional investors and political connection

The next variable examined in Equation (1) is government-related institutional ownership (INST). It is one of the main forms of ownership structure in Malaysia. Being controlling owners, the government-related institutional investors may be motivated to serve the government and fulfil public policy objectives more than to undertake an effective monitoring (Shleifer and Vishny, 1994). In such situation, the government-related institutional investors may exercise their controlling power to hide potential expropriations at the expense of the small shareholders (Lim e*t al*., 2014), hence the possibility of forced restatement. In estimating Equation (1), INST is measured by the percentage of equity shareholdings held by government-related institutional investors from the top ten largest equity shareholders. As highlighted earlier in Section 4.2.4. of Chapter 4, the percentage of shareholding is used to prevent multicollinearity problems which might arise when a dummy is applied for both family ownership and government-related institutional ownership due to insufficient firms that fit into neither of the two categories.

Firms' political connection (PC) is another variable that is examined in Equation (1). According to Al-Dhamari and Ku Ismail (2015), there are two main ways by which firms' political connection may affect earnings quality. Managers of politically-connected firms

may either mask information that relates to the benefits they gained from the government, or mask information that relates to the expropriation actions performed by the government and its cronies. In this case, firm's political information may increase the likelihood of forced restatement. For measurement purposes, PC is defined as a dummy variable coded one if the company is identified as being connected with a politician if at least one of its large shareholders (anyone controlling at least 10% of voting shares) or one of its top officers (CEO, president, vice-president, chairman or secretary) is a member of a parliament, a minister, or is closely related to a top politician or party; and zero otherwise (Faccio, 2006; Abdul Wahab *et al.*, 2014).

5. Distortion of corporate accounting quality

Equation (1) further examines the distortion of corporate accounting quality variable. Managers become opportunistic (but not all managers are opportunistic) and might distort earnings to obscure firm's real underlying performance which increases the likelihood of forced restatement. Several proxies that measures managerial opportunistic behaviour that include accruals-based earnings management and real earnings management are examined.

The first proxy is the discretionary accruals measurement by the Modified Jones model (1995) (DAMJ). There is a tendency for managers to opportunistically manage the discretionary accrual of earnings to overstate good performance or masquerade any deteriorating performance which increases the risk of forced restatement (Jensen, 2005; Badertscher, 2011). Following Dechow *et al*. (1995), DAMJ is measured as follows:

Firstly, total accruals are calculated based on the difference between net income before extraordinary items and net operating cash flows as shown in Equation (3):

$$TACC_{it} = NI_{it} - CFO_{it} \quad (3)$$

Where $TACC_{it}$ is total accruals for firm *i* in year *t*, NI_{it} is net income before extraordinary items (annual Datastream data item WC01551) for firm *i* in year *t* and CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860) for firm *i* in year *t.*

Following this, the model parameters are estimated for all firms in a two-digit SIC industry based on the following equation (4):

$$TACC_{it} / TA_{it-1} = \alpha + \beta_1(1 / TA_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta AR_{it}) / TA_{it-1} + \beta_3 PPE_{it} / TA_{it-1} + \varepsilon. \quad (4)$$

Where TA_{it-1} is total assets (annual Datastream data item WC02999) for firm *i* in year t-1, ΔREV_{it} is change in revenue (annual Datastream data item WC01001) from the preceding year for firm *i*, ΔAR_{it} is change in accounts receivable (annual Datastream data item WC02051) from the preceding year for firm *i*, PPE_{it} is property, plant and equipment (annual Datastream data item WC02501) for firm *i* in year *t*.

The discretionary accruals are then calculated by using the estimated parameters:

$$U_{it} = (TACC_{it} / TA_{it-1}) - [\alpha + \beta_1(1 / TA_{it-1}) + \beta_2((\Delta REV_{it} - \Delta AR_{it}) / TA_{it-1}) + \beta 3(PPEit / TA_{it-1}) \quad (5)$$

Where U_{it} represents the discretionary accruals for firm *i* in year *t*.

The second proxy is deferred tax accrual (DT). The substantial flexibilities available in GAAP compared to the tax rules gives managers the opportunity to discretionarily manage book income upward, in ways that leave taxable income unaffected (Phillips *et al.,* 2003; Hanlon, 2005). The difference between book income and taxable income thus acts as a useful measure to indicate earnings management. Consistent with prior studies (e.g. Ettredge *et al*., 2008; Badertscher *et al.,* 2009; Dechow *et al.*, 2011), DT is measured as:

$$DT_{it} = DT_{it} / TA_{it-1} \quad (6)$$

Where, DT_{it} is deferred tax expense (annual Datastream data item WC03263) for firm *i* in year *t* and TA_{it-1} is total assets (annual Datastream data item WC02999) for firm *i* in year *t-1*.

The third proxy is working capital accruals. Working capital accruals involve judgemental estimates and do not have direct cash flow consequences. Hence, working capital accruals provide managers with an attractive platform for earnings management. Following studies such as Dechow *et al*. (2011) and Allen *et al. (*2013), working capital accruals are measured based on the following formula:

$$WCAC_{it} = [[\Delta CA_{it} - \Delta CSTI_{it}] - [\Delta CL_{it} - \Delta DCL_{it} - \Delta TP_{it}]] / [(TA_{it} - TA_{it-1})/2] \quad (7)$$

Where ΔCA_{it} is change in current assets (annual Datastream data item WC02201) from the preceding year for firm *i*, $\Delta CSTI_{it}$ is change in cash and short-term investments (annual Datastream data item WC02001) from the preceding year for firm *i*, ΔCL_{it} represents change in current liabilities (annual Datastream data item WC03101) from the preceding year for firm *i*, ΔDCL_{it} is change in debt in current liabilities (annual Datastream data item WC03051) from the preceding year for firm *i*, ΔTP_{it} is change in taxes payable (annual Datastream data item WC03063) from the preceding year for firm *i*, and TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t.*

In addition to the working capital accruals, operating accruals are also tested due to its material value and is routinely incurred in a business operation making it susceptible to manipulation. Relatively, the proxy of non-cash net operating asset accrual (RSST) is examined. The net operating assets represent various events and transactions such as post-retirement benefit obligations, long-term receivables and long-term debt, which are themselves manifesting the accrual accounting process, previously ignored in the working capital accruals model. It is argued that firms with high level of RSST are more likely engage in opportunistic accruals management (Pryshchepa *et al.*, 2013). Following Dechow *et al*. (2011), Francis *et al*. (2013) and Chakravarthy *et al.* (2014), RSST is measured as:

$$RSST_{it} = (\Delta WC_{it} + \Delta NCO_{it} + \Delta FIN_{it}) / [(TA_{it} - TA_{it-1})/2] \quad (8)$$

Where;

$$WC_{it} = [CA_{it} - CSTI_{it}] - [CL_{it} - DCL_{it}] \quad (9)$$

$$NCO_{it} = [TA_{it} - CA_{it} - IA_{it}] - [TL_{it} - CL_{it} - LTD_{it}] \quad (10)$$

$$FIN_{it} = [STI_{it} + LTI_{it}] - [LTD_{it} + DCL_{it} + PS_{it}] \quad (11)$$

CA_{it} is current assets (annual Datastream data item WC02201) for firm *i* in year *t*, $CSTI_{it}$ is cash and short-term investments (annual Datastream data item WC02001) for firm *i* in year *t*, CL_{it} represents current liabilities (annual Datastream data item WC03101) for firm *i* in year *t*, and DCL_{it} is debt in current liabilities (annual Datastream data item WC03051) for firm *i* in year *t.*

TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*, IA_{it} is investments and advances (annual Datastream data item WC02250 & WC02256) for firm *i* in year *t*, TL_{it} is total liabilities (annual Datastream data item WC03351) for firm *i* in year *t*, and LTD_{it} is long-term debt (annual Datastream data item WC03251) for firm *i* in year *t*.

STI_{it} is short-term investments (annual Datastream data item WC02008) for firm *i* in year *t*, LTI_{it} is long-term investments (annual Datastream data item WC02250 and WC02256) for firm *i* in year *t*, and PS_{it} is preferred stock (annual Datastream data item WC03451) for firm *i* in year *t*.

Other related proxies include change in receivables (CHAR), change in inventories (CHINV) and soft assets (SFAST), i.e. assets that are neither cash nor PPE (e.g. accounts receivables and inventories). Essentially, the build-up of receivables and inventories are among red

flags that can help signal misstated earnings. Managers tend to overstate receivables and inventories to artificially boost revenue and assets value (Thomas and Zhang, 2002; Dichev *et al.*, 2013). In addition, when firms report a high proportion of soft assets in their balance sheet, this would mean that the management is left with more discretion to change assumptions to meet short-term earnings goals (Barton and Simko, 2002; Richardson *et al*., 2005). Hence, account receivables, inventories and soft assets are highly susceptible to opportunistic earnings management that increases the likelihood of forced restatement. Following Feng *et al*., (2011) and Francis *et al* (2013), this study measures CHAR as:

$$CHAR_{it} = \Delta AR_{it} / [(TA_{it} - TA_{it-1})/2] \quad (12)$$

Where ΔAR_{it} is the change in accounts receivables (annual Datastream data item WC02051) from the preceding year for firm *i*, and TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*.

Following Feng *et al*., (2011) and Francis *et al* (2013),CHINV is measured as:

$$CHINV_{it} = \Delta INV_{it} / [(TA_{it} - TA_{it-1})/2] \quad (13)$$

Where ΔINV_{it} is the change in inventories (annual Datastream data item WC02101) from the preceding year for firm *i*, and TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*.

Whereas, SFAST is measured as:

$$SFAST_{it} = (TA_{it} - PPE_{it} - CCE_{it}) / TA_{it} \quad (14)$$

TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*, PPE_{it} is property, plant and equipment (annual Datastream data item WC02501) for firm *i* in year *t*, and CCE is cash and cash equivalent (annual Datastream data item WC02001) for firm *i* in year *t*.

Proxies to measure opportunistic managerial behaviour based on real earnings management activities are also examined. Managers may engage in real activities manipulation to mislead shareholders that certain financial performance goals have been attained in the normal course of business operation (Roychowdhury, 2006, p. 337). Real activities such as discounting selling price (which reduces abnormal cash flow), increasing production (which increases abnormal production cost) and reducing research and development expenditure (which reduces abnormal discretionary expenses) may help

achieve firm's goals in the short term (to meet or beat earnings expectation), but may not necessarily contribute towards enhancing firm value in the long run.

In estimating the real earnings management, this study follows Roychowdhury (2006) by firstly estimating abnormal cash flow from operations (ABCFO). This is done by running a cross-sectional regression for each two-digit industry and year. ABCFO is the residual from the following equation:

$$CFO_{it} / TA_{it-1} = \beta 1 [1/ TA_{it-1}] + \beta 2 [REV_{it} / TA_{it-1}] + \beta 3 [\Delta REV_{it} / TA_{it-1}] + \varepsilon_{it} \quad (15)$$

CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860) for firm *i* in year *t*, TA_{it-1} is total assets (annual Datastream data item WC02999) for firm *i* in year t-1, REV_{it} is revenue (annual Datastream data item WC01001) for firm *i* in year *t*, ΔREV_{it} is change in revenue (annual Datastream data item WC01001) from the preceding year for firm *i*, ε_{it} is a residual term that captures the level of abnormal cash flow of firm *i* in year *t*.

Abnormal level of production cost is next estimated based on the residual from the following equation:

$$PROD_{it} /TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_2 (REV_{it} / TA_{it-1}) + \alpha 3 (\Delta REV_{it} / TA_{it-1}) + \alpha 4 (\Delta REV_{it-1} / TA_{it-1}) + \varepsilon_{it} \quad (16)$$

$PROD_{it}$ represents the production cost and is defined as the sum of the cost of goods sold (COGS) and change in inventory (ΔINV). COGS is estimated based on the following regression:

$$COGS_{it} /TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_2 (REV_{it} / TA_{it-1}) + \varepsilon_{it} \quad (17)$$

Whereas ΔINV is estimated as:

$$\Delta INV_{it} /TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_1 (\Delta REV_{it} / TA_{it-1}) + \alpha_2 (\Delta REV_{it-1} / TA_{it-1}) + \varepsilon_{it}; \quad (18)$$

TA_{it-1} is total assets (annual Datastream data item WC02999) for firm *i* in year t-1, REV_{it} is revenue (annual Datastream data item WC01001) for firm *i* in year *t*; and ΔREV_{it} is the change in revenue from the preceding year for firm *i*, ΔREV_{it-1} is the change in revenue from year t-2 to year t-1 for firm *i*, ε_{it} is a residual term that captures the level of abnormal cash flow of firm i in year t.

Finally, abnormal level of discretionary expenditure is estimated based on the residual from the following equation:

$$DISX_{it} / TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_2 (REV_{it-1} / TA_{it-1}) + \varepsilon_{it} \quad (19)$$

$DISX_{it}$ is discretionary expenditures defined as the sum of research and development expenditures (annual Datastream data item WC01201) and selling, general and administrative expenses (annual Datastream data item WC01101) for firm *i* in year *t*, TA_{it-1} is total assets (annual Datastream data item WC02999) in year t-1 for firm *i*, REV_{it-1} is revenue (annual Datastream data item WC01001) in year t-1 for firm *i*, ε_{it} is a residual term that captures the level of abnormal discretionary expenses of firm i in year t.

6. Firm performance and demand for external financing

Another variable examined in Equation (1) is firm performance. Managers are motivated to report a good firm performance as they are often under pressure to meet market expectation (Zhao and Chen 2008). Managers' attempt to make the firm appears more profitable or less risky than it really is may however impact in an increased likelihood of forced restatement. Three proxies that measure firm performance are examined.

The first proxy for firm performance is change in earnings (CHROA). Change in earnings may indicate the likelihood of forced restatement based on the assertion that managers tend to boost earnings prior to forced restatement to conceal firms' declining performance (Schrand and Zechman, 2012). In line with prior studies (e.g. Dechow *et al*., 2011; Feng *et al*., 2011; Lobo and Zhao, 2013), CHROA is measured as:

$$CHROA_{it} = [EARN_{it} / [(TA_{it} - TA_{it-1})/2]] - [EARN_{it-1} / [(TA_{it-1} - TA_{it-2})/2]] \quad (20)$$

Where $EARN_{it}$ is net income before extraordinary items (annual Datastream data item WC01551) for firm *i* in year *t*, TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t.*

The second and third proxy is book to market ratio (BM) and price earnings ratio (PE). Both of these proxies are measures of a firm's growth prospect. Relatively, managers have the incentive to show that a firm has a good future prospect via reporting growth in performance. Firms tend to be heavily penalised by the market if managers fail to maintain a continuous firm growth (Skinner and Sloan, 2002). In measuring BM, the following estimation is applied:

$$BM = BVE / (EQ \times MP) \quad (21)$$

Where BVE is book value of equity (annual Datastream data item WC03501), EQ is common shares outstanding (annual Datastream data item WC05301), and MP is year-end market price (Datastream data item WC05001). As for PE, the measurement is as follows:

$$PE = (EQ \times MP) / EARN \quad (22)$$

Where EARN is net income before extraordinary items (annual Datastream data item WC01551).

The final proxy for firm performance is financial distress (DISTRESS). Managers of financially distressed firms may have the tendency to mask firm performance failure (Habib, Bhuiyan & Islam 2013). Hence, the incentive to report positive earnings may arise as managers are under pressure to meet market's expectation (Habib *et al.,* 2013).

The Altman Z-score equation is one of the many models that can be used to measure firms' financial distress. This study applies the Altman (1993) Z"-score model consistent with the claim by Altman (2002) that the model demonstrates 80 percent accuracy. The model incorporates specific credit characteristics of the emerging market companies and was tested by Altman (1998) on Mexican companies that issued Eurobonds in US dollars in the year 1994. The method was verified as being a robust tool and effective in performance assessment and financial distress prediction of companies within the emerging market. The fifth ratio (sales to total assets) which was previously included in the original model of Altman (1968) was omitted from the current version of the Z"-score model as it put too high value for non-manufacturing companies. Notwithstanding, the adjusted formula provides equally valid prediction results. Altman (2002) argued that the newly revised version of the Z-score model is more appropriate for emerging market with minimised potential industrial effect. Alareeni and Branson (2013) concur with the remarkability of Altman Z"-Score which was specifically designed to predict firms' failure within an emerging market. The model was found to be highly accurate in predicting failure of the Jordanian non-manufacturing companies based on a sample of 71 listed companies that failed between 1989 and 2008. Zaabi (2011) reveal that the Z"-score model provides useful instrumental indicators and is exactly a valuable analytical tool to be used by the Islamic banks in the UAE complementing other financial distress prediction model that is available. Furthermore, Pok (2012) applied the Z"-score model based on a sample of 477 Syariah-compliant Malaysian firms and concurs that the model acts as an effective tool to screen financially problematic companies.

Hence, the application of the Altman (1993) Z"-score model, by which the equation is shown below:

$$Z'' = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4) \quad (23)$$

Where $X1 = WC_{it} / TA_{it}$; $X2 = RE_{it} / TA_{it}$; $X3 = EBIT_{it} / TA_{it}$; $X4 = BVE_{it} / TL_{it}$

WC_{it} is working capital (annual Datastream data item WC03151) for firm *i* in year *t*, TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*, RE_{it} is retained earnings (annual Datastream data item WC03495) for firm *i* in year *t*, $EBIT_{it}$ is earnings before interest and tax (annual Datastream data item WC18191) for firm *i* in year *t*, BVE_{it} is book value of equity (annual Datastream data item WC03501) for firm *i* in year *t*.

In addition to the firm performance variable, Equation (1) further examines the demand for external financing variable. The need to raise external funds may arise to increase a firm's capital base in order to support the firm's growth performance (Dechow et al 2011). In this case, managers may be inclined to report high profitability in the hope of getting easy access into the capital market at a low cost. The incentive may be intensified when the level of internal funds is depleting, as firm's capital base becomes exhausted. This explains why managers tend to report positive earnings when the demand for external fund arises, which increases the risk of forced restatement. Three proxies that measures the demand for external finance are examined.

The first proxy is change in free cash flows (CHFCF). When a firm's free cash flow reduces, managers would be incentivised to raise external fund in order to expand their capital base to support firms' growth. In this situation, managers have the tendency to report good profit in order to attract external funding at low cost which in turn, increases the likelihood of forced restatement. In measuring CHFCF, this study follows Ettredge *et al*. (2008), Dechow *et al*. (2011) and Linck *et al*. (2013), where:

$$CHFCF = \Delta[EARN_{it} - RSST\ Accruals_{it}] / [(TA_{it} - TA_{it-1})/2] \quad (24)$$

$EARN_{it}$ is net income before extraordinary items (annual Datastream data item WC01551) for firm *i* in year *t*, $RSST\ Accruals_{it}$ (RSST's definition and operationalisation is explained earlier under the variable distortion of corporate reporting quality) for firm *i* in year *t*, TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*.

The second proxy is firm's incentive on raising new capital (FINR). FINR represents an *ex-ante* measure of finance need. A low FINR (e.g. less than -0.5) would indicate that the firm is close to exhausting its internal fund, hence a more intensified need for the firm to report favourable earnings to get access to the capital market. This however may result in an increased likelihood of forced restatement. To measure FINR, this study follows Ettredge *et al*. (2008), Lennox and Pittman (2010), and Chakravarthy *et al*. (2014) where:

$$FINR_{it} = (CFO_{it} - CAPEX_{it-1}) / CA_{it-1} \quad (25)$$

CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860) for firm *i* in year *t*, $CAPEX_{it-1}$ is capital expenditures (annual Datastream data item WC04601) in year t-1 for firm *i*, $CA_{it-1}$is current assets (annual Datastream data item WC02201) in year t-1 for firm *i*.

The last proxy is actual issuance (AI). AI represents an ex-post measure of finance need. The issuance of debt and stock might indicate the possibility of a defective financial reporting. Relatively, the concern to obtain external funding might have initiate managers to report favourable earnings, to ascertain that the firm's cost of capital is kept to the minimum. As such, the issuance of debt or equity may increase the likelihood of forced restatement. In line with Baber *et al.,* (2012) and Francis *et al*. (2013), this study measures AI as a dummy variable coded 1 if annual Datastream data item WC04251 > 0 (net proceeds from sale/issue of common and preferred equity) or annual Datastream data item WC04401 > 0 (long term borrowing), and zero otherwise.

7. Share price volatility

The final variable examined in Equation (1) is share price volatility (SDW). Share price volatility acts as a signal of firms' perceived risk, thus implying uncertainty in firms' future earnings (Chen *et al.,* 2002). Share price volatility may alert the market of firms' ongoing problem and may prompt closer monitoring by the regulators which in turn may trigger forced restatement. Following Anderson *et al.* (2004), SDW is measured as the annual standard deviation of monthly SRTN, where SRTN is stock return (monthly Datastream data item WC05001).

In total, there are seven group of predictor variables that covers a wide range of financial and non-financial factors being examined in Equation (1). In addition to this, several firm-specific variables that affect the likelihood of forced restatement are controlled for in this study.

The first control variable is board size (BDSIZE). An optimum number of board members determine that sufficient members are available to effectively discharge their responsibilities which affect the likelihood of forced restatement. This study measures BDSIZE as the number of board members (Carcello *et al*., 2011; Lobo and Zhao, 2013).

The second control variable is board meeting (BDMEET). The number of board meeting is expected to give an impact on the likelihood of forced restatements due to the time allocated by the board to meet and discuss issues on firm's financial reporting (Xie *et al*., 2003). This study measures BDSIZE as the number of board meetings held for the year (Xie *et al*., 2003; Abdul Rahman and Mohamed Ali, 2006).

The third control variable is the size of audit committee (ACSIZE). Specifically, the optimum number of directors in the audit committee may provide the necessary strength and synergy to support effective monitoring (Raghunandan and Rama, 2007; Sharma *et al.,* 2009), thus affecting the risk of forced restatement. Relatively, ACSIZE is measured as the number of directors in the audit committee (Baber *et al*., 2012; Ho and Kang, 2013).

The fourth control variable is audit committee meeting (ACMEET). A frequent audit committee meeting indicates an active and well-functioning audit committee. It would mean that directors spent more time to discuss outstanding accounting issues or perform their monitoring duties (Karamanou & Vafeas 2005) which eventually affect the likelihood of forced restatement. Consistent with Carcello *et al.* (2011) and Ho and Kang (2013), ACMEET is measured as the number of audit committee meeting held for the year.

The fifth control variable is the presence of female directors (FEM). Rogelberg and Rumery (1996) claim that the presence of a female member may improve team decision making by either promoting better integration and coordination of conflicting points of view or alleviating the aggressiveness of all-male group members. In such case, female directors facilitate a sound board decision-making and thereby help to reduce the likelihood of forced restatement. FEM is measured by the proportion of female directors on the board (Cao *et al.,* 2013).

The sixth control variable examined in Equation (1) is leverage (LEV). It is argued that firms with high leverage have the incentive to manage earnings in the attempt to enhance firm financial performance for the purpose of preventing violations of covenants in the existing debt contracts or raising new debt based on favourable terms (Defond and Jiambalvo,

1994; Minton and Schrand, 1999). Hence, forced restatement risk is associated with high debt level. LEV is measured as:

$$LEV_{it} = LTD_{it} / TA_{it} \quad (26)$$

Where LTD_{it} is long-term debt (annual Datastream data item WC03251) for firm *i* in year *t* and TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*.

The seventh control variable examined is firm size (LNTA). The analyst and investment community placed close scrutiny on firms of large size (Gleason, Jenkins & Johnson 2008). This, in turn leads to a great market pressure for such firms to engage in aggressive accounting in order to lessen unwanted political visibility (Watts and Zimmerman 1990). Hence, large firm size increases the likelihood of forced restatement. LNTA is measured by taking the natural logarithm of TA_{it} where TA_{it} is total assets (annual Datastream data item WC02999) for firm *i* in year *t*.

The final control variable is firm age (AGE). Previous research found that young firms are tempted to have their share value increased by manipulating their earnings upwards prior to equity issuance (Rangan, 1998; Teoh *et al.,* 1998; Shivakumar, 2000). The young firms will discretionarily manage sales revenue or operating expenses, rather than non-recurring items to attain their earnings objective (Marquardt and Wiedman 2004). This creates the possibility that firm age might affect the likelihood of forced restatement. AGE is measured by taking the log of the number of years the firm has been listed.

Overall, it should be noted that regression variables are likely to be affected by the different size or cross-sectional scale among sample firms, hence the scale effect problem (Barth & Kallapur, 1996). This would mean that small (large) firms have small (large) values for most of the variables, of which the magnitude differences are not related to the research question. In relation to this, Barth and Kallapur (1996) suggested two remedies to address the problems caused by scale effect, i.e. by using a scale proxy to deflate the original model and incorporating the scale proxy as an independent variable in the deflated model. In line with this suggestion, the financial variables examined in this study are generally measured based on ratios (as explained earlier) which are adjusted by size to allow for comparisons to be made. Not only does firm size is taken as a deflater for the ratios, but firm size (as proxied by LNTA) is also included in the logit model as a control variable.

Incorporating firm size as the additional independent variable does not alter the variance structure of the error terms, however it helps to eliminate coefficient bias. Wu and Xu (2008) highlight that if X_i is included as an independent variable in the working model, the same variable, X_i, should be incorporated in the deflated model, i.e., X_i should not be used to deflate X_i, otherwise the variable X_i will be eliminated from the model. By having to include all independent variables (including the scale proxy) in the deflated model, then deflation helps remedy coefficient bias and heterocedasticity simultaneously (Wu and Xu, 2008).

From the above analysis, it can be seen that multiple proxies for the same underlying prediction were simultaneously included in the logit regression model. The reason why multiple proxies are included is based on the fact that no single proxy is sufficient to measure the quality of a firm's corporate governance structure (Beekes and Brown 2006; Larcker *et al*. 2007), nor it is sufficient to measure corporate reporting quality and firm performance. This study however recognises the limitation that the inclusion of multiple proxies simultaneously in the logit regression model is part of a model misspecification as it gives rise to attenuation bias such that many insignificant individual coefficients are likely to result (Lubotsky and Wittenberg 2007). This can be seen from the multivariate logit result in Table 6-2 of which none of the variables for audit committee quality, family ownership and control, and firm performance shows any significance with the occurrence of forced restatement. The low number of statistically significant covariates is prima facie evidence of some collinearity problems.

In view of the attenuation bias from regressing multiple proxies, a sensitivity analysis is later conducted in Section 6.3.2.1 of Chapter 6 to separately check for result differences when one of the variables that are highly correlated with each other are excluded from the regression model. Further to this, a stepwise regression model is also performed in Section 6.3.2.3 to identify a useful subset of determinants out of the numerous numbers of variables for determining the likelihood of forced restatement.

5.2.4 Dealing with outliers

The presence of outliers in a data set may cause inflation of error rates as well as considerable distortion of parameter and statistic measures when either the parametric or non-parametric test is measured (Zimmerman, 1994, 1995, 1998). However, removing outliers from a data set may have an unfavourable impact on the interpretation of a

regression analysis (Wooldridge, 2000). Deletion of outliers could also generate new extreme outliers (Coakes and Steed, 1999). Hair *et al*. (2010) further highlight that the econometric analysis might improve when outliers are removed, however, the generalizability of the finding analysis may be limited. This is due to the fact that some outliers of a variable might represent a portion of the population. Hence, retaining these outliers may help determine generalizability to the whole population.

