Stock markets dynamics, financial sector development and corporate capital structure in the GCC countries

Sbeiti, Wafaa Mohamad

STOCK MARKETS DYNAMICS, FINANCIAL SECTOR DEVELOPMENT AND CORPORATE CAPITAL STRUCTURE IN THE GCC COUNTRIES

A thesis submitted for the degree of Doctor of Philosophy

WAFAA MOHAMAD SBEITI

Durham Business School, University of Durham

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Abstract

This thesis investigates the stock markets in the GCC countries from three distinct but related dimensions. First, we empirically explore and identify the main macroeconomic variables that affect the movement of these stock markets. Second, we investigate the impact of stock markets and banking sector developments on the process of economic growth in these countries. Finally, we examine the impact of stock markets' development on the financing choices of firms operating in these markets and identify the determinants of their capital structure.

The three above-mentioned areas of research are motivated by several reasons. First, given that the development of a well structured financial system has taken place in these countries only over the last thirty years, the empirical studies related to the financial development in the GCC countries are rare. Second, GCC countries have been largely ignored in the earlier empirical financial economics literature which bestows originality on our empirical work, specially, in the context of stock market development. The rapid growth in the GCC countries' stock markets over the past two decades raises empirical questions regarding the fundamental connection between stock markets growth and the key macroeconomic variables and how these developments feed into the real economic activities. Third, the GCC countries are non-tax paying entities which make them an interesting case to investigate whether the determinants of the capital structure of firms operating in these markets are similar to those operating in the developed and industrial countries. For example there is not a single published study which examines and compares the capital structure of firms listed in the GCC stock markets or the stock markets development and firms financing choice in these countries.

The empirical results reveal the following: (1) both global and local macroeconomic variables affect the performance of stock markets in the GCC countries. (2) Both stock markets and banking sector positively influence economic growth process and they are complementary rather than substitutes for each other. (3) Stock markets in the GCC countries have become more developed and considered an important tool for corporate financing decisions. Moreover, corporate capital structure in these countries can be explained by the determinants suggested in corporate finance models.

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Chapter One

Introduction

1.1 Preliminary

The Gulf Cooperation Council (GCC) comprises the states of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) and was established in an agreement concluded on 25 May 1981. These countries declared that the GCC is established in view of the special relations between them, similar political system, joint destiny and common objectives. This area has experienced some of the fastest growing economies in the world, mostly due to the boom of oil revenues. The GCC countries are experiencing unprecedented growth in their economies and stock exchanges. During the last five years, stock exchanges in these countries witnessed significant levels of growth. For example, the Saudi stock exchange increased by 540%, the Kuwaiti stock exchange rose by 560%, the Dubai stock exchange increased approximately by 1024%.[1] Furthermore, the real growth rate of the gross domestic product increased by 8.8% for Qatar, 8.7% for the UAE, 6.4% for Kuwait, 5.9% for Bahrain, 5.6% for Oman and 6.3% for Saudi Arabia in 2005.[2]

The growth in the GCC economies and stock markets raises important questions regarding the role of these developments at both macro and microeconomic levels. For example, a considerable amount of theoretical and empirical studies have been conducted on areas, such as the interaction between stock market movements and macroeconomic activities; the effects of financial sector development on economic growth; the effect of stock market development on firms financing choice and the determinants of corporate capital structure. However, most of these studies remain confined to the industrialised and developed economies with well-diversified productive sectors; while such studies on emerging GCC markets are almost absent.

This study aims to contribute to the existing literature by investigating the stock markets in the GCC countries from three distinct, but closely related dimensions. First, we empirically explore and identify the main macroeconomic factors that influence and

[1]See each exchange's website: Saudi Arabia: www.tadawul.com.sa, Kuwait:www.kuwaitse.com, Dubai: www.dfm.co.ae.

[2]Source: GCC Economic Statistics Bulletin (2006) issued by the Gulf Investment Company (GIC) in Kuwait.

determine the movement of the stock markets in the GCC countries. Next, we widen the scope of this study by investigating the impact of stock markets and banking sector developments in the GCC countries on their process of economic growth. Despite the great deal of attention that has been focused on cross-country studies dealing with the relationship between financial development and economic growth, the GCC countries have been largely ignored in earlier empirical literature. Finally, we complete the circle by examining the impact of stock market development on the financing choices of firms operating in the GCC markets and identify the determinants of their capital structure. Again, while there has been a growing number of studies that examine the corporate capital structure in developing countries and the role of these markets in firms' financing choice, it is important to note the absence of any published study that examines and compares the capital structure of firms listed in GCC stock markets. Furthermore, to our knowledge, there is no study in the capital structure literature which has adopted the approach of combining the dynamism of capital structure and the impact of stock market development on firms financing choices. This study fills this gap in the literature and provides a unique opportunity to analyse this issue in the context of non-tax-paying entities such as firms in the GCC countries.

1.2 Motivations for the Thesis

The question that may arise here is why are the GCC countries chosen for this case study? And what aspects and features make them an interesting case study and their investigation an insightful exercise? The GCC countries represent the biggest economic bloc in the Middle East, with a combined gross domestic product of around $404.6bn in 2003, $475.1bn in 2004 and $597.2bn in 2005. These countries registered nominal growth rates of 25.4%, 29.8%, 17.4% and 25.7%, while their real GDP growth rates registered 8.5%, 5.9% and 6.8%, in 2003, 2004 and 2005 respectively.[3] The GCC countries possess 47% of the world's proven oil reserves. They account for 24% of the global petroleum production and 40% of petroleum exports.[4] This group of countries pumps around 16 million barrels of oil daily. In addition, the GCC region controls 25% of the world's proven natural gas reserves. Qatar, Saudi Arabia, the UAE and Kuwait are among the top twenty countries in the world in terms of natural gas reserves. Consequently, in many ways they are more integrated with, and can respond more to shocks in the world economy since oil prices reflect changes in the world economy.

[3]See www.menafn.com.
[4]See www.saudi-us-relations.org/articles/2005/.

There is no other economic bloc which depends so much on the world economy and is so responsive to changes in the world economy.

Over the past three decades, the GCC countries have witnessed an unprecedented level of economic and social transformation. This transformation, fuelled by the large inflow of oil revenues is reflected in different aspects of life in these countries. Crude oil prices have risen from an average of $35 a barrel in 2004 to $53 in 2005 and to $65 in 2006. Total oil revenues are estimated to have reached $400bn for the six Gulf countries in 2006, up from $320 billion in 2005.[5] Abundant oil revenues are responsible to a large extent for raising the standard of living, improving economic indicators, maintaining low rate of external debt, accumulating official foreign reserves and, more importantly, building a developed and sophisticated financial sector. Most of the GCC countries have similar financial systems, which mainly consist of the central bank, commercial banks, specialised banks, insurance companies, investment companies, stock trading firms and official stock exchanges.

The GCC countries have a large number of banks with an extensive network of branches. Banks in the GCC countries, with few exceptions, are financially strong and well capitalised, with total assets ranging from 60% of GDP for Saudi Arabia to 630% for Bahrain. Moreover, restrictions on foreign ownership have resulted in a relatively high degree of banking concentration. For example, in Saudi Arabia, the three largest banks accounted for one-half of total bank assets. This ratio is even higher in Kuwait, where the three largest banks accounted for nearly 70% of the banking sector total assets, while the largest single bank (National Bank of Kuwait) accounted for one third. Most of the commercial banks in GCC are family owned, with modest government equity participation. However, the specialised banks are fully owned by the government.[6]

By traditional measures of financial deepening, the GCC countries are well monetised. In most of these countries, the ratio of money supply to GDP is high, ranging from 50% to 85% and has been relatively stable over the years reflecting the banking sector's ability to attract increased deposits. The high degree of monetisation can be attributed to the sustained confidence in banks and their ability to utilise consumer-banking technologies. The GCC banking sector has recently experienced a growing role in

[5]Source: Energy Information Administration (EIA) "OPEC Oil Revenues".
[6]More details about the banking sector in the GCC countries will be presented in chapter three.

providing loans to the private sector, which, in turn, is increasingly involved in investment activities within the economy. In addition, the GCC governments have embarked on ambitious programs of privatisation, which have paved the path for a growing role of the private sector as the engine of growth in the future and stimulate economic activities and development. It should be emphasised here also that the dominant role of the public sector in economic activity in the GCC countries has sometimes become so large that it deprived the private sector of profitable and promising investment opportunities that would have enabled it to participate more effectively in economic activities.

The various GCC stock markets originated during the 1970s. The establishment of these markets was a major step on the path of developing the domestic financial sector to serve the process of economic development and help achieve the objectives of economic policy. Also, it is important to note that the GCC stock markets share many similarities. First, they are all sensitive to oil price fluctuations. Second, all of them are regulated either by the government or semi-government institutions although the private sector plays a vital role.

The stock markets of the GCC countries are still relatively small by world standards. By 2005, the number of listed companies was 526 with total market capitalisation equivalent to $950bn. Saudi Arabia has the largest stock market in the Arab World in terms of capitalisation, which reached $646bn by the end of 2005, with 77 companies listed on the exchange. These stock markets are largely dominated by: banks, real estate, communications and construction companies. While Bahrain and Kuwait have allowed foreign stock ownership since 1998, it is only recently that Saudi Arabia has allowed other GCC nationals to trade and own Saudi shares but only up to 25% of the capital.[7] In the GCC stock markets, fads or speculative attacks (which are rare) do not result from rapid flow of capital into and out of markets as in other emerging markets. Restrictions on foreign ownership limit flows of "hot money" into and out of GCC countries (Hammoudeh and Choi, 2006).

The Kuwait stock market is the oldest in the region, officially opened in 1977. The number of the companies listed on the exchange reached 156 by the end of 2005, with total capitalisation of $128bn. The Oman stock exchange was established in May 1989. By the end of 2005, the number of listed companies was 125 with total capitalisation at

[7]More details about foreign stock ownership in each country are presented in chapter 3, section 3.8.

about $12bn. The Bahrain stock market opened in 1989. It has 47 companies listed on the exchange, with total capitalisation of $17bn at the end 2005.[8] The Stock exchanges of Qatar and the United Arab Emirates (UAE) are relatively new. For example, the UAE established its official stock market in 2000. The number of listed companies is 89 with market capitalisation of $243bn by the end of 2005.[9] These numbers emphasise the importance of stock markets in the GCC countries and may help us understand the recent high growth rates of the respective economies. For example, the market capitalisation of the GCC stock markets increased by 92% between January and September 2005. It reached $1.042 trillion by the end of 2005, compared to $543bn in 2004 and $119bn in 2000. Saudi Arabia contributed to 55.8% of the total increase, with the remainder accounted for by Dubai (21%), Kuwait (10.8%), Qatar (9.5%), Bahrain (1.6%) and Oman (1.2%).[10]

These growth rates can be attributed to several factors that happened in the past few years. First, the GCC economies are still highly dependent on oil sectors. For most of the GCC economies, oil revenues account for about a third of the GDP, as much as 75% of the budget, and approximately 90% of the export revenues. Over the last five years, the price of a barrel of oil increased by 108%, and the global demand for oil increased from 78mn barrel per day in 2001 to 82.4mn in 2004.[11] Accordingly, between 2001 and 2004, oil exports revenues increased by 81%, 80%, 57%, and 37% for Saudi Arabia, Qatar, the United Arab Emirates and Kuwait respectively. Given that Bahrain is not a major oil producer, it is worth noting that Bahrain's stock market performance was the lowest among the six GCC markets.[12]

Second, in a volatile world of stock exchanges, the Arabian Gulf states have become the latest "emerging markets" according to recent research report issued by HSBC.[13] Following the attacks of September 11, 2001 and the significant fears of assets being frozen as a consequence of this event, large sums of cash representing Arab investment abroad flowed from the United States and Europe to the region after the new regulations. The data on the total amount of these cash flows remain uncertain; estimates range from

[8]See each exchange's website: each exchange's website: Saudi Arabia: www.tadawul.com.sa, Kuwait:www.kuwaitse.com, Dubai: www.dfm.co.ae Bahrain: www.bahrainstock.com, Abu Dhabi: www.portal.adsm.ae/wps/portal, Qatar: www.dsm.com.qa, Oman: www.msm.gov.om.
[9]Source: GCC Economic Statistics (2006) issued by the Gulf Investment Company (GIC).
[10] Source: AlRajhi Banking and Investment Corporation.
[11]World Investment Report, 2006, United Nations Conference on Trade and Development (UNCTAD).
[12] Energy Information Administration, "OPEC Oil Revenues".
[13]According to Khaleej Times on 2nd January 2006.

$400 to $800bn.[14] By all accounts, large amounts of this capital has been repatriated and invested domestically in the GCC markets. In any case, there is no doubt that during the last few years, the GCC stock markets witnessed a flow of liquidity and grew enormously in terms of market capitalisation and trading turnover.

Third, the GCC countries have witnessed tremendous growth in their access to information. Investors were able to do research on individual companies as well as the global economy, and improved their ability to trade online at cheaper prices. The access to information technology, however, complicated the regulatory agencies' ability to monitor the capital markets. Rumours and "hyping" of stocks on the internet are common place, and it is near impossibility for the young regulatory agencies to control it.

Fourth, the GCC countries are in the process of liberalising their economies since 1997. Bahrain signed a Free-Trade Agreement (FTA) with the United States (US). Saudi Arabia has a deal with the United States (US) that opens up its eventual accession to the World Trade Organization (WTO). In addition, Oman and the UAE are negotiating Free-Trade Agreements with the US; while Qatar and Kuwait are likely to follow suit. However, it is important to note that many of the reforms that are necessary to qualify for trade deals (such as opening up their capital markets) have just started to take effect, and their long-term impact is yet to be determined.

Finally, the GCC countries are experiencing low interest rates and low levels of inflation. The average inflation rate for the six Gulf countries was as low as 0.8 % in 2002, 1.3% in 2003, 1.8% in 2004, and 2.7% in 2005 before rising to 4% in 2006. Furthermore, their exchange rates are effectively tied to the US dollar since 1970s.[15] Thus, their monetary policies and short-term interest rates follow the US monetary policy, and its short-term interest rate (Karam, 2001).

The above-discussed factors shed light on what took place in GCC economies during the last decades. These factors have their effects on the economies of the GCC countries. Recently, the Gulf economies have been preparing to take advantage of the opportunities made possible by the ongoing process of globalisation and to meet the challenges

[14]See www.saudi-us-relations.org/articles/2005/.
[15]The currencies of the GCC countries are pegged to the US dollar except the Kuwaiti Dinar, which is pegged to a basket of currencies including a heavy weighted US dollar.

resulting from the new global economy characterised by keen competition and economic blocs. In many instances, economic adjustment programs and structural reforms have been undertaken with the ultimate objective of strengthening domestic capital markets and also encouraging effective private sector participation in capital-intensive development projects, particularly large infrastructure ones. With the introduction of new investment laws and other changes in regulatory environment in line with requirements for joining the WTO, the business climate has become more suitable for attracting investment and more conducive to realise high economic growth rates. These regulatory changes, coupled with the existence of significant liquidity in the domestic money markets and the region's offshore banking centres, are expected to attract foreign investors including portfolio managers and investment companies.

Furthermore, in a global context, the GCC countries become increasingly attractive investment location for several reasons. Firstly, the GCC countries are opening up to foreign investors in unprecedented ways, especially in terms of rights to ownership of business and property. Secondly, the world is entering the final stage of the oil era. The oil-producing GCC countries will benefit hugely from their oil production capabilities and from the new regime of oil prices. Thirdly, many of the quoted companies on the GCC markets are not subject to corporate taxation. Prospective investors in the GCC countries can therefore reasonably expect that competitive, efficient, and well-managed companies will be highly profitable.

1.3 The Objective of the Thesis

Having established in the previous section the importance of the GCC countries and why they are considered an interesting case, we now proceed to discuss the main objective of our empirical work. Our aim is to answer the following questions in the context of the GCC countries.

More specifically, at the macroeconomic level, we attempt to answer the following important questions:

1) Do macroeconomic factors such as oil prices, interest rates and domestic credit affect the stock market movements in the GCC countries?

2) Do the banking sector and stock markets have influence on the economic growth in the GCC countries?