In my study, outliers might indicate abnormal routine of accounting. For example, abnormal amounts of transactions might indicate the possibility of financial misstatement. Rather than removing the extreme values, the continuous variables with extreme outliers are winsorised at the 1 percent and 99 percent level by replacing outlying values based on the 1st and 99th percentiles, accordingly. By winsorising, extreme values are pulled in closer within the normal distribution and ensure that the effect of extreme outliers is reduced in our statistical test. Winsorised continuous variables (with extreme outliers) includes audit fees (AF), working capital accruals (WCAC), change in non-cash net operating assets (RSST), abnormal production cost (ABPROD), change in earnings (CHROA), financial distress (DISTRESS), change in free cash flow (CHFCF), incentive of raising finance (FINR), and share price volatility (SDW).

Hamilton (1992) further suggests employing data transformation in order to reduce the effect of extreme outliers. Positively skewed variables such as price-earnings ratio (PE), total assets (TA) and firms' age (AGE) are transformed using the natural logarithm. The variable transformation enables extreme outliers to be pulled in which reduces non-normality. Further details on data descriptive are presented in the next Section 5.2.5.

5.2.5 Descriptive Statistic

Table 5-4 presents the descriptive statistic of tested variables which include mean, median, standard deviation, minimum, maximum, skewness and kurtosis of 4,759 firm-year observations for the period 2002 until 2012.

Panel A of Table 5-4 starts with the board quality variables, where board independence (BI) and financial expert directors (FL) show a mean of 0.423 and 0.306 respectively (median: 0.400 and 0.286). This is consistent with prior Malaysian studies that recorded a higher mean of 0.385 for board independence (Rahman and Ali, 2006) compared to the mean of 0.273 for financial expert directors (Abdul Wahab et al. 2014). While multiple directorships

(MULTI) shows a mean of 0.620 (median: 0.667) which is consistent with that reported by Hasnan *et al*. (2013) with a mean of 0.530.

The next group of variables relates to audit committee quality where the mean for audit committee independence (ACIND) is at 0.792 (median: 0.750). Relatively, the audit committee independence shows a higher mean compared to board independence and this is consistent with Rahman and Ali (2006) in their study of Malaysian firms between 2002 and 2003 that recorded a mean of 0.684 for ACIND (with lower mean for board independence at 0.385). As for audit committee experts (ACEXP), the mean is 0.445 (median: 0.333), and is consistently higher than the mean for financial expert directors (FL). The mean for audit fee for the typical firm is reported at 0.001 and median at 0.000.

The variable for family control, i.e. founders on the board (FB), presents a mean of 0.083 (median: 0) which is slightly similar to that reported by Hasnan *et al*. (2013) at 0.06 accordingly. In terms of government-related institutional ownership (INST), the mean is 11.458 percent (median: 6.01) which is in line with the mean of 12.069 documented in Abdul Wahab *et al*. (2009). The government-related institutional ownership reaches up to the maximum of 94.38 percent which confirmed the findings by Tam and Tan (2007) that ownership is highly concentrated and entrenched in Malaysia.

In relation to corporate reporting quality, the discretionary accruals measure of the Modified Jones model (DAMJ) reports a mean of 0.008. Comparatively, the mean for DAMJ is much lower relative to other accruals measure with a mean ranging from the lowest 0.016 (for change in inventories – CHINV) to the highest of 0.494 (for soft assets – SFAST). Based on the reported mean, firms are seen to be reporting high amount of soft assets in their balance sheet (assets that are not cash or PPE) compared to other accrual items. This is consistent with Dechow *et al*. (2011) that shows a relatively low mean for DAMJ (0.000) in comparison to other accruals measures that range from 0.011 for change in inventories to the highest 0.509 for soft assets.

Table 5-4: Descriptive statistics

Panel A – Continuous Variables

Variables	N	Mean	Median	Std Dev	Minimum	Maximum	Skewness	Kurtosis
BI	4539	.423	.400	.110	0	.857	.878	3.793
FL	4518	.306	.286	.157	0	1	.863	3.653
MULTI	4539	.620	.667	.270	0	1	-.393	2.261
ACIND	4518	.792	.750	.157	0	1	.308	1.900
ACEXP	4518	.445	.333	.211	0	1	.845	3.387
AF	4759	.001	.000	.001	0	.005	2.695	9.530
FB	4539	.083	0	.128	0	.75	1.707	.128
INST	4539	11.458	6.01	15.997	0	94.38	2.479	9.971
DAMJ	3117	.008	.007	.157	-1.156	1.363	-.277	13.246
DT	4532	.023	.014	.030	0	.276	3.143	20.205
WCAC	4519	.045	.016	.068	0	.353	2.309	9.002
RSST	4510	.083	.040	.152	-.211	.574	2.107	7.470
CHAR	4524	.017	.009	.085	-1.024	1.201	1.243	31.191
CHINV	4524	.016	.005	.073	-1.323	.843	-.022	50.332
SFAST	4753	.494	.492	.186	.000	1	.055	2.603
ABCFO	3117	.009	.009	.109	-.744	1.182	.220	9.910
ABPROD	3117	.039	0	.055	0	.145	1.066	2.499
ABDISX	3117	-.005	-.001	.084	-.591	.473	-.539	10.726
CHROA	4265	.035	.005	.096	-.143	4.604	1.561	4.604
BM	4474	1.463	1.245	1.025	.027	13.498	2.172	13.904
PE	4473	2.516	2.385	.949	-1.352	8.737	1.240	6.833
DISTRESS	4759	5.742	4.746	4.681	-2.430	23.635	1.466	5.916
CHFCF	4258	.073	.002	.100	0	.276	1.082	2.629
FINR	4527	.152	.061	.241	0	.953	2.319	7.793
SDW	4264	10.109	8.653	6.264	1.934	40.996	1.876	8.131
BDSIZE	4539	7.564	7	1.851	3	17	.744	4.356
ACSIZE	4518	3.351	3	.629	1	9	1.757	7.573
BDMEET	4518	5.126	5	1.939	0	27	2.358	15.971
ACMEET	4517	4.723	5	1.339	0	21	1.866	20.065
FEM	4518	.089	0	.110	0	.5	1.137	3.718
LEV	4757	.082	.037	.109	0	.691	1.961	7.388
LNTA	4759	12.751	12.520	1.386	7.770	18.152	.948	4.292
AGE	4759	2.595	2.639	.937	0	4.654	-.460	2.858

Panel B – Dichotomous Variables

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
AI	4759	.559	1	.497	0	1	-.239	1.057
FM	4539	.582	1	.493	0	1	-.334	1.111
CEOB	4539	.115	0	.319	0	1	2.417	6.812
CEOF	4539	.355	0	.479	0	1	.606	1.368
CEON	4539	.121	0	.326	0	1	2.331	6.435
PC	4539	.111	0	.314	0	1	2.476	7.131

Notes: Table 5-4 reports the descriptive statistics for the pooled sample. The total number of observations differs for each variable due to missing observations. All variables are defined in Section 5.2.3 of Chapter 5.

The real earnings management variables show a mean of 0.009 (abnormal cash flow from operation – ABCFO), 0.039 (abnormal production cost – ABPROD) and -.005 (abnormal discretionary expenses – ABDISX). This is consistent with the contention by Roychowdhury (2006) that firms tend to manage their real activities such that they incur abnormally low level of cash flow from operations (resulting for e.g. from lenient credit terms), abnormally high level of production costs (to cut down cost of goods sold), and abnormally low level of discretionary expenses (to boost reported earnings).

The change in earnings (CHROA) has a mean of 0.035 (median: 0.05) showing that firms demonstrate a small growth in earnings. The book-to-market (BM) show a mean of 1.463 (median: 1.245) indicating that the typical firm is undervalued. Price-earnings (PE) ratio show some consistency with a mean of 2.516 respectively (median: 2.385) indicating that the typical firm has a good growth prospect. The average firm is seen to have a healthy financial condition based on the high score of financial distress (DISTRESS) at a mean of 5.742 (i.e. a Z-score between 1.10 and 2.60 indicates grey area, whereas below 1.10 indicates financially distressed firm).

The mean for the change in free cash flow (CHFCF) for a typical firm is 0.073 implying that there is a slight increase in free cash flow, hence firm's ability to cover its capital expenditure. This is supported by the *ex-ante* measure of finance need, FINR, which shows a low mean of 0.152 (slightly above the minimum standard of -0.5) indicating that firms, on average, have enough free cash flow as internal funds. Share price volatility shows a mean of 10.109 (median: 8.653) and ranges from the minimum of 1.934 to 40.996

From the perspective of control variables, board size (BDSIZE) has a mean of 7.564 (median: 7), of which the number of board members ranges from 3 to 17. Abdul Rahman & Ali (2006) documented relatively similar board size with a mean of 8.89, ranging from 5 to 15 members. As for audit committee size (ACSIZE), the mean is recorded at 3.351 (median: 3) which ranges from 1 to 9 people in each audit committee. The average number of meeting held by the board (BDMEET) is 5.126 (median: 5) and ranges from 0 to 27 times per year. As for audit committee, the average number of meeting held (ACMEET) is 4.723 (median: 5). The findings are relatively similar to Abdul Rahman & Ali (2006) that shows an average of audit committee meeting of 4.97 (median: 5). In addition, there is a mean of 0.089 female directors (FEM) on the board (median: 0).

Firms have relatively low leverage, based on the mean of 0.082 (median: 0.037) and ranges from 0 to 0.691. Comparatively, Abdul Rahman & Ali (2006) shows slightly higher mean for

leverage at 0.21 (median: 0.194) and ranges from 0.001 to 0.691. Whilst the mean for firm's total assets (LNTA) stands at 12.751 (median: 12.520), the measure is lower compared to Abdul Wahab et al. (2014) in their study of Malaysian firms between 2007-2009 that reported a mean of 19.651 (median: 19.434). As for firm's natural log of age (LNAGE), the mean stands at 2.595 (approximately 13 years of age).

Based on the descriptive statistics of the dichotomous variables, 56 percent of the listed firms in the sample have actual issuance of debt or equity. More than half of the sample, i.e. 58 percent are firms dominated by family ownership. 12 percent have CEO chairing the board, 36 percent have a founder as the CEO and 12 percent has a CEO sitting in the nominating committee. Finally, about 11 percent of firms in the sample have high political connection.

5.2.6 Correlations

Table 5-5 displays the correlation matrix among variables for both forced restatement and non-forced restatement firm-years observations. The purpose of examining the correlation between the variables is to ensure that there is no problem of multicollinearity. Multicollinearity may cause the variance of parameter estimates to be inflated, leading to inaccurate inferences about the relationship between the independent and dependent variables (Midi *et al.,* 2010). According to Gujarati and Porter (2003), any correlation between independent variables that is greater than 0.80 may indicate a problem of multicollinearity.

In this section, the Pearson correlation is examined[22]. There are some variables that demonstrate significant correlations as shown in Table 5-5. The highest correlation is recorded between financial expert director (FL) and audit committee financial expert (ACEXP) with coefficient .631, $p < 0.01$. It is noted from the hand collection of corporate governance data, the financial literate directors who serve on the board of directors also tend to serve on the audit committee (see also Hashim and Devi, 2008). Although the correlation is significantly strong; nonetheless, the correlation coefficient is less than 0.80.

The correlations between other independent variables are seen to be comparatively low and do not appear to suggest any multicollinearity problem. Additional test on VIF further

[22] In support of the Pearson correlation test, the variance inflation factors were also tested to test for multicollinearity (please refer Appendix 3).

shows that all independent variables are below 4 which indicate the absence of harmful collinearity problem (see Appendix 3). The results from the Pearson correlation are solely indicative and may not determine the potential conclusions on the drivers or determinants on incidences of forced financial restatement. Chapter 6 will present the results of multivariate logit and stepwise logit regression analysis for determining the drivers of forced financial restatement in Malaysia.

Table 5-5: Pearson Correlation Matrix for the Combination of Forced Restatement and Non-Forced Restatement Firm-Years

	RESTATE		BI		FL		MULTI		AF		ACIND		ACEXP	
RESTATE														
BI	-.007													
FL	.011		.148	***										
MULTI	.024		.048	***	.070	***								
LNAF	.064		.095	***	.133	***	.229	***						
ACIND	-.042		.408	***	.035	***	-.037	**	.004					
ACEXP	-.014		.036	***	.631	***	-.006		.012		.069	***		
FB	-.024	*	-.109	***	-.139	***	-.080	***	-.033		.046	***	.003	
INST	.049	***	-.024		.036	**	.128	***	-.013		-.046	***	-.027	*
DAMJ	.013		-.009		.002		.002		.002		-.017		.027	
DT	.003		-.062	***	-.062	***	-.040	***	-.022		-.090	***	-.050	***
WCAC	-.021		-.010		.032	**	-.035	***	-.006		-.036	**	.034	**
RSST	-.040	***	-.032	**	-.008		-.098	***	.002		-.042	***	.024	
CHAR	-.023		.004		-.004		-.042	***	.025	*	-.029	*	.011	
CHINV	-.013		-.044	***	-.026	*	-.020		-.019		-.025	*	.008	
SFAST	.000		.067	***	.081	***	.016		.006		.069	***	.043	***
ABCFO	-.014		-.002		.017		-.001		-.009		-.028		-.020	
ABPROD	-.017		.002		.009		-.015		.012		.034	*	.041	**
ABDISX	.009		.011		-.085	***	.006		.014		.037	**	.003	
CHROA	-.019		-.035	**	-.007		-.104	***	-.012		-.082	***	-.004	
BM	.005		.056	***	.006		-.005		-.029	*	.089	***	-.004	
PE	.022		-.039	***	.023		.029	*	.008		-.086	***	-.026	*
DISTRESS	-.038	***	-.054	***	-.040	***	-.006		.017		.006		-.003	
CHFCF	-.024		.003		.007		-.009		-.012		-.014		-.006	
FINR	-.016		.002		.031	**	-.035	**	-.003		-.029	**	-.007	
SDW	.025		.080	***	.029	*	-.015		.016		.040	***	-.008	

Table 5-5: Pearson Correlation Matrix for the Combination of Forced Restatement and Non-Forced Restatement Firm-Years

	RESTATE		BI		FL		MULTI		LNAF		ACIND		ACEXP	
BDSIZE	.014		-.270	***	-.207	***	.044	***	-.018		.063	***	-.093	***
ACSIZE	.034	**	.076	***	-.065	***	.079	***	-.014		-.157	***	-.182	***
BDMEET	.021		.097	***	.076	***	.093	***	.003		.040	***	.020	
ACMEET	-.010		.104	***	.037	**	.110	***	.015		.084	***	.015	
FEM	.069	***	-.13		-.066	**	-.054	***	-.012		.058	***	.011	
LEV	-.004		.061	***	.119	***	.091	***	-.002		.012		.001	
LNTA	-.034	**	.067	***	.089	***	.274	***	-.026	*	.077	***	-.026	*
AGE	.014		.124	***	.061	***	.247	***	.009		.049	***	-.063	***

Notes: Table 5-5 presents the Pearson Correlation Coefficient of all the variables tested in this study. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly (a two-tailed test of whether the correlation coefficient equals to zero).

Table 5-5: Pearson Correlation Matrix for the Combination of Forced Restatement and Non-Forced Restatement Firm-Years

	FB		INST		DAMJ		DT		WCAC		RSST		CHAR		CHINV	
FB																
INST																
DAMJ	.073	***	.005													
DT	.017		.031	**	.070	***										
WCAC	.035	**	-.058	***	.516	***	.057	***								
RSST	.061	***	-.039	***	.185	***	.110	***	.361	***						
CHAR	.026	*	-.020		.253	***	.096	***	.453	***	.244	***				
CHINV	.036	**	-.031	**	.303	***	.114	***	.441	***	.189	***	.177	***		
SFAST	-.021		-.144	***	.187	***	-.230	***	.264	***	-.012		.138	***	.133	***
ABCFO	.035	*	.059	***	-.331	***	.092	***	-.337	***	.016		-.154	***	-.154	***
ABPROD	-.047	***	.019		.217	***	-.013		.188	***	.040	**	.026		.334	***
ABDISX	.070	***	-.019		.049	***	-.009		-.019		.022		.067	***	.039	**
CHROA	.049	***	-.055	***	-.016		.030	**	.156	***	.541	***	.142	***	.041	***
BM	.053	***	-.016	***	-.046	**	-.014		-.109	***	-.155	***	-.122	***	-.057	***
PE	-.056	***	.028	*	-.027		.008		-.078	***	-.125	***	-.018		-.051	***
DISTRESS	.070	***	-.024		-.003		-.097	***	-.010		.075	***	-.054	***	-.061	***
CHFCF	-.007		-.005		-.180	***	.025		-.153	***	.017		-.077	***	-.091	***
FINR	-.008		.054	***	-.188	***	.111	***	-.161	***	.564	***	-.029	**	-.082	***
SDW	-.008		-.126	***	-.040	**	-.015		.064	***	.099	***	.003		-.017	
BDSIZE	-.037	**	.215	***	.038	**	.048	***	-.043	***	-.030	**	-.009		-.002	
ACSIZE	-.130	***	.165	***	.007		.072	***	-.043	***	-.040	***	.003		-.038	**
BDMEET	-.151	***	.328	***	.015		-.019		-.041	***	-.132	***	-.053	***	-.033	**
ACMEET	-.108	***	.174	***	.012		.001		-.083	***	-.234	***	-.067	***	-.028	*
FEM	.074	***	-.034	**	.002		-.010		-.020		-.015		-.025	*	.004	
LEV	-.109	***	.121	***	.035	**	.043	***	-.020		-.008		-.016		-.006	
LNTA	-.242	***	.403	***	.085	***	.075	***	-.071	***	-.113	***	-.011		.010	
AGE	-.290	***	.104	***	.007		-.030	**	-.120	***	-.398	***	-.112	***	-.063	***

Table 5-5: Pearson Correlation Matrix for the Combination of Forced Restatement and Non-Forced Restatement Firm-Years

	SFAST		ABCFO		ABPROD		ABDISX		CHROA		BM		PE		DISTRESS	
SFAST																
ABCFO	-.227	***														
ABPROD	.161	***	-.340	***												
ABDISX	-.035	*	.040	**	-.175	***										
CHROA	-.010		.062	***	.008		.041	**								
BM	.071	***	-.082	***	-.000		-.064	***	-.091	***						
PE	-.048	***	-.084	***	.038	**	.003		-.137	***	-.154	***				
DISTRESS	-.127	***	.152	***	-.105	***	.023		-.020		-.118	***	-.030	**		
CHFCF	-.032	**	.348	***	-.053	***	.024		.148	***	-.010		-.023		-.049	***
FINR	-.120	***	.571	***	-.095	***	.057	***	.467	***	-.181	***	-.069	***	.088	***
SDW	.107	***	-.013		.019		-.014		.113	***	.133	***	.051	***	-.145	***
BDSIZE	-.070	***	-.068	***	.007		.098	***	-.047	***	-.096	***	.012		-.014	
ACSIZE	-.097	***	.022		-.024		.008		-.040	***	-.071	***	.027	*	-.014	
BDMEET	-.033	**	-.018		.055	***	.038	**	-.165	***	-.016		.040	***	-.085	***
ACMEET	-.014		-.037	**	.036	**	.030	*	-.261	***	.070	***	.040	***	-.061	***
FEM	-.090	***	.006		-.025		.111	***	-.029	*	.057	***	-.004		.024	
LEV	-.102	***	-.036	**	-.004		.054	***	-.010		-.002		.027	*	-.394	***
LNTA	-.093	***	-.026		.031	*	.042	**	-.180	***	-.064	***	-.056	***	-.142	***
SV	.173	***	-.073	***	.159	***	-.131	***	.059	***	-.122	***	-.022		-.053	***
AGE	.107	***	-.048	***	-.053	***	-.016		-.414	***	.122	***	.015		-.047	***

Notes: Table 5-5 presents the Pearson Correlation Coefficient of all the variables tested in this study. The independent variables are defined Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly (a two-tailed test of whether the correlation coefficient equals to zero).

Table 5-5: Pearson Correlation Matrix for the Combination of Forced Restatement and Non-Forced Restatement Firm-Years

	CHFCF		FINR		SDW		BDSIZE		ACSIZE		BDMEET		ACMEET		FEM	
CHFCF																
FINR	.436	***														
SDW	.049	***	-.040	***												
BDSIZE	-.012		-.015		-.111	***										
ACSIZE	-.019		.046	***	-.090	***	.380	***								
BDMEET	.016		-.121	***	.044	***	.121	***	.128	***						
ACMEET	.004		-.196	***	.042	***	.084	***	.087	***	.594	***				
FEM	.003		-.033	**	-.047	***	.159	***	.018		.040	***	.061	***		
LEV	.061	***	.009		.077	***	.072	***	.036	**	.162	***	.137	***	-.019	
LNTA	-.015		-.012		-.140	***	.289	***	.236	***	.309	***	.266	***	.010	
AGE	-.048	***	-.319	***	-.027	*	.080	***	.125	***	.155	***	.194	***	-.023	

	LEV		LNTA		AGE	
LEV						
LNTA	.399	***				
AGE	.068	***	.331	***		

Notes: Table 5-5 presents the Pearson Correlation Coefficient of all the variables tested in this study. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly (a two-tailed test of whether the correlation coefficient equals to zero).

5.2.7 Model specification

5.2.7.1 The binary logit model

To recap, it is the study's main objective to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among public listed firms in Malaysia. As shown in Equation (1) in Section 5.2.3., a binary logit model is applied for the study's data analysis due to the nature of the dependent variable that is dichotomous. Specifically, the dependent variable takes the value of one for forced restatement and zero non-forced restatement.

Technically, a binary response model can be estimated using either logistic or logit regression model. The only difference between both models lies in the presentation of the analysis report, whereby logistic model reports 'odds ratios' and logit model reports 'coefficients'. Studies such as Zmijewski (1985), Wu *et al.* (2010) and Makeeva and Neretina (2013) indicate that both logit and probit models perform equally well. However, the logit model gains wider application in the extensive accounting literature compared to the probit model (see for example; Jones *et al.,* 2008; Feng *et al.*, 2011; Price *et al*., 2011; Abbott *et al.,* 2012; Correia, 2014). Among the reasons is that logit models can be faster to use on larger datasets and multiple alternatives in comparison to probit models. Furthermore, the exponentiated coefficients from the logit model are reported as the log-odd ratios and have an intuitive interpretation. Unlike the coefficients from the probit model, it has no direct interpretation.

The logit model is in the form of a cumulative logistic probability function. In logit models, the coefficients of the independent variables provide an estimation of the probability of an outcome as described by the dichotomous dependent variables. Under this logit analysis, the dichotomous dependent variable is the logarithm of the odds of occurrence of an event (forced restatement / non-forced restatement). The analysis does not model the group membership but rather models the 'log odds' of belonging to any particular group of the dependent variable. Even though modeling the odds is possible, however, it is easier to model the natural log of the odds, i.e. [ln (odd) = ln (P / 1-P)]. The natural log transformation permits the dependent variable to vary between positive infinity and negative infinity, allowing it to be in continuous form. The logit model can be presented as follows:

$$Yi = \alpha + \beta 1X1 + \beta 2X2 + \mu \quad (27)$$

where,

Xi = the independent variable (s)

Yi = 1 if the event occurs (for example, restatement)

Yi = 0 if the event does not occur (for example, non-restatement)

In a logistic regression functional form, equation (27) is written as follows:

$$\ln (P/1\text{-}P) = \alpha + \beta 1X1 + \beta 2X2 + \mu \quad (28)$$

Following this, the probability of occurrence of an event, i.e. a company to have forced restatement, can be presented in the equation shown below:

$$P = \frac{1}{1+e^{-(\alpha + \beta 1X1 + \beta 2X2 + \cdots + \beta nXn)}} \quad (29)$$

The maximum likelihood method is used to estimate equation (29). The resulting decimal fraction of 0.5 implies an equal chance of a firm to have restatement or non-restatement. If a decimal fraction of 1 indicates firm with restatement, a decimal fraction higher than 0.5 indicates a higher probability for a firm to restate (than not to restate). Positive coefficient (or log of odd ratio) values indicate a positive relationship between the probability of forced restatement and the independent variable; whereas negative values indicate a negative relationship.

In comparison to the linear regression, the binary logit model has more relaxed assumptions. The logit model does not assume that independent variables to be multivariate normal. It does not make any assumption about the distribution of the independent or predictor variables as the variables can be in any form. This means that the independent variables do not have to be linearly related or have equal variance within each group (Menard, 1995; Hair *et al.* 1998, pp. 239-325; Hosmer and Lemeshow 2000, pp. 6-7). This is beneficial for the modelling since accounting and financial data are rarely normally distributed (Smith, 2014). Finally, the independent variables of a logit regression need not only be ratio or interval scaled, as the logit model can also deal with nominal and ordinal data.

Even though logit regressions do not require the dependent variable to have a linear relationship with the independent variables, it is assumed that the relationship between the logit outcome of the dependent variable and the independent variables is linear (Mernard, 1995). This means that in logit models, the log odds of the outcome variable are modelled as a linear combination of the explanatory variables. Based on Equation (1) as shown in Section 5.2.3, I ran a specification error test to examine that this assumption holds true for the sample data. The specification error test is based on the idea that for a logit regression equation to be properly specified there should be no additional independent variables that are statistically significant. In other words, the dependent variable in the logit regression needs a "link" function to relate to the independent variables properly. A link error would indicate specification error. The link test for specification error would technically adds an additional independent variable to the logit model equation, which is likely to be statistically significant if there is a link error.

Following UCLA (2016), the link test uses the linear predicted value (_hat) and linear predicted value squared (_hatsq) as predictors to be used in rebuilding the logit model. Let the model be $y = f(X\beta)$ and parameter estimates be $\hat{\beta}$. The link test calculates _hat = $X\hat{\beta}$ and _hatsq = _hat2. The model is refitted with the two variables, and result for link error (specification error) will be based on the significance of hatsq.

Table 5-6: Results of the Error Specification Test

Variables	**LOGIT REGRESSION**
	Coefficient (p-value)
_hat	**1.678***** **(.008)**
_hatsq	.098 (.268)
Constant	1.083 (.323)
Observations	2,896
Model chi-square	59.89
p-value	.0000
Degrees of freedom	2

Based on Table 5-6 above, the result from my specification error test shows that the linear predicted value (_hat) is significant at $p < 0.05$, whereas the linear predicted value squared (_hatsq) is insignificant. The results indicate that the logit equation model as shown in Equation (1) above is properly specified based on the predictors (_hat) which show significance and the additional independent variable (_hatsq) that is insignificant. Hence, it is concluded that the logit model in this study fulfills the assumption that the relationship between the logit outcome of the dependent variable and the independent variables is linear.

5.2.7.2 The stepwise logit model

In addition to the binary logit model, a stepwise binary logit regression is also estimated to refine the selection of variables and determine exactly which explanatory variables can best predict forced restatement. The stepwise logit is performed to help address the attenuation bias problem that arises from the regression of multiple proxies simultaneously as shown in Equation (1).

In performing the stepwise logit, the study follows Yan *et al*., (2014) where both forward selection and backward elimination methods are combined at each step to determine which variables are to be included or excluded. The process starts with the forward selection method that rechecks at each single step the importance of all earlier-added variables. In any case where the partial sum of squares (indicating predictive power) for any of the earlier added variables is below the minimum criterion to remain in the model, the selection process would be changed to the backward elimination procedure where the variables are eliminated one at a time up to the extent where the minimum criterion are met by all the remaining variables. Variables are removed based on these approximations. Following Dechow *et al*. (2011), the significance level for elimination at the 15 percent level is used.

The advantage of the stepwise logit model is its ability to manage a huge amount of possible explanatory/predictor variables and fine-tune the model in choosing the best predictor (Thompson, 1989). Furthermore, the order in which variables are added or removed can give useful information as to the quality of the predictor variables. Nonetheless, there are some drawbacks from applying the stepwise regression (Cohen *et al.,* 2003). Firstly, it is the procedure in the stepwise approach to fit many models. However, in selecting a fit model, the stepwise regression model tends to select a model that well fits the data only due to chance

alone. Moreover, when there are two independent variables that are highly correlated to each other, only one of the variables might be retained in the stepwise model regardless of both variables being important. Hence, the stepwise regression model might not produce the optimum fitted model. The stepwise approach is more of a model simplification, rather than as a model specification, as it tends to specify model based on the "apparent" significance of the covariates.

In spite of the pitfalls, not all procedures for model selection are appealing; some of which might be effective in comparison to others. The application of the stepwise procedure might at least give us some awareness of the important determinants that may assist in signalling towards the likelihood of forced restatement, especially in the emerging market like Malaysia.

5.2.7.3 The penalised likelihood logit model

The penalised likelihood logit model is examined to test the robustness of the stepwise results. This is done in view of the stepwise logit's drawback that tends to produce more of a model simplification, rather than a model specification which results in a non-optimum fitted model. The penalised likelihood model reduces biases, hence ensures a more reliable model that can perform well in signalling the likelihood of forced restatement.

The small number of events (forced restatement firm-years) relative to the control group (non-forced restatement firm-years) becomes the main issue that confronts the study. Based on the data collection, the Malaysian forced restatement firms make up only 2.5% of the total firm-years observations. Cases of financial restatements due to earnings misstatement and financial irregularities are rare (Dechow *et al*., 2011; Files *et al.*, 2014; Hennes *et al.,* 2014) yet they are catastrophic events. It is catastrophic such that the low-likelihood financial misstatement may impose an extremely high cost to the investors, auditors, and regulators which could then finally lead to the illiquidity and failure of the capital market (Dechow *et al*., 2011).

Other empirical literature outside the accounting field faces the common challenge of a rare event which is often catastrophic with severe consequences. For example, Van Den Eeckhaut *et al.* (2006) applied the rare events logistic regression to create a landslide susceptibility map in Flemish Ardennes (Belgium) covering a 200 km2 study area. The methodology adopted was based on the hypothesis that future landslide is expected to have similar causal factors as the

landslides that have occurred in the past. The study by Lu and Tolliver (2016) compare the various highway-rail grade crossing accident frequency models that can deal with under-dispersion crash data issue (sample variance smaller than sample mean). They found that the Conway–Maxwell–Poisson model and the hurdle Poisson model are better at accommodating the over and under-dispersion data issue, whereas the Bernoulli model is only appropriate for the under-dispersion. As for Boubeta *et al.* (2015), they did a study to analyze factors affecting fires in the forest area of Galicia (Spain) during the summer season. The area-level Poisson mixed model was applied. The parametric bootstrap method was also employed to estimate the mean squared error of the fire predictors. Another study by Nelson et al. (2014) identifies potentially modifiable risk factors of delayed wound healings and develop a model to evaluate patient risk of such complication. The model was created based on the multivariate logistic regression, whereby the backward stepwise bootstrap regression model was applied to determine the best covariate to be retained in the logistic model.

In the area of accounting, several studies were carried out to deal with a rare event, an event with a very small probability of occurrences. Dechow *et al*. (2011) for instance, did a stepwise logistic regression to determine any significant predictors of financial misstatement. The investigation by Dechow et al. was done based on 451 earnings misstatement firm-years, representing less than half of one percent of the total COMPUSTAT firm-years available. They use a backward elimination technique to develop the misstatement prediction model. Subsequent variables elimination was carried out based on the first-order approximation of the remaining slopes estimates computed using the Lawless and Singhal 1978 computational logarithm. The study by Dimmock and Gerken (2012) examines investment fraud predictability by applying probit regressions based on samples of Form ADV Disclosures. Their samples make up a total of 53,994 firm-year observations, of which only 517 (1%) are fraud firms. The receiver operating characteristics (ROC) curve for the prediction model was tested to examine any possible tradeoffs between false positives and predicted fraud. *Hribar et al*. (2014), on the other hand, applied the conditional logistic regressions to predict fraud, restatements and comment letters. The fraud and restatement datasets make up around 2% of the total firm-years observation. The study examined whether the unexplained audit fees measure is a better predictor of low quality accounting compared to other measures of accounting quality. The test was carried out on matched samples where the control firms are matched based on industry and size.

To address the concern about the small number of forced restatement event, the penalised likelihood of the logit model as proposed by Firth (1993) is applied by this study to test the robustness of the results produced by the conventional binary logit model. Applying the penalised likelihood of the logit model is essential as it overcomes the problem of maximum likelihood estimation of the traditional logit model which suffers from small sample bias. Specifically, the conventional logit model tends to overestimate the coefficient of explanatory variables while underestimating the probability of an event, P(Y=1), hence producing biased results in samples with rare events (King and Zeng, 2001, pp. 153-154). The application of the penalised likelihood of the logit model produces much less biased results, even in extreme condition with small sample size and very few events (dependent variable equals one) (Heinze and Schemper, 2002; Leitgob, 2013; Flynn *et al.*, 2013). Hence, the possibility of Type I error can be reduced, producing a much more robust logit regression analysis. The penalised likelihood function specifically includes a penalty function that penalises against the size of estimated coefficients and model complexity. The penalised likelihood method also has the advantage of generating finite, consistent parameter estimates when the estimates for maximum log likelihood do not exist due to quasi-complete or complete separation[23] (Heinze and Schemper, 2002). It is nonetheless computationally feasible for large samples. The penalised likelihood method receives increasing use in a research area that commonly has small data properties, such as the medical research. We are not aware so far of its application in any accounting literature. Applying the penalised likelihood approach in logit model is considered one of the contributions of this study towards the accounting body of knowledge.

In technical terms, the parameters of the logit model are derived using the maximum likelihood estimates. However, the maximum likelihood estimates are prone towards small sample bias. As explained by Heinze and Schemper (2002, p. 2412), the maximum likelihood estimates for the regression parameters β_r (r = 1,…, k) are derived as solution from the score equations ∂ log $L/\partial\beta_r = U(\beta_r) = 0$, where L indicates the likelihood function. In ensuring that

[23] A situation may arise with logistic regression, particularly with small to medium data sets, that although the likelihood converges, there will be at least a parameter estimate that diverges to ±infinity. It normally occurs when the responses and non-responses can be separated perfectly by a risk factor or non-trivial combination of risk factors (Heinze & Schemper, 2002). The data in our study has a quasi-complete separation problem when the industry dummy is included in the traditional logit model. It is where a number of industries are found to perfectly predict the outcome (forced restatement). By using the traditional logit model, these 'problematic' industries will be eliminated which lead to a substantial reduction in the number of observation.

bias is reduced, (Firth, 1993) suggests to maximize the penalise log likelihood. This is done by basing estimation on the modified score equations as follows:

$$U(\beta_r)^* = U(\beta_r) + 1/2\text{trace}\,[\, I(\beta)^{-1}\{\, \partial I(\beta)/\, \partial\, \beta_r\}] = 0 \qquad (r = 1,\ldots, k) \qquad (5)$$

Where $I(\beta)^{-1}$ is the inverse of the information matrix being evaluated at β. $U(\beta_r)^*$, being the modified score function, relates to the penalised log-likelihood, i.e. $\log L(\beta)^* = \log L(\beta) + 1/2 \log |I(\beta)|$, and likelihood functions, i.e. $L(\beta)^* = L(\beta)\ |I(\beta)|^{1/2}$. (Firth 1993) shows that by using this modification score, the $O(n^{-1})$ bias of maximum likelihood estimates β will be removed.

If the penalised likelihood estimates is applied to the logit model, the score equation $U(\beta_r) = \sum_{i=1}^{n}(y_i - \pi_i)\, x_{ir} = 0$ will be replaced by the modified score equation as follows:

$$U(\beta_r)^* = \sum_{i=1}^{n}\{y_i - \pi_i + h_i(\tfrac{1}{2} - \pi_i)\}\, x_{ir} = 0 \qquad (r = 1,\ldots, k) \qquad (6)$$

Whereby the h_i's are the *i*th diagonal elements of the 'hat' matrix $H = W^{½} X(X^{T}WX)^{-1} X^{T}W^{½}$, with $W = diag\ \{\pi_i(1 - \pi_i)\}$.

In general, the extant accounting and non-accounting literature that examines categorical dependent variable applied the logistic regression as well as the logit and probit model in making prediction of variables association (see for example Lindstrom and Tuomilehto, 2003; Van Den Eeckhaut *et al*., 2006; Dechow *et al.,* 2011; Price *et al.,* 2011; Hernandez *et al.*, 2013; Hribar *et al.*, 2014; Xu and Zhu, 2014; Nelson *et al.,* 2014).

For the purpose of our study, several models will be examined. To summarise, firstly, the binary logit model will be examined to test the study objective which is to identify the financial variables and corporate governance variables that can provide better insight in determining the likelihood of forced financial restatement among public listed firms in Malaysia. The binary logit model will also be used to examine and compare the attributes of income-decreasing restatement firms against those with income-increasing restatement and also zero effect restatement. Secondly, the binary logit models are tested in a stepwise manner. The stepwise logit regression is estimated to determine exactly which explanatory variables can best

determine the likelihood of forced restatement. Finally, the penalised likelihood logit model will be examined to test the robustness of the results produced by the stepwise logit model.

5.3 Summary

In contrast to the earnings misstatement prediction model that is extant in the developed countries such as the US, the forced restatement model developed in this study is specific to Malaysia. The model that may indicate the likelihood of forced restatement, nonetheless, may be applicable to other developing countries as the model development generally takes into account specific characteristics of the emerging economies. In addition to discussing the data collection procedure and sample selection, this chapter presents variable measurements which comprise of financial and non-financial factors of forced financial restatement. These variables are expected to be indicative of the probability of firm's forced restatement. The final section of the chapter explains the specifications of three key models being applied for data analysis that includes the binary logit model, the stepwise logit model and the penalised likelihood logit model.

CHAPTER 6

DATA ANALYSIS ON FINANCIAL AND NON-FINANCIAL ATTRIBUTES OF MALAYSIAN FORCED RESTATEMENT FIRMS

6.1 Introduction

This chapter generally discusses empirical results on identifying the determinants of the likelihood of forced restatement events, including the specific attributes of the different types of forced restatement firms in Malaysia. Specifically, this study demonstrates new evidence from a developing country with a unique institutional setting. The concept of forced restatement is enhanced based on the findings that provide a distinctive perspective different from those of the developed countries.

Subsequent to Chapter 5 that explains the research approach, Chapter 6 presents data analyses and discusses test results. This chapter begins by presenting the univariate analysis followed by several multivariate logit analyses. The multivariate logit regression is firstly run on the pooled sample of forced restatement, in line with the main objective of this study which is to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among public listed firms in Malaysia. This is followed by a multivariate logit regression on the different types of forced restatement, which is in line with the study's second main objective, to distinguish between forced restatements that relate to opportunistic behaviour and those linked to accounting errors. In checking the robustness of the test results, several sensitivity analyses are examined. This includes the examination of the penalised likelihood logit model which is scarcely examined in the accounting research field. At the end of this chapter, Section 6.4 presents the summary of the study's overall data analyses. The development of a forced restatement prediction model, including tests of its predictive ability on a holdout sample is presented in the following Chapter 7.

6.2 Univariate analysis

Comparison between forced restatement firms and non-restatement firms

This section presents the descriptive statistics of forced restatement firm-years and non-forced restatement firm-years for the period 2002 to 2012. The continuous/discrete and dichotomous variables are displayed separately. Normality test such as the skewness-kurtosis, Shapiro-Wilks and graphical methods including the box plots and histogram, were carried out to test the normality of data distribution. The result from the Shapiro-Wilks normality test, for example, indicates that *p*-value is less than 0.05. This means the null hypothesis that samples are normally distributed is rejected (Peers, 2006).

With the nature of the continuous and discrete data being non-parametric, the Wilcoxon rank-sum test was examined to test for median differences or mean rank differences[24]. Unusual characteristics of forced restatement firms relative to the whole sample are tested and results are shown in Panel A of Table 6-1. A comparison is done between the treatment group (forced restatement firm-years) and the control group (non-restatement firm-years and accounting restatement firm-years). For the dichotomous variables, the Chi-square test results are shown in Panel B of Table 6-1. A one-tailed test is used due to its appropriateness in testing of directional hypotheses (Jaggi and Lee, 2002).

The rank-sum test in Panel A of Table 6-1, starts with board quality, where only the multiple directorships variable (MULTI) shows a mean rank significant difference. It is reported that the mean of MULTI is slightly higher at 0.661 for forced restatement firms compared to a mean of 0.619 for non-forced restatement firms. The slightly higher mean rank for forced restatement firms however contradicts the proposition in H1 that forced restatement tend to have a lower proportion of multiple directorships on board.

[24] The assumptions for Wilcoxon rank-sum test were tested. Unlike the rest of the variables, only board independence (BI), audit committee expertise (ACEXP), audit committee size (ACSIZE), board meeting (BDMEET) and female directors (FEM) show similar shape of distribution between the two groups (forced restatement versus non-forced restatement). In this case, median differences are tested for BI, ACEXP, ACSIZE, BDMEET and FEM while mean rank differences are tested for the rest of the variables.

Table 6-1: Differences between variable mean and median between forced restatement firm-years and non-forced restatement firm-years (2002-2012)

		N	Mean	Median	Standard Deviation	Pred. sign	*z*-stat (*p*-value)	
PANEL A (Continuous Variables)								
Board quality variables:								
BI	FFR	105	.437	.4	.105	-	.722	
	NFFR	4434	.422	.4	.110		(.765)	
FL	FFR	119	.317	.286	.161	-	-.816	
	NFFR	4399	.306	.286	.157		(.793)	
MULTI	FFR	105	.661	.667	.245	-	**-1.427**	*
	NFFR	4434	.619	.667	.270		**(.077)**	
Audit committee quality variables:								
ACIND	FFR	119	.752	.667	.143	+	**2.528**	***
	NFFR	4399	.793	.750	.157		**(.006)**	
ACEXP	FFR	119	.427	.333	.218	+	.964	
	NFFR	4399	.445	.333	.210		(.167)	
AF	FFR	121	.001	.001	.000	+	-1.633	
	NFFR	4638	.001	.000	.000		(.949)	
Family control variable:								
FB	FFR	119	.064	0	.121	+	**2.016**	**
	NFFR	4420	.083	0	.128		**(.022)**	
Government-related institutional ownership variable:								
INST	FFR	119	16.229	7.19	21.791	+	-1.547	
	NFFR	4420	11.329	5.985	15.795		(.939)	
Corporate reporting quality variables:								
DAMJ	FFR	76	.021	.021	.094	+	-1.079	
	NFFR	3041	.008	.008	.159		(.141)	
DT	FFR	116	.024	.013	.029	+	.018	
	NFFR	4416	.005	.013	.030		(.493)	
WCAC	FFR	116	.036	.013	.046	+	.449	
	NFFR	4403	.045	.016	.068		(.327)	
RSST	FFR	119	.427	.025	.218	+	**2.897**	***
	NFFR	4399	.445	.040	.210		**(.0019)**	
CHAR	FFR	115	.005	.003	.082	+	.871	
	NFFR	4409	.017	.009	.085		(.192)	
CHINV	FFR	115	.010	.001	.044	+	**1.374**	*
	NFFR	4409	.016	.005	.074		**(.085)**	
SFAST	FFR	121	.494	.463	.174	+	.057	
	NFFR	4632	.494	.493	.186		(.477)	
ABCFO	FFR	76	-.001	.001	.086	-	1.023	
	NFFR	3041	.009	.009	.110		(.847)	
ABPROD	FFR	76	.033	0	.049	+	.801	
	NFFR	3041	.039	0	.055		(.211)	
ABDISX	FFR	76	-.000	-.000	.089	-	-.221	
	NFFR	3041	-.005	-.001	.084		(.587)	
Firm performance and demand for external finance variables:								
CHROA	FFR	121	.024	.006	.084	+	.343	
	NFFR	4638	.036	.005	.096		(.366)	
BM	FFR	118	1.495	1.294	.956	-	-.642	
	NFFR	4356	1.462	1.244	1.027		(.261)	
PE	FFR	118	2.642	2.470	.997	+	-1.379	
	NFFR	4355	2.513	2.382	.947		(.916)	

DISTRESS	FFR	121	4.656	3.569	3.894	-	2.858	
	NFFR	4638	5.771	4.772	4.697		(.998)	
CHFCF	FFR	112	.058	0	.090	-	1.227	
	NFFR	4146	.073	.002	.100		(.890)	
FINR	FFR	121	.129	.047	.227	-	1.412	
	NFFR	4638	.153	.061	.241		(.921)	
Share price volatility variable:								
SDW	FFR	106	11.087	9.561	6.113	+	-1.982	
	NFFR	4158	10.084	8.635	6.267		(.976)	
Control variables:								
BDSIZE	FFR	119	7.420	7	1.893	+/-	.977	
	NFFR	4420	7.568	7	1.850		(.328)	
ACSIZE	FFR	119	3.403	3	.717	+/-	-.975	
	NFFR	4399	3.349	3	.626		(.330)	
BDMEET	FFR	119	5.529	5	2.314	+/-	-1.213	
	NFFR	4399	5.115	5	1.927		(.225)	
ACMEET	FFR	119	4.891	5	1.859	+/-	.141	
	NFFR	4398	4.719	5	1.322		(.888)	
FEM	FFR	119	.613	0	.793	-	.724	
	NFFR	4399	.665	0	.814		(.766)	
LEV	FFR	121	.129	.094	.146	+	-4.029	
	NFFR	4636	.081	.036	.107		(1.000)	
LNTA	FFR	121	13.231	12.990	1.654	+	-3.667	
	NFFR	4638	12.739	12.508	1.377		(1.000)	
AGE	FFR	121	2.750	2.833	.908	+	-2.074	
	NFFR	4638	2.591	2.639	.937		(.981)	

		N	Mean	Median	Standard Deviation	Differences between two proportions (Chi^2 statistic, df=1)	
PANEL B (Dichotomous Variables)							
AI	FFR	121	.455	0	.500		
	NFFR	4638	.562	1	.496	5.534	**
FM	FFR	119	.487	0	.502		
	NFFR	4420	.584	1	.493	4.524	**
CEOB	FFR	119	.109	0	.313		
	NFFR	4420	.115	0	.319	.037	
CEOF	FFR	119	.269	0	.445		
	NFFR	4420	.357	0	.479	.010	
CEON	FFR	119	.118	0	.324		
	NFFR	4420	.121	0	.326	.010	
PC	FFR	119	.244	0	.431		
	NFFR	4420	.107	0	.310	21.788	***

Notes: FFR is forced financial restatement and NFFR is non-forced financial restatement. Table 6-1 reports two sample test which compares FFR firm-years and non-FFR firm-years. The total number of observations differs for each independent variable due to missing observations. Panel A presents the continuous variables where the Wilcoxon rank-sum test is examined to evaluate median differences and mean ranks. Panel B presents the dichotomous variables where the Chi-square test is examined to evaluate proportions differences. All variables are defined in 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly, one-tailed test.

Next is audit quality, where only audit committee independence (ACIND) shows a significant mean rank difference. The result shows that forced restatement firms have a slightly lower mean of 0.752 for ACIND compared to 0.793 for non-forced restatement firms. There is a slight difference in the mean rank, nonetheless the result again contradicts with the proposition (H2) that a higher proportion of audit committee independence intensifies closer monitoring which trigger and increases the likelihood of forced restatement.

The measure for family control, i.e. founders on the board (FB), shows a significant mean rank difference with a lower mean of 0.064 for the forced restatement firms compared to 0.083 for non-forced restatement firms. It provides preliminary evidence that family control is negatively associated with forced restatement. This preliminary result, however, contradicts H3 which posits that family control tend to exert pressure on managers to report good firm performance which increases the likelihood of forced restatement. It also contradicts findings of prior studies that found firms with founders on the board are more likely to manipulate and distort earnings report (Dechow *et al.,* 1996; Hasnan *et al.,* 2013).

In the corporate reporting quality category, only change in non-cash net operating assets (RSST) and change in inventory (CHINV) show significant mean rank differences. Forced restatement firms show a lower mean of 0.427 for RSST and 0.010 for CHINV (compared to the mean for non-forced restatement firms of 0.445 and 0.016). This result preliminarily rejects H5, indicating that although forced restatement firms report positive change in net operating asset accruals and inventory possibly due to income-increasing accrual choices, but the overstatement is done at a lower degree compared to the control group.

None of the variables in the firm performance and demand for external finance category are significant. The same applies to the control variables where none of them are found to be significant.

The chi-square test results for the dichotomous variables are shown in Panel B of Table 6-1. The chi-square test indicates that the relative frequencies are reliably different between the treatment and control firms. While political connection (PC) shows higher frequency for forced restatement firms (mean: 0.244 versus 0.107), results show that the expected frequencies for actual issuance of debt or equity (AI) and family ownership (FM) are significantly lower for the forced restatement firms with mean 0.455 and 0.487 respectively (compared the non-forced restatement firms' mean of 0.562 for AI and 0.584 for FM). This

is consistent with the firms' relative sample size which is smaller compared to the non-forced restatement firms. Overall, the results indicate that forced restatement firms are relatively active in raising finance possibly due to maintaining firm growth or in support of their high leverage as discussed earlier. There is also family ownership as well as political connection among forced restatement firms which supports the contention that both factors may reduce monitoring effectiveness and drive the managers from working towards maximising shareholders' return.

In summary, findings from the descriptive statistic show lack of consistency with the study hypotheses. Firstly, in relation to the control firms, it can be seen that forced restatement firms generally have higher proportion of directors with multiple directorships, indicating a more skillful directors on the board who may monitor managers more diligently. There is however less audit committee independence among forced restatement firms which may possibly reduce the effectiveness of managerial monitoring. Forced restatement firms also have low proportion of founders on the board, hence lesser family control which limits their ability to exert pressure on the managers. Forced restatement firms were also found to report increasing accruals for change in net operating asset and inventory, although the magnitude is relatively lower compared to the non-forced restatement firms. This in line with the proposition that there is incentive among forced restatement firms to opportunistically report income-increasing accruals possibly to produce favourable earnings. Forced restatement firms are also politically connected and were also found to have actual issuance of equity or debt and family ownership, although the frequencies may be lower in relation to the non-restatement firms and this is consistent with their smaller sample size.

It should be noted that results from the rank-sum test and chi-square test are not sufficient to support the hypothesis testing. In the next Section 6.3, the multivariate logit regression will be examined in determining whether the variables tested in the univariate tests provide joint significance in signaling the likelihood towards forced restatement in Malaysia.

6.3 Multivariate analysis

6.3.1 Multivariate logit analysis on the pooled sample of the Malaysian forced restatement firms

In this section, a multivariate logit regression is tested on the pooled forced restatement sample to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among the Malaysian listed firms. Results shown in Table 6-2 are based on the logit model tested on 2,896 firm-year observations[25]. The odds ratio (OR) of the logit model suggests a positive association between the explanatory variable and the likelihood of forced restatement if OR is greater than 1.0, and a negative association between the explanatory variable and the likelihood of forced restatement if OR is less than 1.0[26].

Based on Table 6-2, results show that board independence (BI) has a negative association with the likelihood of forced restatement and is statistically significant at the five percent level. In economic terms, a one standard deviation decrease in board independence (from its mean) increases the odds that a forced restatement will take place by 4.2 times[27] (holding all other variables constant). In the perspective of the marginal effect, a one unit decrease in board independence increases the probability of forced restatement by eight percentage points. Consistent with prior studies (e.g. Peasnell *et al.,* 2000; Peasnell *et al.,* 2005; Marra *et al.*, 2011), board independence is a significant determinant of the likelihood of forced restatement. The result indicates that low board independence impedes an

[25] From the initially screened data with a net total of 4,759 firm-year observations (refer Table 5-1 in Chapter 5), a further 1,641 observations with incomputable discretionary accruals were dropped. The inability to calculate discretionary accruals arises as the estimation model pools across firms over time within each two-digit SIC coded industry. The pooling process caused substantial reduction in the number of observation as it only includes two-digit SIC code industries that have at least 10 firms in any specific year (Hazarika *et al.,* 2012). Any two-digit SIC code industries that have less than 10 firms were excluded from the computation hence the unquantifiable discretionary accruals observations. Another 222 firm-years of industry dummies were eliminated due to perfect collinearity with the event of non-forced restatement.

[26] The odds ratios for continuous variables are based on the calculation of (exp (βx Sx) − 1); where βx is estimated regression coefficient and Sx is sample standard deviation for variable x. As presented in Table 6-2, the odds ratios for continuous variables represent the change in odds of belonging to the forced restatement group, given a one standard deviation change in the variable of interest. As for indicator variables, the odds ratios are based on the calculation of (exp(βx) − 1). Accordingly, the odds-ratios for indicator variables represent the change in odds of belonging to the forced restatement group, given a change in the variable of interest from 0 to 1 (Ettredge *et al*., 2010). The significance levels reported in Table 6-2 are based on a one-tailed test.

[27] The 4.20 figure is derived from the odds ratio of the estimated logit model. Initially, the odds ratio shown in Table 6-2 for board independence (BI) is 0.238. The result suggests that the odds of firms with high board independence versus firms with low board independence issuing a forced restatement are 0.238. That is, a firm with lesser board independence has 4.20 (=1/0.238) greater odds of issuing forced restatement, all else equal (Srinivasan *et al.,* 2015).

Table 6-2: Multivariate Logit Regression Model Examining Determinants of Forced Restatement in Malaysia during 2002-2012

Variables	Hypo-thesis	Predicted sign	Logit Model			
			Delta (marginal effect)	Odds Ratio	Z-statistic	*P* – value
BI	H1	-	-.082	**.238**	**-2.09****	**.018**
FL	H1	-	.014	1.868	.51	.696
MULTI	H1	-	-.005	.800	-.39	.653
ACIND	H2	+	-.026	.310	-1.02	.154
ACEXP	H2	+	.002	1.105	.12	.454
AF	H2	+	-3.432	.000	-1.03	.153
FM	H3	+	.001	1.037	.11	.458
FB	H3	+	.016	2.053	.49	.312
CEOF	H3	+	.003	1.166	.32	.375
CEON	H3	+	-.009	.649	-.88	.189
CEOB	H3	+	.002	1.108	.21	.418
INST	H4	+	-.000	.992	-.77	.220
PC	H4	+	.020	**2.504**	**2.09****	**.019**
DAMJ	H5	+	.041	**6.468**	**1.26***	**.100**
DT	H5	+	.102	103.21	1.12	.132
WCAC	H5	+	-.133	.002	-1.72	.958
RSST	H5	+	-.025	.320	-.65	.258
CHAR	H5	+	-.025	.314	-.53	.299
CHINV	H5	+	-.011	.613	-.17	.432
SFAST	H5	+	.017	2.162	.89	.186
ABCFO	H5	-	-.044	.135	-1.07	.141
ABPROD	H5	+	-.132	.002	-1.79	.963
ABDISX	H5	-	-.012	.585	-.29	.614
CHROA	H6	+	.043	7.020	.65	.258
BM	H6	-	-.000	.985	-.10	.538
PE	H6	+	.004	1.180	1.11	.133
DISTRESS	H6	+	-.000	.990	-.24	.594
CHFCF	H6	-	.008	1.427	.22	.586
FINR	H6	-	-.070	**.041**	**-1.86****	**.032**
AI	H6	+	-.002	.893	-.27	.395
SDW	H7	+	.001	**1.033**	**1.49***	**.069**
BDSIZE		+/-	-.006	**.758**	**-2.55****	**.011**
BDMEET		+/-	-.003	.859	-1.36	.175
ACSIZE		+/-	.010	**1.574**	**1.74***	**.082**
ACMEET		+/-	.002	1.103	.72	.470
FEM		-	-.004	.822	-.99	.984
LEV		+	.063	**17.916**	**2.00****	**.023**
LNTA		+	.008	**1.414**	**2.28****	**.011**
LNAGE		-	-.002	.900	-.49	.312
Industry dummies			Included			
Year dummies			Included			
Observations			2,896			
LR Chi^2			115.73			
p-value			**.041**			
Degrees of freedom			91			

Notes: Table 6-2 presents results from the logit regression model examining the determinants of forced restatement in the Malaysian firm sample. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 in Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly (based on one-tailed tests where directional predictions are provided).

effective managerial monitoring; hence supporting H1 that low board quality increases the likelihood of forced restatement.