3) Does the banking sector complement or substitute for stock markets in providing the financial services to the GCC economies?

At the microeconomic level, we attempt to answer the following critical questions:

1) What are the main determinants of the firm's capital structure in three GCC stock markets; namely, Kuwait, Saudi Arabia and Oman?

2) Do the factors that affect cross sectional variability of capital structure in other developed and developing countries have similar effects on GCC firms' capital structure?

3) Do the firms operating in these markets set a target capital structure and move towards it over time?

4) Has the development of these stock markets had a significant impact on the financing patterns of these firms? In other words, is the firm financing choice influenced by the level of the development of the stock market in these countries?

1.4 Contribution of the Thesis

This study sheds light on some conceptual issues in the context of economies, which have unique characteristics, i.e. have different economic structure and considered less industrial-based compared to the developed countries. The fact is that, although these countries are boosting high per capita income levels, their economies remain far from being diversified. These economies have been almost very dependent on oil exports. The abundance of oil revenues, along with the dominance of only one productive sector, is an uncommon feature that makes their investigation an insightful exercise.

While most of the literature on the above-mentioned interested areas of research concentrated mostly on the industrialised and developed economies with highly diversified productive sectors, our study represents an important contribution to the literature on largely ignored GCC countries for several reasons. First, concerning the first empirical idea, the interrelation between stock markets movements and macroeconomic activities, in almost all the previous studies focused, on oil importing countries rather than oil exporting countries. We know that there is a direct link between the underlying economy and asset prices for most developed and some developing countries. However, we do not know enough about the relationship between the underlying economy and asset prices for economies that rely on the export of a single

product; namely, oil. Given that oil prices are determined by demand and supply at the world level and the value of the dollar, it would be interesting to know whether asset prices in oil exporting countries simply reflect changes in the value of the dollar and the developments in the world economy or whether they respond to domestic macroeconomic shocks as well.

It would be very interesting to investigate this relationship for oil exporting countries since the impact may not be symmetric and the relative impact of relevant macroeconomic variables may differ. The unique economic feature of the GCC countries (i.e. less industrialised-based countries) renders the determination of stock prices in these markets significantly different from other markets. For example, many of the well-known macroeconomic variables (such as industrial production and inflation rate) that are well-defined in the literature to be related to the stock market movements have probably little bearing in the GCC stock markets.

Second, although the GCC countries succeeded in establishing a sophisticated financial system in the last three decades, they are still characterised by their less liquid markets, small number of listed firms, large institutional holdings and low sectoral diversification. While most of the previous studies conducted on advanced and highly liquid markets, we do not know if the relationship between financial development and economic growth applies to less liquid markets. In the case of less liquid and emerging GCC markets, we simply do not know enough. Thus, the GCC countries represent an interesting case study to investigate whether relationships developed and tested for highly liquid markets in advanced economies would also work for less liquid ones. Furthermore, it is the first study to focus on the GCC countries exclusively.

Third, during the past few years, the GCC economies and stock markets have grown enormously in terms of both gross domestic product and market capitalisation and trading volume. The growth in the GCC economies and stock markets raises important empirical questions regarding the relationship between financial sector development and economic growth. There is a growing interest among policy makers in these countries to explore the link between finance and growth. Thus, our investigation attempts to put a step on the road in this issue.

Fourth, to our knowledge, no study in the literature adopted the approach of combining the dynamism of capital structure and the impact of stock market development on firms

financing choices. The approach has not yet been applied in empirical research. This thesis intends to apply a dynamic adjustment model within a panel data set, taking into account the effect of stock markets development on corporate capital structure in the selected countries. In fact, using the dynamic model is of special importance in emerging markets sample, where stock markets go through regular changes. Thus, firms may have to move faster in the light of market changes. The dynamic model allows us to capture the dynamics of capital structure and to see whether firms move towards or away from optimal leverage ratios, and to measure the speed with which they do that. In addition, it is important to mention here that this study represents the first attempt to examine empirically the effect of stock markets development on firms' financial structure within the GCC countries.

Fifth, while there has been a growing number of studies that examine the capital structure in developed and developing countries, the absence of any published study, which examines and compares the capital structure of firms listed in GCC stock markets, provides us with a unique opportunity to shed some light on the applicability and validity of different theories of capital structure on firms that operate in unique economies, such as GCC countries. This is because such an investigation will provide an out of sample evidence as to whether the findings of previous studies based on developed stock markets and economies hold irrespective of the specific economic conditions of the countries in which the firms operate.

Sixth, we know from the M&M theory that optimal capital structure could exist due to market imperfections. One such imperfection is the presence of taxation. Thus, the GCC countries offer an ideal opportunity to examine the determinants of capital structure in an environment free from taxation. Under the assumption of homogenous expectations and perfect market, the M&M capital structure irrelevance proposition asserts that it does not matter whether firms issue debt or equity, but in the presence of taxation an optimal capital structure may exist. Consequently, this thesis extends the literature by re-visiting the question of capital structure in countries with no taxation. In the light of this argument, it would be interesting to investigate whether previous studies' findings hold in economies in which there is no taxation, such as GCC countries. This thesis will help us to understand whether the stylised facts about capital structure learned from developed and developing countries are also applicable to such tax-free economies, but would also help us understand the importance of taxation to capital structure decisions in general.

Seventh, our data of the firms operating in three GCC countries, Kuwait, Saudi Arabia and Oman, are new and original, and their relationship with firm level data-base, which has not been used before by any study in the literature. To date, the lack of high quality databases constitutes the major barrier on conducting capital structure research in the GCC countries. Data are not available electronically. Our data are hand-collected for a group of 142 firms operating in three GCC stock markets.

Finally, the objective of this thesis is to introduce the GCC countries as case study to the research community in these areas of research. The GCC countries are more or less distinct from other developed and developing countries. For example, the GCC countries have less developed corporate market. Firms face less bankruptcy costs due to the fact that dominant control of equity belongs to influential private sector, and they are much more dependent than most other economics on the value of the US dollar and the world economy.

1.5 Structure of the Thesis

In order to study the issues mentioned above, the chapters are organised as follows: Chapter two surveys the literature on the three areas of research identified above in order to put the research into perspective. The survey begins by shedding light on the relationship between macroeconomic factors and stock markets and how this relationship has been treated in the literature. Then, we review the literature on financial sector development and economic growth from both macroeconomic and microeconomic perspectives. The survey also includes a description of the functions provided by stock markets in an economy. Finally, we review the literature on the determinants of capital structure and stock markets development and the corporate financing choices.

Chapter three presents a comprehensive analysis of the GCC countries economies. In particular, this chapter highlights the performance of the GCC economies covering the recent economic history, economic growth, external trade, currency and inflation. In addition, this chapter pays special attention to the evolution of the banking sector and the stock markets in the GCC countries. This chapter is of special importance because it familiarises the reader with the structure of these economies and their special characteristics, which are significantly different from other industrial and developed

economies, which helps in understanding the reasons for incorporating certain variables in our models in the later empirical chapters.

Chapter four examines the relationship between stock prices and a set of macroeconomic factors that are believed to affect the GCC stock markets, notably, crude oil prices, interest rates and domestic credit. For this purpose, this chapter employs the multivariate cointegration analysis, and the Granger causality test in the context of vector error correction model (VECM). In addition, the generalised variance decomposition and the generalized impulse response functions are applied to analyse the dynamics of stock prices index in the GCC stock markets.

Chapter five empirically tests the relationship between financial sector development (namely; banking sector development and stock markets development) and economic growth. Specifically, we test the hypothesis that a positive relationship exists between banking sector and stock markets development, and economic growth, and whether these two components of financial sector complement or substitute of each other in providing financial services.

Chapter six investigates the determinants of the firm's capital structure in three of the GCC countries and how the stock market development in these countries affects the firms financing choice. Specifically, this chapter provides firm-level tests of the hypothesis that the development of the stock market is an important determinant of the firm capital structure. Chapter seven concludes the thesis focusing on the main empirical findings, policy implications and future research.

Chapter Two

Literature Review

2.1 Introduction

The previous chapter established our intention to investigate the stock markets in the context of GCC countries from three distinct but related dimensions: 1) Identifying the main macroeconomic variables that affect the movement of these stock markets 2) Investigating the influence of banking sector and stock markets development on the process of economic growth in these countries 3) Examining the impact of stock markets' development on the financing choices of firms operating in these markets, and identifying the determinants of their capital structure. In addition, the previous chapter presented a concise discussion of the reasons behind choosing these important and related areas of research in the context of the GCC countries in particular.

To gain a better understanding of these three selected areas of research and motivate our empirical work in the subsequent empirical chapters, this chapter presents a thorough survey of the literature in each of these three areas. We begin by reviewing the literature on the interrelation between stock markets movements and the macro- economy. Next, we provide a background on how the relationship between stock markets and banks and economic growth has been treated in the literature. Furthermore, we discuss how these sectors can serve as channels through which they can influence economic growth focusing on functions of these sectors in the economy. Finally, we survey the literature on the stock markets development, firms financing choice and the determinants of the firm's capital structure.

2.2 The Macro-economy and Stock Markets

The financial economics literature is rich in studies that examine the relationship between the stock prices and the macroeconomic variables. Financial theory provides a number of models that pave the way for researchers to think about this relationship. One very popular approach adopted in the literature is through the arbitrage pricing theory (APT) developed by Ross (1976). Although the empirical studies on APT focus on individual security returns, it has been discussed that it may be used in the aggregate

stock market framework, where any changes in macroeconomic factors can be seen as reflecting change in an underlying risk factor regarding future returns.

A number of empirical studies based on the APT theory linked the state of the macro-economy to stock prices and are characterised by modelling a short run relationship between macroeconomic variables and the stock price in terms of first differences, assuming trend stationary. For example, based on APT, Chen, Roll and Ross (1986) argue that stock prices should be affected by any factor that influences future cash flows or the discount rate of those cash flows. They find that the yield spread between long and short term government bonds, inflation, nominal industrial production and the yield spread between corporate high and low grade bonds, significantly explain stock prices. Fama and French (1989), Fama (1990), Schwert (1990), Ferson and Harvey (1991) and Black, Fraser and Macdonald (1997) find a significant relationship between changes in macroeconomic variables, such as industrial production, inflation, interest rate as well as a risk premium measure and the stock prices.

Antoniou et al (1998) examine the empirical validity of the arbitrage-pricing model using monthly data on securities traded on the London Stock Exchange. They randomly divided the securities into two samples, the first sample is the estimation sample and the second is the validation sample to test the proposition that the same factors are priced and carry the same prices of risk in both samples. They find that there are five factors that can be used to price securities (unexpected inflation, money supply, default risk, exchange rate and market portfolio). However, they find that only three factors (unexpected inflation, money supply and excess return on market portfolio) are unique in the sense that they carry the same prices of risk in both samples. In general, they find that the APT with a unique return generating process is still capable of explaining a substantial amount of cross sectional variation in average excess security returns.

The introduction of cointegration analysis provided another approach to investigate the relationship between macroeconomic variables and stock markets. For example, Mukherjee and Naka (1995) investigate the relation between Japanese stock market and a set of macroeconomic variables using the cointegration test in vector error correction model (VECM). They find that the Japanese stock market is cointegrated with industrial production, inflation rate, money supply, exchange rate, long-term government bond rate and short-term call money rate. Furthermore, Maysami and Koh (2000), using the same

approach, find a significant relation between the Singapore stock market and various macroeconomic variables such as interest rate and exchange rate.

In addition, Cheung and Ng (1998) employ the cointegration test for data from Canada, Germany, Italy, the USA and Japan. They find long-term relation between the stock index in each country and specific macroeconomic variables such as real money supply, real consumption, real oil prices and real GNP. Nasseh and Strauss (2000) find a significant long run relationship between stock prices and domestic and international economic activity in France, Germany, Italy, Netherlands, Switzerland and the United Kingdom (UK).

The link between macroeconomic variables and stock prices has been an active topic in the financial economics literature that attracted increasing attention of economists, investors as well as policy makers. The main reason behind this attention is that macroeconomic variables (i.e. interest rate) play an essential role in asset pricing models. According to the basic discounted cash flows model, the price of a share is equal to the discounted value of the future cash flows. That is:

$$P = \sum_{t=1}^{n} \frac{CF}{(1+k)^t}$$

Where (P) is the price of a share, (CF) is the cash flows and (k) is the discount rate. Any possible change in asset's cash flows (CF) should have a direct impact on its price. Thus, the assets expected growth rates, which influence its predicted cash flows, would affect its price in the same direction. Conversely, any change in (k) should inversely affect the asset's price. The required rate of return has two basic components, the risk-free rate and risk premium. The risk-free rate is also comprised of the real rate of interest and the anticipated inflation rate.

The advantage of this model is that it can be used to focus on the long-run relationship between the stock market and macroeconomic variables. Fama and Gibbon (1982) investigate the relationship between inflation, real returns and capital investment. They find a negative correlation between real returns and inflation. Geske and Roll (1986) conclude that the United States (US) stock prices are negatively related to the inflation rate and positively related to the real economic activity. In the same context, Campbell and Shiller (1988) estimate the relationship between stock prices, earnings and expected dividends. They find that a long-term moving average of earnings predicts dividends,

and the ratio of these earnings to current price is powerful in predicting stock returns over several years.

The financial economics literature suggests that monetary policy instruments are considered as one of the most important mechanisms that affect stock markets. For example, changes in interest rate or money supply in the economy forces the participants in the stock markets and investors in general to reconsider their investment strategies because, as suggested by financial theories, the value of an asset today is the sum of the discounted future cash flows from this asset. An increase in interest rates raises the required rate of return, which in turn inversely affects the value of the asset. Considered as opportunity cost, the nominal interest rate will affect investor's decisions on asset holdings. French et al (1987) argue that stock returns responded negatively to both the long-term and short-term interest rates. In addition, Bulmash and Trivoli (1991) find a negative relationship between stock prices and the Treasury bill rate in the US. Chen, Roll and Ross (1986) find that the spread between long and short-term interest rate affects stock returns in the US.

Economic theory suggests that money supply has negative impact on stock prices. When money supply increases, the inflation rate is expected to increase. As a result, the stock prices should decrease. However, an increase in money supply would spur the economy, and corporate earnings would increase which, in turn, would increase the future cash flows and stock prices. Mukherjee and Naka (1995), Kwon and Shin (1999), Maysami and Koh (2000) find positive relationship between stock returns and money supply.

Most of the empirical literature about the relationship between stock market returns and macroeconomic activity has been concentrated on developed as well as industrial economies. For example, Fama (1981) documents a strong positive correlation between stock prices and real variables, such as the capital expenditure, industrial production, GNP, the money supply, inflation and the interest rate in the US. Poon and Taylor (1991) provide empirical evidence that various macroeconomic factors do not influence stock market in the UK. Mallaris and Urrutia (1991) observe that the performance of the stock market might be used as leading indicator for real economic activities in the United States. Kaneko and Lee (1995) re-examine the US and the Japanese markets. They evaluate the effects of systematic economic news on stock prices. Using VAR system, they find that both the term and risk premiums, as well as the growth rate of

industrial production, are significantly priced in the US; while in Japan, international factors have become increasingly more important. However, some other studies tested this relation in the context of European markets and could not identify such relation. For example, Poon and Taylor (1991) study the UK market, Martinez and Rubio (1989) study the Spanish market, Gjerde and Saettem (1999) study the Norwegian market, and they have not implied a significant relation between stock prices and macroeconomic variables. Gjerde and Saettem (1999) demonstrate that stock prices have positive and delayed response to changes in industrial production, and the stock market responds rationally to oil price changes.

The study of the interaction between macroeconomic variables and stock prices has been extended to countries other than the US. Darrat and Mukherjee (1987) apply a vector auto regression model on the Indian data over 1948-1984. They find significant causal relationship between stock prices and selected macroeconomic variables. In addition, Fung and Lie (1990) study the long-run relationship between stock prices, GNP, inflation and money supply in Taiwan and conclude that the efficient market hypothesis is not valid for an emerging market. However, Fang and Loo (1994), using Vector auto regression model (VAR), they study the relationship between stock market volatility and international trade for four Asian countries; they find evidence in favour of efficient market hypothesis.