Political connection (PC) is positively and significantly associated to the likelihood of forced restatement (*p*-value < 0.05). Economically, the presence of a political connection increases the odds that a firm is issued with forced restatement by 2.50 times. In terms of marginal effect, this would mean that a change in political connection from zero to one increases forced restatement probability by only two percentage points. The result supports the contention of prior studies in Malaysia which claim that politically connected firms are deemed to be operationally inefficient as a result of cronyism (Gul, 2006; Johnson and Mitton, 2003) and have higher risk of financial misstatement (Hasnan *et al*., 2013; Abdul Wahab *et al.*, 2014). Overall, H4 is supported that there is a positive relationship between firm's political connection and the occurrence of forced restatement.

The logit regression further shows significance for the discretionary accruals variable (DAMJ). DAMJ is positively associated to the likelihood of forced restatement, significant at the ten percent level. A one standard deviation increase in DAMJ increases the odds that a forced restatement will take place by 6.47 times. Consistent with the low statistical significance, DAMJ shows a relatively low marginal effect where a one unit increase in DAMJ increases the probability of forced restatement only by 0.4 percentage points. The overall result indicates that firms engage in opportunistic behaviour by adopting aggressive accounting in their financial report which increases the risk of forced restatement. H5 is therefore supported where a distortion in corporate reporting quality is positively associated to the occurrence of forced restatement.

Firm's level of internal fund (FINR) shows a negative and significant relationship with the likelihood of forced restatement at the five percent significance level. In economic terms, as the firms gets nearer to exhausting its internal funds, a one standard deviation decrease in FINR increases the odds for forced restatement to be issued by 24.39 (=1/0.041) times. The marginal effect is where a one unit decrease in FINR increases the probability of forced restatement by seven percentage points. There is an indication that forced restatement firms suffer from a declining internal fund (FINR). This creates the intention for firms to raise new capital at low cost which increases the risk of forced restatement. Overall, the result supports H6 whereby the demand for external financing increases the likelihood of forced restatement.

Share price volatility (SDW) further shows a positive and significant relationship with the likelihood of forced restatement at the ten percent significance level. In economic terms, a one standard deviation increase in share price volatility increases the odds of forced restatement by 1.03 times. With a low statistical significance, the marginal effect for SDW is also very small where a one unit increase in SDW increases the probability of forced restatement by only 0.1 percentage point. Essentially, the result indicates that share price volatility triggers the need for forced restatement; however, the economic effect is close to being insignificant. The overall result shows support for H7 which posits a positive relationship between share price volatility and the occurrence of forced restatement. Essentially, share price volatility indicates firms' perceived risk and the uncertainty in their future earnings performance. This may prompt closer monitoring among external authorities, thus triggering the need for forced restatement.

A few control variables show some significant results. This includes board size (BDSIZE) which shows a negative and significant relationship with the likelihood of forced restatement (p-value < 0.05). In economic term, a decrease in one standard deviation of BDSIZE increases the odds of forced restatement by 1.32 (=1/0.758) times. The marginal effect is however quite weak where a one unit increase in board size decreases the probability of forced restatement by only 0.6 percentage points. The result indicates that a small board size may lead to ineffective monitoring possibly due to insufficient members available to carry out various corporate functions and the discharge of responsibilities, which increases the likelihood of forced restatement.

Audit committee size (ACSIZE) also shows a significant result. ACSIZE is positively and significantly associated to the occurrence of forced restatement at the five percent significance level. A one standard deviation increase in audit committee size increases the odds of forced restatement by 1.57 times (while holding other variables constant). Marginally, the impact is not strong whereby a one unit increase in audit committee size increases the likelihood of forced restatement by only a one percentage point. Overall, a larger audit committee increases the effectiveness of detecting misstatement, which increases the occurrence of forced restatement.

Finally, leverage (LEV) and firm size (LNTA) both show a significant positive association with the likelihood of forced restatement (p-value < 0.05). A one standard deviation increase in leverage increases the odds of forced restatement by 17.92 folds. The impact is that a one unit increase in leverage increases the probability of forced restatement by six percentage

point. As for firm size, an increase in LNTA increases the odds of forced restatement by 1.41 folds. The marginal effect is again quite small such that the increase in one unit of firm size increases the likelihood of forced restatement by only 0.8 percentage point.

The goodness of fit statistic in Table 6-2 shows a likelihood ratio Chi^2 of 115.73 with $\rho <$ 0.05. This means that the model as a whole is significant by which the independent variables allow the model to provide prediction on the likelihood of forced restatement. The overall logit regression results indicate that H1, H4, H5, H6 and H7 are supported. It implies that firms have a low board independence which limits the effectiveness of managerial monitoring thus increasing the probability of forced restatement. Not only forced restatement firms are politically connected, but they are also found to be involved in producing a defective reporting through practices of opportunistic earnings management. It should be noted however that the economic impact of the earnings management on the occurrence of forced restatement is very small. Furthermore, forced restatement firms generally have a decreasing level of internal fund which creates the incentive for raising external finance, hence the increased risk of forced restatement. Forced restatement firms' share price are also volatile, being an indicator of the firm's perceived risk, which increases the intensity of monitoring by the authorities, thus triggering the likelihood of forced restatement. Note that the result however shows the economic impact of share price volatility on forced restatement event may not be so significant.

6.3.2 Sensitivity analysis

6.3.2.1 Sensitivity analysis based on alternative specification of exploratory variables

Several sensitivity analyses were conducted to test the robustness of the logit regression results to some alternate specifications of the explanatory variables. The first sensitivity test relates to the proxies used to measure firm's accruals quality. Results are tabulated and shown in Appendix 4. The proxies for accruals quality include the Modified Jones discretionary accrual model (DAMJ), deferred tax expenses (DT), change in working capital (WCAC), change in non-cash net operating assets (RSST), change in accounts receivable (CHAR), change in inventories (CHINV) and soft assets (SFAST). Although these proxies are related accruals measure, the correlation among each of the proxy is relatively small (correlation coefficient less than 0.60). This may imply that each proxy is a unique measurement that measures different construct. Nonetheless, the highest correlation is

recorded between WCAC and DAMJ with correlation coefficient 0.52 with $p < 0.01$ implying a possibility of overlapping measure due to imperfect multicollinearity.

Hence, I re-run a multivariate logit test separately to check for differences in results when either WCAC or DAMJ is dropped out. Firstly, the result shows no significant changes when excluding DAMJ (and retaining WCAC) from the logit model. There is a very slight decrease in the log-likelihood Chi^2 of 114.16 at $p < 0.05$ (original log likelihood Chi^2 is 115.73 at $p < 0.05$). All other parameter estimates are not sensitive to the exclusion of DAMJ from the logit model, except for deferred tax expenses (DT). The previously insignificant DT is currently found to be positively related to the likelihood of forced restatement, significant at the ten percent level. The relationship seems strong where a one standard deviation increase in DT increases the odds of forced restatement by 231.61 times. Nonetheless, the economic impact is so small such that a one unit increase in DT increases the probability of forced restatement by approximately zero percentage point. By having to remove DAMJ, there is still an indication that forced restatement firms engage in opportunistic accounting practices as implied by the temporary-book-tax differences in deferred tax expenses that arises due to an upward earnings management.

Alternatively, I re-examine the logit model by retaining DAMJ and excluding WCAC. The result shows hardly any change with a slight decrease in log-likelihood chi^2 of 112.32 at $p < 0.05$. The rest of the parameter estimates are not sensitive and remain relatively the same. The main difference lies in price-earnings ratio (PE) where the variable shows a significantly positive relationship with the likelihood of forced restatement ($p < 0.10$). Results show that a one standard deviation increase in PE increases the odds of forced restatement by 1.218 times. The economic impact seems relatively insignificant due to the delta measure that approximates to zero. Overall, forced restatement firms are seen to demonstrate a positive growth prospect. This increases the risk of forced restatement as firms tend to have strong incentives to show a persistent growth in order to maintain high stock valuations.

Another issue arises that relates to two closely related proxies; each measuring director financial expertise (FL) and audit committee financial expertise (ACEXP). Results are tabulated in Appendix 5. The correlation coefficient between FL and ACEXP is 0.63 with $p < 0.01$ implying that both proxies have a strong correlation, giving rise to the possibility that both proxies might measure the same construct. In this case, another sensitivity test was re-examined to measure the multivariate logit model when either one of the proxies was excluded. In line with our expectation, results generated from the logit model that exclude

ACEXP (while retaining FL) remain similar to the original logit model. The log likelihood Chi^2 remain similar at 115.72 with $p < 0.05$ (originally log likelihood $Chi^2 = 115.73$, $p < 0.05$). Except for DAMJ that shows insignificance, the rest of the parameter estimates are not sensitive and remain relatively the same. Similarly, when re-examining the logit model that excludes FL (and retaining ACEXP), results, in general, remain unchanged except for DAMJ which again shows insignificance. There is hardly any change in the log likelihood chi^2 with a figure of 115.47 with $p < 0.05$.

Previously, in the multivariate logit model, a dummy variable was used to signify family ownership (FM). However, it may be argued that the use of actual ownership level may provide more information compared to the use of a dichotomous dummy variable. An additional sensitivity test was examined on the use of actual ownership level for FM. Results are shown in Appendix 6. A multivariate logit model that includes absolute ownership level for FM was re-estimated. The log likelihood Chi^2 however increases to 132.01 with $p < 0.01$ (originally, log likelihood $chi^2 = 115.73$, $p < 0.05$). The signs and significance of the explanatory variables remain unchanged. However, when incorporating the actual ownership levels for FM into the logit model, FM tend to become significant and positively related to the likelihood of forced restatement. A one standard deviation increase in FM increases the odds of forced restatement by 1.011 times. Again, the delta method produces nearly zero measure which signifies an insignificant economic impact. Results imply that the concentrated family ownership structure often lead to a misalignment of interest between large and minority shareholders. The conflict of interest gives rise to wealth expropriation from the small investors' wealth for private gain which eventually increases the risk of forced restatement.

In addition, board meeting (BDMEET) shows a negative association with the likelihood of forced restatement, significant at the ten percent level. An increase of a one standard deviation in board meeting frequency reduces the odds of forced restatement by 1.247 times. However, the impact is relatively insignificant since the delta measure shows a figure close to zero. The result implies that the number of board meeting act as an effective tool for monitoring managerial behaviour in their accounting practices. This would mean that more time is spent by the board members to discuss issues related to the quality of financial reporting, hence reduces the likelihood of forced restatement. Overall, the rest of the parameter estimates are not sensitive to the changes in the estimation of family ownership.

6.3.2.2 Sensitivity analysis to test interaction effect

This section expands on the previous sensitivity analysis in Section 6.3.2.1. Specifically, an additional analysis is performed using the structural regression model to examine whether accruals quality variable mediates the impact of the explanatory variables on the likelihood of forced restatement. It further examines whether there is any interaction effect among the explanatory variables. The structural regression model was performed using the structural equation modeling software, Mplus version 7.2 (Muthen and Muthen, 1998-2014) of which the maximum likelihood estimator was used. The structural equation modeling has received extensive application mainly in the area of business research that includes strategic management, managerial accounting, and marketing, but its usage is still lacking in the accounting literature (Glaum *et al.,* 2013).

In contrast to the previous studies that applied the indexing method[28] to measure the quality of financial information among firms, this study applied a more robust method of the structural equation model to test the predictive ability of the forced restatement model. The structural equation method provides a simultaneous assessment of the direct and indirect relationships of variables based on the maximum likelihood estimation, producing a coherent and systematic analysis (Glaum *et al.,* 2013).

Prior to examining the structural regression model, this study tested a confirmatory factor analytic (CFA) model on all latent constructs to prepare the variables for the structural equation modeling test. Nonetheless, untabulated results from the test show that the initial assessment on the CFA analysis did not work very well. Results on factor loadings are inconsistent with the study's grouping of variables except for accruals quality (which shows a low value of correlations among the indicator variable). Furthermore, due to poor factor loadings, the forced restatement prediction model generated by the structural equation modeling method is inappropriate, and the specification cannot be possibly right. Essentially, the factoring analysis and the structural regression method did not work and seem not to be the suitable approach for estimating the forced restatement prediction model.

[28] Several studies such as Jalila and Devi (2012), Baber *et al.* (2012) and Abdullah *et al.* (2015) have used alternative methods such as "indexing" especially in measuring corporate governance variables. It is argued that the index method can be used as a proxy, for example, on the overall quality level of financial disclosure made by firms. However, indexing is very poor and not particularly useful because it is equally weighted without any justification for the equal weighting. The dichotomous procedure used to score the instrument in the index treats each item as being equal, thus no indication on the level of emphasis is given to any particular category of items (Li *et al.,* 2008).

Due to the inappropriateness of the structural equation modeling, this study alternatively examines the interaction effects between certain variables using the multivariate logit model. This is to ensure the durability of the original multivariate logit results previously derived from the pooled forced restatement test sample. The first interaction effect tested is those between earnings management measured by the Modified Jones Model (DAMJ) and real earnings management (REM). Consistent with the findings by Badertscher (2011) and Zang (2012), there is a possibility that managers might substitute to real earnings management when all choices of accruals management are exhausted. While other research (e.g. Doukakis, 2014) has found that firms engage in accruals as well as real earnings management activities simultaneously to improve firm's profitability or avoid reporting losses.

The interaction effect between the incentive on raising finance (FINR) and change in earnings (CHROA) is also examined. Managers are inclined to report profitability with the anticipation of getting access into the capital market (Erickson *et al.,* 2006; Lennox and Pittman, 2010). By reporting good earnings performance, the firm's share price may increase, thus reducing the cost of issuing new equity. Studies such as Dechow *et al*. (2011) demonstrated that firms tend to report earnings growth for the purpose of allowing managers in raising finance necessary for investment. Consistent with these findings, this study examines possible interaction effect that might exist between FINR and CHROA.

The possible interaction effect between founder CEO (CEOF) and board independence (BI) is also tested. There is a possibility that board independence might be undermined when the founder is also the firm's CEO. Founders have a huge influence over business decisions and are less likely to be accountable to the board of directors (Dechow *et al.*, 1996). Within the Malaysian scenario where the culture discourages from criticism or opinion differences, the quality of board independence may be threatened when dealing with manipulation acts especially when there exist a dominant-styled founder CEO on the board (Satkunasingam *et al.,* 2012).

Finally, the interaction effect between change in free cash flows (CHFCF) and political connection (PC) is also examined. There is a likelihood for politically connected firms to be involved in over-investment or investing in unprofitable projects by using the surplus free cash flow that the firms have (Jensen, 1986). The involvement in non-value maximising activities is done opportunistically for private or political gain at the expense of minority shareholders.

Results of the interaction effect test are shown in Table 6-3. The logit model with interaction effect shows relatively consistent results with the original logit model. However, the overall marginal effect based on the delta method shows close to zero impact for each of the explanatory variables tested. On the one hand, variables including board independence (BI) and firm's internal fund level (FINR) consistently show a significant and negative relationship with the likelihood of forced restatement. Based on the interaction effect logit test, the odds of forced restatement increase by 58.82 times with every one standard deviation decrease in BI (original logit: 4.2 times). As for firm's internal fund, a one standard deviation decrease in FINR increases the odds of forced restatement by 18.52 times (original logit: 24.39 times). The results consistently show support for H1 and H6.

On the other hand, variables such as political connection (PC) and share price volatility (SDW) consistently show a significant and positive relationship with the likelihood of forced restatement. Results for the new logit remain relatively the same whereby for political connection, the result indicates that the presence of PC increases the odds of forced restatement by 2.17 times (original logit: 2.50 times), whereas for share price volatility, a one standard deviation increase in SDW increases the odds of forced restatement by 1.03 times (similar to original logit: 1.03 times). H4 and H7 are consistently supported.

Table 6-3: Comparison of the Multivariate Logit Models in Examining Interaction Effects to Determine the Likelihood of Forced Restatement in Malaysia

Variables	MULTIVARIATE LOGIT (Interaction Effect Excluded)			MULTIVARIATE LOGIT (Interaction Effect Included)		
	Delta (marg. effect)	Odds Ratio	(*p*-value)	Delta (marg. effect)	Odds Ratio	(*p*-value)
BI	-.082	**.238****	**.018**	-.000	**.017****	**.019**
FL	.014	1.868	.696	.000	1.944	.707
MULTI	-.005	.800	.653	-.000	.771	.675
ACIND	-.026	.310	.154	-.000	.295	.142
ACEXP	.002	1.105	.454	.000	1.051	.477
AF	-3.432	.000	.153	-.005	.000	.151
FM	.001	1.037	.458	-.000	.972	.467
FB	.016	2.053	.312	.000	2.000	.321
CEOF	.003	1.166	.375	-.000	.660	.382
CEON	-.009	.649	.189	-.000	.635	.180
CEOB	.002	1.108	.418	.000	1.054	.458
INST	-.000	.992	.220	-.000	.992	.212
PC	.020	**2.504****	**.019**	.000	**2.168***	**.064**
DAMJ	.041	**6.468***	**.100**	.000	3.430	.267
DT	.102	103.21	.132	.000	117.78	.132
WCAC	-.133	.002	.958	-.000	.002	.953
RSST	-.025	.320	.258	-.000	.281	.233
CHAR	-.025	.314	.299	-.000	.327	.313
CHINV	-.011	.613	.432	-.000	.479	.401
SFAST	.017	2.162	.186	.000	2.308	.167
ABCFO	-.044	.135	.141	-.000	**.032****	**.043**
ABPROD	-.132	.002	.963	-.000	.000	.986
ABDISX	-.012	.585	.614	-.000	.405	.680
CHROA	.043	7.020	.258	.000	8.154	.263
BM	-.000	.985	.538	-.000	.985	.539
PE	.004	1.180	.133	.000	1.172	.143
DISTRESS	-.000	.990	.594	-.000	.992	.425
CHFCF	.008	1.427	.586	-.000	.811	.545
FINR	-.070	**.041****	**.032**	-.000	**.054***	**.056**
AI	-.002	.893	.395	-.000	.895	.398
SDW	.001	**1.033***	**.069**	**.000**	**1.033***	**.073**
BDSIZE	-.006	**.758****	**.011**	**-.000**	**.759****	**.011**
BDMEET	-.003	.859	.175	-.000	.855	.165
ACSIZE	.010	**1.574***	**.082**	.000	1.524	.108
ACMEET	.002	1.103	.470	.000	1.119	.415
FEM	-.004	.822	.984	-.000	.834	.819
LEV	.063	**17.916****	**.023**	**.000**	**18.933****	**.022**
LNTA	.008	**1.414****	**.011**	**.000**	**1.423****	**.011**
LNAGE	-.002	.900	.312	-.000	.902	.314
DAMJ*ABCFO				**.000**	**34636.8****	**.041**
DAMJ*ABPROD				.001	1.87e+09	.133
DAMJ*ABDISX				.000	22.836	.415
FINR*CHROA				-.000	.000	.351
CEOF*BI				.000	4.977	.311
CHFCF*PC				.000	7.778	.287
Industry dummies			Included			Included
Year dummies			Included			Included
Observations			2,896			2,896
LR Chi^2			115.73			120.09
p-value			.041			.056
Deg. of freedom			91			97

Notes: Table 6-3 presents comparative results between the original logit model and a new logit model that include interaction effects, measured on the pooled sample of the Malaysian forced restatement firms. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly.

Overall, consistent with the original logit model, the new logit model with interaction effect demonstrates that forced restatement firms have low board independence and lower level of internal funds. Besides having high political connection, forced restatement firms also experience from a share price volatility. The interaction effect logit model however shows contradicting results related to the earnings management variables. On the one hand, the discretionary accruals measured by the Modified Jones Model (DAMJ) are no more significant. On the other hand, the previously insignificant abnormal cash flow from operations (ABCFO) currently shows a significant negative relationship with the likelihood of forced restatement. The result shows that a one standard deviation decrease in ABCFO increases the odds of forced restatement by 31.25 times. The interaction effect between DAMJ and ABCFO further shows significance and is positively related to the occurrence of forced restatement which supports H5. In economic terms, the increase of one standard deviation in the interaction effect between DAMJ and ABCFO increases the odds of forced restatement by 34,637 times. While the relationship is very strong, the impact is however very weak, with marginal effect approaching zero.

The result implies that forced restatement firms engage in both accruals-based and real earnings management in preparing their financial reports. Forced restatement firms seem to put more emphasis on managing real activities to improve short term earnings performance. The direct impact of managing real activities such as discounting prices and granting lenient credit terms may effectively reduce cash flow (as can be seen from the decreasing firm's internal fund - FINR), but it helps accelerate firm's sales and profit in the short term.

Control variables such as board size, leverage, and firm size maintain the same sign and significance under the new logit model except for audit committee size which is no more significant. In comparing model fitness, the new logit model that include interaction effects demonstrates slightly higher goodness of fit but at a lower significance; i.e. $X^2 = 120.09$ ($p < 0.10$) relative to the original model; $X^2 = 115.73$ ($p < 0.05$). Not much improvement can be seen in the overall performance of the new logit model. Results show that both logit models are significant and are seen to demonstrate a relatively good performance in predicting the likelihood of forced restatement.

6.3.2.3 Sensitivity analysis using the stepwise and penalised likelihood logit model

Following the analysis of the full multivariate logit model in section 6.3.1, this section examines the stepwise logit regression to determine which explanatory variables best predict forced restatement. The procedure for the stepwise binary logit regression was explained earlier in Section 5.2.7.2 of Chapter 5. The stepwise logit model was chosen as it might be very useful in identifying a useful subset of determinants out of the numerous numbers of variables for determining the likelihood of forced restatement. The stepwise procedure brings in and removes variables that meet the entry and removal criteria, and stops to the extent where a stable subset of variables is achieved.

The result of the stepwise test is shown in Table 6-4. Note that, the number of observation in the original logit model was n=2,896. Comparatively, the number of observations in the stepwise logit model reduces to 2,434. The decline was due to the elimination of 462 firm-years of industry dummies due to perfect collinearity between the dummies and the event of non-forced restatement (represented by the dichotomous dependent variable in the logit model). The overall result of the stepwise logit is fairly consistent with the result from the multivariate logit regression. Explanatory variables which include board independence (BI), political connection (PC), discretionary accruals (DAMJ), the level of internal fund (FINR) and share price volatility (SDW) retain the same sign and remain significant. The marginal effects for each significant variable in the stepwise model are fairly consistent with those of the original logit model.

In terms of control variables, those variables that are significant in the multivariate logit model remain significant in the stepwise model. Variables including board size (BDSIZE), leverage (LEV) and firm size (LNTA) are significant and retain the same sign. It should be noted, however, that audit committee independence (ACSIZE) which was previously significant in the logit model, is no more significant in the stepwise model. Overall, the goodness of fit statistic of the stepwise model improved much higher with a likelihood ratio Chi^2 of 1036.35 with $\rho < 0.01$ (compared to the original logit likelihood ratio Chi^2 of 115.73 with $\rho < 0.05$). This means that the model as a whole is significant

Table 6-4: Stepwise Logit Model versus Penalised Likelihood Logit Model in Examining the Determinants of Forced Restatement in Malaysia

Variables	**Hypo-thesis**	**Pred sign**	**Stepwise Logit**			**Penalised Likelihood Logit**	
			Delta (marginal effect)	Odds Ratio	(*p*-value)	Odds Ratio	(*p*-value)
BI	H1	-	-.064	**.028*** **	**(.008)**	**.049** **	**(.013)**
PC	H4	+	.015	**2.351** **	**(.014)**	**2.233** **	**(.013)**
DAMJ	H5	+	.040	**9.277** **	**(.019)**	**7.833***	**(.071)**
WCACW	H5	+	-.115	.002	(.996)	.002	(.972)
ABPROD	H5	+	-.079	.013	(.956)	.018	(.934)
FINRW	H6	-	-.061	**.035*** **	**(.006)**	**.057** **	**(.016)**
SDW	H7	+	.000	**1.027** **	**(.037)**	**1.030***	**(.064)**
BDSIZE		+/-	-.004	**.795*** **	**(.003)**	**.802*** **	**(.005)**
LEV		+	.030	**5.389***	**(.071)**	**5.193***	**(.085)**
LNTA		+	.004	**1.267** **	**(.020)**	**1.295** **	**(.020)**
Industry dummies				Included		Included	
Year dummies				Included		Included	
Observations				2,434		**2,915**	
McFadden's pseudo R^2				.089			
Model chi-square				1036.35***		61.03**	
p-value				.000		.023	
Degrees of freedom				29		41	

Notes: Table 6-4 presents robustness test results from the stepwise logit and penalised likelihood logit regression model. The penalised likelihood model is compared to the stepwise logit model to test for robustness of the determinants of forced restatement in the Malaysian firm sample. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 15% accordingly.

by which the independent variables allow the model to provide prediction on the likelihood of forced restatement.

The maximum likelihood estimates for logit regression models often suffer from biases or non-existence problems due to multicollinearity or separation problems that stem from a huge number of highly correlated items (Shen and Gao, 2008). The same problems apply to our data since the industry dummies project high collinearity with the non-forced restatement event. The sample data produces a quasi-complete separation problem when some of the industry dummies are found to highly predict the outcome of non-forced restatement (note that some industries have more, some less or indeed no restatements). The conventional logit model

tends to eliminate these 'problematic' industries through the stepwise procedure, leading to a substantial reduction in the number of observation and degrees of freedom.

Firth (1993) proposed the penalised likelihood estimator and it was discovered to reduce biases and the non-existence problems. The penalised likelihood method provides the benefit of producing finite, consistent parameter estimate especially when the maximum log likelihood estimates do not exist caused by quasi-complete or complete separation. Heinze and Schemper (2002) suggest that when the datasets used in logistic models give rise to separation, the maximum likelihood estimation is often asymmetric (tend to infinity and inestimable), thus producing a model Chi^2 and confidence intervals that are liable to inaccuracy. In cases of separation, the penalised method allows convergence to finite estimates. Rather than omitting variables and refitting the reduced model, the variable coefficient is instead constrained to zero. The variable is retained in the model to ensure that it contributes to the penalisation. Firth's penalised likelihood approach assures the existence of estimates by removing the first order bias at each step of iteration. The penalised likelihood method is not only feasible in extreme condition with small sample size and very few events (dependent variable equals one) (Heinze and Schemper, 2002; Leitgob, 2013; Flynn *et al.*, 2013), it is nonetheless computationally feasible for large samples.

In addition to the stepwise model, this section examines the penalised likelihood logit for robustness test. Findings from the penalised likelihood logit show support for H1, H4, H5, H6, and H7, thus confirming the robustness of the stepwise results. Overall, the results obtained from the penalised likelihood logit demonstrate that forced restatement firms typically have low board independence which hinders from an effective monitoring, hence the likelihood of forced restatement. Forced restatement firms are found to have high political connection and at the same time are closer to exhausting its internal fund, both of which factors increases the tendency for them to be issued with forced restatement. Managers of forced restatement firms are also found to be adopting aggressive accounting practices to manage earnings opportunistically. Forced restatement firms also face from volatility in their share price which prompts market awareness of the firm's high risk, which triggers the likelihood of forced restatement.

The overall goodness of fit statistic of the penalised likelihood logit model however reduces where X^2 (2915) = 61.03, df = 41, $p < 0.05$ (compared to the stepwise logit model's; X^2 (2434) =

1036.35, df = 29, $p < 0.000$). Although the model fitness reduces, the penalised likelihood logit still shows that the prediction model as a whole is significant. The robustness test reveals that there is evidence that the model can perform well in predicting the likelihood of forced restatement. In summary, the significant variables in the logit models may be used to provide some hint and provide considerable input for better planning in the future in order to cope with the catastrophic nature of the forced restatement rare event.

6.3.3 Multivariate logit analysis on income-decreasing, income-increasing and zero-effect forced restatement

In this section, another round of multivariate logit analysis is undertaken in examining the study's second main objective which is to identify in particular whether the relationship between key accounting, financial and corporate governance variables and the likelihood of forced financial restatements differs. I run three different multivariate binary logit models in this section to examine specific attributes that relate significantly to the three types of forced restatement: (i) income-decreasing forced restatement; (ii) income-increasing forced restatement; and (iii) zero-effect forced restatement.

The results for the logit regression are presented in Table 6-5, of which the findings for income decreasing forced restatements are firstly discussed. The logit results derived from the income-decreasing forced restatement sample is fairly consistent with the logit results of the pooled sample. Firstly, board independence (BI) shows a negative association with the likelihood of income-decreasing forced restatement, significant at the ten percent level. In economic terms, a one standard deviation decrease in BI increases the odds of income-decreasing forced restatement by 71.43 (=1/0.014) times. While there is evidence of a strong relationship, however, the impact based on the marginal effect is very small. This can be seen where a one unit decrease in BI increases the probability of income decreasing forced restatement by three percentage point. The result implies that income decreasing forced restatement firms have a relatively small proportion of independent directors on the board which restrict their ability to discharge an effective monitoring on the managers, thus the increased likelihood for income decreasing forced restatement to take place.

Table 6-5: Multivariate Logit Regression Model Examining Determinants of Income Decreasing Restatement, Income Increasing Restatement and Zero Effect Restatement in Malaysia during 2002-2012

Variables	Income Decreasing Restatement		Income Increasing Restatement		Zero Effect Restatement	
	Delta probability	Odds Ratio (*p*-value)	Delta probability	Odds Ratio (*p*-value)	Delta probability	Odds Ratio (*p*-value)
BI	**-.029**	**.014* (.056)**	-.001	.386 (.598)	**-.009**	**.006** (.046)**
FL	-.004	.590 (.628)	.002	14.569 (.875)	-.004	.102 (.829)
MULTI	-.000	.969 (.519)	-.001	.444 (.707)	.001	2.127 (.733)
ACIND	-.005	.484 (.336)	-.000	.649 (.441)	-.003	.147 (.290)
ACEXP	.005	2.019 (.242)	-.001	.432 (.311)	-.001	.439 (.268)
AF	-.438	.000 (.303)	-.186	.000 (.239)	-.222	.000 (.276)
FM	.001	1.223 (.307)	-.000	.946 (.466)	.001	1.725 (.189)
FB	-.013	.158 (.119)	.002	.998 (.333)	.002	3.086 (.281)
CEOF	.004	1.73 (.167)	-.001	.148 (.213)	-.002	.344 (.121)
CEON	-.009	.292 (.116)	-.000	.751 (.311)	-.002	.250 (.981)
CEOB	-.001	.907 (.441)	-.000	.588 (.275)	.002	2.893 (.158)
INST	-.000	.987 (.186)	-.000	.981 (.929)	.000	1.007 (.314)
PC	**.010**	**4.459*** (.007)**	-.001	.294 (.929)	**.003**	**6.639*** (.010)**
DAMJ	.014	8.062 (.229)	**.004**	**135.652*** (.001)**	**.014**	**2241.836** (.033)**
DT	-.005	.4989 (.455)	**.013**	**.000*** (.009)**	.015	6188.748 (.213)
WCAC	-.036	.005 (.121)	**-.013**	**.000*** (.010)**	-.021	.000 (.123)
RSST	.009	3.700 (.224)	-.004	.005 (.131)	-.023	.000 (.987)
CHAR	-.016	.104 (.154)	-.002	.091 (.193)	**.011**	**460.682* (.071)**
CHINV	-.030	.013 (.939)	-.000	.515 (.456)	-.012	.001 (.306)
SFAST	.006	2.477 (.164)	-.001	.492 (.347)	.001	1.569 (.744)
ABCFO	.001	1.179 (.528)	.001	2.995 (.644)	.009	129.865 (.970)
ABPROD	-.004	.560 (.442)	-.007	.000 (.135)	-.034	.000 (.985)
ABDISX	.013	6.830 (.763)	**-.007**	**.000** (.039)**	.001	2.071 (.905)
CHROA	.001	1.217 (.477)	**.004**	**319.846* (.088)**	-.006	.038 (.254)
BM	.000	1.053 (.620)	.000	1.042 (.555)	-.000	.957 (.593)

PE	.000	1.029 (.436)	.000	1.023 (.468)	.000	1.020 (.478)
DISTRESS	-.000	.999 (.511)	-.000	.882 (.407)	-.000	.864 (.129)
CHFCF	-.006	.410 (.621)	**-.005**	**.001**** **(.022)**	.008	102.536 (.989)
FINR	**-.050**	**.001**** **(.049)**	-.002	.083 (.848)	**-.007**	**.016*** **(.058)**
AI	-.006	.443 (.930)	.000	1.500 (.298)	-.000	.849 (.416)
SDW	**.000**	**1.037**** **(.037)**	-.000	.952 (.108)	-.000	.978 (.319)
BDSIZE	-.001	.876 (.284)	-.000	.634 (.185)	-.001	.702 (.202)
BDMEET	-.001	.925 (.556)	-.000	.949 (.854)	-.000	.875 (.735)
ACSIZE	.001	1.136 (.757)	.000	1.036 (.963)	-.000	.817 (.706)
ACMEET	.001	1.102 (.589)	-.000	.944 (.855)	-.001	.506 (.317)
FEM	-.001	.919 (.655)	-.000	.736 (.816)	-.000	.768 (.728)
LEV	.002	1.303 (.457)	**.004**	**137.034*** **(.056)**	.004	8.472 (.246)
LNTA	.002	1.268 (.131)	**.001**	**3.872***** **(.000)**	.000	1.298 (.241)
LNAGE	.001	1.082 (.385)	-.000	.539 (.933)	-.001	.571 (.104)
Industry dummies		Included		Included		Included
Year dummies		Included		Included		Included
Observations		2,149[29]		1,330[30]		828[31]
Model chi-square		435.22		524.77		196.71
p-value		.0000		.0000		.0000
Degrees of freedom		62		56		52

Notes: Table 6-5 presents results from the logit regression model examining the determinants of income decreasing restatement, income increasing restatement and zero effect restatement among the Malaysian firm sample. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Seection 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly.

[29] The initial number of firm-year observations for the income-decreasing forced restatement sample is n=4,698. 1,830 observations with incomputable discretionary accruals were dropped. The inability to calculate discretionary accruals arises as each estimation model pools across firms over time within each two-digit SIC coded industry. The logit regression further dropped 719 firm-years of industry dummies which have perfect collinearity with the event of non-forced restatement. The income-decreasing forced restatement logit model is left with a net total of 2,149 firm-years observations.

[30] The initial number of firm-year observations for the income-increasing forced restatement sample is n=4,680. 1,834 observations with incomputable discretionary accruals were dropped. The logit regression further dropped 1,516 firm-years of industry dummies which have perfect collinearity with the event of non-forced restatement. The income-increasing forced restatement logit model is left with a net total of 1,330 firm-years observations.

[31] The initial number of firm-year observations for the zero-effect forced restatement sample is n=4,658. 1,813 observations with incomputable discretionary accruals were dropped. The logit regression further dropped 2,017 firm-years of industry dummies which have perfect collinearity with the event of non-forced restatement. The zero-effect forced restatement logit model is left with a net total of 828 firm-years observations.

Firms' political connection further shows a positive association with the likelihood of income decreasing forced restatement, statistically significant at the one percent level. The odds of income decreasing forced restatement increases by 4.46 times with a change of political connection from zero to one. The marginal effect shows that the presence of political connection increases the probability of income decreasing forced restatement by only one percentage point. The result is in line with prior studies in Malaysia that show politically connected firms are operationally inefficient and have higher risk of financial misstatement (Hasnan *et al*., 2013; Abdul Wahab *et al.,* 2014).

Firms that are near to exhausting their internal funds are also susceptible to income decreasing forced restatement. Specifically, firm's level of internal fund (FINR) is negatively and significantly associated to the likelihood of income decreasing forced restatement. The relationship is high whereby a one standard deviation decrease in FINR increases the odds of income decreasing forced restatement by approximately 1,000 times. However, the impact is relatively low where a one unit decrease in FINR increases the probability of income decreasing forced restatement by five percentage points. The result is in line with Dechow *et al*. (2011) where a decrease in firm's internal funds (thereby increasing firm's financing need) increases the risk of forced restatement.

Share price volatility (SDW) further shows a significant result. It is shown that SDW is positively related to the likelihood of income decreasing forced restatement, significant at the five percent level. Economically, a one standard deviation increase in SDW increases the odds of income decreasing forced restatement by 1.04 times. However, the marginal effect hardly shows any impact such that a one unit increase in SDW causes nearly zero impact on the likelihood of income decreasing forced restatement. The result however indicates that share price volatility creates alert among regulators and related authorities of firms' ongoing problems, prompting them for more intense monitoring which triggers the likelihood of an income decreasing forced restatement.

In summary, the goodness of fit statistic in Table 6-5 shows log likelihood Chi^2 (X^2 (2149) = 435.22, df = 62, $p < 0.000$) indicating that the model as a whole is significant. It indicates that the independent variables allow the model to provide a prediction on income decreasing forced restatement.

Overall, results show that board independence, political connection, firm's internal funds level and share price volatility demonstrate a significant association with the occurrence of income decreasing forced restatement event. None of the variables for audit committee quality, family ownership and control, and firm performance show any significance. The discretionary accruals and real earnings management variables also show no significant association, implying that income decreasing forced restatement firms do not engage in opportunistic income-inflating recognition prior to forced restatement. However, there is the possibility that forced restatement firms are susceptible to reporting material accounting error due to low monitoring by the board and low operational inefficiency from having political connection. The possibility of implementing new changes in firm's own accounting policy might also have led to the occurrence of income-decreasing forced restatement.

The result for the income increasing restatement firms follows. Table 6-5 shows insignificant results for board quality, audit committee quality and even family ownership and control. However, there is evidence to indicate that income increasing forced restatement firms are involved in practices of earnings management. It was found that the discretionary accruals (DAMJ) are significantly and positively related to income increasing forced restatement at the one percent significance level. A one standard deviation increase in DAMJ increases the odds of income increasing forced restatement by 135.65 times. Based on the marginal effect, the impact is seen to be quite low where a one unit increase in DAMJ increases the probability of income increasing forced restatement by 0.4 percentage point. It indicates that income increasing restatement firms have been managing earnings possibly to report income decreases in prior periods.

The income-decreasing earnings management practices are further supported by the significant deferred tax expense (DT) variable, whereby a negative association is recorded, significant at the one percent level. In economic terms, a decrease of one standard deviation in DT increases the odds of income increasing forced restatement by a large amount as indicated by the odds ratio that is approaching to zero. The marginal effect indicates that a one unit decrease in deferred tax expenses increases the probability of income increasing forced restatement by 1.3 percentage point. The negative association implies a low deferred tax expenses among income increasing forced restatement firms which arises due to the decreasing earnings being reported during the misstatement period.

The variable change in working capital (WCAC) also shows significance in support of the significant discretionary accruals (DAMJ). WCAC demonstrates a significant negative relationship with the event of income increasing forced restatement. This is based on the fact that in line with the aim to report income decreases during the misstatement period, income increasing forced restatement firms tend to report less working capital in such a way that it will depress earnings downwards. Based on economic significance, the odds ratio is reported to be approaching to zero signifying the strong relationship with the odds of income increasing forced restatement with every change in the standard deviation of WCAC. The impact however is quite low where a one unit decrease in WCAC increases the likelihood of income increasing forced restatement by 1.3 percentage point.

Income-increasing forced restatement firms were also found to have low abnormal discretionary expenses (ABDISX). This can be seen from the negative sign that ABDISX has, significant at the five percent significance level. The low abnormal discretionary expenses would mean that firms are cutting down discretionary expenses, e.g. in research and development and advertising, which reduce earnings in the long-term. In economic terms, a one standard deviation decrease in ABDISX affect the odds of income increasing forced restatement by a large increase due to the odds ratio that approaches to zero. The marginal effect is however quite low implying that a one unit decrease in ABDISX increases income increasing forced restatement by 0.7 percentage point.

The variable change in earnings (CHROA) is also reported as being significant. CHROA reported a positive and significant association with the likelihood of income increasing forced restatement ($p < 0.10$). There is a relatively strong relationship such that a one standard deviation increase in CHROA increases the odds of forced restatement by 319.85 times. However, a low impact is demonstrated such that a one unit increase in WCAC increases the likelihood of income increasing forced restatement by only 0.4 percentage points. The result indicates that income-increasing forced restatement firms are typically growth firms. The fact that the firm have good growth in earnings might be the reason why firms tend to manage a decrease in earnings, possibly to reduce tax payable (as shown by the significant deferred tax expense variable – DT) or to reduce political cost.

In the perspective of the demand for external financing, forced restatement firms tend to have a decreasing change in free cash flow (CHFCF). Result shows that a one standard deviation

decrease in CHFCF increases the odds of income increasing forced restatement by approximately 1,000 times. In terms of marginal effect, a one unit decrease in CHFCF increases the probability of income increasing forced restatement by 0.5 percentage point. It can be seen that income-increasing forced restatement firms suffer from a decreased change in free cash flow which reduces their internal capital base, hence the low abnormal discretionary expenses (ABDISX) incurred by the firms, as explained earlier. With a reducing level of free cash flow, firm's internal capital base becomes more restricted, which limit their ability to invest hence increasing the likelihood of income increasing forced restatement.

Two control variables, leverage (LEV) and firm size (LNTA) are found to be significant. Specifically, LEV is positively and significantly associated with the event of income increasing forced restatement ($p < 0.10$). A one standard deviation increase in LEV increases the odds of income increasing forced restatement by 137.03 times. The impact is where a one unit increase in LEV increases the likelihood of income increasing forced restatement by 0.4 percentage point. As for firm size, LNTA has a positive association with the event of income increasing forced restatement, significant at the one percent level. The increase in one standard deviation of LNTA increases the odds of income increasing forced restatement by 3.87 times. In terms of its impact, the marginal effect shows that a one unit increase in LNTA increases the probability of income increasing forced restatement by 0.1 percentage point.

The logit model of the income increasing forced restatement shows a goodness of fit statistic with a likelihood ratio Chi^2; X^2 (1,330) = 524.77, df = 56, $\rho < 0.000$. The overall goodness of fit improves in comparison to the income-decreasing forced restatement logit model's (X^2 (2149) = 435.22, df = 62, $p < 0.000$). The logit model as a whole is significant by which the independent variables allow the model to provide prediction on the likelihood of income increasing forced restatement. In summary, the income increasing forced restatement logit model shows significance for variables comprising discretionary accruals (DAMJ), deferred tax expenses (DT), change in working capital (WCAC), abnormal discretionary expenses (ABDISX), change in earnings (CHROA) and change in free cash flow (CHFCF). Results indicate that income-increasing forced restatement firms engaged in opportunistic earnings management in their financial reporting. With a negative change in working capital accruals and low abnormal discretionary expenses, there is evidence that firms manage earnings to report income decreases during the misstatement period. There is also evidence that the income-decreasing

accruals management was made possibly to reduce tax payable. Although income-increasing forced restatement firms are mainly growth firms, they however suffer from a decline in free cash flows which restrict their internal capital base, leaving the firms susceptible to the risk of income-increasing forced restatement.

Finally, results of the zero-effect forced restatement firms are discussed. It is noted that zero-effect forced restatement firms have low board independence (BI). BI has a negative association with the likelihood of zero-effect forced restatement, significant at the five percent level. A one standard deviation decrease in board independence increases the odds of zero-effect forced restatement by 167 (=1/0.006) times. The delta method however shows a low impact, whereby a one unit decrease in board independence increases the likelihood of zero-effect forced restatement by 0.9 percentage point. Overall, an effective monitoring is restricted due to the low proportion of independent directors on firm's board which gives rise to the likelihood of zero-effect forced restatement.

Zero-effect forced restatement firms were also found to be firms that have political connection. This can be seen from the positive and significant association that political connection (PC) has with the likelihood of zero-effect forced restatement ($p < 0.01$). The change of PC from zero to one increases the odds of zero-effect forced restatement by 6.64 times. The marginal effect however shows that the change in PC increases the likelihood of zero-effect forced restatement by 0.3 percentage point. There is evidence to show that politically-connected firms are operationally inefficient such that they are prone to be issued with zero-effect forced restatement.

Similar to the income increasing forced restatement firms, the zero-effect forced restatement firms are also found to be adopting opportunistic earnings management in their financial reporting. This is shown from the discretionary accruals variable (DAMJ) which has a positive association with the likelihood of zero-effect forced restatement, significant at the five percent level. A one standard deviation increase in DAMJ increases the odds of zero-effect forced restatement by 2241.84 times, whereby the impact is relatively low as a one unit increase in DAMJ increases the probability of zero-effect forced restatement by 1.4 percentage point. The current accruals, CHAR, that measures the change in accounts receivables further support firms' adoption of opportunistic accounting practices. CHAR is positively related to the likelihood of zero-effect forced restatement, significant at the ten percent level. A one

standard deviation increase in CHAR increases the odds of zero-effect forced restatement by 460.68 times. The impact is where a one unit increase in CHAR increases the likelihood of zero-effect forced restatement by 1.1 percentage point. There is an indication that zero-effect forced restatement firms report an increase in CHAR possibly to opportunistically manage earnings during the misstatement period.

In terms of financing needs, the variable for firm's internal fund (FINR) shows significance. Based on the result in Table 6-5, a one standard deviation decrease in FINR increases the odds of zero-effect forced restatement by 62.5 (=1/0.016) times. The marginal effect of the delta method shows that a one unit decrease in FINR increases the probability of zero-effect forced restatement by 0.7 percentage point. Based on the result, there is an indication that zero-effect forced restatement firms are near to exhausting their internal funds, which increases the likelihood of zero-effect forced restatement.

The logit model on the zero-effect forced restatement sample shows a goodness of fit statistic with a likelihood ratio Chi^2 of (X^2 (828) = 196.71, df = 52, p < 0.000). The model displays a relatively weak goodness of fit in comparison to the income-decreasing forced restatement logit model (X^2 (2149) = 435.22, df = 62, p < 0.000) and the income-increasing forced restatement logit model (X^2 (1330) = 524.77, df = 56, p < 0.000). The zero-effect forced restatement logit model is, however, significant by which the independent variables allow the model to provide prediction on zero effect forced restatement.

Overall, there is evidence that zero-effect forced restatement firms have a low board independence which impedes from an effective monitoring to be carried out. With poor monitoring, the firms are found to be involved in opportunistic accounting practices, such that there is evidence of earnings management, as supported by the significant discretionary accruals and increasing change of accounts receivables variables. The fact that firms have political connection further supports the contention that managers are inclined to mask information that relates to assets expropriation made on the basis of political interest. The zero-effect forced restatement firms further suffer from a decreased in their free cash flow, which reduce their internal funds, thus increases the risk of financial misstatement, hence forced restatement.

6.3.4 Stepwise and penalized likelihood logit model on income-decreasing forced restatement sample

Results of the logit model presented in the previous Table 6-5 show the different key determinants of the three types of forced restatement. In contrast to the findings that show income-increasing and zero-effect forced restatement firms were engaged in aggressive accounting practices during the misstatement period, the income-decreasing forced restatement firms, however, show no evidence of opportunistic accounts manipulation. Despite the fact that income-decreasing forced restatement firms are free from manipulation acts; the possibility remains that the firms might have reported material income-increasing accounting errors during the periods prior to forced restatement. Unintentional earnings misstatement due to error is an accounting irregularity (please refer section 3.5 in Chapter 3 for definition on forced restatement) which lead to forced restatement due to GAAP violation in the preparation of financial report.

In relation to this matter, this section presents further data analysis specifically on the income-decreasing forced restatement sample due to its catastrophic nature. The income-increasing and zero-effect forced restatement sample is not examined as they are unlikely to be as disastrous. The results of the income-decreasing forced restatement multivariate logit model are compared to the stepwise logit and penalised likelihood logit model for robustness test. Results comparison is shown in Table 6-6.

Figures presented in Table 6-6 show that the results of the income-decreasing forced restatement sample using the stepwise logit model are fairly consistent with those of the multivariate logit model. Explanatory variables including board independence (BI), political connection (PC), firm's level of internal fund (FINR) and share price volatility (SDW) retain the same sign and remain significant. The marginal effects of the stepwise model further show consistency with the original logit model. The model's goodness of fit for the stepwise model shows further improvement at a log-likelihood Chi^2 of 700.38 ($p < 0.000$) compared to the original logit model with a log-likelihood Chi^2 of 435.22 ($p < 0.000$). The betterment of the model's goodness of fit implies the model's improved predictive ability and that information about BI, PC, FINR and SDW allow the model to provide a prediction on income-decreasing forced restatement.

Table 6-6: Stepwise Logit Model versus Penalised Likelihood Logit Model in Examining the Determinants of Forced Restatement in Malaysia

Variables		Income-decreasing forced restatement			
	Delta (marginal effect)	Stepwise Logit		Penalised Likelihood Logit	
		Odds ratio	*p*-value	Odds ratio	*p*-value
BI	**-.030**	**.027***	**.061**	**.136***	**.075**
PC	**.009**	**2.788****	**.011**	**2.280*****	**.008**
CHINV	-.030	.027	.940	.177	.862
AI	-.008	.390	.986	.524	.989
FINR	**-.064**	**.001*****	**.006**	**.083*****	**.032**
SDW	**.000**	**1.030****	**.034**	**1.030***	**.056**
Industry dummies		Included		Included	
Year dummies		Included		Included	
Observations		2,181[32]		4,137	
Model chi-square		700.38***		20.06	
p-value		.000		.003	
Degrees of freedom		21		69	

Notes: Table 6-6 presents robustness test results from the stepwise logit and penalised likelihood logit regression model. Each penalised likelihood model is compared to the stepwise logit model to test for robustness of the determinants of income-decreasing forced restatement firms. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 15% accordingly.

The results of stepwise logit model are compared to the penalised likelihood logit model for robustness test. The overall result remains consistent, however, the goodness of fit statistic of the penalised likelihood logit model reduces; i.e. X^2 = 20.06 (p < 0.001). Although the model fitness reduces, the penalised likelihood logit still shows that the prediction model as a whole is significant. The robustness test reveals that there is evidence that the model can provide a prediction on the likelihood of forced restatement. Note that the number of observations under the penalised likelihood logit model is higher; where n=4,137 compared to n=2,181 under the stepwise model. As discussed earlier, the penalised likelihood logit model overcomes the separation problem by allowing convergence to finite estimates. Rather than omitting variables and refitting the model, the variable coefficient is instead constrained to zero. The variable is essentially retained in the model to ensure that it contributes to the penalisation.

In summary, results of the robustness test using the stepwise and penalised likelihood logit model indicate that factors including board independence, politcial connection, firm's level of internal fund and share price volatility are all key determinants of the likelihood of income-

[32]

decreasing forced restatement. There may be no evidence of opportunistic accounting practices, however, there is the possibility that income-decreasing forced restatement firms are susceptible to reporting material income-increasing accounting error. The impact of an income-decreasing forced restatement can be catastrophic because it may impose extremely high cost to auditors (potential lawsuits), regulators (loss of reputation) and investors (suffer from negative stock returns).

6.4 Summary

The current chapter mainly presents data analysis on the determinants of the likelihood of forced restatement in Malaysia. A multivariate logit regression was firstly tested on the pooled sample. Results show evidence of opportunistic earnings management among forced restatement firms, possibly to portray good earnings performance. Other factors such as low board independence, firm's political connection, low level of firm's internal fund and share price volatility were found to increase the likelihood of forced restatement. The stepwise logit and penalized likelihood logit models provide robustness and confirms the predictive ability of the logit model.

Sensitivity analyses were also carried out to examine the robustness of the logit regression results to some alternate specifications of the explanatory variables. Except for some minor changes in the results, the parameter estimates are generally not sensitive to the changes in the estimation of the predictor variables.

The chapter proceeds with examining specific attributes that relate significantly to income-decreasing, income-increasing, and zero-effect forced restatement. Comparatively, results show that only income-increasing and zero-effect forced restatement firms appear to be aggressive and opportunistic in producing their financial report. There is no evidence to show that income-decreasing forced restatement firms engaged in earnings management during the misstatement period. The possibility remains that these firms might have reported material income-increasing accounting errors that have led to the occurrence of income decreasing forced restatement. Factors including low board independence, having political connection, low internal fund and share price volatility are also the key determinants that can signal towards the likelihood of income decreasing forced restatement.

Additional tests were conducted specifically on the income-decreasing forced restatement sample due to its catastrophic nature. The income-increasing or zero-effect forced restatements were not examined as they are unlikely to be as disastrous. Findings from the robustness tests of the stepwise and penalized likelihood model further validate the claim that the logit model provides relatively good predictive ability and that the explanatory variables allow the model to provide prediction on the likelihood of income decreasing forced restatement.

The data analysis presented in this chapter is useful as it provides warning signals or red flags of forced restatement. The attributes of the different types of forced restatement firms are also discovered. In support of a more reliable forced restatement prediction, the next chapter will develop and test an exploratory prediction model that can signal potential for income decreasing forced financial restatement among public listed firms in Malaysia.

CHAPTER 7

PREDICTION OF FORCED RESTATEMENT

7.1 Introduction

This chapter addresses the two secondary objectives of the study which are; (i) to develop an exploratory prediction model based on the key accounting financial determinants and corporate governance determinants that drive income-decreasing forced financial restatement among the public listed firms in Malaysia; and (ii) to test whether the exploratory prediction model can signal potential for income decreasing forced financial restatement among public listed firms in Malaysia. This chapter specifically focuses on examining the quality of the model in predicting the likelihood of income-decreasing forced restatement due to its catastrophic nature.

The following Section 7.2 defines rare event and explores the various reasons that give rise to the low degree of rare event predictability. Section 7.3 presents data analyses on the predictive ability of the income decreasing forced restatement model. The model's prediction performance based on a holdout sample is further discussed in Section 7.4. Finally, Section 7.5 concludes the chapter.