Habibullah and Baharumshah (1996) evaluate the informational efficiency of Malaysian stock market index. Using monthly data from 1:1978-9:1992, they find no evidence for cointegration between macroeconomic variables such as M1 and M2. They conclude that Malaysian stock market is informational efficient in the long run. However, Ibrahim (1999), using longer time series data and wider range of macroeconomic variables, suggests a cointegration between the Malaysian stock index and three macroeconomic variables: the price level, the credit aggregates and the official reserves. The multivariate cointegration and causality analyses further suggested the significant role of the exchange rates in influencing short run movements of the market prices.

Chaudhuri and Koo (2001) investigate the volatility of stock prices in some Asian emerging markets. They find that both domestic and international macroeconomic variables have significant relation with stock prices volatility. Bhattacharya and Mukherjee (2002) study the causal relationship between stock prices and macro aggregates in India from 1992 to 2001. Their results show that there is no causal

relation between stock prices and macroeconomic variables like money supply, national income and interest rate, but there exists a two-way causal relation between stock price and rate of inflation. According to them, industrial production leads the stock prices. Leigh (1997) investigates Singapore stock market and finds no relationship to macroeconomic variables. Kwon and Shin (1999) establish a long run relation between stock prices and industrial production, exchange rate, trade balance and money supply for Korea. Achsani and Strohe (2002) examine the stock markets of Norway and Indonesia and find that stock prices are negatively affected by changes in interest rate, but positively with oil prices, gross domestic product and exchange rate.

The effect of oil prices on the stock markets depends on the country if it is oil exporting or importing. Increases in oil prices will be beneficial for oil exporting countries. Thus, a positive relation between oil prices and stock prices is expected in oil exporting countries and a negative relation is expected for oil importing countries. Surprisingly, the existing literature on the impact of oil prices on stock markets is very limited. For example, Hamilton (1983), using Granger causality test, examines the impact of oil price shocks on US economy from 1949 to 1972. He finds that changes in oil prices are determined exogenously. Other researchers such as Burbidge and Harrison (1984) support Hamilton's basic findings using alternative data and estimated procedures. However, Chen et al (1986) fail to find any relationship between stock prices movement and oil price in the US. Although a considerable body of empirical research has investigated the relationship between economic activity and oil price changes, it is surprising that little research has been conducted on the relationship between financial markets and oil prices changes, and those mainly focus on industrialised countries such as the USA, the UK, Japan and Canada.

Jones and Kaul (1996) investigate the response of the US, Canada, the UK and Japan stock prices to oil prices using quarterly data. They conclude that the US and Canadian stock markets are rational, in the sense that the response to oil shocks could be completely accounted for by their impact on current and future cash flows. In the UK and Japan, however, stock markets have overreacted to new information about oil prices. Sadorsky (1999), using monthly data over the period 1947:1-1996:4, finds that industrial production responds positively to stock returns and that oil prices play an important role in affecting stock returns. Papapertou (2001), using a monthly data for Greece for the period 1989:1-1999:6, finds that oil prices are important in explaining stock price movements.

More recently, a handful of studies investigated the above mentioned issues in the context of GCC stock markets. Assaf (2003) investigates the dynamic relationship among the GCC markets during the period 1997-2000 using VEC models. He finds strong interaction and feedback among these markets. Specifically, he indicates that Bahrain's market has a dominant role in influencing the other GCC markets, while Saudi Arabia's market is slow in receiving shocks from these markets. Hammoudeh and Aleisa (2004) examine the link between the indices of five GCC stock markets and between the indices and the oil future prices. They use daily data for the period 1994-2001. Their findings suggest that the Saudi index has the most causal linkages with other GCC markets, and it can explain and predict all the GCC indices at five percent level of significance. Bahrain index is the second mostly linked with the other GCC markets. On the other hand, Kuwaiti market has the least causal linkages, followed by Omani market. Furthermore, they find that there is bidirectional relation between the Saudi index and the future oil prices. The oil prices also can predict and explain the other GCC indices, with the exception of the United Arab Emirates index.

Hammoudeh and Choi (2006) investigate the relationships among five GCC stock markets and their link to three global factors: oil spot prices, the US Treasury bill rate and the S&P index over the period 1994-2004. They find that despite the long-run relationships, these markets do not have strong predictability power for each other. Also their results suggest that the US Treasury bill rate has short-term impact on some of the GCC stock markets. However, the oil prices and S&P index have no predictability effect on any market in the short run.

From the above argument, it is clear that a considerable amount of theoretical and empirical studies has been conducted on the interaction between stock prices and macroeconomic variables. Moreover, a number of key economic variables that have been widely accepted to cause stock index movements have been identified. However, most of the empirical studies related to this issue have remained confined to the industrialised and developed economies with highly diversified productive sectors. More importantly, almost all previous studies focused on oil importing countries rather than oil exporting countries. It would be very interesting to investigate this relationship for oil exporting countries since the impact may not be symmetric and the relative impact of relevant macroeconomic variables may differ. The unique economic features of GCC countries (i.e. less industrialised-based countries) render the determination of stock prices in these markets significantly different from other markets. For example,

many of the well-known macroeconomic variables (such as industrial production index) that are well defined in the literature to be related to the stock market movements have probably little bearing in the GCC stock markets.

We know there is a direct link between the underlying economy and asset prices for most developed and some developing countries. However, we do not know enough about the relationship between the underlying economy and asset prices for economies that rely on the export of a single product like oil. Given that oil prices determined by demand and supply at the world level and the value of the dollar, it would be interesting to know whether asset prices in oil exporting countries simply reflect changes in the value of dollar and the developments in the world economy or whether they respond to domestic macroeconomic shocks as well. Moreover, since GCC countries individually have different degrees of oil dependency, they are comparatively an interesting case study for further investigation and analysis.

Motivated by the lack of literature on the link between the macro-economy and stock prices in oil exporting countries such as the GCC countries with their above mentioned unique characteristics, our investigation attempts to widen the scope of this line of research by extending this type of analysis to select GCC economies with different profiles than those already investigated in the literature. Undoubtedly, valuable insights could be gained from such investigations. Thus, allowing for meaningful comparisons of the impact of various economic forces on stock markets across economies with different characteristics. Given that these economies are well-integrated in the world economy; this study can be considered an important contribution to the investigation of small open economies. Such investigation would be very helpful to policy makers and the investing community.

Having established the case for investing the relationship between asset prices and macroeconomic variable, the subject of interest for the first empirical chapter is now proceeded to present the relevant literature on the next topic of interest, which is the effect of stock markets and banks on the process of economic growth.

2.3 Financial Sector Development and Economic Growth: An Overview

The recognition of a significant and positive relationship between financial development and economic growth dates back to Schumpeter (1912), who addresses the essential role of well-developed financial intermediaries in promoting technological innovation,

capital accumulation and economic growth. He argues that well-functioning financial markets can reduce transaction costs, allowing efficient allocation of profitable investment opportunities, which in turn promote economic growth. Since Schumpeter (1912) put his argument forward, a considerable amount of theoretical and empirical literature has emerged.[16]

Goldsmith (1969) was the first to provide significant empirical evidence about the correlation of finance and growth for a cross section of countries. He asserts that the positive effect of financial intermediation on growth could be due to increasing both the efficiency and the volume of investment, even though he assigns less important role to the latter. His general result was that financial and economic development occurs simultaneously.[17] However, his study suffers from several drawbacks. First, the problematic data in the measure of financial development as he used the value of financial intermediary assets relative to GNP which could not be a good indicator of the quality of services introduced by financial intermediary. Second, he does not control for other variables that may play an important role in determining the rate of economic growth, such as fiscal and monetary policy and political stability. Although the theoretical framework of his study was relatively unsophisticated, his works triggered an ongoing academic debate that affected policy makers in developing and developed countries.

Building on Goldsmith's work, McKinnon (1973) and Shaw (1973) focus on the crucial role of public policies in the mobilisation of savings. They argue that all forms of public control on financial markets achieved by quantitative instruments (such as reserve ratio) or price instruments (interest rate mechanism) create financial repression situation which results in negative real interest rate, low level of savings, investments and therefore growth. McKinnon (1973) and Shaw (1973) argue in favour of interest rate liberalisation and the diminishing role of other financial repression policy tools. Their basic model consists of financial intermediaries, savers and investors. It is an inside money model because loans to the private sector are backed by internal debt of the private sector. The nominal interest rate is fixed, holding the real rate below its equilibrium level. Saving is positive and investment is a negative function of the real interest rate. When the latter is driven down by either accelerating inflation or a

[16]Gerschenkron (1962), Patrick (1966), Goldsmith (1969) among others.
[17] As measures of financial development, he uses the ratio of financial intermediation (measured by the total asset of all financial institutions /GDP).

decrease in the fixed nominal interest rate, savings will decrease. The policy prescription proposed by McKinnon and Shaw is therefore to abolish institutional constraints on nominal interest rates and to reduce inflation.

It should be mentioned that even though McKinnon and Shaw came to the same conclusion, they differ in their theoretical approaches. For example, McKinnon made no difference between savers (households) and firms (investors). His model rested on the assumptions that all economic units are limited to self-finance. Investors must accumulate deposits in advance in order to invest later. Therefore, there is an intertemporal complementarily of deposits and physical capital. In Shaw's model, this complementarily is not necessary because investors are not confined to self-finance. When financial intermediaries raise their real returns to investors, they attract more deposits and accumulate more capital, which in turn expand their potential lending abilities. At the same time, they lower real costs to investors through risk diversification, low transaction costs, efficiency of operations and economies of scales in lending. In all models of McKinnon and Shaw type, the deposit rate that maximises growth is the one that results from free market equilibrium. They recommend abolishing interest rate ceilings; to give up directed credit policies; to reduce reserve requirements and more importantly to ensure more competitive conditions in the financial sector.

Because of the above-mentioned mixed experiences with financial liberalisation policies, the Neostructuralists School emerged in the 1980s. Taylor (1983) and Van Wijnbergen (1983a,b) argue that unorganised money markets play a crucial role in determining whether financial liberalisation can accelerate growth or not. If the increase in interest rate leads to a shift in assets from the unorganized to formal credit market, the existence of reserve requirements will lead to a reduction in the role of financial intermediation. Their second argument is based on the cost-push inflation, which will result from an increase in interest rate, which may lead to a collapse in effective demand. This argument is still valid even if the role of financial intermediation does not shrink because an increased propensity to save may weaken effective demand even more. The neostructuralists view, however, rests on the assumption that unorganised money markets are competitive which may not be the case.

Other studies focus on the microeconomic underpinnings of macroeconomic policies. For example, Stiglitz and Weiss (1981) argue that the disequilibrium in the credit market may have another cause other than government intervention. Their model shows that the

interest rate on credit may affect the nature of the transaction, and may therefore not clear the market. This result is derived from an adverse selection effect. High interest rate may attract the bad borrowers and may induce borrowers to undertake more risky investment projects, which in turn may make borrowers more likely to default. These adverse outcomes are due to microeconomic shortcoming of free credit market.

The 1990s witnessed the introduction of endogenous growth theory, which allows the appearance of several theoretical models, which link the role that can be played by financial intermediation development to promoting long-run economic growth. A large part of this theoretical literature shows that financial intermediaries could reduce the costs of requiring information about firms and managers, and lower transaction costs. Levine (1991) employs an endogenous growth model to explain the role of financial markets development in the process of economic growth. He argues that the emergence of stock markets plays a significant role in allocating risk and he explains how financial markets encourage investment in a way that promotes economic growth through easing the ability to trade ownership of firms without much bad effects on the productive process within the firm. The absence of financial markets exposes investors to liquidity constraints, which would force firms to pay back their debts and liquidate assets they own. That may include capital assets, which embody a firm's technology. From this point of view, he asserts that the existence of financial markets implies a reduction of liquidity and productivity risk.

King and Levine (1993a, b, and c) present the most comprehensive empirical study about the relationship between financial development and economic growth. They argue that the level of financial intermediaries in the economy can be a good indicator of long-term rates of economic growth. They use four measures of financial development: (1) the liquid liabilities of the financial system/GDP (2) quantity of credit provided to private sector (3) quantity of credit provided by banks and (4) the share of total credit allocated to private non-financial firms. The first two measures are indicators of the quantity of financial activities and the other two measures are indicators of the quality of financial activities. Their measures of economic growth were: (1) real per capita growth in GDP (2) real per capita growth in capital accumulation (3) total factor productivity growth rate. Using a sample of 77 countries, they run 12 regressions. The first set of measures regressed on the average value of the second set over the period 1960-1989 after controlling for variables that may influence the economic growth (such as education, government expenditure, inflation, political stability). They find positive and significant relationship between each of the financial development variables and

economic growth variables in all 12 regressions. Moreover, their results suggest that the initial level of financial development could predict the subsequent rates of economic growth, capital accumulation and productivity growth even after controlling for other variables

It can be concluded that King and Levine were able to overcome some weaknesses of other studies as they control for variables affecting long-term growth. Although their work was an initial step to overcome the drawbacks of previous studies, their work was exposed to criticism. Fernandez and Galetovic (1994) criticise King and Levine's work and show that if the sample of countries is divided between OECD and non-OECD countries, the correlation becomes insignificant for OECD countries. However, when they increase the number of countries in their sample and divide it into three groups based on per capita income, their results show that as the initial income falls, the correlation becomes more significant.

Arestis and Demetrides (1997) also criticise the work of King and Levine (1993a). They argue that their interpretation is based on fragile statistical basis. They show that once the contemporaneous correlation between the main financial indicators and economic growth has been accounted for, there is no longer any evidence to suggest that financial development helps predict future growth. Furthermore, they demonstrate that the cross section nature of King and Levine (1993a) data set cannot address the question of causality in a satisfactory way. They offer a theoretical framework, which suggests that the causality pattern may vary across countries because of different institutional characteristics. This led them to suggest that these institutional characteristics should be the guiding principle in any work, which hopes to shed light on the questions of causality between financial development and growth. This framework is based on the notion that institutional differences that exist amongst the financial systems of various countries in the world are of paramount importance.

Levine (1997) represents the starting point of most recent literature on the finance growth nexus. His article was an extension of King and Levine's (1993) article. He studies the role of financial sector development in promoting economic growth. To measure the development of financial sector he uses four indicators: liquid liabilities, claims on non-financial sector, commercial to central bank credit ratio and private credit as ratio of domestic credit. To measure economic growth, he uses three different indicators: the average rate of real GDP growth, the average rate of growth in capital stock per capita and total productivity growth. However, he finds GDP per capita

growth to be most useful for investigating economic growth. He concludes that there is a substantial role for financial sector in economic growth. He also finds indirect evidence that countries with advanced financial systems are more efficient in promoting faster economic growth than countries with less advanced financial systems.

Choe and Moussa (1999) investigate the relationship between the development of financial sector and economic growth in South Korea. They use GDP as a measure of economic growth. On the other hand, household sector's, the business sector's holdings of securities and the growth of the business sector's loans as financial variables. They find that financial development led to economic growth. They also find that financial intermediaries are more important than the capital markets in this causal relationship. Ndikumana (2000) investigates the effects of financial development on the domestic investment in 30 Sub-Saharan countries. Using four indicators of financial development -credit to private sector, total liquid liabilities, credit provided by banks and an index combining these three indicators- he finds a positive relationship between financial development and domestic investment. To sum up, the main conclusion is that most of the empirical literature supports the theoretical assertion that financial sector development has been found to be a good accelerator of economic growth

2.4 Stock Markets, Banks and Economic Growth

2.4.1. Effects of Stock Markets

Studies of the finance-growth relationship were quickly followed by studies of the influence of the stock markets on growth. Several reasons have induced such studies. The stock markets are always of interest because data on equity market activity around the world are available and because the stock markets -Wall Street- always attract attention as the paramount symbol of capitalism (Wachtel, 2003). Other views argue that stock market crises and the consequent damage have caused to the economies and shed light on the role played by stock markets, which have been accused of being a wasteful venture that relies on rolling money while doing nothing to create economic value for nations.[18] Whatever may be the reasons, the clear fact is that the emergence of stock markets has a definite impact on the operation of variety of institutions, hence on economic promotion. This means that stock markets are becoming more crucial and their role should not be ignored (Khan and Senhadji, 2000).

[18]See Levine and Zervos (1998).

In one way or another, stock markets play an important role in helping companies raise capital and ensuring that savings are invested in the most profitable companies. Stock markets by their nature are forward looking and current prices reflect the potential future earnings and profitability of companies. Since the stock prices reflect expectations about profitability, and profitability is directly linked to economic activity, fluctuations in stock prices are thought to lead the direction of the economy. Next section discusses the main function provided by stock market and how they affect Economic growth.

2.4.1.1 Providing Liquidity

Liquidity is the speed at which an asset can be converted into cash at agreed prices. Stock markets are expected to promote economic growth by increasing liquidity of financial assets. Liquid markets make investment less risky and more attractive because they allow savers to sell equity cheaply and quickly if they want to access their savings and not commit themselves to long-term commitment. Savers usually do not like to commit their savings for a long period. At the same time, projects with higher return require long-term commitment of capital. From this point of view, we can state that financial markets provide the needed liquidity to investors. According to Levine (1997), the strong link between stock market liquidity and economic growth continues to hold when controlling for other economic, social, political and economic factors that may affect economic growth.

2.4.1.2 Exerting Corporate Control and Monitoring Managers

The ability of financial intermediaries to monitor the performance of enterprises on behalf of many investors and to exercise corporate control helps to ensure that investors receive returns that properly reflect the enterprise's performance, and creates the right incentives for the managers of the borrowing enterprises to perform well. Thus, financial arrangements that improve corporate control tend to promote faster capital accumulation and growth by improving the allocation of capital (Bencivenga and Smith 1991).

It is well known in the finance literature that a conflict of interest exists between stockholders and managers on the one side and between managers and debt holders on the other side. For example, highly leveraged firms face greater probability of bankruptcy as they enter risky projects and may face problems in obtaining credit. In this situation the existence of well-functioning market may help in reducing the effect of

this conflict. The corporate finance literature has identified several cases in which reliance on outside debt financing increases the incentives of the firm's owners to act opportunistically or otherwise harm the creditors, customers and suppliers. Jensen and Meckling (1976) argue that firms with high leverage ratio may have an incentive to select projects that have negative expected NPV and are risky; thereby, harming creditors. Stock markets help exert corporate control mechanism since the performance of firms is reflected in stock prices. Corporate managers will do their best to minimise agency problem and to maximise shareholder wealth. In a market economy, the link between corporate profit and economic growth is obvious. Stock markets are said to influence corporate control by mitigating agency problem as they align the interest of owners and managers through tying the management compensation to the performance of the firm, which is reflected in stock prices (Levine and Zervos 1996).

2.4.1.3 Acquiring Information

It is difficult and costly for individual investors to evaluate firms. Since they do not have enough time, experience and capacity to evaluate and collect information about different investment opportunities will be of no incentive for them to invest in a project with little information available to them. As a result, they will forego good investment opportunities because they are not well informed. Since financial institutions have the experience in their field, they can determine the feasibility of the available investment opportunities and can provide recommendations and advice about certain opportunities at lower costs than individual investors. Therefore, financial markets can participate in economic growth by improving resource allocation through their information acquisition capability.

Grossman (1976) argues that stock markets provide aggregate information about the prospect of the firms whose shares are traded. They make it easier for the market and the creditors to monitor the firm in case of providing it with the capital it needs. By introducing such a service to investors, well-functioning markets may contribute positively to corporate control, which in turn improves the management efficiency. Well-functioning stock markets may lower the cost of raising new capital. In this case, external finance (both debt and equity) would become less costly although it is not clear which one would increase more. Greenwood and Jovanovic (1990) argue that when financial intermediaries rightly evaluate firms and select the most promising one, this will lead to more efficient allocation of capital and faster growth.

2.4.1.4 Risk Diversification

As it is known in the world of finance, risk and return usually work inversely. High return investments have inherently high risk. Stock markets provide the essential mechanism to diversify such risks. In providing the opportunity for investors to invest in a large number of firms locally or internationally, well-functioning stock markets reduce the exposure to risk of specific field of investment. This will allow small investors to access large investment opportunities through the mechanism of fund pooling by forming a portfolio, and help to diversify risk, which can eliminate the unsystematic risk. This will help to a large extent in allocating resources and hence accelerating economic growth.

Stock markets can participate positively in economic growth through offering global risk diversification opportunities. Obstfeld (1994) argues that financial openness and access to international security markets are beneficial to all parties involved. He suggests that financial openness allows investors to share the risk among more parties, encouraging investors to fund riskier and less liquid, but more productive schemes. By correlating risk with expected return, Obstfeld shows that provided risky returns are imperfectly correlated across countries, and provided some risk-free assets are initially held. A small rise in diversification opportunities always raises expected growth as well as national welfare. King and Levine (1993a) argue that financial intermediaries -through evaluating investment opportunities, promoting risk diversification, and allocating resources towards the right path- would contribute to higher productivity in the economy and thus promote economic growth.

2.5 Banks Versus Stock Markets

There are contradictory theoretical predictions as to the separate impacts of both banks and stock markets on growth. Most of the models have stated that well-functioning financial markets can contribute positively to long-term growth through easing information and low transaction costs which in turn may lead to efficient resource allocations. In addition, a large capitalised stock market can play an important role in easing the financing of new projects (Boyd and Prescott 1986, Bencivenga, Smith and Starr 1995, Greenwood and Smith 1997). Cho (1988) applies the theory of credit rationing which was proposed by Stiglitz and Weiss (1981). He compares banks and equity markets and concludes that banks suffer from the problem of imperfect information and cannot achieve efficient capital allocation.

However, Bencivenga and Smith (1991), in their model, argue that a bank is more efficient in investing than individual investors. Banks can allocate resources in a way that eliminates liquidity risk. Banks as an intermediary, pool the funds from savers or households who are usually risk averse to entities that want to invest in productive capital, which in turn promotes economic growth. In doing so, banks reduce the unnecessary liquid capital and encourage savers to hold bank deposit instead of investing in unproductive opportunities. Also, Stulz (2000) argues that one advantage of banks over stock markets is that they are better in mitigating agency costs and asymmetric information. Furthermore, banks handle the task of monitoring and screening mechanism. Their governance role implies that, as providers of finance, they have to have good documentations about their clients. Firms are reluctant to reveal to the public the necessary information to obtain funds, but they do not mind providing this information to their banks.

Some other empirical literature concentrates on the role of banks in accelerating economic growth and generally do not simultaneously test stock market development. For instance, Levine, Loayza and Beck (2000), in their study about the relationship between banks development and growth, omitted the measures of stock markets development because such measures for 20-year period are only available for about 40 countries (out of 80 in their sample). Beck and Levine (2002) argue that omitting stock market development makes it difficult to assess whether: (a) the positive relationship between bank development and growth holds when controlling for stock market development (b) banks and markets each have an independent impact on economic growth (c) or, overall financial development matters for growth but it is difficult to identify the separate impact of stock markets and banks on economic success.

Researchers agree with the notion that banks are more suitable than stock markets (Dow and Gorton 1997) and those banks produce better resources allocation than stock markets (Stiglitz 1985, Bhide 1993). Alternatively, Levine (1997) states that it is not banks or markets, it is banks and markets. These different components of the financial system can play an important role in financial development. However, others argue that stock markets play an important role in accelerating economic development (Greenwald and Stiglitz 1989, Greenwood and Jovanovic 1990, Bencivenga and Smith 1991, Levine 1991, Saint Paul 1992, King and Levine 1993, Homstron and Tirol 1993, Boyd and Smith 1998). Nevertheless, Tsuru (2000) argues that the link between the indicators of financial development and economic growth might be coincidental.

Levine (1997) argues that a well-functioning equity market enables entrepreneurs to make in the long term more productive investment in physical capital because they have access to long-term sources of funds. More productive capital implies higher return for investors. Thus, lenders as well as equity investors more confidently advance funds to these entrepreneurs. Information flow from trading of companies' also shares boosts lenders understanding of and confidence in the prospect of these funds. Mayer (1988) argues that greater liquidity in emerging stock market was associated with an increase in the amount of funds raised through bond offering and bank loans. As a result, corporate debt to equity ratio actually rises with greater stock market liquidity.

Levine (2000) presents the first broad cross-country examination of financial structure and economic growth. He evaluates which view of financial structure and economic growth is most consistent with international experience. He shows that the financial structure is not a good predictor of growth: neither bank-based nor market-based financial systems are closely associated with economic development. He concludes that the overall level of financial development is significantly correlated with the long run growth. Concentration on financial structure does not do much help in understanding cross-country growth differences.

Some of the few studies, which examined the role of stock markets in the macroeconomic development process, were by Atje and Jovanovic (1993), Levine and Zervos (1996, 1998). Atje and Jovanovic (1993) explain that because the riskier and more productive investment is illiquid, participating investors must rely on financial intermediaries' abilities to disperse risk and supply liquidity. They argue that because financial institutions and markets can dedicate themselves to determining the potential of an investment, they can guide investors to the best investments either through research, which they publish, or by denying or limiting credit to entrepreneurs who they believe not to have viable investment plans. The information advantages that financial institutions have access to should diminish the harmful consequences of adverse selection, whereby asymmetric information causes the least worthy entrepreneurs to receive funding because they are most likely to need and apply for investment capital.

Levine and Zervos (1998) conduct an international empirical study of 47 countries to test whether stock market liquidity and banking development do relate positively to economic growth. They find that banking development and increased stock market liquidity do lead to economic activity, capital accumulation and productivity growth. Stock market liquidity alone, as measured by the value of stock traded in comparison to

the size of the equities market or the size of the economy, caused economic and productivity growth, capital accumulation, real GDP per capita growth and bank development. This relationship holds even after controlling for initial income, educational attainment, political stability, and openness to trade, macroeconomic stability and other measures of market efficiency. Although they do not establish whether stock market development causes economic growth or vice versa, the results indicated a significant relation between the two.

In an attempt to provide a more accurate picture about the relationship between stock markets and financial intermediary's development across countries, Demirguc-Kunt and Levine (1996) introduce a broad array of stock market developments. They examine different measures such as market size, market liquidity, market concentration, market volatility, institutional development and international integration. They find that the level of stock market development is highly correlated with the development and efficient functioning of banks, insurance companies and pension funds. More recently, Rousseau and Wachtel (2000) make an important contribution to the literature by using panel techniques with annual data to assess the relationship between stock markets, banks and growth. They use the "difference panel estimator" developed by Arellano and Bond (1991). They show that both banking sector and stock markets development explain subsequent growth, even after controlling for reverse causality.

Thus, it is not stock markets versus banks, it is stock markets and banks, and each of these components of the financial system is an independently strong predictor of growth. Stock markets may play a prominent role in expanding opportunities for trading risk and boosting liquidity through their role in raising capital, while banks may focus more on establishing long-term relationship with firms so that they can acquire information about management and firm prospects.

The above debate indicates that the issue of financial sector development and economic growth cannot be settled without further empirical work and still there is an on-going debate about the issue. While most of the previous studies are conducted on highly liquid and well-functioning markets, not enough is known about the extent of the validity of the relationship between financial development and economic growth in less liquid and less developed markets. In the case of less liquid and emerging GCC markets we simply do not know enough. Thus, GCC countries represent an interesting case study and offer us a good reason to investigate whether the relationships developed and tested for conventional economies would also work for unconventional economies.

To complete the literature review on the last issue investigated, we proceed to shed light on the interaction between the financial sector development and corporate finance patterns and the determinants of corporate capital structure.

2.6 Microeconomic Aspects: Corporate Financing Patterns

In a frictionless world in which Modigliani and Miller (M&M) theorem holds, the financing patterns do not matter for a firm's value or its investment decisions. In other words, the value of the firm depends only on its cash flows, not on debt equity mix. Therefore, corporate valuation is independent of the existing capital structure. Although the Modigliani and Miller (1958) capital structure theorem clearly rests on unrealistic assumptions, it can serve as a starting point to search for the factors that influence corporate leverage policies. In their pioneering work, they demonstrate that there would be arbitrage opportunities in perfect capital markets if the value of a firm depended on how it is financed. They also argue that if investors and firms can borrow at the same rate, investors can neutralise any capital structure decisions the firm's management may take.

The area of corporate finance has attracted a lot of attention from researchers who focused their studies on the determinants of capital structure. One of the most comprehensive studies in this area was conducted by Titman and Wessels (1988). They study the corporate financial structure of firms in the United States during the period 1974-1982. They identify eight factors that different theories of capital structure have suggested would affect a firm's financing choice. These factors include the intangible value of assets, non-debt tax shield, expected future growth, industry classification, firm size, profitability and volatility. They find that the firm size and profitability are important for capital structure decisions. Their results suggest that large firms in the United States have more access to capital markets, and small firms prefer short-term debt.

In a review of the literature about capital structure, Harris and Raviv (1992) report that leverage is positively related to non-debt tax shields, firm size, assets tangibility and growth opportunities; while it is inversely related to bankruptcy risk, research and development expenditure, advertising expenditure, and firms' uniqueness.[19] In an

[19] Uniqueness is measured by the ratio of research and development to sales and the ratio of selling expenses to sales. Unique firms will have higher cost of liquidation if they default. These firms are less likely to issue debt.

important study, Rajan and Zingales (1995) investigate the determinants of capital structure for G-7 countries (The United States, Japan, Germany, France, Italy, the United Kingdom and Canada). They use four explanatory variables; namely, the tangibility of assets, market to book ratio, profitability and logarithm of total sales as proxy for size. They find that factors determining the firm leverage were similar across these countries. Specifically, they find that firm size, tangible assets, profitability, and future expected growth were important determinants of capital structure in G-7 countries. Similarly, Bevan and Danbolt (2002) study the determinants of capital structure for a sample of 822 UK companies between 1991 and 1997. They find that the leverage level in the UK companies is positively related to tangibility and size, and negatively related to profitability and the level of growth opportunities.

The empirical studies conducted on the pattern of corporate finance suggest that there is a tangible difference in corporate financial patterns in developed and developing countries. Firms in developed countries rely more on internal finance particularly on retention. The contribution of the equity market is less important in almost all developed countries. Developed countries firms are observed to follow the pecking-order theory of finance. In contrast, the picture in developing countries is totally different. Studies by Singh and Hamid (1992), Singh (1995), Demirguc-Kunt and Maksimovic (1996) report that firms in developing countries depend more on external funds for their financing purposes. Comparing the large firms in developing countries with their counterparts in developed countries, they find that firms in developing countries rely more heavily on equity issue.

Singh and Hamid (1992) conduct a large empirical study on the pattern of corporate financing in the developing countries (Korea, Thailand, Malaysia, Pakistan, India, Turkey, Mexico, Jordan and Zimbabwe). Using a sample of 50 largest manufacturing firms traded in stock market, they analyze the capital structures of these firms. They find that firms in developing countries rely to large extent on external finance. Furthermore, they find that most of the corporations in their sample use greater amount of equity than debt to finance the growth of net asset.

Singh (1995) went a step further by employing larger set of firms over longer period of time. He confirms the earlier findings by Singh and Hamid (1992). He justifies why firms in developing countries use more equity than debt by the reduction in the cost of equity over the period 1980s-1990s, which led to a jump in both share prices and interest

rates. The reason for this situation is the liberalisation of the financial systems in these countries, besides the essential role that has been played by the government of these countries in expanding and then activating the supply and demand in the stock markets. Broadly similar results are reported by Booth et al (2001) who also argue that it is difficult to distinguish between trade off and pecking order models because variables used in one model are also relevant in the other model. Cobham and Subramaniam (1998) dispute the Singh and Hamid (1992) results, at least for India, where they conclude that during 1980s, large Indian and British firms exhibited similar pattern of debt ratios.

Deesomsak, Paudyal and Pescetto (2004) investigate the determinants of capital structure of firms operating in Thailand, Malaysia, Singapore and Australia covering the period 1993 to 2000. They suggest that capital structure of firms operating in these countries is influenced by the environment they operate and other determinants of capital structure that are widely defined in the literature. In general, they find that non-tax debt shield, liquidity and share price performance; growth opportunities negatively and significantly are related to leverage. In addition, they find that the relation between financial activity of stock markets and leverage is negative and significant.