7.2 Rare events and its predictability

Consistent with González-Rivera (2014), this study defines rare events as occurrences which happen rarely and which have catastrophic consequences. Cases of financial restatements due to earnings misstatement and financial irregularities are such rare events (Dechow *et al*., 2011; Files *et al.,* 2014; Hennes *et al.*, 2014) as they occur infrequently (Dechow *et al.*, 2011; Dimmock and Gerken, 2012; Hribar *et al*., 2014). Their impact can be catastrophic because they may impose extremely high cost to investors, auditors and regulators and in extreme cases, they lead not only to the bankruptcy of individual firms but affect the performance and liquidity of the whole capital market (Dechow *et al*., 2011), as evidenced in cases such as Enron or Lehman Brothers.

The degree of predictability of rare event may be very low. According to Makridakis *et al.* (2009), prediction in the business and economic world is almost impossible due to great uncertainty of events associated with all business and economic activities. Makridakis *et al.* (2009) further argue that the possible inaccuracy of prediction imposes huge dilemma for both decision and policy makers. On one hand, admitting to the limits of prediction accuracy may imply towards the inability to assess decision accuracy and surrounding uncertainty. On the other hand, accepting the possibility of accurate prediction would mean being surrender to experiencing surprises and illusion of control, which often ends with destructive consequences.

Goodwin and Wright (2010) highlight several reasons why rare events are very hard to predict. Firstly, when the data has a large set of similar events (large reference class), there will be greater predictability as the relative frequency information can be extracted. Large reference class is associated with large sample sizes, thus allowing a highly reliable evaluation of the underlying probability distribution. Judgmental biases can also be prevented as large reference class is examinable with statistical analysis in the process of its estimation task. In contrast to a rare event, such as the occurrence of financial fraud or financial crisis, it would be harder to establish its relative-frequency-based probabilities, hence its high unpredictability.

Secondly, a forecasting model can be a simplification of the real system and may not capture the multiple interactions between the different unique elements within the systems. This is likely to be applicable in models of economy, human body or weather systems (Orrell and McSharry, 2009). Minor changes in any part of the system may produce amplifying effect via the complex interaction. This could cause the forecast model to underestimate the true range of uncertainty leading to estimation of probabilities that are poorly calibrated.

Thirdly, causal relationship between variables forms the basic assumption of most forecasting models. Nonetheless, the coherent theory of causality, although concurred by many experts in the respective field, does not establish the existence of causality. Correlations may result from unknown third factor (spurious) or may be illusory (Hamilton and Rose, 1980) especially when it involves human judgment, or they may only be applicable in certain conditions relevant to the particular reference data. Still, the fallacy that high correlation indicates causation can be a strong influence towards one's reasoning.

Finally, human judgment is frequently employed to assess the probabilities of a rare event occurring especially when there are inadequate event cases within the reference class for statistical estimation. Tversky and Kahneman (1974) contend that people use heuristics or simple mental strategies to deal with the complexity of probabilities estimation. Heuristic can at times produce good estimations, however it can also results in systematically biased judgements.

In the context of our study, although the rare event of financial misstatements might have low predictability, the attempt to develop a detection tool that can signal symptoms of forced restatement remain crucial so that at least red flags or warning signs of misstatement firms are brought to the knowledge of interested parties at an earlier stage. Misstating firms that warrant investigation can then be more easily identified. The degree of predictability may be relatively low; however, the ongoing attempt to develop a restatement prediction model may allow gradual improvement to be made upon the weaknesses of prior prediction models. In this way, the accuracy of future prediction of misstating firms can then be enhanced.

7.3 Predictive ability analysis

This section analyses the overall classification accuracy to determine how well the model performs in predicting the likelihood of a firm issuing an income-decreasing forced restatement. Essentially, the predictive ability of the penalised likelihood logit of the income-decreasing forced restatement model (as presented in Section 6.3.4 of Chapter 6) will be tested.

The penalised likelihood logit model is used over the traditional logit model due to its robustness. As highlighted earlier in Section 5.2.7.3 of Chapter 5, the penalised likelihood model overcomes the limitation of the maximum likelihood estimation of the traditional logit model which overestimates the coefficient of explanatory variables while underestimating the probability of an event, especially in samples with rare event, thus producing biased results. The penalised likelihood model specifically includes a penalty function that penalises against the size of estimated coefficients and model complexity. Hence, the penalised likelihood logit is considered more reliable as it produces less biased results, especially in samples with small data properties.

The variables included in the income-decreasing forced restatement predictive model are based on those chosen in the stepwise logit model. The stepwise procedure brings in and removes variables that meet the entry and removal criteria and stops to the extent where a stable subset of predictor variables is achieved. In effect, the selection of a useful subset of determinants by the stepwise logit model helps to overcome the limitation of attenuation biases that arises from having multiple proxies in the logit model (this was previously discussed in Section 5.2.3 of Chapter 5).

Based on the stepwise selection and elimination process, several variables were included in the model comprising board quality (proxied by board independence - BI), firm's political connection (PC), the demand for external finance (as proxied by firm's level of internal fund – FINR) and share price volatility (SDW). The variables maintained in the stepwise model are relatively consistent with the significant variables in the traditional multivariate logit model (please refer to Section 6.3.3 in Chapter 6) used to signal the likelihood of income-decreasing forced restatement. In producing an optimum model that well fits the data, change in inventories (CHINV) and actual issuance (AI) are also selected and included in the stepwise model.

Consistent with the findings presented in Chapter 6 and of previous studies (e.g. Peasnel *et al.*, 2005, Zhang, 2010, Dechow *et al*., 2011), all variables included in the model are standard variables that have an impact on earnings misstatement and forced restatement. An exception applies to the political connection (PC) variable as it is specific to the Malaysian context. As explained in Chapter 2 and Chapter 4, the implementation of the New Economic Policy (NEP) in 1970 has given rise to the existence of informal ties between a leading politician or political party and the Malaysian corporations (Abdul Wahab et al., 2009). Due to the close relationship with the government, firms tend to conceal any gains benefited from the political connection and expropriation activities, especially when it involves large benefits and of dubious legality (Fisman 2001). In such situation, managers might become engaged in earnings misstatement to mislead shareholders, thus increasing the tendency for forced restatement to occur.

Following Dechow *et al*. (2011), the predictive ability test is done by examining the predicted probabilities of each observation that were assigned by the penalised likelihood logit model. The predicted values are firstly calculated based on the estimated coefficient generated when

each firm's individual attributes are plugged into the penalised likelihood logit model. The formula for the predicted probability is as follows:

$$\text{Probability} = \frac{e^{(Predicted\ value)}}{1+ e^{(Predicted\ value)}}$$

The predicted probability is then scaled by the unconditional probability of income-decreasing forced restatement to arrive at the F-score. The unconditional probability is equivalent to the number of income-decreasing forced restatement firms divided by the total number of firms. The following example shows how F-Score is calculated for KNM Group Berhad that issued income decreasing forced restatement in 2008:

Predicted value = -3.360 + (-1.993) x (BI) + 0.824 x (PC) + (-1.732) x CHINV + (-0.646) x AI + (-2.486) x (FINR) + 0.30 (SDW)

Predicted value = -3.360 + (-1.993) x (0.3) + 0.824 x (1) + (-1.732) x (0.117) + (-0.646) x (1) + (-2.486) x (0) + 0.30 (16.451)

Predicted value = -3.489

$$\text{Probability} = \frac{e^{(-3.489)}}{1+ e^{(-3.489)}}$$

e = 2.71828183

Probability = 0.0296

Unconditional probability = 52 / (52 + 4085) = 0.01257

F-score = 0.0296 / 0.01257

F-Score for KNM Group Berhad = 2.358

An F-score equivalent to one indicates that the predicted probability of income-decreasing forced restatement and the unconditional probability is equivalent. An F-score exceeding one indicates that the probability of income-decreasing forced restatement is higher than the unconditional probability. This would mean that with an F-Score of 2.358, KNM Group Berhad has a higher probability of issuing an income- decreasing forced restatement compared to a randomly selected firm.

Panel A of Table 7.1 shows the ranking of firm-years into quintiles based on each F-Score magnitude. In addition to the frequency of income decreasing forced restatement firms and

non-forced restatement firms, the minimum F-score are also reported for each quintile. If the model performs very well in identifying income decreasing forced restatement firms, then the income decreasing forced restatement firms are expected to be grouped in the fifth quintile. The results shown in Table 7.1 indicate that 40.38 percent of incomes decreasing forced restatement firms are in the fifth quintile, in comparison to the 20 percent expected level. The minimum score for quintile 5 is 1.478, which easily places KNM Group in the fifth quintile based on its F-Score of 2.358.

The sensitivity of the model is tested in order to determine the rates for Type I and Type II error based on an F-Score cut-off of 1.00. A Type I error suggests a false positive, where non-forced restatement firms are incorrectly classified as income decreasing forced restatement firms, whereas a Type II error suggests a false negative, where income decreasing forced restatement firms are incorrectly classified as non-forced restatement firms.

Results as presented in Panel B of Table 7-1 show that the model correctly classifies 39 from the total of 52 income decreasing forced restatement firms (sensitivity is equal to 75%). Based on an F-Score cut-off of 1.00, the model incorrectly classifies 2,412 firms out of the 4,085 non-forced restatement firms as income-decreasing forced restatement firms (Type I error is 59 percent), whereas 13 firms out of the 52 income-decreasing forced restatement firms are incorrectly classified as non-forced restatement firms (Type II error is 25 percent).

Taking an example from the perspective of an auditor, the cost for both Type I and Type II error is relatively high. A Type I error (a non-forced restatement firm is forced to issue an income decreasing forced restatement) may be costly, as it may results in auditors to try to get their clients to change their accounting practices or issue them with a negative report. When it is realised that the auditors have wrongfully accuse their clients of misrepresentation, this may tarnish auditors' credibility and reputation, hence giving their company a bad name. Alternatively, the cost attached to the Type II error is also high. For example, when auditors fail to detect a firm with income decreasing forced restatement (but which is later revealed), there is a possibility for the auditors to be sued by shareholders, get sanctioned by the regulators, such as the Securities Commission, and suffer from a reputation loss.

Table 7-1: Detection rates of income-decreasing forced restatement and non-forced restatement firms

Panel A			
	N	**Minimum F-Score**	**Percentage (of total)**
Quintile 1			
IDFR	3	0.141	5.77
NFR	824	0.037	20.17
Quintile 2			
IDFR	3	0.591	5.77
NFR	824	0.572	20.17
Quintile 3			
IDFR	8	0.802	15.38
NFR	819	0.777	20.05
Quintile 4			
IDFR	17	1.044	32.69
NFR	811	1.02	19.85
Quintile 5			
IDFR	21	1.478	40.38
NFR	807	1.445	19.76

Panel B – Overall classification accuracy			
	IDFR	**NFR**	Total
IDFR	**39**	13	52
NFR	2412	**1673**	4085
Total	2451	1686	**4137**
IDFR	**75.0%**	25.0%	
NFR	59.0%	**41.0%**	
Correct classification =		41.38%	(1)
Sensitivity =		75.00%	(2)
Type I errors =		59.05%	(3)
Type II errors =		25.00%	(4)

Notes: IDFR is income decreasing forced financial restatement firm and NFR is non-forced restatement firm.

(1) Correct classification is calculated as [(39+1,673)／4,137].
(2) Sensitivity is calculated as (39／52).
(3) Type I errors are calculated as (2,412／4,085).
(4) Type II errors are calculated as (13 / 52).

The potential costs of Type I and Type II error are however not limited only to the auditors. Both of these errors may give impact on firm's share price and the confidence in the market. Hence, investors and regulators will be concerned about both types of errors as these errors are seen to be very costly. When a firm that investors have shares in is wrongfully accused of

misrepresentations, it gets under pressure to restate its earnings and therefore suffer a fall in share prices which impact in a huge loss to the investors. The same applies when misstated firms are unidentified, enabling them to get away with their wrongdoings. Once it is discovered that misstated firms are classified as healthy firms by mistake, the market may lose their confidence on the quality of financial reporting, thus affecting the stability of firm's share price in the market. It also damages the reputation of regulators reflecting their inability to provide an effective monitoring and good investor protection and poor quality of enforcement of accounting rules.

In this situation, the income-decreasing forced restatement model developed by this study seems to produce an average performance in its predictive ability. Although the model's sensitivity rate is high at 75 percent and that the F-Score cut-off produces a low Type II error at 25 percent, but the Type I error is nevertheless high at 59 percent. The Type I error exceeds 50 percent which might possibly impose severe costs mainly to the investors and the regulators.

7.4 Additional predictive analysis on holdout sample

This section presents additional analysis on the predictive ability of the income decreasing forced restatement model using a holdout sample. This study follows Hillegeist *et al.* (2004) and Wu *et al.* (2010) to estimate a rolling out-of-sample. The first estimation started with firm-year observations from 2002 to 2004 and income-decreasing forced restatement in 2005. The coefficients being estimated are then used for predicting income-decreasing forced restatement in 2006 with data up to 2005. The second step expands with the second estimation which uses firm-year observations from 2002 to 2005 and income-decreasing forced restatement in 2006. The set of coefficients generated from the second estimation is then used for predicting income-decreasing forced restatement in 2007 based on data up to 2006. The windows continue to expand, by which the set of estimated coefficients that is used for predicting income-decreasing forced restatement in 2014 is based on 2002 to 2012 firm-year observations and 2005 to 2013 income-decreasing forced restatements.

There are 33 income-decreasing forced restatements in the out-of-sample period (2006 – 2014). Similar to the test conducted earlier in Section 7.3, this study follows Dechow *et al*. (2011) in examining the overall classification accuracy of the out-of-sample prediction model based on an F-Score cut-off of 1.00. Consistently, firm-years are ranked in quintiles based on

each F-Score magnitude. The ranking of all the income-decreasing forced restatement firms in the fifth quintile would indicate a perfect model.

Panel A of Table 7-2 presents the frequency as well as the proportion of the income decreasing forced restatement being grouped into each quintile. Results indicate that most of the income decreasing forced restatement firms, comprising 30.30 percent, is in the fifth quintile, in comparison to the 20 percent expected level. The minimum score for quintile 5 is 1.478. However, the model does not seem to predict very well since a high proportion of the income decreasing forced restatement firms are grouped in the first decile (21.21 percent) in comparison to the second and third quintile (12.12 percent and 15.15 percent respectively).

A sensitivity test is examined in order to determine the Type I and Type II error rate and results are presented in Panel B of Table 7-2. Results show that the model correctly classifies 17 from 33 income decreasing forced restatement firms (sensitivity is equal to 51.52%). The model produces 34 percent Type I error rate when it incorrectly classifies a 1,107 (out of 3,221) non-forced restatement firms as an income decreasing forced restatement firm. The model further produces 48 percent Type II error when it incorrectly classifies 16 (out of 33) income-decreasing forced restatement firms as a non-forced restatement firm.

The holdout sample model performs well by generating a high rate of correct classification at 65 percent and the sensitivity rate is recorded at 52 percent. The out-of-sample prediction model nonetheless produces a Type I error rate at 34 percent and a higher Type II error rate at 49 percent. Although the Type I error is relatively low, there is almost 50 percent of Type II error to happen which gives rise to very severe cost. It is likely that this model may not be preferable among relevant parties especially to the investors and regulators due to the highly significant cost possibly incurred in detecting the likelihood of income decreasing forced restatement.

Table 7-2: Detection rates of income-decreasing forced restatement and non-forced restatement firms based on a holdout sample

Panel A			
	N	**Minimum F-Score**	**Percentage (of total)**
Quintile 1			
IDFR	7	0.037	21.21
NFR	644	0.005	19.99
Quintile 2			
IDFR	4	0.429	12.12
NFR	646	0.411	20.06
Quintile 3			
IDFR	5	0.674	15.15
NFR	646	0.654	20.06
Quintile 4			
IDFR	7	1.005	21.21
NFR	644	0.91	19.99
Quintile 5			
IDFR	10	1.487	30.30
NFR	641	1.322	19.90

Panel B – Overall classification accuracy			
	IDFR	**NFR**	Total
IDFR	**17**	16	33
NFR	1107	**2114**	3221
Total	1124	2130	**3254**
IDFR	**51.5%**	48.5%	
NFR	34.4%	**65.6%**	
Correct classification =		65.49%	(1)
Sensitivity =		51.52%	(2)
Type I errors =		34.37%	(3)
Type II errors =		48.48%	(4)

Notes: IDFR is income decreasing forced financial restatement firm and NFR is non-forced restatement firm.

(1) Correct classification is calculated as [(17+2,114)／3,254].
(2) Sensitivity is calculated as (17／33).
(3) Type I errors are calculated as (1,107／3,221).
(4) Type II errors are calculated as (16 / 33).

7.5 Summary

This chapter provides analysis on the overall classification accuracy of the income decreasing forced restatement prediction model using the scaled prediction probability (F-Score) by Dechow *et al.* (2011). The test was conducted to determine how well the model performs in predicting the likelihood of a firm issuing an income-decreasing forced restatement.

The first predictive ability analysis shows that the income decreasing forced restatement model performs at an average level. Although the model generates a high sensitivity rate and a low Type II error rate, the Type I error rate is nevertheless high at above 50 percent. The model's prediction performance further reduces when it comes to predicting the likelihood of income decreasing forced restatement using a holdout sample. This can be seen from the second predictive analysis. The sensitivity rate reduces to 52 percent and Type I error rate increases to 34 percent. Notwithstanding the model's Type II error rate increases much higher than Type I error to nearly 50 percent. In such situation, the prediction model may not be desirable to potential parties, especially the investors and regulators, due to the possibility of incurring highly significant costs in the detection of income-decreasing forced restatement firms.

The attempt to developing a forced restatement prediction model however remains crucial as it helps to indicate red flags of firms engaged in financial misstatement. Although the forced restatement prediction model may not produce high prediction accuracy, findings from the prediction model may still offer valuable input to related parties such as the investors, auditors, and regulators for future planning and strategy on how to cope with the catastrophic rare event.

CHAPTER 8

SUMMARY AND CONCLUSION

8.1 Introduction

This chapter summarises key research findings of this thesis and discusses the implications and contributions to the accounting literature. As discussed in Chapter 1, the main objectives of the study were to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced restatements, including the specific attributes of the different types of forced restatement firms in Malaysia. This study further expands by examining the secondary objectives to develop an exploratory prediction model and to test whether the model can signal potential for income-decreasing forced restatement in Malaysia.

Based on the high-profile cases of forced restatement such as Xerox and WorldCom, it can be seen that forced restatement does not only cause bankruptcies of the firms directly affected but it can also affect the performance and liquidity of capital markets. Forced financial restatements are of significant concern as they might undermine investors' confidence in the quality of financial reporting of the firms directly affected and also of firms which are perceived to be similar. In extremis, this can lead to increased costs of capital for listed as well of non-listed companies, as equity and debt investors demand higher risk premia due to their lack of confidence in financial reporting. Moreover, investors are at risk of losing money, as the value of their assets falls, either because of managerial opportunism as managers use accounting manipulation to hide poor performance or malpractice or because the increase in risk premia leads to deterioration in the value of their equity and debt securities. The ability to identify symptoms or indicators of forced restatement would, therefore, be useful to investors, analysts, auditors and regulators to identify firms which might be at risk of requiring a forced restatement in the future unless interventions are made early.

Markets with comparatively poor corporate governance are likely to be at higher risk of ripple effects from individual cases of forced financial restatements. This raises the importance of research into the key drivers of forced financial restatements and into the possibility to predict the occurrence of forced financial restatements in emerging economies, such as Malaysia.

Although Malaysia has a range of specific institutional structures, some of the key characteristics of its listed companies' corporate governance and ownership structures are characteristics for many emerging economies in South East Asia. Instances such as poor investor protection, ownership concentration, a high degree of political connection and weak enforcement of rules and regulations have a noticeable impact on the quality of financial reporting (Hasnan *et al*., 2013; Al-Dhamari and Ku Ismail 2015). However, Malaysia's institutional background also differs from other East Asian emerging economies, partly due to the impact of policies directed at increasing the economic participation of the native Bumiputera population. In this context, the influence of institutional investors which predominately serve to support Bumiputera's savings and pension provisions is of particular interest.

Based on the research objectives developed earlier, several research questions arise which include: (1) What is the relationship between key financial variables and the likelihood of forced restatements? ; (2) What is the relationship between key corporate governance variables and the likelihood of forced restatements? ; (3) Does the key accounting, financial and corporate governance variables, and the likelihood of forced financial restatements differs, depending on whether they are income-decreasing, income-increasing or zero-effect forced financial restatements?; and (4) Is it possible to develop a prediction model to signal the likelihood of income-dereasing forced financial restatements for public listed firms in Malaysia?.

Numerous research specifically examine financial factors (Dechow, Ge and Schrand, 2010; Ettredge *et al.,* 2010; Dechow *et al.,* 2011) or corporate governance factors (Abdullah *et al*., 2010; Mohamad, Rashid and Shawtari, 2012; Bao and Lewellyn, 2017) alone in predicting earnings misstatement. While there is research that examines the combination of financial factors and corporate governance factors, the extent of corporate governance factors that were examined is too restricted, for example, limited to assessing CEO attributes (e.g. Kim *et al.,* 2016). This study, however, includes both financial factors and corporate governance factors as predictors of forced restatement. While this thesis is mainly a replication of prior research on Malaysian data, it differs from prior research in that more comprehensive determinants were examined ranging from firm characteristics, firm's financial performance, accruals-based, and real earnings management, capital market incentives, governance, to firm

ownership. This research exploited various financial and non-financial factors to produce more compelling evidence that can identify the predictors or determinants of forced restatement.

There are also studies that conducted research into examining income-increasing restatements and income-decreasing restatements (e.g., Srinivasan, 2005; Abbott *et al.*, 2006; Callen *et al.,* 2006). However, to the best of our knowledge, there is no research yet being done on zero-effect financial restatement. This study differs from prior research as it examines the determinants of income-decreasing forced restatements, income-increasing forced restatements and zero-effect forced restatements to analyse how firms' attributes might differ between the different types of forced restatement.

In the context of Malaysia, numerous research was conducted to analyse the motivations and causes of financial restatement (Hasnan *et al.,* 2013; Abdul Wahab *et al.*, 2014; Hussain *et al.,* 2016). Empirically, the research in Malaysia that examines the determinants of financial restatement mainly focuses on corporate governance factors (e.g. Abdullah *et al.*, 2010; Abdul Wahab *et al.*, 2014). Other Malaysian studies that examine both financial and corporate governance factors, however, looked into how these determinants impact fraudulent financial reporting (e.g. Hasnan *et al.*, 2013).

This study differs from prior research by investigating a broader range of financial and non-financial factors and how these factors can help predict the likelihood of the different direction of forced restatement in Malaysia, i.e. income-decreasing, income-increasing and zero-effect forced restatement. The various factors examined include board quality, audit committee quality, firm ownership and control, accruals-based earnings management, real earnings management, firm's financial performance, capital market-based incentives, and share price volatility. Other than to provide more compelling evidence on predictors of forced restatement, this study fully utilised the information to effectively discriminate those factors that determine aggressive earnings misstatement from those of mere accounting errors.

Sample data for this study covers the period from 2002-2012. Period of the data started from 2002 to allow ample time for the Malaysian Code of Corporate Governance which was introduced in 2000 to take effect on companies' corporate governance and their quality of financial reporting. Moreover, it is argued that any confounding effect from the Asian financial crisis of 1997/1998 will not be present in the study's sample (Abdullah *et al.*, 2010). As the data

collection for this study only commences in 2014, the data period then ends in 2012 (except for the collection of lagged data, i.e. forced restatement, which ends in the most recent period for the study in 2013). The data comprises of 121 forced restatement firm observations, 1,505 accounting restatement firm observations and 3,133 non-forced restatement firm observations in Bursa Malaysia. Although forced restatements are rare events; i.e. the Malaysian forced restatement firms made up only 2.5% of the total observations; nonetheless, the ability to predict the possibility of forced restatement is important due to the potentially catastrophic nature of the event that may impose high costs on the investors, auditors, and regulators.

8.2 The importance to study Malaysia

Malaysia was chosen as the background for this study. Malaysia is of interest as it is a developing country with an emerging capital market. Highly concentrated ownership which mainly characterised the Malaysian listed firms distinguishes it from the dispersed ownership of the Anglo-Saxon countries such as the US and the UK. A unique attribute that differentiates Malaysia from the other developing countries is the presence of strong influence of the Malaysian economic policies that are aimed to minimize economic imbalance between the various ethnic population in Malaysia and to enhance economic participation among the indigenous Bumiputera ethnic group (Gul, 2006). Firms' close relationship with the government has also made Malaysia to be well-known with its relationship-based economy (opposing the arm's length system). While the economic system helps to stimulate business interest among the Bumiputera population, it has also contributed to the presence of politically favored corporations (Gul, 2006). With the strong political connection, businesses enjoyed the luxury of gaining concessions, monopoly rights, government subsidies and licenses, but at the same time, they are highly exposed to possibilities of cronyism and corruption. In particular, findings from this study show there is high tendency for politically-connected firms to misstate financial report due to obscuring financial information which results from expropriation activities engaged by the government and their cronies. Within these economic, market, cultural and political perspectives, it is important to study Malaysia as it provides distinctive findings which in many respects are different from the developed countries, but at the same time, the findings might represent other Asian countries with a similar background.

At the earlier stage of conducting this study, I expected to find that the various attributes of good corporate governance such as board and audit committee quality may help reduce or trigger the detection of forced restatement. This is in light of theoretical considerations and prior empirical research which supports the contention that good corporate governance practices reduce managerial opportunistic behaviour (e.g. Agrawal and Chadha, 2005; Ma *et al.,* 2016; Bao and Lewellyn, 2017). Nonetheless, data analysis from this study showed some puzzling findings which do not support my expectation, especially where none of the audit committee quality variables show any significant impact on the event of forced restatement. While board independence may be the only proxy from the board quality group of variables that has a significant association with forced restatement event, nonetheless its economic effect is relatively small. The findings in this study generally show that the implementation of corporate governance through good monitoring practices have relatively minor impact in reducing managerial opportunism and seems not to be working effectively as intended in practice.

Findings of this study have implications towards government policy in strengthening the quality of financial reporting and thus might be of interest to the regulators. In fact, various attempts were undertaken by the regulators to strengthen corporate governance, but still the change seems less effective in improving the quality of financial reporting. One of the reasons may be due to the high political connection among firms which impede the effort towards producing high quality financial information. For example, results show that political connected firms are more likely to engage in aggressive financial reporting. Managers tend to conceal financial information that relates to the benefit gained from the government, especially when the benefit increases managers' wealth at the expense of the shareholders. This is done via opportunistic reporting of discretionary accruals probably to show that firms are performing well when actually they are not. Despite the deviant reporting behaviour from having political connection, this study however found that firms' volatility in share price may be used as a signal for regulators of firms' potential problems, which warrant them further investigations.

Overall, while this study may not provide precise and accurate forecast of forced restatement, this study nonetheless provides some meaningful inputs for the Malaysian regulators to formulate planning and strategy in dealing with firms having symptoms or indicators of forced restatement. With regard to the findings that show poor corporate governance practices in

Malaysia, the regulators hence need to emphasise on having higher quality board of directors; i.e. by defining strictly the term "independent", rather than stressing the quantity of directors. Notwithstanding, the findings further provide insights on how regulators can formulate policies to reinforce more efficient audit committees and also limit the extent of firms' political relationship. Findings from my study also benefits the regulators being valuable input for them to develop reporting strategies or standards that can be used to minimise discretionary accruals manipulation and monitor the report of discretionary accruals much more effectively. Regulators may contribute further by strengthening investor protection policy to promote a more credible financial reporting and support the development of a more resilient capital market.