Antoniou, Guney and Paudyal (2007), using a panel data from France, Germany, Japan, The United Kingdom and The United states, investigate the determinants of capital structure of a group of firms operating in these countries capital markets covering the period 1987-2000. Their results show that leverage ratio is positively related to the tangibility of assets and the size of the firm in all the five countries. However, it declines with increase in profitability and growth opportunities of the firm. They find that the strength of these determinants of capital structure is country specific that can be explained by the country's legal and financial traditions. Overall, their results suggest that the capital structure of a firm is heavily influenced by the corporate governance practices, tax systems, functioning of capital markets and the level of investor's prediction in the country in which the firm operates.

While the literature is rich in studies -which examine the importance of firm specific factors in determining a firm's financing choice- empirical evidence on the effect of stock market development on capital structure choices is very limited. Demirguc-Kunt and Maksimovic (1996) conduct a comprehensive study in the literature that empirically explored the effect of the stock market development on the firms financing choices.

They find a statistically significant negative correlation between stock market development (as measured by the ratio of market capitalisation to GDP) and the ratio of both long-term and short-term debt to firm's total equity. When they compared developed and developing countries stock markets, they find that stock market development leads to substitution of equity for debt financing in developing countries. In contrast, in developed countries, large firms become more leveraged as the stock market develops; whereas the smallest firms appear not to be significantly affected by market development. Their results have important implications: banks in emerging markets do not need to be fearful of stock market development, they find that improvement in the functioning of a developing stock market results in higher debt-equity ratio and thus more business for banks, stock markets and banks are complementary to each other.

Rajan and Zingales (1998) concentrate on a point in which financial development may influence economic growth through external finance. They argue that financial development should be most related to particular industries that are relying mainly on external finance. Using a sample of 36 individual industries in 41 countries over the period 1980-1990, they examine the impact of the interaction between the external financial dependence of those industries and financial development of the countries on the growth rate of those industries in different countries. They use three measures of financial development (1) the ratio of market capitalisation as ratio of GDP (2) domestic credit to private sector as ratio of GDP (3) accounting standard. They find strong relation between economic growth in different industries and countries and the interaction of financial development of countries and financial dependence of industry.

Based on the work of Rajan and Zingales (1998) and using a sample of 42 developed and developing countries, Beck and Levine (2001) examine whether (1) industries that depend heavily on external finance grow faster in bank-based or market-based system (2) new firms more likely to form in bank-based or market based system (3) is it only rather the overall level of financial development and its legal determinants that explain industrial growth patterns and emergence of new firms across countries. Their results do not provide support for either the bank-based or market-based view. Differences in financial structure cannot explain industrial growth patterns across countries. However, differences in financial development, in creditor rights, shareholder rights and their enforcement can explain differences in industrial growth patterns across countries. Furthermore, their results indicate that industries that are heavy users of external finance

do not grow faster in an economy with either a market or bank based system, but in countries with higher overall levels of financial development and not a specific structure of the financial sector that allows new firms to overcome barriers to obtain external finance.

From the above literature review, it is evident that the debate about the role of financial sector in corporate activity and the determinants of capital structure still continues, and there is no consensus about the issue. Also, it is clear that most of the empirical studies that examined this issue have been mostly applied to the listed companies in advanced and developed economies. This issue as it relates to the GCC countries has been largely ignored in the literature. The GCC countries consider an ideal case study to investigate this issue in an environment free of taxation. Under the assumption of homogenous expectations and perfect market, the M&M capital structure irrelevance proposition asserts that it does not matter whether firms issue debt or equity, but in the presence of taxation an optimal capital structure may exist. Thus, this thesis extends the literature by re-visiting the question of capital structure in countries with no taxation. Such investigation will help us understand whether the stylised facts about capital structure learned from developed and developing countries are applicable to tax-free economies, but would also help us understand the importance of taxation to capital structure decisions in general.

Furthermore, most of the above empirical studies ignore the possible impact of macroeconomic conditions that could affect the capital structure decisions such as stock markets development. This thesis tries to investigate the impact of stock market development in GCC on firms financing choice operating in these markets. This issue becomes increasingly important given the rapid growth of the stock markets in the GCC countries over the last decade. Finally, it should be noted that this study represents the first attempt to examine empirically the effect of stock market development on firms' financial structure within GCC context.

2.7 Summary and Conclusion

In order to motivate our three empirical chapters and gain better insights of the three selected areas of research, this chapter reviews the literature on these areas. A glance over the literature reveals that the GCC countries have been largely ignored as a case study in the empirical literature although these countries have unique characteristics and a unique economic structure that makes them a very interesting case. For example,

although the issue of the relationship between stock prices and macroeconomics variables has become more important for smaller stock markets as their economic role is less understood as compared to well-organised and mature markets, investigating this issue for oil exporting countries has been largely ignored. The GCC countries by nature are more integrated markets in the world economy because they rely on oil which depends on the world demand and supply and the value of dollar. Their systematic risk is simply the world systematic risk and thus their study provides a very good case for trying to understand how stock markets behave, as being subject to world economic forces.

We also notice from the above literature review that the financial sector development and economic growth have attracted much attention of the financial economics studies. Both theory and evidence support the view that a developed financial sector induces economic growth. The most important and early contribution on financial development and economic growth came from Schumpeter (1912) who argues that the banking system plays an essential role in economic growth and show how financial transactions take central stage in economic growth. He asserts that financial development promotes economic growth particularly by channelling capital to entrepreneurs with high return project. Goldsmith (1969) finds a significant correlation between the financial market development and the level of real per capita GNP. He argues that the process of growth has feedback effects on financial markets by creating incentives for further financial development. McKinnon (1973) and Shaw (1973) extend this argument by noting that financial deepening implies not only higher productivity of capital but also a higher saving rate and therefore higher rate of investment.

King and Levine (1993a, b, and c) address the importance of financial development for macroeconomic growth. Levine and Zervos (1998), Rajan and Zingales (1998), Demirguc-Kunt and Maksimovic (1998) explore the same issue but at the industries and firms level respectively. This view builds on the logical and theoretically sound notion that financial intermediaries encourage the mobilisation of savings, ameliorate asymmetric information and risk pooling, all of which lead to higher saving rate and more efficient capital allocation; hence promote economic growth (Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), King and Levine (1993)).

Generally, the empirical research over the past few decades related to this area has been focused on developed, Asian, Latin American, North African countries, while Middle Eastern and Arab countries (i.e. GCC) have been largely ignored. There is no such

positive relationship between financial sector development and economic growth documented for GCC countries. This thesis intends to investigate empirically the financial sector development and economic growth link in the context of the GCC countries and examine whether the banking sector and stock markets are complementary or substitutes for each other in providing financial services and thereby enhancing economic growth in the case of GCC countries.

Furthermore, the issue of stock market development and firms financing choice and how firms operating in these markets determine their capital structure is still not discovered in the case of GCC countries. While there has been a growing number of studies that examine the capital structure in developing countries, the absence of any published study which examines and compares the capital structure of firms listed in GCC stock markets provides us with unique opportunity to analyse the explanatory power of the main capital structure theories in non-tax paying entities such as GCC countries. By doing so, this thesis sheds light on the applicability and validity of different theories of capital structure on firms that operate in unique economies such as GCC countries. Modigliani and Miller (1958) theory argues that optimal capital structure could exist due to market imperfections, one such imperfections is the presence of taxation. Thus, the GCC countries offer an ideal opportunity to examine the determinants of capital structure in an environment free of taxation. Furthermore, different from other developed countries, GCC has less developed corporate market, firms' face less bankruptcy costs due to the fact that dominant control of equity belongs to influential private sector and they are much more dependent than most other economics on the value of the US dollar and the world economy.

Chapter Three

Gulf Cooperation Council (GCC) Countries: An Overview

3.1 Introduction

In the previous chapters, we established that GCC countries represent an interesting case study for our research. This chapter gives an overview about the structure of these economies. Studying the country profiles of the GCC countries is of special interest because: first it will familiarise us with these economies and their special characteristics which are significantly different from other industrial and developed economies. Second, it will highlight the major economic indicators, which will give us an idea of the uniqueness of these economies and help us to understand the reasons for using certain variables in our future modelling structure in the following empirical chapters. Furthermore, identifying and highlighting the major economic indicators will help us in choosing the proper model and incorporate the appropriate variable in it.

This chapter reviews the salient characteristics of the GCC countries populations, and presents the behaviour of the key economic indicators, such as gross domestic product (GDP), GDP per capita, real GDP growth rate, external trade, currency and inflation over the past ten years. This chapter also provides a concise description of the banking sector and the stock markets including a brief history of these institutions and their structure, recent performance and developments, in addition to the financial liberalisation of these markets. Naturally, this discussion is intended to show the significance of these markets in the context of the emerging markets in general and the Arab region in particular.

3.2 Population

Since the discovery of oil, the GCC countries transform themselves from dessert to modern states. This transformation was accompanied by a rapid growth in population. The population of the GCC countries has grown ten times during fifty years, from about 4mn to about 40mn in 2005, having one of the highest rates of population growth in the world.[20] The increase was not due to natural growth of indigenous population, but due

[20]Source: United Nations Expert Group Meeting on International Migration and Development in the Arab Region: Arab versus Asian Migrant Workers in The GCC Countries. UN/POP/EGM/2006/02, 22 May 2006.

to the continuous influx of expatriates, especially in the light of the economic boom, with more employment opportunities.

Different from other countries where the foreigner workers play a complementary role with national workers, in the GCC countries, they become dominant labour force in most sectors of the economy. By 2004, the GCC countries inhabited by 12.38mn foreigners who constitute 37% of the total population.[21] The number of foreigners has been even more pronounced in the work force than in the total population. Non-nationals constitute a majority of the labour force in all the GCC countries with an average of 70% by the end of 2004. The lowest rate belongs to Bahrain and Saudi Arabia, where 50% and 65% of the work force were foreigners. In Qatar and the UAE, the rate was 90% for each (Fasano and Goyal, 2004). Foreigners in the GCC countries are from countries all around the world such as India, Bangladesh, Pakistan, Philippines, Iran, Egypt, Sudan, Srilanka and many Arabs from nearby countries.

Table 3.1 Population-Millions

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuwait	1.9	2.09	2.20	2.27	2.25	2.24	2.30	2.42	2.54	2.75	2.99
Bahrain	.58	.59	.61	.62	.64	.65	.66	.68	.70	.71	.72
Oman	2.13	2.21	2.25	2.28	2.32	2.40	2.47	2.53	2.33	2.41	2.50
Saudi	18.25	18.83	19.19	19.72	20.26	20.81	20.97	21.49	22.01	22.52	23.11
UAE	2.41	2.49	2.62	2.77	2.93	3.24	3.48	3.75	4.04	4.32	4.7
Qatar	.51	.52	.53	.56	.56	.61	.64	.68	.71	.74	.79

Source: GCC Economic Statistics issued by the Gulf Investment Company (GIC) and International Financial Statistics (IFS), various issues.

As can be noted from table (3.1), the total population of Kuwait has increased by about 57% over the ten years. It reached 2.99mn by the end of 2005, an 8.7% increase over that of year-end 2004. This positive and high increase is the first since the end of 1994. The population grew by 2.6%, 5.2%, 4.9% and 8.2% in 2001, 2002, 2003 and 2004 respectively. In 2005 the Kuwaitis increased by 3.7% making their total 992,200, but Kuwaitis in total population decreases from about 35% by the end of 2004 to about 33%. On the other hand, non-Kuwaitis number increased by 11.2% totalling 1.99mn. While Kuwaitis represent about 33% of the total Kuwaitis population, the non-Kuwaitis percentage is 67%. The total workers in Kuwait are 1.81mn, which represents about 60.5% of the total population.[22] The Kuwaiti labour force to the total workers is about

[21]According to the quarterly reports of Economic Intelligence Unit (London, 2005).
[22]Source: Public Authority for Civil Information, Population Statistics, June 2006.

18%. For example, about 75% of the labour force in the public sector is Kuwaitis, while 97% in the private sector are non-Kuwaitis.[23]

Bahrain's population has increased by about 24% over 1995-2005. The total population of Bahrain by the end of 2005 stood at 720,000, an increase of 1.4% over 2004. The local Bahraini comprised 450,000 or 62.5% of the total population, which was marginally down from 62.8% recorded in 2004 and 62.6% in 2003.[24] Like other Gulf countries, Oman has a relatively large expatriate workforce. A breakdown of the population between Omani and non-Omani shows that, while the overall growth rate was less than 2% in 1998 and 1999, the local population expanded by an average of 2.7% a year. In 2000, the number of expatriates increased, pushing up the overall growth rate to 3%, while the growth rate in the Omani national population was about 2.9%. In 2001 the trend was even more pronounced, the total population expanded by 3.3% as the number of expatriates grew by 4.8%, while the Omani national population growth rate remained relatively steady at 2.8%. From 2002 to 2005, the trend slowed, with both the local and expatriate population growing by just under 2.5%.[25]

Saudi Arabia's population as of 2005 reached 23.61mn (of which 6.2mn (27.1%) are non-Saudi,) from 22.52mn recorded in the previous year. The proportion of Saudi population has remained more or less the same, around 72.9% in the last few years. The three administrative units of Riyadh, Mecca and Eastern Province together have 63% of the total population.[26]

Historically, the UAE had one of the highest population growth rates in the world. During the 1990s, the population grew by an average of 5% a year, reaching 3.24mn by 2000, and an increase of almost 50% on the 1990s level. For the period 2000-2004, the population grew steadily at an average rate of 7.6%. The official estimated figures for 2005 reported population at 4.7mn or 8.8% growth over the previous year. The UAE is characterised by a severe skewness towards non-nationals. In 2005, expatriate workers represented 78.1% of total population. Another characteristic of the UAE demography is the high concentration within two emirates namely Abu Dhabi and Dubai, constituting more than 50% of total population. It reflects the fact that both emirates are

[23]Central Bank of Kuwait, Quarterly Statistical Bulletin, April –June 2006.
[24]Encyclopaedia of the nations by the United Nations.
[25]http://en.wikipedia.org/wiki/oman.
[26]Central Department of Statistics, Ministry of Planning, Saudi Arabia.

the major destinations for business job creation for both expatriates and nationals.[27] Finally, by 2005, official estimates put Qatar's population at 796,000 of whom approximately 200,000 are citizens.

3.3 Economy

As oil production increased to meet rising world demand, revenues from oil exports mounted. The GCC countries initial prosperity was founded almost completely on oil reserves, which represent roughly 47% of the world's total. Thus, oil price fluctuations have profound impact on the GCC gross domestic product and the level of economic activities across the last ten years (see table 3.2).

Table 3.2 Gross Domestic Product (GDP) US$ billions

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuwait	26.56	31.07	30.03	25.33	29.18	36.88	34.08	38.12	46.20	55.72	80.77
Bahrain	5.8	6.10	6.34	6.18	6.26	7.97	7.92	8.44	9.69	11.01	13.38
Oman	13.8	15.28	15.84	14.09	15.71	19.87	19.95	20.30	21.78	24.78	30.73
Saudi	127.8	141.3	164.9	145.9	161.1	188.6	183.2	188.8	214.8	250.8	309.9
UAE	42.7	47.8	51	48.2	54.9	70.2	69.1	74.28	87.6	103.1	132.3
Qatar	8.13	9.06	11.29	10.25	12.39	17.76	17.74	19.70	23.53	31.73	42.46

Source: GCC Economic Statistics issued by the Gulf Investment Company (GIC), various issues

Most of the GCC countries reported a healthy economic growth over the past few years. For example, in Bahrain, the nominal GDP grew from $11.01bn in 2004 to $13.38bn 2005 (see table 3.2), recording a growth of 21.52% on the back of higher oil prices and improved performance in the financial sector (27.6% of GDP in 2005 compared to 24.1% in 2004), real estate and construction sector. This was the highest nominal growth reported in the last five years. Since 2003 the real GDP grew at a healthy pace from 4.9% in 2003 to reach 6.1% in 2006, which is the highest growth recorded in a decade (see table 3.3).

Oman is one of the developing countries that succeeded in achieving, within a very short period, a high level of economic growth. Analysis of the latest data indicates that Oman's gross domestic product registered a strong growth of 24% in 2005 to stand at $30.73bn against 13.7% in 2004 (see table 3.2). Oman real economic growth has averaged around 5% a year over the past decade, which is considered an impressive performance by regional standards. Growth has ranged from an expansion of 7.4% in

[27]www.arab.net/uae/population.htm.

2001 to a contraction of 1.1% in 2003 before it recovers again to reach 6.4% in 2006. In large part, the swings of growth reflect trends in oil production and prices, which not only have a marked bearing on the oil sector but also are transmitted into the rest of the economy through government spending and private sector confidence.

Table 3.3 GDP- Real Growth Rate (percentage)

	1999	2000	2001	2002	2003	2004	2005	2006
Kuwait	1.1	6	2	-2	4.6	6.8	6.4	6.5
Bahrain	4	5	4	5	4.9	5.6	5.9	6.1
Oman	4	4.6	7.4	2.2	1.1	1.2	5.6	6.4
Saudi	2.6	4	1.6	.6	5.3	5	6.3	4.2
UAE	2.5	4	5.6	2.4	5.2	5.7	8.8	10.2
Qatar	2.5	4	5.6	3.4	8.5	8.7	8.8	7.1

Source: GCC Economic Statistics issued the by Gulf Investment Company (GIC)

Saudi Arabia is in possession of about 24% of the world's proven total petroleum reserves. It ranks as the largest exporter of petroleum and plays a leading role in OPEC. Moreover, the proven reserves increase gradually as more oil fields are discovered, unlike most other oil-producing countries. Saudi Arabia produces more oil and natural gas liquids than any other country in the world, more than 9mn barrels per day. Low oil prices throughout 1998 ($12/barrel), dragged nominal GDP down 10.8% to $145.1bn (see table 3.2). However, a strong upturn in oil prices in 2000 ($30/barrel) resulted in a robust growth for the Saudi economy as the nominal GDP surged by 17% and stood at a level of $188.6bn in 2000. The 11th September event changed the global economic outlook heading toward recession and the Kingdom's GDP fell by 2.9% to $183bn in 2001. Over the period 2002-2006, it recovers again to grow at an average rate of 18% as the high prices and production levels in 2005-2006 kept the GDP on a high growth path. Between 2000 and 2002, Saudi Arabia's nominal GDP has remained largely unchanged, while the real GDP grew at 1.6% in 2001. Real GDP growth, which reached a peak of 4% in the year 2000, has subsequently declined to .6% in 2002. But with the prices of crude oil remaining firm in the international markets and Saudi Arabia's oil production remains significantly high, real growth rate in GDP grew from 5% in 2004 to 6.3% in 2005 (see table 3.3). However in 2006, production levels on account of OPEC cuts due to declining prices had its effect on the GDP growth as it recorded only 4.2% real GDP growth in 2006.

Based on the exploitation of oil from the early 1960s, and gas from the 1970s, the UAE became one of the most prosperous countries in the world. The UAE is important to world energy markets because it contains nearly 10% of the world's proven oil reserves. The UAE also holds the world's fifth-largest natural gas reserves and exports significant amounts of liquefied natural gas. Between 1995 and 1997, the nominal GDP grew at average rate of 8.9%, giving way to a contraction in 1998 of almost 5.8% as oil prices fell before growing again by 14% and 27.8% in 1999 and 2000 respectively. That was largely because of the rapid upturn in oil prices and production. Despite the volatility, there has been a broad upward trend. In 2004 and 2005, nominal GDP was valued at close to $103bn and $132bn respectively, which represents a growth rate of 28.3%, just over triple its value a decade earlier.

Over the period from 1999 to 2006, the UAE's real growth rate in GDP fluctuated between 2.5% and 10.2% respectively (see table 3.3). In 2002, although the oil prices rose by 4% to $24.7 per barrel, oil output is likely to have declined by about 9% in line with OPEC mandated cuts. These cuts contributed to a fall in real GDP growth to 2.4%, even though non-oil growth remained robust. In 2006, the government reported a real growth rate of 10.2%, which is considered the highest in the region. This increase is mainly driven by sharply higher oil prices, increased oil production, strong investor confidence and a significant increase in foreign direct investment with an increase of almost 11% in non-oil GDP. It is important to note that both nominal and real GDP growth rates are still among the highest in the world.

Qatar economy has been one of the region's star performers over the past ten years. In 2005, Qatar gross domestic product rose to record high $42.4bn against $31.7bn in the previous year, which represents a growth of 33.8%. Developments in the non-oil energy sector is the main contributor to economic growth as continued rapid expansion of Qatar's liquefied natural Gas industry results in steep increases in exports volumes. Oil provides around a third of Qatar's GDP and its natural gas reserves are vast - around 5% of the entire world's total. The rest of the Qatar economy is supported by industries such as fertilizers, cement, banking, chemicals, iron and steel, and spin-offs from the petrochemical industry. Since the discovery of petroleum, Qatar's government has persistently tried to catch up with the world's developed nations; modernise its administrative body; enhance its cultural insurgence and develop its social, economic and cultural aspects. Qatar's real gross domestic product grew at an average rate of 6%

between 1999 and 2006. The highest rate recorded is 8.8% in 2005. This was largely the result of a sharp increase in natural gas exports.

Since 1970s, the oil boom in GCC countries has allowed their governments to accumulate substantial wealth that has been passed through different channels to the population in the form of wages, subsidies and other benefits. As a result, the GCC countries have one of the highest per capita income levels in the world. For most of the GCC countries, the GDP per capita has doubled between the 1995 and 2005 (see table 3.4). Saudi Arabia, however, experienced a significant contraction of oil revenues combined with a high rate of population growth. Its per capita income has fallen from $9,046 in 1997 to $7,018 in 1999 to stand at $11,066 in 2004, up from about $7,000 in 1999. However, it grew steadily between 2002 and 2005 to reach $13,409 in 2005. Within the GCC countries, the UAE had the second highest per capita after Qatar. For example, tremendous growth in the last couple of years has boosted the UAE's GDP per capita to $29,434 in 2005, as compared to $23,874 in the previous year. In addition, in Qatar the sharp growth in its GDP also boosted its GDP per capita to a record level of $53,345 in 2005, which places Qatar among the wealthiest countries in the world. This is because Qatar's population is small and the oil/ natural gas resources of Qatar are huge.

Table 3.4 GDP per capita (US$)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuwait	13,550	13,557	14,838	13,592	11,154	16,444	14,760	15,752	18,142	21,722	27,006
Bahrain	10,121	10,187	10,420	9,618	9,934	12,493	12,105	12,559	14,077	15,576	18,482
Oman	6,477	6,901	7,023	6,159	6,757	8,271	8,051	8,000	9,308	10,275	12,249
Saudi	7,003	7,505	9,046	7,018	8,103	9,690	8,736	8,785	9,758	11,066	13,406
UAE	17,727	19,315	19,470	17,397	18,703	21,634	19,847	19,791	21,681	23,874	29,434
Qatar	14,796	16,179	21,317	18,313	22,052	29,115	27,721	28,561	32,467	42,653	53,345

Source: GCC Economic Statistics issued by the Gulf Investment Company (GIC)

Although the governments in the GCC countries are making gradual efforts to reduce dependence on oil by promoting and facilitating investment in the non-oil sector, oil sector continued to dominate the GDP in the GCC (see table 3.5). The exception is the United Arab Emirates and Bahrain. The largest and the wealthiest emirates in the UAE are Abu Dhabi and Dubai. The wealth of Dubai is derived from a service based economy (tourism, construction, telecommunication, media, real estate and financial services). Together, the two emirates provide more than 80% of the UAE's income, for

example, Abu Dhabi and Dubai were the primary contributors to GDP in 2005 at 59% and 28.9% respectively. Oil only contributes to around 5% of Dubai's GDP, which reflects its diversity. Interestingly, Dubai is actually the main source for the remarkable growth witnessed in the majority of the UAE non-oil sectors.[28]

Table 3.5 Oil sector as percentage of GDP

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuwait	39.6	44.4	39.9	30.8	37.5	49	43.9	38.1	42.1	43.4	52.9
Bahrain	15.2	17.9	18.5	13.4	18	27.9	24.5	24.4	24.7	22.9	25.3
Oman	38	42	40	30.9	39.2	48.7	42.6	41.9	41.2	42.3	49
Saudi	34.7	38.3	32.5	23.7	28.7	36.8	33.2	33.1	36.2	40.6	47.8
UAE	30.6	32.5	29.8	21.1	24.7	33.6	29.5	26.6	28.6	32.5	35.7
Qatar	36.9	38.7	42.3	34.8	45.8	60.4	57.7	57.8	45.5	59.6	61.9

Source: GCC Economic Statistics issued by the Gulf Investment Company (GIC)

Although GCC economies depend to large extent on oil revenues, they individually have different degrees of oil dependency (see table 3.5). For example, the limited oil resources forced Bahrain to reduce its dependency on oil some 20 years ago, resulting in one of the most diversified economies in the Gulf region. During the 1970s and 1980s, the government focused on the creation of industrial infrastructure and heavy industries, including shipbuilding and aluminium smelting. The oil sector accounts for half of government revenues, two-thirds of exports, but less than one-fifth of GDP (the lowest oil dependency rate among GCC).

3.4 External Trade

Based on the sustained high oil prices, most of the GCC countries enjoyed a surplus in their balance of trade over the past decade (see table 3.6). The export receipts for the GCC depend entirely on the price of oil in the world markets. The imports are dominated by finished goods and driven by domestic demand. In 2005, for Kuwait, the trade surplus was about $31bn registering a growth of about 62% over the previous year. This was because of strong growth of 54.9% registered in exports coupled with comparatively lower growth of 42.9% recorded in imports. Trade surplus represented 37.3% of the GDP in 2005, up from 34.6% in 2004. During the period 1999-2005, exports have grown at an average of 28.6% led by oil exports, which grew at 28.2% during the same period. Kuwait exports to Asia-Pacific region are oil. In 2005, Asia

[28]Source: Central Bank of the United Arab Emirates, Quarterly Statistical Bulletin, June 2006.

Pacific accounted for 83.7% of total exports from Kuwait up from 77.8% in 2004. Japan was the largest importer from Kuwait accounting for 34.7% of oil exports in 2005. Among the other destinations, the USA accounted for 9% of total oil exports in 2005.[29]

Table 3.6 Balance of Payments (Millions of US Dollars: Minus sign Indicates Debit)

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
KUWAIT											
Goods: Exports f.o.b.	12,833	14,946	14,281	9,618	12,224	19,478	16,238	15,366	21,794	30,221	46,873
Goods : Imports f.o.b.	7,254	7,949	7,747	7,714	6,708	6,451	7,046	8,124	9,882	10,920	15,671
Trade Balance	5,579	6,997	6,534	1,903	5,516	13,027	9,192	7,242	11,912	19,301	31,202
BAHRAIN											
Goods: Exports f.o.b.	4,114	4,702	4,383	3,270	4,363	6,243	5,657	5,887	6,721	7,621	10,131
Goods : Imports f.o.b.	3,488	4,037	3,778	3,299	3,468	4,394	4,047	4,697	5,319	6,135	7,605
Trade Balance	626	665	605	-29	895	1,849	1,610	1,190	1,402	1,485	2,525
OMAN											
Goods: Exports f.o.b.	6,065	7,339	7,631	5,509	7,238	11,319	11,074	11,173	11,670	13,381	18,692
Goods : Imports f.o.b.	4,380	4,728	5,191	5,826	4,299	4,593	5,311	5,636	6,086	7,873	8,029
Trade Balance	1,685	2,611	2,440	-317	2,939	6,726	5,763	5,537	5,584	5,508	10,663
SAUDI ARABIA											
Goods: Exports f.o.b.	-	-	60,73	38,82	48,48	77,48	67,97	72,40	93,24	125,99	174,63
Goods : Imports f.o.b.	-	-	26,37	27,53	25,71	27,70	28,60	29,62	33,86	40,05	51,32
Trade Balance	-	-	34,36	11,28	22,76	49,77	39,36	42,84	59,37	84,94	123,30
The UAE											
Goods: Exports f.o.b.	-	33,60	34,01	31,08	35,84	49,84	48,77	52,16	67,14	91,00	115,45
Goods : Imports f.o.b.	-	25,83	26,61	30,54	32,46	35,01	37,29	37,57	45,82	63,43	71,12
Trade Balance	-	7,760	7,400	550	3,380	14,82	11,48	14,63	21,31	27,56	44,33
QATAR											
Goods: Exports f.o.b.		3,833	3,856	5,030	7,214	11,594	10,871	10,978	13,382	18,685	25,762
Goods : Imports f.o.b.		2,584	2,993	3,071	2,252	2,930	3,386	3,650	4,412	5,410	9,064
Trade Balance		1,249	863	1,960	4,962	8,664	7,485	7,328	8,970	13,275	16,698

Source: GCC Economic Statistics issued by the Gulf Investment Company (GIC) and International Financial Statistics (IFS), various issues.

During the same period, imports grew at 20.6%, with maximum growth coming from manufactured goods. Imports to Kuwait are mainly comprised of machinery and equipment, manufactured goods, food& beverages. Share of capital goods in total imports increased over the years. It has gone up from 15.1% in 2001 to 21.7% in 2004, led by growth in machinery and equipment. The increased share of capital goods in total imports is explained by the increase in number of mega projects in Kuwait, which reflect higher public and private investment in infrastructure. Most Kuwait imports are products from Europe (Germany, Italy and France), the US and Japan.

[29]The discussion of imports and exports number and the trade partner in this section is mainly based on the country report (2006) provided by Economic Intelligence Unit (EIU) for each GCC countries.

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[29]The discussion of imports and exports number and the trade partner in this section is mainly based on the country report (2006) provided by Economic Intelligence Unit (EIU) for each GCC countries.

The total exports of Bahrain in 2005 stood at $10.13bn of which $8.02bn are oil exports. The total exports in 2005 were up by 32.9% over the previous year because of higher oil prices. Over the past decade, petroleum-related exports have typically accounted for about 60% of total exports in Bahrain. However, the oil contribution to the total exports has been increasing gradually since 2002, as it increased from 68.3% in 2002 to 79.7% in 2006. This indicates Bahrain continued dependence on oil although it is low compared to the regional peers. In absolute terms, the non-oil exports have increased, but due to higher oil prices through out the year, they have been brought down by the contribution of non-oil exports.

Of all the Gulf Co-operation Council (GCC) countries, Bahrain has traditionally been the most dependent on imports, with one of the highest import/GDP ratios (about 54%) in the Arab world. Bahrain's major import item is crude oil, which is purchased from Saudi Arabia. Bahrain also imports alumina from Australia. Crude oil imports constituted 33% of total imports in 1994, 45% in 1996 and 36% in 2001. Import volumes have remained stable throughout the last decade, but there have been significant swings in value, largely reflecting movements in the oil markets, but also the fact that Saudi Arabia, as part of its financial support for Bahrain, charges a below-market rate for its oil that varies from year to year. In 2005, the total imports increased by 23.9% to reach $7.60bn.

Bahrain trade with other GCC countries was about 36.4% of non-oil exports and 20.7% of non-oil imports in 2005. Saudi Arabia is the major export destination for Bahrain with exports worth $521mn in 2005 representing about 60% of total non-oil exports with the GCC countries. The other important export destination is the UAE representing 17.3% of the total non-oil exports with the GCC countries. Similarly, Saudi Arabia has also been the major import destination for Bahrain with imports of $2.59bn in 2005 representing 60% of the total non-oil imports with the GCC countries. Saudi Arabia has been among the major import and export destination even when compared to all countries that deal with Bahrain. Other major international destinations are France, Germany, Japan and the USA.