8.3 Contribution of the study

The study on earnings management differs from the research that investigates forced restatement. Research on earnings management considers the use of managers' discretion over accounting choices (within the GAAP) to mask firm's underlying performance but which does not amount to fraudulent reporting (Walker, 2013). When engaged in earnings management, there is the effect of mean reversion, i.e. where managers reverse income-decreasing (or increasing) accruals recognised in the past periods (Jones, 1991). Alternatively, there is also the cumulative effect of reporting a one-directional earnings management, up to the extent that managers might no longer able to hide earnings manipulation sufficiently (Ettredge *et al.,* 2010), that it eventually end in forced restatement. Moreover, the discretionary accruals models that were developed to detect possible earnings management were criticised for producing biased and noisy discretion estimation (Dechow *et al*., 1995; Kang *et al*., 1995; Bernard and Skinner, 1996; Guay *et al.,* 1997; Thomas and Zhang, 2000). Hence, the results of prior studies that used the discretionary accruals models as a basis of measurement were called into questions.

The research that examine forced restatement differs from the earnings management studies by its ability to identify firms that engage in intentional misstatements and unintentional errors (Dechow *et al*., 2010). While earnings management is "the practice of distorting the true financial performance of the company" (Klein, 2002, p. 376), forced restatement firms are distinguished as those who have admitted or been identified by making a mistake in financial

reporting (Dechow *et al.,* 2011). In contrast to earnings management studies, the advantage of examining forced restatement is the ability to identify firms that violate the GAAP and are fraudulent without the need to specify a model for detecting misstating firms.

In examining the determinants of forced restatement and predicting the likelihood of forced restatements, this study differs from prior studies in several perspectives. Previous literature has explored the factors which drive earnings management (Mohamad *et al.,* 2012; Bao and Lewellyn, 2017) – a major cause for subsequent forced restatements – and forced restatements (Ettredge *et al.,* 2010; Files *et al.,* 2014). It is either that the literature tend to focus on variables covering either financial factors (Dechow *et al.,* 2010; Ettredge *et al.,* 2010; Dechow *et al.,* 2011) or corporate governance factors alone (Abdullah *et al.,* 2010; Mohamad *et al.,* 2012; Bao and Lewellyn 2017).

For example, Mohamad *et al.* (2012) studied 43 government-linked company observations in 2003 (pre-transformation) and 2005 (post-transformation) and discover that corporate governance mechanisms have not much impact in curbing earnings management activities, except for board meetings and the separation of CEO and chairman. While Bao and Lewellyn (2017) examined 1200 firms from 24 emerging markets and discover that controlling ownership has a positive impact on earnings management. In the context of forced restatement, Ettredge *et al.,* (2010) examine balance sheet bloat (high level of working capital balances) for evidence of income-increasing earnings management. As for Files *et al.,* (2014), they examine whether auditor characteristics, such as audit changes and quality, restatement severity, and company circumstances, such as discontinued operations and internal control weaknesses may affect the likelihood of repeat restatements. In general, so far research has failed to consider how the combination of various financial and non-financial features can be used for developing a forced restatement predictive model.

This study contributes to the literature by responding to the call of Dechow *et al*. (2011) and Kim *et al.* (2016) to extend their study by incorporating various financial measures and corporate governance factors in developing a model to predict forced restatement. Not only does this study consider both factors jointly but it also considers share price volatility as possible determinants of forced restatement. The examination of the various types of financial and non-financial factors is important as it provides a better understanding of specific financial symptoms and firm characteristics of forced restatement. It eventually allows users of financial

statements to be in a better position for identifying and curtailing future manipulative accounting activities.

In addition, the research responds to considerations which suggest that there might be complementary and substitutive relationships between accruals-based earnings management and real earnings management, as well as between financial variables and corporate governance variables (Ding *et al.,* 2015). This study, therefore, models the interaction effects between the different types of non-financial and financial variables. To our knowledge, this is the first time the interaction effects of accruals-based earnings management and real earnings management, the incentive of raising fund and change in earnings, founder CEO and board independence, as well as change in free cash flows and political connection are examined. Of all these, only one of the interaction effects, i.e. accruals-based earnings management and real earnings management (abnormal cash flow from operations) is statistically significant. The result indicates that firms engage in both accruals-based and real earnings management, specifically by managing real activities that could accelerate sales performance in the short term. Findings from the interaction effect analysis provide a better understanding of specific financial indicator and firm characteristics, hence providing a more robust result particularly on the determinants of forced restatement.

Furthermore, the penalised likelihood logit method was applied in this study for data analysis. This research analysis method has received extensive applications in research areas that commonly have small data properties, such as the medical research field. To the best of my knowledge, there is no accounting literature so far that has applied the penalised likelihood logit model for data analysis. In comparison to the conventional logit model, the penalised likelihood logit method produces less biased results, particularly in data with small sample size and very few events (Heinze and Schemper, 2002; Leitgob, 2013; Flynn *et al.*, 2013). The penalised likelihood function specifically includes a penalty function that penalises against the size of estimated coefficients and model complexity, hence producing a more robust logit regression analysis.

The structural equation modeling (SEM) which is rarely applied in the accounting research field (Glaum *et al.* 2013) was also attempted in order to examine whether accruals quality mediates the relationship between the various financial and non-financial factors and the likelihood of forced restatement. SEM was shown to produce smaller standard error hence better

parameter estimates compared to regression, specifically when testing mediation analysis (Iacobucci *et al.,* 2007). The superiority of SEM lies in its ability in disentangling the various effects and examining their respective impacts on the outcome variable (Galum et al., 2013). Results from this study however show that factor loadings and the forced restatement prediction model generated by SEM are inconsistent with all of this study's previous results. The findings nonetheless provide a useful insight that the SEM might not be a suitable approach in the research of developing a forced restatement prediction model.

In addition, prior studies, e.g. Lobo and Zhao (2013) and Sue *et al.* (2013), fail to distinguish forced restatements that are due to earnings misstatements from those that are due to accounting error (apart from studies such as Kim *et al.,* 2016). Unlike income-decreasing forced restatements that are likely due to intentional misstatements, Ettredge *et al.* (2010) suggest that income income-increasing forced restatements are most likely due to accounting errors – though attempts at tax evasion might also be an incentive (Lim, 2011). The need to differentiate between the different type of restatements becomes critical especially when the accounting regulations are becoming more and more strict (Kim *et al.,* 2016) leading to the likely increase in the frequency of unintentional misstatements (i.e. due to accounting errors). Failure to distinguish the different types of forced restatements may give rise to the risk of making inaccurate inferences with regard to the developed hypotheses that involve managerial misconduct. This study differs by examining the difference between income-decreasing forced restatement, income-increasing forced restatement and zero-effect forced restatement. This is important as the incentives of managers, directors, and blockholders, as well as the perceptions of and implications for investors and regulators, are likely to differ between the different events.

Finally, this research is set in an emerging economy with a comparatively weak institutional setting, which exacerbates the threat of managerial opportunistic behaviour, the hazard that blockholders or politicians might influence firm decisions for their own benefit, as well as the risk that investors might evaluate not only their investment in the affected firm but also similar firms or the stock market as a whole. The specific feature in Malaysia, which is also common in other emerging countries, is the less distinct separation between firm ownership and management, which creates incentives for the blockholders to expropriate wealth from the minority shareholders (Hasnan, Rahman & Mahenthiran 2013). The presence of firms with

family ownership concentration and pyramidal ownership structure is abundant, along with poor investor protection and weak law enforcement that hinders from effective detection. A specific characteristic of Malaysia which is different from other emerging countries (such as Hong Kong and Thailand) is the high political connection among firms. The government plays a high interventionist role in business activities which in turn resulted in substantial implications on the quality of financial reporting (Gomez & Jomo 1999). The above features in Malaysia that are also found in a range of South East Asian emerging economies creates a suitable condition for aggressive earnings management to take place, hence the motivation for this study.

In order to identify the relevant variables and their interrelationships, I first conducted the multivariate logit regression analysis in order to identify the variables which affect the likelihood that firms will be forced to restate earnings. Further to examining the pooled sample, the logit regression was also conducted on the different type of forced restatement samples in determining whether firms' attributes might differ between income-decreasing, income-increasing and zero-effect forced restatement.

Results of the income-decreasing forced restatement firms are then used as a basis for developing a prediction model. This is done in view of the catastrophic nature of the income-decreasing forced restatement event compared to the income-increasing and zero-effect forced restatement which is not so disastrous. The predictive model is developed based on the robustness tests of the stepwise logit and penalised likelihood logit regression model. A rolling out-of-sample estimation is further carried out to test the predictive ability of the income-decreasing forced restatement model.

Although unfortunately, extensive testing found that the predictive model is not sufficiently robust to predict income-decreasing forced restatements with a sufficiently high degree of accuracy, the research has nevertheless, yielded some highly interesting results which might still provide useful insights to investors, investment analysts, auditors, and regulators. Examining the different types of forced restatements provides some insights into understanding the ex-ante factors that cause firms to eventually report non-GAAP financial results and those that lead to accounting error. This study further provides a better understanding of the symptoms and incentives of opportunistic accounting practices which would be of great interest to the investors, auditors, analysts and regulators. Findings from this study also provide input for the development of forced restatement prediction models and the

refinement of prediction models that could indicate the likelihood of firms that are involved in GAAP violation.

8.4 Discussion on the findings of the study

8.4.1 Factors affecting the likelihood of firms to be forced to restate earnings

A logit regression analysis was conducted to examine the study's main objective to test hypotheses regarding key accounting, financial determinants and corporate governance determinants of forced financial restatements among public listed firms in Malaysia. Findings from the pooled sample analysis indicate that a number of variables, including audit committee quality, family ownership and control, and firm performance, do not show any significant relationships with the likelihood of forced restatement. Nonetheless, there is evidence to support H1 where a negative relationship between board quality and the occurrence of forced financial restatement is recorded. More specifically, board independence was found to be significantly and negatively related to the likelihood of forced restatement. The result implies that having an independent board determines a more effective monitoring such that the directors are less susceptible to the management influences and that a more independent judgment is given within the decision-making process. While this study finds that a highly independent board can effectively mitigate defective reporting, the results seem to contradict the general findings of prior Malaysian studies that independent directors have no significant impact on financial reporting quality (Wan-Hussin, 2009; Abdullah *et al.,* 2010) or that board independence is positively associated with earnings management practices (Hashim and Devi, 2008).

Findings show partial support for H4 that posits a positive relationship between government-related institutional ownership and firm's political connection and the occurrence of forced financial restatement. This is evidenced from the significant positive relationship that firms' political connection has with the likelihood of forced restatement. There is an indication that politicians might have given managers undue pressure to report a better performance to improve their own reputation as having not only political but also business acumen. Alternatively, it might be that politicians exploit firms to pursue political ambitions, e.g. by creating more jobs than efficient or by donating to political or social causes, which might

explain a tendency to manipulate earnings upwards in order to hide this activity from investors.

The engagement in opportunistic accounting practices is evidenced when the discretionary accruals of the Modified Jones model demonstrate a significantly positive association with the likelihood of forced restatement. The result supports H5 that posits a positive relationship between the distortion of corporate reporting quality and the occurrence of forced financial restatement. Whilst the current accruals show no significant impact, the possibility lies at the fact that forced restatement firms might have manipulated discretionary accruals for the sake of concealing firm's real earnings performance for rent-seeking purposes.

Additional result from the interaction effect analysis further shows that the interaction between discretionary accruals and abnormal cash flow from operations (real earnings management) was significantly and positively related to the likelihood of forced restatement. The inclusion of the interaction effect caused the non-interacted variable of discretionary accruals to become insignificant, while the previously insignificant variable of abnormal cash flow from operation became statistically significant and negatively related to the likelihood of forced restatement. Overall, the result shows that while firms are engaged in the management of discretionary accruals, they are also involved in managing real activities. The reduction in firms' level of abnormal cash flows implies managers' attempt to accelerate sales and improve short-term earnings performance (e.g. by discounting selling price and granting lenient credit terms) (Braswell and Daniels, 2017).

Forced restatement firms further demonstrate a negative change in their internal funds which effectively initiate firms' needs to raise external finance. The result which shows a significantly negative association between the change in firm's internal fund and the likelihood of forced restatement indicates that H6 is partially supported. Firms suffering from a decline in their internal fund would mean that their capital base is becoming more constrained. Firms might have difficulty to raise funds due to the inability of securing favourable terms (Dechow *et al.*, 2011). Thus, as the internal funds are near to getting exhausted, it is more likely that firms use earnings management to try to improve investors' perceptions of the firm's performance and therefore being able to raise additional capital more cheaply (Lennox & Pittman 2010).

Finally, result further shows support for H7 where a significant positive relationship between share price volatility and the occurrence of forced financial restatement is documented. Share price volatility acts as a useful indicator to the regulators of firms' potential problem that lead to the propensity of earnings misstatement. While high risky firms exhibit high stock price volatility, this may alert auditors and regulators such that it increases their intensity of firm monitoring which in turn triggers the need for forced restatement.

Consistent with the study's second main objective, the financial and non-financial factors that affect the likelihood of the different type of forced restatement were also examined. Results of the income-decreasing forced restatement firms are firstly discussed. In general, the findings of the income-decreasing forced restatement sample are relatively consistent with those of the pooled forced restatement sample. The only difference lies at the fact that while earnings management was found to have a statistically positive relationship with the likelihood of forced restatement, there is however no evidence to show that the opportunistic earnings management have any effect on the likelihood of income decreasing forced restatement. This lack of evidence might be due to the possibility that income-decreasing forced restatement firms have been reporting material accounting mistakes or errors. This is likely to happen especially when the accounting regulations are becoming more and more strict (Kim, Baik & Cho 2016) leading to the likely increase in the frequency of unintentional misstatements (i.e. due to accounting errors). There is also the possibility that the income-decreasing forced restatement might be the result of firms changing their own accounting policies from having to previously misapply accounting policies for private gain.

Similar to the pooled sample test, it was found that board independence, political connection, change in firm's internal fund and share price volatility are all significantly related to the likelihood of income-decreasing forced restatement. Although there are no signs of opportunistic income-inflating earnings management, it is crucial to understand the symptoms or indicators of income-decreasing forced restatement, which act as red flags of firms that warrant investigation, allowing auditors and regulators for early intervention to minimise possible catastrophic impact from earnings misstatements.

Quite contradicting findings were obtained from the analysis of the income-increasing forced restatement. A noticeable difference compared to the income-decreasing forced restatement test result is that the likelihood of income-increasing forced restatement was affected by

opportunistic earnings management practices. This is evidenced based on the significant positive relationship that the discretionary accruals of the Modified Jones model have with the likelihood of income-increasing forced restatement.

One possible way of how these firms manage earnings is via the opportunistic management of working capital accruals. This is possible as the working capital accruals demonstrated a statistically significant negative association with income-increasing forced restatement. It implies that firms tend to depress earnings downward by reporting less working capital. Further to this, firms are seen to incur less abnormal discretionary expenses as can be seen from the negative relationship that the variable has with income-increasing forced restatement. The fact that firms engage in real activities management by cutting down discretionary expenses, e.g. research development and advertisement costs, would impact in earnings reduction in the long term. There is an indication that among the reason why firms are eager to report decreasing earnings is to ensure that their tax payable is minimised. As shown from the test results, firms were found to report low deferred tax accruals during the misstatement period. This is evidenced when the deferred tax expenses variable document a significantly negative relationship with the likelihood of income-increasing forced restatement.

The fact that income-increasing forced restatement firms are mainly growth firms further support their incentive for reporting reducing earnings. Result shows that change in earnings is positively related to the likelihood of income-increasing forced restatement. Since income-increasing forced restatement firms are growth firms, they are prone to be imposed with higher tax due to high earnings, or alternatively they are more exposed to high political cost. These form the reason why firms are keen to manage earnings downward such that they can pay lesser tax or are subject to lower political cost.

Another attribute of income-increasing forced restatement firms is the deterioration in their level of free cash flow. The reduction in free cash flow might be the result from the firms being too strict in the extent of their spending in discretionary expense. As highlighted earlier, the cutting down of discretionary expenses such as research and development expenses, might have possibly impact sales performance such that firms' free cash flow tend to decrease.

The discussion of test results based on the zero-effect forced restatement sample follows. Similar to the income-increasing forced restatement firms, the zero-effect forced restatement

firms are found to be involved in practices of opportunistic discretionary accruals management. This can be seen from the significant positive relationship demonstrated by the discretionary accruals variable. Change in receivables further shows a significant and positive relationship with the likelihood of zero-effect forced restatement. In one perspective, it indicates a genuine growth among firms. In another perspective, the positive change in accounts receivable can be an indication of an aggressive earnings management. In particular, zero-effect forced restatement firms might have opportunistically managed their accounts receivables and perform a year-on-year mean reversion to hide problems. This would mean that earnings are effectively adjusted in the next period to sufficiently reverse the earnings that were over/understated in prior period, leading to the possibility for zero-effect forced restatement to occur.

Zero-effect restatement firms further portray a few attributes of a weak corporate governance. They were seen to have a low proportion of independent directors on the board which explains why these firms are having financial reporting problems that lead to zero-effect forced restatement.

Furthermore, the fact that these firms have political connection make them susceptible to reporting poor quality earnings. Being politically connected, resources tend to be channeled away from the listed firms towards the politicians and their cronies in fulfilling their own private gain (Frye and Shleifer, 1997; Shleifer and Vishny, 1998). As such, politically-connected firms are prone to misstate earnings to masks any potential expropriations (Lim *et al.,* 2014) which increases the likelihood of zero-effect forced restatement.

Engaging in opportunistic reporting behaviour appears more intriguing especially when test results show that the zero-effect restatement firms demonstrate a low level of internal funds. This would mean that when firms' internal capital base is getting exhausted due to the decreasing internal funds, managers are induced to manipulate earnings in such a way that these firms could get easy and cheap accessibility to external funds.

Overall, findings from this study seem useful in terms of providing insights on possible symptoms and incentives of forced restatement in Malaysia as well as in other developing countries that have similar institutional settings. Institutional background such as high political connection, poor investor protection and weak law enforcement mainly features the emerging

markets, particularly those in the South-East Asia region including Malaysia. Specifically, concentrated ownership which is a common attribute in the emerging economies was proposed to be the main determinant of poor corporate governance practices among firms in the developing markets. Once ownership exceeds a certain threshold, it becomes easier for the controlling shareholders to obtain control over managers for the sake of gaining private benefits at the expense of the minority shareholders (Shleifer & Vishny 1997).

Regardless of attempts of the Malaysian government to introduce corporate governance reforms, there is however no evidence to show that factors such as firm ownership structure or audit committee quality contributes in detecting irregularities and enforcing restatements. The only contributing corporate governance factor that help mitigate the likelihood of forced restatement is board independence. The findings from this study suggest that the practice of having an independent board helps to promote an effective monitoring and ensure that quality earnings are reported. Regardless of its significance, the economic impact of board independence is however very small. This gives implication to Malaysia and other emerging countries where regulators and policy makers need to emphasise more on having quality directors (independent) rather than on quantity of directors on firm board. The term 'independent' should be accurately defined and established. Notwithstanding, the findings give insights as to the need not only for regulators to consider a more careful implementation and enforcement of the corporate governance system, but they could also consider improving ways to increase directors and managers awareness of moral practices and ethics, besides enhancing communication between firm's directors, managers and market participants as a whole.

My findings further benefit interested parties such as the investors, regulators, and analysts as firms that warrant investigation can be easily identified. Accounting items such as working capital, accounts receivables, inventories and any unusual pattern that is recorded in the respective account balance should trigger further investigation by the auditors. These accounting items are susceptible to manipulation as its value is generally material and is related to the business daily operations. An interesting avenue for future research is to gain a better understanding of the role of working capital management in Malaysia. Within the Malaysian institutional setting of high concentrated firm's ownership structure and high political connection, the study gives enlightenment to the regulators the imperative need to implement more efficient monitoring activities and enhance the legal and judicial enforcement.

8.4.2 Trying to build a forced restatement prediction model

One major reason for developing a forced restatement model is to predict and detect income-decreasing forced restatements that are catastrophic in nature. Following the development of an income-decreasing forced restatement model, the model was further tested to assess its predictive performance. Results, however, show that the predictive ability of the income-decreasing forced restatement logit model is not quite compelling and scores average performance in producing an accurate forecast. Regardless of the model's high sensitivity rate (high classification accuracy for forced restatement firms), the prediction model is seen to produce a relatively higher Type I error compared to the Type II error. The poor predictive ability of the income-decreasing forced restatement model is further supported by the assessment of the rolling out-of-sample estimations that shows the prediction model is weak and not powerful enough to accurately forecast income-decreasing forced restatement events. The outcome from the holdout sample test shows that the Type II error rate is higher than the Type I error rate.

In general, the low rating for prediction accuracy as shown by the high Type I and Type II error implies that the income-decreasing forced restatement model is unlikely to produce an accurate prediction. Hence, the prediction model may not be favoured by the market participant, especially the investors and the regulators. The susceptibility of the model to producing inaccurate prediction may lead to costly impacts such as a fall in firms' share price which results in a huge loss of equity investment and market confidence. At the same time, the reputation of regulators that promotes investor protection may be tarnished.

Predicting a rare event in the business world is almost impossible due to the huge uncertainty of events in relation to business and economic activities (Makridakis *et al.,* 2009). The same applies to predicting forced restatements which are very difficult due to the complex interaction of various factors that cause the rare event. Despite the limitations of forecasting, and the low possibility of producing accurate and precise prediction, the research activity of developing a prediction model may still provide valuable input for future planning and strategy. This is possible as the attributes of misstatement firms on various dimensions indicated by the forced restatement logit model (such as accruals quality, firm performance, and corporate governance) can be used as warning signs or red flags of firms that warrant investigations, creating awareness among interested parties at an earlier stage. This gives an opportunity for

auditors, for example, to manage their audit processes accordingly, hence minimizing possible legal risks. Moreover, investors and financial institutions may be able to adjust the level of exposure to these risky forced restatement firms in advance. Whereas the regulators may be more prepared in formulating more effective laws and regulations in the effort to control or minimise deviant managerial behaviour.

8.5 Limitations and avenues for future research

Substantial effort was placed in conducting this research to ensure that the study objectives are achieved and all research questions are met. However, similar to any other research, this research suffers from several limitations. This section discusses the limitations of the research and suggests several recommendations for future research.

Firstly, the research conducted in this study was based on a sample of Malaysian firms listed on Bursa Malaysia. Therefore, the generalization of findings in this study to the markets in other countries may not be straightforward, although, in some respects, Malaysia is considered a typical emerging market with typical corporate governance systems and challenges.

Secondly, this study uses originally reported numbers (not restated) for analysis purposes. This is to identify the extent to which the financial measure representing aggressive accounting behaviour is associated with the likelihood of forced restatement. The approach of examining originally reported data however gives rise to the possibility of a mechanical positive association between test variables such as earnings quality and firm performance, and the likelihood of forced restatement. This is most likely to happen as forced restatement is itself an evidence of aggressive accounting practices that are present in financial reports. It would be useful for future research to examine restated financial data in examining key accounting determinants of forced restatement in order to prevent any mechanical relationship and determine a more reliable test result.

Thirdly, certain corporate governance variables used in this study, such as multiple directorships and director expertise, are reported based on a voluntary disclosure. The high ownership concentration that is prevalent in Malaysia means that firm's voluntary disclosure is poor because insiders are better informed about firm's business activities and financial position (Ghazali and Weetman, 2006). Hence, the reliance made on voluntary disclosure may induce

potential endogeneity problems in test analysis due to spurious correlation as both accounting misstatements (leading to forced restatement) and poor disclosure quality may be driven by the same omitted variable. In addressing this problem, future research may perform simultaneous regression analysis by regressing endogenous variables on relevant exogenous variables (instruments) in line with prior literature such as Dhaliwal *et al.* (2010) and Abernathy *et al.* (2013) to address the endogeneity problem.

Fourthly, this study included multiple proxies for the same underlying prediction in the forced restatement logit regression model. The inclusion of multiple proxies is due to the fact that no single proxy is sufficient to measure the quality of a firm's corporate governance structure (Beekes & Brown 2006; Larcker et al. 2007), nor it is sufficient to measure corporate reporting quality and firm performance. Nonetheless, the inclusion of multiple proxies simultaneously in the logit model is considered part of a model misspecification as it gives rise to attenuation bias such that many insignificant individual coefficients are likely to result (Lubotsky & Wittenberg 2007). Consistent with Lubotsky and Wittenberg (006) such attenuation biases can be minimised in future research by incorporating a single proxy for the tested variable or alternatively, examining a single summary measure representing the set of proxy variables in a regression model.

Fifthly, the discretionary accruals measure was applied in this study as a proxy for earnings management. Other types of opportunistic earnings manipulation can be considered in future research which includes insider trading, tunneling activities or related-party transactions among the publicly listed firms in Malaysia. Furthermore, it might be helpful for future research to take into account the direction of earnings management over time, so that research analysis can be made in the direction of earnings manipulation rather than solely on its scale when examining the absolute figures of earnings management.

Sixthly, the measure used for forced restatement is dichotomous, hence its inability to measure the magnitude of forced restatement. Future study may consider measuring the absolute amount of forced restatement so that the severity of forced restatement is known. For example, the higher the magnitude of forced restatement many indicate that the presentation of accounting information in prior periods is of poorer quality.

Seventhly, this study can only identify earnings misstatements and manipulations that have been actually identified via forced restatement in company's financial statement. There is a possibility that many misstatement cases have gone undetected where they are left uncaught for forced restatement. This creates an interesting avenue for future studies to investigate whether firms with key attributes of misstatement (e.g. high political connection) manage earnings within the boundaries of GAAP? Do these firms suffer from a subsequent decline in financial performance? Is there a possibility for these firms to engage in future assets write-downs or write-offs? Future research may also consider including culture (e.g. race and education) as a factor that could signal towards the likelihood of restatement. Cultural factors seem to be important due to the traditions that are instilled among citizens of a nation which thus might be used to help justify why things are the way they are (Haniffa & Cooke, 2002).

Eightly, this study excluded repeat restatements from the studied sample to prevent statistical results being driven by firm-level effect across observations. However, the increased in frequency of repeat restatement (Files, Sharp & Thompson 2014) present an important avenue for future research to consider analysing repeat restatement and examine how findings from the single forced restatements may generalize to repeat forced restatements. Future studies may also consider whether repeat restatements arise due to firm's initial forced restatement or due to another latent propensity to forcedly restate.

Ninthly, future research may consider examining how the market would react when there is forced restatement. Forced restatements provide information that may not only lower outside shareholders' expectation of companies' financial reporting quality but also intensify their concerns about managerial opportunistic financial reporting behaviour (Ma, Ma & Tian 2016). Little is known on how firms with concentrated ownership may influence the way investors may react towards changes in the quality of accounting information. Hence, it might be useful for future research to investigate how forced restatement announcement by family control firms and firms with high institutional ownership may affect investors reaction differently.

Finally, the costs associated with forced restatements are severe up to the extent that results in a significant drop in company's share price (Scholz 2008), an increase in firm's cost of capital (Hribar & Jenkins 2004) and an increase in firm litigation (Palmrose & Scholz 2004). In view of this severe implications, it might also be interesting to know whether forced restatement firms have the incentive and subsequently improve their financial information quality. It might be

useful for future research to examine firms' earnings quality for the period after the restatement. Findings from the research may be applied by regulators and auditors as to know whether firms with past forced restatement firms need continuous scrutiny.