Oman has recorded a trade surplus every year for more than two decades, although the value varies considerably, largely owing to trends in the international oil market. In 1998, when world oil prices suffered a sustained slump, the value of Omani exports plummeted whereas imports spending increased as demand for heavy equipment for

investment projects grew. As a result, Oman recorded a deficit of $317mn, around 12% of the value of the trade surplus recorded the previous year. In 1999, the trade surplus increased nine fold to just short of $3bn, as oil prices strengthened and import spending eased, before doubling again in 2000 as oil prices and production rose further. The trade surplus remained high between 2001 and 2004 at around $5.7bn (equivalent to 25% of GDP over the period) before going up to $10.66bn in 2005. In 2005, total exports stood at $18.7bn to register a 40% increase over 2004. This growth was mainly driven by oil exports revenues, which displayed the strongest growth and rose by 45% in 2005 due to higher oil prices, which increased from an average of $34.42 in 2004 to an average $50.26 in 2005.

The total imports of Oman have been rising consistently over the years and stood at $8.02bn at the end of 2005. This rise could be driven by the growing economy (GDP growth rate of 24% in 2005), which needed rising imports for both investments and consumption purposes. During the period 2001-2005, the total imports of Oman have been increasing at an average rate 16.7% and witnessed an increase of 2.8% in 2005 compared to the previous year. In 2005, three of Oman's top five export destinations were in Asia which absorbed 65% of all Oman's sales abroad. Japan has traditionally been the country's leading export market, with South Korea and China vying for second spot. Geographically, the imports were distributed across many countries with the UAE holding a share of 27%, Japan 19%, the UK 9% in 2005. This trend has more or less been maintained in the recent past years. Japan is Oman's second most important supplier, accounting for 15-20% of the country's imported goods over the past decade. In particular, Japanese manufacturer has established a strong position in the market for private and commercial vehicles. The UAE has been the leading source of imports every year since 1984. The UK and the US were also important sources of goods for Oman, reflecting demand for high-quality finished goods, which Oman's small industrial base cannot supply.

Saudi Arabia, being one of the major oil exports, continues to enjoy positive trade balance. However, being dependent on oil exports, Saudi Arabia makes its economy highly sensitive to fluctuations in oil prices and production levels. Since 2003, the trade balance has recorded strong growth as oil prices went up and the country was operating at near 100% capacity. Oil exports as proportion of total export of the country has remained in the range of 89%-90% in the last five years.

The UAE has recorded trade surpluses every year for more than 20 years. Since 1991, the cumulative value of these surpluses has exceeded $125bn equivalent to around 200% of estimated GDP in 2003. Although large, the value of the trade surpluses has varied considerably, ranging from a low of $7.7bn in 1996 to a high of more than $44bn in 2005. The period 2003-2005 has been extremely good for the UAE on the trade balance. Exports as percentage of GDP increase reaching 87.3% by the end of 2005 up from 70% in 2001. In 2005, exports continued their rapid growth to report an impressive growth of 26.9% to stand at $115bn. Oil exports contributed for 48% of total exports as compared to 43% reported in the previous year. It stood at new high of $55bn. Major increases in imports occurred in manufactured goods, machinery, and transportation equipment, which together accounted for 70% of total imports.

As for geographical distribution, Asia is the major destination of the UAE exports. Within Asia, Japan has long been the UAE main export market. Japan relies on the UAE for almost 30% of its crude oil needs, making the federation its largest single oil supplier. The UAE exports to Japan stood at $22bn in 2005. In addition, Korea and Singapore are important export markets. As with Japan, most of the UAE exports to these states are hydrocarbons based. On the other hand, India continued to be the single largest destination of non-oil exports (metals, plastics and rubber) from the UAE accounted for 8% of the total non-oil exports.

The UAE profile of suppliers is far more diverse, with no single country accounting for more than 8% of its overall import spending, reflecting the broad range of goods on which the emirates rely. The US and Japan have vied over the past five years to be the UAE largest single supplier, with a 6% rise in Japanese sales to the UAE moving it ahead of the US at the top of the import list in 2000. The US re-established itself as the leading supplier in 2001, however, as spending surged by 15% to almost $3bn, well ahead of the 3.5% overall increase in import spending. The US retained this position in 2005; whereas Japan was displaced by China, whose sales to the UAE stood at $9bn in 2005.

Since 2000, Qatar has consistently posted trade surpluses largely because of high oil prices and increased natural gas exports. The performance of the trade account has historically been a function of the performance of the oil sector and crude prices on the international markets. Between 1997 and 2002, exports have varied between a low of $3.9bn in 1997 to a high of $11.6bn in 2000, as production rose and prices remained

firm. Exports remained high in the following two years, at $10.8bn in 2001 and $10.9bn in 2002. Since 2002, it grew steadily to reach $25.7bn in 2005, which represents growth rate of 38% over the previous year. However, import bill of the country increased at a faster pace than exports by 67.5% in 2005 to $9bn, leaving the trade surplus at $16.6bn, which represented a growth of 26% over the previous year. In 2005, oil and gas accounted for 88.7% of the total exports compared to 86.7% of the total exports in the previous year.

The top export trade partners for Qatar in the last few years were Japan, Korea and Singapore. Japan is Qatar's most important export market, and has accounted for nearly half of the total exports revenues of the country. Qatari exports to Japan, largely made up of energy products, amounted to 50.4% of Qatar's total exports. Exports to South Korea have climbed sharply in recent years as the supply of gas has supplemented crude oil, and accounted for 20% of total exports in 2005. Singapore was the third largest market for Qatari products, amounting to almost 8% of total exports.

As import expenditure is largely for machinery and mechanical appliances, base metals, vehicles, transport equipments and food products, Qatar is heavily dependent on OECD suppliers, led by France, Italy, the US, Japan and Germany. Over the last five years, Qatar's imports have witnessed significant increase from $3bn in 2001 to $8.9bn in 2005, recording an average growth rate of 21.8%. The increase was mainly attributed to various energy sector projects and rapid industrial and infrastructure expansion in the state. In 2005, Qatar main import trade partner was France with a share of 15% of the total value of imports, followed by Japan, which accounted for 14% and USA 13%.

Furthermore, over the past three years, surging oil revenues resulted in very high current account and government budget surpluses in the GCC countries. Overall, the GCC countries recorded a combined current account surplus of $163bn in 2005. Saudi Arabia current account surplus in 2005 increased to $87bn, accounting for 54% of the total surplus. Kuwait and the United Arab Emirates had current account surpluses of $32.8bn (20% of the total) and $26.5bn (16.2% of the total) in 2005 respectively. The current account as ratio of the GDP in 2005 ranged from 11.8% in Bahrain to 28.3% in Saudi Arabia and 40.5% in Kuwait. These large current account surpluses are matched by modest net outflow of capital funds and strong increase in international assets held

by central banks and governments in addition the budget surplus as a share of GDP ranged from 5.7% in Bahrain 30.6% in Kuwait and 18.9% in Saudi Arabia.[30]

3.5 Currency and Inflation rate

GCC countries pegged their currencies to the US dollar since the early 1970s. This policy has contributed to a low and stable rate of inflation and maintains private sector confidence. In this context, the autonomy of individual GCC country's monetary policy is limited due to the combination of a fixed exchange rate and an open capital requiring that the domestic interest rates to track closely the movements of the US interest rates. Consequently, the financial authorities in the GCC countries would have to rely mainly on tightening credit to private sector and reducing public spending in order to bring down inflation.

Inflation rate in the GCC countries averaged at 1.15% between 1994 and 2004. However, during 2005, inflation accelerated markedly to 4.11% up from 1.26% in 2004.[31] This rise of inflation was accompanied with high economic growth and was led more by demand-pull rather than cost-push. By 2006 and 2007, the inflationary pressures increased due to the abundant liquidity, strong consumption demand, weakening of the US dollar to which national currencies of the GCC pegged. But still it appears to be well contained everywhere except in Qatar and the UAE where the rapid growth in private sector credit and surging housing costs have pushed annual inflation to above 8%. In Saudi Arabia, Kuwait, Bahrain and Oman, the annual inflation rate remains below 5% in 2006.

3.6 Banking Sector

After oil, the financial sector is the main hope for GCC countries for future economic development. Most GCC countries have similar financial systems, which mainly consist of the central banks, commercial banks, insurance companies, brokerage firms and stock exchange. The history of banking sector in the GCC countries is relatively young. The pioneer banks opened in the early 1950s. The flourishing economies prospered the banking industry. Commercial banks took a leading role in the GCC financial system primarily for providing funds, and over the years, they developed in respect of providing sophisticated financial products and services and using advanced information

[30]According to ESCWA report 2006.
[31]International Financial Statistics (IFS), various issues

technologies. Specialised banks were first established in Kuwait, Saudi Arabia, Oman and the UAE for financing long -term projects. Specialised investment banks with government or private ownership entered the banking sector particularly in Kuwait, Bahrain and Saudi Arabia. These banks offered various investment products and portfolio management for their customers. By the end 1970s, Islamic banks emerged in Kuwait, Bahrain, Saudi Arabia and the UAE operating on parallel basis with the conventional banks. The Islamic Banks prohibited riba or usury, disapprove the fixed rates of interest on interest and deposits.

The pattern of development of banking sector is best illustrated by an analysis of financial deepening. Financial deepening is an essential component of balanced economic growth as it plays an important role in transmitting savings from surplus units to the deficit ones. The relationship between financial deepening and economic growth has been well defined in the literature over the past few decades (World Bank 1989). We will have a look on two measures of financial development, which will be used later in our empirical analysis.

Table (3.7) gives a summary of two measures of financial intermediary development: claims on private sector as ratio of GDP and liquid liabilities as ratio of GDP. The data reveal that the ratio of domestic credit to private sector is higher in Kuwait, Bahrain and the UAE than other countries. This would mean that the monetary policy would be more powerful in affecting economic activities in the higher ratio countries. Furthermore, financial systems that allocate more credit to private firms are more engaged in researching firms, exerting corporate control, providing risk management services, mobilizing savings, and facilitating transactions than financial systems that simply funnel credit to the government or state owned enterprises (Levine, 1997).

The Liquid liabilities show the extent to which the central bank tights or expand credit in the economy. In other words, by allowing banks to reduce deposit with the central bank, the monetary authorities encourage an expansion of credit, which fits through the economy with the credit multiplier. As can be seen from table (3.7), the liquid liabilities as ratio of GDP was stable across the GCC countries except for Kuwait, there was an expansion of credit. This expansion is understandable in the case of Kuwait as the expenses of the Iraqi invasion and post-war re-construction placed a heavy economic burden on the country and enforced the government to boost expenditure.

Table 3.7 Selected financial deepening indicators for the GCC countries

	Domestic credit to private sector/GDP			Liquid liabilities/GDP		
	1995	2000	2005	1995	2000	2005
Kuwait	30	45	50	90	70	53
Bahrain	40	46	52	65	71	68
Oman	25	36	30	28	31	30
Saudi	22	24	36	45	44	46
UAE	43	46	43	49	48	52
Qatar	34	26	41	62	44	41

Source: International Financial Statistics (IFS), various issues.

In the following section, we discuss the banking sector structure in each of the six GCC countries.

Kuwait: Kuwait banking sector currently consists of nine Kuwaiti banks and five foreign banks. National Bank of Kuwait (NBK) continues to retain the leadership position as the largest bank in Kuwait followed by Kuwait Finance House (KFH) and Gulf Bank. Recently, the competition in the banking sector increased with the entry of foreign players. The central banks granted approval to Qatar National Bank to open a branch in Kuwait in December 2006. This is the second approval for opening a branch of GCC national bank after the establishment of Abu Dhabi branch in October 2005. The other foreign banks operating in Kuwait includes BNP Paribas, HSBC and Citibank. The competition in the Islamic banking area is also increasing. In 2006, the central bank approved the application of the Kuwait Real Estate Bank (KREB) to switch totally to Islamic banking. KREB becomes the third Islamic bank in the country, after the Kuwait Finance House and Bobyan Islamic Bank.

The structure of the banking sector in Kuwait is concentrated. The National Bank of Kuwait (NBK) is more than twice the size of the next largest, the Gulf Bank, in terms of assets and deposits. Together, they own more than fifty percent of the assets of commercial banks and distribute about the same proportion total banking credit. The same two banks have over the recent past had the best records in terms of profitability and financial positions. In 2002, NBK became the first bank in the Gulf to launch a Eurobond. In 2002, Moody's, standard and Poor's and Fitch ratings improved their ratings of most Kuwaiti banks, including NBK, which became the highest rated bank in all emerging markets.

The aggregate assets of the banking sector increased from $64.74bn in 2004 to $73.22bn in 2005, registering a growth of 13.10%. The claims on private sector form a bulk of local banking assets, amounting to 60.8% at the end of 2006 while private sector deposits constitute 59% of total bank liabilities. The asset's growth was mainly funded by the growth government deposits (37.1%) and qusai money (24%) in 2006, which is part of the private deposits. This is a result of the rising interest rate environment that prompted a portion of investors to re-channel funds bank into the banking system. In addition, the overall profitability of the sector was up by 28.9% in 2006 over the previous year.[32]

Bahrain: Bahrain banking sector remains the cornerstone in the growth process of the economy. After the oil sector, the financial services sector remains the highest contribution to the country's GDP. Bahrain financial services industry continued to expand during the last few years, with seven new licenses issued in 2005 and 9 new licenses issued at the end of 2006. The total number of banks and financial institutions in Bahrain at the end of 2006 was 371. This comprises 150 banking institutions, 151 insurance firms, 36 capital market brokers and 34 others.

Bahrain has been encouraging the establishment of offshore banking units and Investment banks since the mid 1970s. The objective of the Bahraini government's decision to license Overseas Banking Units (OBUs) in 1975 was to recycle the region's huge capital surplus earned from oil. The OBUs activities centre on the regional money market and project finance. The OBUs do not provide services to Bahraini residents, and are not subject to reserve requirements. The 47 offshore banking units dominate the financial sector and use Bahrain as a base, but conduct their operations beyond its shores. Major regional banks such as the Arab Banking Corporation (ABC) and the Gulf International Bank (GIB) are based in Bahrain.

Investment banks, characterised as non-bank financial institutions, operate under a licensing system by the Bahrain Monetary Agency (BMA). They do not offer current account services, although deposits can be accepted from non-bank institutions in a minimum value of US$ 50,000 or the equivalent. Deposits may also be accepted from banks inside and outside Bahrain. Investment banks are allowed to grant loans to both residents and non-residents provided that they are not in the form of overdraft. Investment banks may be formed as exempt companies and they are among the most

[32]According to the Economic Report issued by the Central Bank of Kuwait, 2007.

profitable of the financial institutions on the island. The leading bank is Investcorp Bank, which specialises in acquiring and restructuring for resale underperforming firms. Other financial investment houses include Bahrain International Bank and TAIB Bank.

However, in the latest regulatory reform by the Bahrain Monetary Agency (BMA), "Offshore Banking Unit" and "Investment Banks" are merged and replaced as "Wholesale Banks." The total assets of the wholesale banks grew at average rate of 26.9% during the period 2002-2006. The total assets of the wholesale banks stood at $164.26bn at the end of 2006, which represents an increase of 32.6% from 2005. This increase mainly came from foreign assets, which contribute about 92.2% of the total assets of the wholesale banks. This is an indication of the important role played by foreign banks in the overall economy of Bahrain, which is also considered the cornerstone of the banking sector in the country. Furthermore, the total assets of the banking system grew at an average rate of 26.1% during the period 2003-2006. The total assets of the banking sector stood at $187.35bn at the end of 2006, which represents an increase of 33.5% compared to the previous year. This increase is comparatively high when looking at the growth attained during the last two years, which was 17.8% in 2004 and 18.1% in 2005.[33]

Bahrain has also made a real effort to become the leading Islamic finance centre in the world, standardising regulations of the Islamic banking industry. It currently has 27 Islamic banks, the largest concentration of Islamic financial institutions. Bahrain has developed into a regional centre for Islamic banking, and has made great advances in this respect in recent years. Islamic institutions operate alongside multinational and regional banks that have established Islamic banking units. No other country in the region has created an environment or the legal framework for the operations in Islamic banks. Bahrain is one of the few markets that allows dual banking system.