APPENDIX 1

Description of GAO's Restatement Category

Category	Description
Mergers and acquisitions	Restatements of acquisitions or mergers that were improperly accounted for or not accounted for at all. These include instances in which the wrong accounting method was used or losses or gains related to the acquisition were understated or overstated. This does not include in-process research and development or restatements for mergers, acquisitions, and discontinued operations when appropriate accounting methods were employed
Cost or expense	Restatements due to improper cost accounting. This category includes instances of improperly recognizing costs or expenses, improperly capitalizing expenditures, or any other number of mistakes or improprieties that led to misreported costs. It also includes restatements due to improper treatment of tax liabilities, income tax reserves, and other tax-related items process
In-process research and development	Restatements resulting from instances in which improper accounting methodologies were used to value in-process research and development at the time of the acquisition.
Other	Any restatement not covered by the listed categories. Cases included in this category include restatements due to inadequate loan-loss reserves, delinquent loans, loan write-offs, or improper accounting for bad loans and restatements due to fraud, or accounting irregularities that were left unspecified
Reclassification	Restatements due to improperly classified accounting items. These include restatements due to improprieties such as debt payments being classified as investments
Related-party transactions	Restatements due to inadequate disclosure or improper accounting of revenues, expenses, debts, or assets involving transactions or relationships with related parties. This category includes those involving special purpose entities
Restructuring, assets, or inventory	Restatements due to asset impairment, errors relating to accounting treatment of investments, timing of asset write-downs, goodwill, restructuring activity, and inventory valuation, and inventory quantity issues
Revenue recognition	Restatements due to improper revenue accounting. This category includes instances in which revenue was improperly recognized, questionable revenues were recognized, or any other number of mistakes or improprieties that led to misreported revenue
Securities related	Restatements due to improper accounting for derivatives, warrants, stock options and other convertible securities
Note: We excluded announcements involving stock splits, changes in accounting principles, and other financial statement restatements that were not made to correct mistakes in the application of accounting standards. Source: GAO, 2006, pg.19	

APPENDIX 2

Variable Definition and Operationalisation

	ACRONYM	VARIABLES	DEFINITION / OPERATIONALISATION	PRED SIGN	SOURCE
1	BI	Board independence	The proportion of independent non-executive directors on the board.	-	Annual report
2	FL	Financial expert directors	The proportion of directors with financial expertise, e.g. a CPA, CFA, or experience in corporate financial management (for example, as chief financial officer, treasurer, controller, or vice president of finance).	-	Annual report
3	MULTI	Multiple directorships	The proportion of directors on the board having multiple directorships in other companies.	-	Annual report
4	ACIND	Audit committee independence	The proportion of independent non-executive directors in the audit committee.	+	Annual report
5	ACEXP	Audit committee expertise	The proportion of financially expert directors on the audit committee	+	Annual report
6	AF	Audit fees	$AF_{it} = AF_{it} / TA_{it}$ AF_{it} is audit fees (annual Datastream data item WC01801), TA_{it} is total assets (annual Datastream data item WC02999).	+	Datastream
7	FM	Family ownership	FM is a dummy variable that takes the value of one if at least 20% of the firm's equity was owned by the family members, and zero otherwise.	+	Annual report

8	FB	Founders on the board	The proportion of the firm's founders on the board of directors.	+	Annual report
9	1)CEOB 2)CEOF 3)CEON	CEO's influence on the board	The dummy variables are coded 1 if: (1) CEO chairs the board (2) CEO belongs to the founding family (3) CEO serves on the board's nominating committee or if the board has no such committee; and zero otherwise	+	Annual report
10	INST	Government-related institutional ownership	The percentage of equity shareholdings held by government-related institutional investors from the top ten largest equity shareholders.	+	Annual report
11	PC	Political connection	PC is a dummy variable coded 1 if the company is identified as being connected with a politician if at least one of its large shareholders (anyone controlling at least 10% of voting shares) or one of its top officers (CEO, president, vice-president, chairman or secretary) is a member of a parliament, a minister, or is closely related to a top politician or party; and zero otherwise	+	Annual report
12	DAMJ	Modified Jones model discretionary accruals	Total accruals are calculated based on the difference between net income before extraordinary items and net operating cash flows: $TACC_{it} = NI_{it} - CFO_{it}$	+	

			$TACC_{it}$ is total accruals, NI_{it} is net income before extraordinary items (annual Datastream data item WC01551), CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860) The model parameters are estimated based on the following equation: $TACC_{it} / TA_{it-1} = \alpha + \beta_1(1 / TA_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta AR_{it}) / TA_{it-1} + \beta_3 PPE_{it} / TA_{it-1} + \varepsilon.$ TA_{it-1} is total assets (annual Datastream data item WC02999) for year t-1, ΔREV_{it} is change in revenue (annual Datastream data item WC01001) from the preceding year, ΔAR_{it} is change in accounts receivable (annual Datastream data item WC02051) from the preceding year, PPE_{it} is property, plant and equipment (annual Datastream data item WC02501) The discretionary accruals are calculated by using the estimated parameters: $U_{it} = (TACC_{it} / TA_{it-1}) - [\alpha + \beta_1(1 / TA_{it-1}) + \beta_2 ((\Delta REV_{it} - \Delta AR_{it}) / TA_{it-1}) + \beta 3(PPEit / TA_{it-1})$ Where U_{it} represents the discretionary accruals.		Datastream
13	DT	Deferred tax expense.	$DT_{it} = DT_{it} / TA_{it-1}$ DT_{it} is deferred tax expense (annual Datastream data item WC03263), TA_{it-1} is total assets (annual Datastream data item WC02999) for year t-1	+	Datastream

14	WCAC	Working capital accrual	$WCAC_{it} = [[\Delta CA_{it} - \Delta CSTI_{it}] - [\Delta CL_{it} - \Delta DCL_{it} - \Delta TP_{it}]] / [(TA_{it} - TA_{it-1})/2]$ Where ΔCA_{it} is change in current assets (annual Datastream data item WC02201) from the preceding year, $\Delta CSTI_{it}$ is change in cash and short-term investments (annual Datastream data item WC02001) from the preceding year, ΔCL_{it} represents change in current liabilities (annual Datastream data item WC03101) from the preceding year, ΔDCL_{it} is change in debt in current liabilities (annual Datastream data item WC03051) from the preceding year, ΔTP_{it} is change in taxes payable (annual Datastream data item WC03063) from the preceding year, and TA is total assets (annual Datastream data item WC02999)	+	Datastream
15	RSST	Change in non-cash net operating assets	$RSST_{it} = (\Delta WC_{it} + \Delta NCO_{it} + \Delta FIN_{it}) / [(TA_{it} - TA_{it-1})/2]$ Where; $WC_{it} = [CA_{it} - CSTI_{it}] - [CL_{it} - DCL_{it}]$; $NCO_{it} = [TA_{it} - CA_{it} - IA_{it}] - [TL_{it} - CL_{it} - LTD_{it}]$ $FIN_{it} = [STI_{it} + LTI_{it}] - [LTD_{it} + DCL_{it} + PS_{it}]$ CA_{it} is current assets (annual Datastream data item WC02201), $CSTI_{it}$ is cash and short-term investments (annual Datastream data item WC02001), CL_{it} represents current liabilities (annual Datastream data item WC03101), DCL_{it} is debt in	+	

			current liabilities (annual Datastream data item WC03051), IA_{it} is investments and advances (annual Datastream data item WC02250 & WC02256), TL_{it} is total liabilities (annual Datastream data item WC03351), CL_{it} is current liabilities (annual Datastream data item WC03101), LTD_{it} is long-term debt (annual Datastream data item WC03251). STI_{it} is short-term investments (annual Datastream data item WC02008), LTI_{it} is long-term investments (annual Datastream data item WC02250 and WC02256), LTD_{it} is long-term debt (annual Datastream data item WC03251), DCL_{it} is debt in current liabilities (annual Datastream data item WC03051), PS_{it} is preferred stock (annual Datastream data item WC03451), TA_{it} is total assets (annual Datastream data item WC02999).		Datastream
16	CHAR	Change in receivables	$CHAR_{it} = \Delta AR_{it} / [(TA_{it} - TA_{it-1})/2]$ ΔAR_{it} is the change in accounts receivables (annual Datastream data item WC02051) from the preceding year, TA_{it} is total assets (annual Datastream data item WC02999).	+	Datastream
17	CHINV	Change in inventories	$CHINV_{it} = \Delta INV_{it} / [(TA_{it} - TA_{it-1})/2]$ ΔINV_{it} is the change in inventories (annual Datastream data item WC02101) from the preceding year, TA_{it} is total assets (annual Datastream data item WC02999).	+	Datastream

18	SFAST	Soft assets	$SFAST_{it} = (TA_{it} – PPE_{it} – CCE_{it}) / TA_{it}$ TA_{it} is total assets (annual Datastream data item WC02999), PPE_{it} is property, plant and equipment (annual Datastream data item WC02501), CCE is cash and cash equivalent (annual Datastream data item WC02001).	+	Datastream
19	ABCFO	Abnormal cash flow from operations	Abnormal cash flow from operations is the residual from the following equation: $CFO_{it} / TA_{it-1} = \beta1 [1/ TA_{it-1}] + \beta2 [REV_{it} / TA_{it-1}] + \beta3 [\Delta REV_{it} / TA_{it-1}] + \varepsilon_{it}$ CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860), TA_{it-1} is total assets (annual Datastream data item WC02999) in year t-1, REV_{it} is revenue (annual Datastream data item WC01001), ΔREV_{it} is change in revenue (annual Datastream data item WC01001) from the preceding year, ε_{it} is a residual term that captures the level of abnormal cash flow of firm i in year t.	-	Datastream
20	ABPROD	Abnormal level of production costs	Abnormal level of production cost is the residual from the following equation: $PROD_{it} /TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_2 (REV_{it} / TA_{it-1}) + \alpha3 (\Delta REV_{it} / TA_{it-1}) + \alpha4 (\Delta REV_{it-1} / TA_{it-1}) + \varepsilon_{it}$; $PROD_{it}$ represents the production cost and is defined as the sum of the cost of goods sold; $COGS_{it}$ (annual Datastream data item WC01051) and change in inventory; ΔINV_{it}	+	Datastream

			(annual Datastream data item WC02101) from the preceding year. TA_{it-1} is total assets (annual Datastream data item WC02999) in year t-1, REV_{it} is revenue (annual Datastream data item WC01001); and ΔREV_{it} is the change in revenue from the preceding year, ΔREV_{it-1} is the change in revenue from year t-2 to year t-1, ε_{it} is a residual term that captures the level of abnormal cash flow of firm i in year t.		
21	ABDISX	Abnormal level of discretionary expenditures	Abnormal level of discretionary expenditures is the residual from the following equation: $DISX_{it} / TA_{it-1} = \alpha_0 + \alpha_1(1 / TA_{it-1}) + \alpha_2 (REV_{it-1} / TA_{it-1}) + \varepsilon_{it}$ $DISX_{it}$ is discretionary expenditures defined as the sum of research and development expenditures (annual Datastream data item WC01201) and selling, general and administrative expenses (annual Datastream data item WC01101), TA_{it-1} is total assets (annual Datastream data item WC02999) in year t-1, REV_{it-1} is revenue (annual Datastream data item WC01001) in year t-1, ε_{it} is a residual term that captures the level of abnormal cash flow of firm i in year t.	-	Datastream
22	CHROA	Change in earnings	$CHROA_{it} = [EARN_{it} / [(TA_{it} - TA_{it-1})/2]] - [EARN_{it-1} / [(TA_{it-1} - TA_{it-2})/2]]$ $EARN_{it}$ is net income before extraordinary items (annual Datastream data item WC01551), TA_{it} is total assets	+	Datastream

			(annual Datastream data item WC02999)		
23	BM	Book-to-market ratio	BM = BVE ⁄ (EQ x MP) BVE is book value of equity (annual Datastream data item WC03501), EQ is common shares outstanding (annual Datastream data item WC05301), MP is year-end market price (Datastream data item WC05001)	-	Datastream
24	PE	Price earnings ratio	PE = (EQ x MP) / EARN EQ is common shares outstanding (annual Datastream data item WC05301), MP is year-end market price (Datastream data item WC05001), EARN is net income before extraordinary items (annual Datastream data item WC01551)	+	Datastream
25	DISTRESS	Financial distress	Financial distress is measured by using the Altman's (1993) Z"-score model: Z" = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4); Where; X1 = WC_{it} / TA_{it}; X2 = RE_{it} / TA_{it}; X3 = $EBIT_{it}$ / TA_{it}; X4 = BVE_{it} / TL_{it} where: WC is working capital (annual Datastream data item WC03151), TA_{it} is total assets (annual Datastream data item WC02999), RE is retained earnings (annual Datastream data item WC03495, EBIT is	+	Datastream

			earnings before interest and tax (annual Datastream data item WC18191), BVE is book value of equity (annual Datastream data item WC03501).		
26	CHFCF	Change in free cash flow	$CHFCF = \Delta[EARN_{it} - RSST\ Accruals_{it}] / [(TA_{it} - TA_{it-1})/2]$ $EARN_{it}$ is net income before extraordinary items (annual Datastream data item WC01551), RSST $Accruals_{it}$ (refer variable no. 15 for definition and operationalisation), TA_{it} is total assets (annual Datastream data item WC02999).	-	Datastream
27	FINR	Firm's level of internal fund	$FINR_{it} = (CFO_{it} – CAPEX_{it-1}) / CA_{it-1}$ CFO_{it} is net cash flow from operating activities (annual Datastream data item WC04860), $CAPEX_{it-1}$ is capital expenditures (annual Datastream data item WC04601) in year t-1, $CA_{it-1}$is current assets (annual Datastream data item WC02201) in year t-1.	-	Datastream
28	AI	Actual issuance	AI is a dummy variable coded 1 if annual Datastream data item WC04251 > 0 (net proceeds from sale/issue of common and preferred equity) or annual Datastream data item WC04401 > 0 (long term borrowing)	+	Datastream
29	SDW	Share price volatility	SDW = Annual standard deviation of monthly SRTN SRTN is stock return (monthly Datastream data item WC05001)	+	Datastream
30	BDSIZE	Board size	Number of board members	+/-	Annual report

31	BDMEET	Board meeting	Number of board meetings held for the year	+/-	Annual report
32	ACSIZE	Size of audit committee	Number of audit committee members	+/-	Annual report
33	ACMEET	Audit committee meeting	Number of audit committee meeting held for the year	+/-	Annual report
34	FEM	Female director	The proportion of female directors sitting on the board	-	Annual report
35	LEV	Leverage	$LEV_{it} = LTD_{it} / TA_{it}$ LTD_{it} is long-term debt (annual Datastream data item WC03251), TA_{it} is total assets (annual Datastream data item WC02999).	+	Datastream
36	LNTA	Firm size	LNTA = Natural logarithm of TA_{it} TA_{it} is total assets (annual Datastream data item WC02999).	+	Datastream
37	AGE	Firm age	The log of the number of years the firm has been listed.	-	
38	YEAR	Year	An array of eleven fiscal year dummies of 2002 to 2012, however the year 2002 is arbitrarily omitted in order to avoid perfect multicollinearity.		
39	IND	Industry	An array of fifty six industry dummies, where firm belongs to one of the fifty six primary two-digit Standard Industrial Classification (SIC) industry codes.		

APPENDIX 3

VIF and Tolerance Level for the Explanatory Variables

Variable	VIF	SQRT VIF	Tolerance (1/VIF)	R-squared
RESTATE	1.02	1.01	.980	.020
BI	1.64	1.28	.609	.391
FL	2.04	1.43	.489	.511
MULTI	1.13	1.06	.888	.112
ACIND	1.50	1.23	.665	.335
ACEXP	1.90	1.38	.527	.473
AF	1.02	1.01	.981	.019
FM	1.47	1.21	.680	.320
FB	2.17	1.47	.461	.539
CEOF	2.50	1.58	.399	.601
CEON	1.11	1.05	.902	.098
CEOB	1.10	1.05	.910	.090
INST	1.45	1.20	.691	.309
PC	1.34	1.16	.746	.255
DAMJ	1.63	1.28	.613	.387
DT	1.18	1.09	.846	.154
WCAC	2.35	1.53	.426	.574
RSST	1.35	1.16	.739	.261
CHAR	1.37	1.17	.732	.268
CHINV	1.67	1.29	.600	.400
SFAST	1.35	1.16	.741	.259
ABCFO	2.10	1.45	.475	.525
ABPROD	1.47	1.21	.682	.318
ABDISX	1.16	1.08	.860	.140
CHROA	1.30	1.14	.770	.230
BM	1.60	1.26	.627	.374
PE	1.53	1.24	.652	.348
DISTRESS	1.49	1.22	.672	.328
CHFCF	1.44	1.20	.695	.305
FINR	2.08	1.44	.480	.520
AI	1.18	1.09	.848	.152
SDW	1.22	1.10	.819	.181
BDSIZE	1.77	1.33	.564	.436
BDMEET	1.53	1.24	.652	.348
ACSIZE	1.50	1.22	.667	.333
ACMEET	1.44	1.20	.697	.303
FEM	1.15	1.07	.872	.128
LEV	1.48	1.22	.677	.323
LNTA	1.86	1.36	.734	.463
LNAGE	1.42	1.19	.401	.296
Mean VIF	**1.54**			

Based on the rule of thumb, having tolerance equal to 0.1 or less, which is equivalent to VIF of 10 or higher, may create a cause of concern (Chen *et al.,* 2003). The table above

show that the tolerance for the variables ranges from 0.399 (CEOF) to 0.981 (AF) and that the VIFs are all less than 3. Overall, results indicate that there is no concern for multicollinearity in this study.

APPENDIX 4

Sensitivity Analysis on the Likelihood of Forced Restatement in Malaysia (DAMJ vs WCAC)

Variables	MULTIVARIATE LOGIT (DAMJ Excluded)			MULTIVARIATE LOGIT (WCAC Excluded)		
	Delta (marginal effect)	Odds Ratio	(*p*-value)	Delta (marginal effect)	Odds Ratio	(*p*-value)
BI	- 0.000	**.025****	**0.019**	- 0.000	**0.028****	**0.022**
FL	0.000	1.907	0.702	0.000	1.564	0.643
MULTI	- 0.000	.796	0.657	- 0.000	0.814	0.642
ACIND	- 0.000	.306	0.149	- 0.000	0.338	0.171
ACEXP	0.000	1.090	0.461	0.000	1.103	0.455
AF	- 0.002	.000	0.157	- 0.000	0.000	0.169
FM	0.000	1.057	0.435	- 0.000	0.988	0.486
FB	0.000	2.211	0.296	0.000	2.018	0.317
CEOF	0.000	1.175	0.370	0.000	1.147	0.389
CEON	- 0.000	.658	0.196	- 0.000	0.671	0.208
CEOB	0.000	1.061	0.453	0.000	1.119	0.411
INST	- 0.000	.993	0.247	- 0.000	0.992	0.215
PC	0.000	**2.443****	**0.021**	0.000	**2.368****	**0.025**
DAMJ				0.000	2.450	0.259
DT	0.000	**231.611***	**0.096**	0.000	105.918	0.133
WCAC	- 0.000	0.010	0.922			
RSST	- 0.000	0.355	0.275	- 0.000	0.142	0.128
CHAR	- 0.000	0.417	0.340	- 0.000	0.184	0.174
CHINV	0.000	0.771	0.462	- 0.000	0.149	0.233
SFAST	- 0.000	2.493	0.142	0.000	1.844	0.238
ABCFO	- 0.000	0.065	0.936	- 0.000	0.219	0.206
ABPROD	- 0.000	0.003	0.958	- 0.000	0.004	0.950
ABDISX	0.000	0.675	0.585	- 0.000	0.688	0.582
CHROA	- 0.000	6.785	0.263	0.000	5.206	0.290
BM	0.000	0.981	0.551	0.000	1.005	0.514
PE	- 0.000	1.169	0.145	0.000	**1.218***	**0.088**
DISTRESS	0.000	0.995	0.554	- 0.000	0.985	0.352
CHFCF	- 0.000	1.470	0.407	0.000	1.659	0.622
FINR	- 0.000	**0.043****	**0.033**	- 0.000	**0.052****	**0.041**
AI	0.000	0.897	0.399	- 0.000	0.841	0.342
SDW	- 0.000	**1.032***	**0.074**	0.000	**1.031***	**0.080**
BDSIZE	- 0.000	**0.761****	**0.011**	- 0.000	**0.767****	**0.014**
BDMEET	0.000	0.856	0.168	- 0.000	0.850	0.148
ACSIZE	0.000	**1.582***	**0.077**	0.000	**1.549***	**0.092**
ACMEET	- 0.000	1.105	0.466	0.000	1.131	0.357
FEM	0.000	0.824	0.165	- 0.000	0.832	0.177
LEV	0.000	**18.248****	**0.022**	0.000	**13.679****	**0.034**
LNTA	- 0.000	**1.423*****	**0.010**	0.000	**1.420*****	**0.010**
LNAGE	- 0.000	0.889	0.291	- 0.000	0.904	0.319
Industry dummies			Included			Included
Year dummies			Included			Included
Observations			2,896			2,896
LR Chi^2			114.16			112.32
p-value			.044			.056
Degrees of freedom			90			90

Notes: The table presents comparative results between a logit model that exclude DAMJ (while retaining WCAC) and another logit model that excludes WCAC (while retaining DAMJ), measured on the pooled sample of the Malaysian forced restatement firms. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly.

APPENDIX 5

Sensitivity Analysis on the Likelihood of Forced Restatement in Malaysia (ACEXP vs FL)

Variables	MULTIVARIATE LOGIT (ACEXP Excluded)			MULTIVARIATE LOGIT (FL Excluded)		
	Delta (marg. effect)	Odds Ratio	(*p*-value)	Delta (marg. effect)	Odds Ratio	(*p*-value)
BI	-0.000	**0.024****	**0.018**	-0.000	**0.025****	**0.019**
FL	0.000	2.043	0.777			
MULTI	-0.000	0.799	0.654	-0.000	0.818	0.639
ACIND	-0.000	0.310	0.154	-0.000	0.315	0.158
ACEXP				0.000	1.464	0.285
AF	-0.002	0.000	0.153	-0.002	0.000	0.154
FM	0.000	1.038	0.457	0.000	1.029	0.467
FB	0.000	2.080	0.309	0.000	1.857	0.336
CEOF	0.000	1.161	0.378	0.000	1.171	0.372
CEON	-0.000	0.650	0.190	-0.000	0.655	0.194
CEOB	0.000	1.111	0.416	0.000	1.096	0.426
INST	-0.000	0.992	0.222	-0.000	0.992	0.211
PC	0.000	**2.490****	**0.019**	0.000	**2.535****	**0.017**
DAMJ	0.000	6.449	0.104	0.000	6.552	0.102
DT	0.000	100.37	0.134	0.000	109.571	0.128
WCAC	-0.000	0.002	0.957	-0.000	0.003	0.955
RSST	-0.000	0.320	0.258	-0.000	0.301	0.247
CHAR	-0.000	0.311	0.297	-0.000	0.322	0.304
CHINV	-0.000	0.618	0.433	-0.000	0.595	0.428
SFAST	0.000	2.155	0.187	0.000	2.209	0.179
ABCFO	-0.000	0.135	0.141	-0.000	0.135	0.141
ABPROD	-0.000	0.002	0.963	-0.000	0.002	0.967
ABDISX	-0.000	0.603	0.609	-0.000	0.534	0.633
CHROA	0.000	6.990	0.259	0.000	7.335	0.253
BM	-0.000	0.985	0.461	-0.000	0.983	0.546
PE	0.000	1.178	0.134	0.000	1.185	0.126
DISTRESS	-0.000	0.990	0.595	-0.000	0.991	0.591
CHFCF	0.000	1.422	0.585	0.000	1.467	0.593
FINR	-0.000	**0.041****	**0.032**	-0.000	**0.040****	**0.031**
AI	-0.000	0.889	0.391	-0.000	0.895	0.398
SDW	0.000	**1.033***	**0.069**	0.000	**1.032***	**0.073**
BDSIZE	-0.000	**0.759****	**0.011**	-0.000	**0.754*****	**0.009**
BDMEET	-0.000	0.858	0.172	-0.000	0.863	0.186
ACSIZE	0.000	**1.568***	**0.082**	0.000	**1.586***	**0.077**
ACMEET	0.000	1.105	0.462	0.000	1.099	0.488
FEM	-0.000	0.822	0.162	-0.000	0.817	0.153
LEV	0.000	**17.695****	**0.023**	0.000	**18.794****	**0.021**
LNTA	0.000	**1.413****	**0.012**	0.000	**1.408****	**0.012**
LNAGE	-0.000	0.900	0.311	-0.000	0.906	0.323
Industry dummies			Included			Included
Year dummies			Included			Included
Observations			2,896			2,896
LR Chi^2			115.72			115.47
p-value			.035			.037
Deg. of freedom			90			90

Notes: The table presents comparative results between a logit model that excludes ACEXP (while retaining FL) and another logit model that excludes FL (while retaining ACEXP), measured on the pooled sample of the Malaysian forced restatement firms. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly.

APPENDIX 6

Sensitivity Analysis on the Likelihood of Forced Restatement in Malaysia (FM – ownership level)

Variables	**MULTIVARIATE LOGIT (FM based on actual level of ownership)**		
	Delta (marginal effect)	Odds Ratio	(*p*-value)
BI	-0.000	**0.035**	**0.033**
FL	-0.000	0.958	0.529
MULTI	0.000	2.026	0.711
ACIND	-0.000	0.230	0.106
ACEXP	0.000	1.072	0.470
AF	-0.000	0.000	0.108
FM	0.000	**1.011**	**0.040**
FB	0.000	2.533	0.273
CEOF	0.000	1.302	0.294
CEON	-0.000	0.583	0.153
CEOB	-0.000	0.957	0.467
INST	-0.000	0.985	0.911
PC	0.000	**2.285**	**0.037**
DAMJ	0.000	**12.341**	**0.051**
DT	0.000	78.051	0.153
WCAC	-0.000	0.002	0.955
RSST	-0.000	0.147	0.161
CHAR	-0.000	0.139	0.176
CHINV	-0.000	0.419	0.384
SFAST	0.000	2.060	0.209
ABCFO	-0.000	0.165	0.192
ABPROD	-0.000	0.002	0.963
ABDISX	-0.000	0.830	0.461
CHROA	0.000	9.950	0.229
BM	-0.000	0.999	0.497
PE	0.000	1.180	0.150
DISTRESS	-0.000	0.993	0.435
CHFCF	0.000	1.352	0.570
FINR	-0.000	**0.028**	**0.029**
AI	-0.000	0.967	0.471
SDW	0.000	**1.040**	**0.039**
BDSIZE	-0.000	**0.747**	**0.010**
BDMEET	-0.000	**0.802**	**0.073**
ACSIZE	0.000	**1.719**	**0.050**
ACMEET	0.000	1.152	0.307
FEM	-0.000	0.807	0.150
LEV	0.000	**31.001**	**0.009**
LNTA	0.000	**1.510**	**0.005**
LNAGE	-0.000	0.945	0.401
Industry dummies			Included
Year dummies			Included
Observations			2,754
LR Chi^2			132.01
p-value			.003
Degrees of freedom			91

Notes: The table presents logit results when family ownership is measured by its actual ownership level, measured on the pooled sample of the Malaysian forced restatement firms. The dependent variable is a dichotomous variable of the forced restatement event. The independent variables are defined in Section 5.2.3 of Chapter 5. ***, ** and * denote significance at the 1%, 5% and 10% accordingly.

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