The Islamic banking industry in Bahrain is becoming highly competitive as more multinational banks are entering in the Islamic banking area. The total assets of the Islamic banks grew at an average rate of 43.1% during the period 2002-2006, which has exceeded the growth of the entire banking system in Bahrain. The total assets of Islamic banks operating in Bahrain stood at $11.21bn at the end of 2006, which represents an increase of 52.4% compared to 2005. This growth is mainly fuelled by 55.5% rise in foreign assets of the banks, which also contribute more than half of the

[33] Source: Bahrain Monetary Agency (BMA).

total assets of Islamic banks. At the end of 2006, the net foreign assets of the banks jumped from $774.6mn in 2005 to $$1.03bn in 2006, with an increase of 33.07%.

Oman: Currently, the banking sector in Oman consists of a network of 16 banks, divided into five local commercial banks, eight branches of foreign commercial banks and 3 specialised local banks. The banking sector in Oman is dominated by four local banks; namely, Bank Muscat, National Bank of Oman, Oman International Bank and Bank Dhofar. Together they accounted for 77.4% of the total assets, 80.2% of total deposits and 82.6% of total loans of commercial banks in 2005. These banks have also the largest share of branch network in the country, accounting for 76% of the total banking branch network in Oman, which is currently standing at 355 branches. Total deposits of commercial banks have expanded by 24.42% from $8.6bn at the end of 2004 to $10.7bn at the end of 2005. Total bank credit to all sectors expanded by 13.52% from $10.13bn at the end of 2004 to $11.5bn at the end of 2005.[34]

In terms of market shares, Bank Muscat has the highest market share of combined net loans and deposits for all commercial banks in Oman, having 30% and 35% of total loans and deposits respectively in 2005. Following Bank Muscat comes the other three commercial banks with almost equal market shares, with Bank Dhofar having the lowest market shares among the top four commercial banks.

The assets of Omani commercial banks grew at an average rate of 9.66% during the period from 2001 to 2006. The bulk of the commercial banks total assets are concentrated in the credit to the private sector representing around 65% of the banks' total assets in 2006. The credit to the private sector recorded the highest growth in 2005, growing by 11% compared to 6% in 2004. This growth in credit to the private sector reflects the active participation of the private sector in the economy and the government commitment to open up the economy for privatisation. On the liabilities side, private sector deposits constituted the bulk of commercial banks' liabilities representing 56.2% of the total liabilities of commercial banks in 2006. During the period 2001 to 2006, the total liabilities of commercial banks grew at an average rate of 9.16%. The private sector deposits recorded the highest growth rate 23.1% in 2005 compared to 4.8% in 2004 reflecting the rise in interest rates on deposits during 2005. Bank Muscat remains number one bank in Oman according to size, representing 46.3% of the combined assets of the 4 banks and 36% of the combined assets of all commercial

[34]Source: Central Bank of Oman.

banks in Oman. In terms of the bank's performance during the year 2005, all the four banks did extremely well on the back of the strong macroeconomics conditions. The combined net profit of the four banks grew by 60% in 2005 compared to the previous year.[35]

Saudi Arabia: Currently, there are 15 banks operating in the Kingdom, including the branches of Gulf and foreign banks such as the Gulf International Bank, the Emirates Bank, BNP Paribas and Deutsche Bank. There are ten commercial banks in the kingdom, three of which are wholly Saudi-owned: The National Commercial Bank, Riyadh Bank, and the Al-Rajhi Banking and Investment Company, which is run on Islamic principles outlawing the payment of interest. The remaining commercial banks are joint ventures with foreign banks. The commercial banks operate in the markets for foreign exchange, interbank deposits, government debt and equity. There are five specialised credit institutions, including the Saudi Development Fund and the Saudi Industrial Development Fund, that provide medium and long-term financing to the private sector and some public-sector enterprises.

During the period 2001-2005, total assets of the Saudi commercial banks grew at an average rate of 12.6% to $202.4bn by the end of 2005. By the end of 2006, claims of private sector accounted for 55.7% (2005: 57.4%) of total assets while foreign assets accounted for 14.9% (2005: 12%) of total assets. The claims on private sector, which include credit to private sector and investments in private securities increased at an average rate of 23.6% during the period 2001 to 2005. On the funding side, total deposits accounted for the largest portion of funding sources, over 67.2% at the end of 2006 compared to 64.5% at the end of 2005. The reason can be attributed to investors shifting their investments from declining stock market to safer bank deposits. The total deposits have increased at an average rate of 14.4% during the period 2001-2005. Between the GCC banks, Saudi Banks are the most profitable and the combined net profit of the 10 listed banks reached a $9.42bn, recording a growth of 30.3% in 2006. It is worth mentioning here that in the recent years Saudi banks have become increasingly involved in the domestic economy. During 1997-2006, they liquidated a part of their net foreign assets to meet higher domestic credit demand, thereby raising the proportion of domestic credit from 39% of total assets to 57.7% or from 24% to 38.6% of GDP.[36]

[35]Source: Central Bank of Oman.
[36]Source: The Saudi Arabian Monetary Agency (SAMA).

The UAE: Currently, there are 46 banks operating in the UAE, including branches and offices of foreign banks. There are 21 national banks in the UAE, all of which are listed on either Abu Dhabi Securities Market (ADSM) or Dubai Financial Market (DFM). There are five leading banks, the National Bank of Abu Dhabi, the National Bank of Dubai, Abu Dhabi Commercial Bank, Emirates Bank International and the Mashreq Bank. These banks control some 65% of overall assets. Among the GCC countries, the UAE has the second highest number of banks after Bahrain. In 2006, the Central Bank of the UAE granted Saudi American Bank and Doha bank of Qatar a full license each to open a branch to carry out commercial bank business in the UAE. By opening these two branches, there will be representation of GCC national banks from all GCC countries. Currently, the GCC banks presented in the UAE are National Bank of Oman, Al-Ahli Bank of Kuwait and National Bank of Bahrain.

It is worth mentioning that the market share of national banks increased from 75.9% in 2003 to 80.5% at the end of 2006; whereas the market share of foreign banks in terms of total assets declined from 24.1% in 2004 to 19.5% in 2006. Based on the performance in the last few years, it can be concluded that foreign banks are not yet to exhibit the same levels of aggression as that of national banks, in turn not succeeding to increase their market share from the current low level. National banks are more focusing now on the small to medium enterprise (SMEs) banking, which are also paving the way for increasing their market share.

Assets structure of the UAE banking sector is characterised by a high proportion of claims on the private sector and an exceptionally high proportion of foreign assets. Foreign assets consist 27.4% of the total assets at the end of 2005, pertaining to the investments made abroad by the government and funded by the banks in the UAE. However, the proportion of foreign assets has come down during the last two years, from 32.7% in 2001 to 26.4% in 2005, losing its share to credit facilities, which formed 55.3% of assets at the end of 2005, which is slightly high compared to other GCC countries. In addition, claims of the banks on private sector grew rapidly by 41.8% in 2005 to reach $79bn. This growth has come on the top of double-digit growth rates in the previous two years based on both the demand in the economy and the rapid development of the private sector in the UAE. This paved the way for domestic assets of banks to increase by 30.2% to reach $55bn in 2006 compared to $42bn in 2005.[37]

[37]Source: The Central Bank of the United Arab Emirates.

Qatar: Qatar has 16 banks, of which eight are locally owned. Five of them are commercial banks and three Islamic banks. The five locally owned commercial banks include the Qatar National Bank (QNB), Doha Bank, the Commercial Bank of Qatar (CBQ), Al-Ahli Bank of Qatar and International Bank of Qatar; while the three Islamic banks are Qatar Islamic Bank, the Qatar International Islamic Bank and the newly entered Al-Rayan Bank. The seven foreign banks include the Arab Bank, Mashreq Bank, HSBC, BNP Paribas, Standard Chartered Bank, United Bank and Bank Saderat Iran.

Large banks such as QNB, Doha Bank and Commercial Bank dominate the banking industry. These banks have competitive advantage over the smaller banks because of their strong reputation and distribution channels. The QNB, which is partially government owned, holds 39.1% of the total banking assets and 43.2% of total banking deposits of the sector. In addition, it handles most of the government's business. It is the only local bank involved in funding Qatar's hydrocarbons development program, although other banks have now begun to participate in such deals in a limited way.

During the period 2004-2006, the total assets of the commercial banking sector grew at an average rate of 43.5% to $52bn in 2006 from $25bn in 2004. A major portion of this growth in the asset base was funded through the inflow of funds from resident deposits as it accounted for more than 63% of the total liabilities at the end of 2006. On the liabilities side, the commercial banks dependence on domestic liabilities declines in 2006 as its shares in the total liabilities declined to 86.9% from 92% in 2005. As a result, the share of foreign liabilities increased to 13% in 3006 from 8% in 2005.[38]

3.7 Stock Market

3.7.1 History overview

The year of inception of the individual GCC stock markets differs, but the real beginning of these markets marked in the early 1990s. Only Kuwaiti and Saudi Arabian markets have quite a long history traced back to 1950s. In Kuwait, the process of trading started with the public in 1952 to the shares of the National Bank of Kuwait (NBK). The early 1960s witnessed a rapid expansion in the formation of new share holding companies and the issue of the shares to the public, particularly after the

[38]Source: Central Bank of Qatar.

promulgation of the commercial companies' law No. 15 in May 1960. During 1962, Law No. 37 was the first law to organise the stock market in Kuwait for the companies established abroad. During 1970, Law No. 32 was issued concerning the regulation of stock trading in Kuwaiti share holding companies; therefore, it is considered as the first significant step towards the organisation of trading activities and necessitated forming consultation committee. During 1972 the securities trading section was inaugurated as an independent premise. During 1976 a ministerial resolution No. 61 was issued to organize dealing in Kuwait joint stock company shares. It also designated the first committee in the Ministry as supervisor and to regulate the trading. During 1977, the first stock exchange was inaugurated and referred to as the Kuwait Stock Exchange (KSE); the exchange was operating according to the stated rules until 1983.

An Amiri Decree was issued on 14/8/1983 concerning the reorganisation of the exchange as an independent financial institution. Following the Iraqi invasion of Kuwait in August 1990, trading at the Kuwait Stock Exchange was interrupted for 28 months, which reduced the number of listed companies from 54 to 28 companies. The Kuwaiti Stock Exchange signed on December 25th, 1996 a cross listing agreement with the Bahrain and Oman stock exchanges. The accord was a first step towards creating a unified Gulf stock market. At present, the Kuwait stock exchange enjoys an independent judicial personality for facilitating the performance of its functions.

The Kuwait Stock Exchange (KSE) went through a series of speculative boom-bust cycles until 1982, when a speculative blowouts associated with another, unofficial market known as the Souq Al-Manakh resulted in the effective end of investor liquidity. For the rest of the 1980s the KSE remained in decline despite the fact that various government agencies owned more than half of the market shares. The market re-opened in September 1992, but only began to grow strongly after 1995. In November 1995, the KSE adopted an automated trading system, which designed to allow higher trading volumes. The central bank introduced limits on consumer credit in 1996 in what seems to have been a successful attempt to slow down the growth in the market.

One important feature of Kuwaiti financial market development that is worth mentioning is that in the aftermath of the crash of Souk Al-Manakh stock market, the banks were left with large portfolios of non-performing loans. In addition, the situation of the commercial banks worsened following the invasion of Kuwait by the Iraqi regime. The government has intervened to rescue the financial system through what has become

known as the "Difficult Debt Settlement Program." Under this program, non-performing loans were exchanged for government debt bonds with Maturities ranging from 10 to 20 years. For the most part, the profitability of banks might appear to have been influenced negatively by the fact that the government debt bonds could not be traded or discounted. In addition, the debt settlement problem has increased the risk aversion of commercial banks to large lending operations and hence might have deprived the banks of profitable opportunities. In 1987, the KSE assigned the Kuwait Clearing Company (KCC) to undertake the responsibility of a clearing chamber for transactions made among traders. The KCC is entitled to settle obligations arising from transactions registered there, and to transfer ownership that guarantees traders right and full settlements on a daily basis. Final settlement takes place every Saturday.

The history of the Saudi joint stock companies may be traced to the 1930s when the first joint stock company, the Arab Automobile Company, was established in 1934. In 1954, the Arabian Cement Company went public and was followed by the privatisation of three electricity companies. In response to the needs of the economic development of that period, more joint stock companies were established. The Saudi Stock Market began to emerge in the late 1970's when the number of joint stock companies increased considerably. The government merged the electricity companies and distributed additional free shares to contributors. However, due to the lack of trading regulation at the time, stock trading was limited through the early 1980s when oil prices were increasing, which in turn resulted in an increase in both volume of trading and market capitalisation. In 1985, the Saudi government placed all stock trading under the supervision and control of the Saudi Arabian Monetary Agency (SAMA) and discontinued the existing broker-based stock trading system. The Saudi Share Market has been listed in a database supervised by the International Finance Corporation (IFC). This supervision indicates the IFC's recognition of the importance of the Saudi Share Market, which occupies an advanced position amongst new markets in many important indicators, including market value, the daily average of shares value, and the price percentage of the annual profit. The other GCC stock markets were established only in the 1980s. Bahrain stock market was established in 1987, but organised and regulated trading started in 1989. Similarly, Oman stock market was established in 1989, the UAE in 1988, while Qatar established its stock market only in 1997.

3.7.2 Market Size, Capitalisation and Turnover

The ratio of stock market capitalisation to GDP is a good indicator for the importance of the equity market in the economy. Most of the GCC markets witnessed an increasing rate of the market capitalisation as ratio of GDP over the last few years (see table 3.8). Looking at the 2004 and 2005 figures, we notice that the average annual value of the market capitalisation to GDP of Kuwait, Bahrain, Saudi Arabia, the UAE and Qatar are equal to 145%, 125%, 165%, 111% and 166% respectively. These ratios compared favourably with, for example, the USA (157%), the UK (139%), Japan (165%), India (135%), Malaysia (150%), and Korea (91%), (Purfield et al, 2006).

Table 3.8 Size of GCC stock market as ratio of GDP (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuwait	54.16	70.42	99.30	74.38	67.19	53.46	78.07	98.64	127.95	124.20	158.6
Bahrain	80.85	82.79	123.97	109.87	108.46	82.81	83.96	88.86	100.10	121.65	130.04
Oman	24.78	27.7	55.27	42.19	37.34	25.48	22.57	25.62	33.52	37.55	49.79
Saudi	31.96	32.5	40.65	33.28	37.94	36.09	40.07	39.72	73.31	122.39	210.04
UAE	-	28.15	41.8	55.58	58.23	31.09	40.16	51.85	55.82	91.69	132.53
Qatar	-	-	23.03	28.05	45.12	29.28	42.64	53.18	113.47	127.32	205.13

Source: Arab Monetary Fund (AMF)

To compare market performance across GCC countries, we present some key stock market indicators in table (3.9). According to the figures, we notice that Saudi Arabia has the biggest stock market in terms of market capitalisation as the total value of the listed companies increased ten fold from 67.9bn in 2000 to $646bn in 2005, followed by the UAE with market capitalisation of $231bn. 21 fold compared to 2000 figures. In terms of liquidity, Saudi Arabia still leads the region with turnover ratio of 171% followed by Kuwait 78% and the UAE 61%. Beside it is the largest in the region, the Saudi market accounts for about 50% of the six GCC stock market and one third of the Arab countries stock market and being the 11 among the emerging markets.

The GCC stock markets recorded extra ordinary gains in the years 2003 to 2005. In 2005, Saudi Arabia and Dubai bourses were among the top ten performing bourses in the world. This strong performance fulled mainly by the sustainable increase in oil prices. In 2006, however, some of the GCC markets faced major corrections. For example, the Saudi market index dropped by more than 50%; the market indices in the UAE and Qatar slipped by about 45%. By contrast, the Bahrain stock index decreased only slightly, and Oman index gained about 10%. In addition, it is important to mention that,

like many emerging stock markets, the GCC stock markets are highly concentrated in terms of market capitalisation and trading volume. For example, the ten largest companies in Saudi Arabia account for 70% and 30% of the market capitalisation and trading volume of the whole market respectively.

In the following section, we look at the individual market performance over the past decade in details.[39]

Kuwait stock market: The Kuwait Stock market grew by 563% over the ten years. The market capitalisation sharply increased from $10.96bn in 1994 to $73.45bn by the end of 2004. In 2006, banking sector, which constituted 30.4% of total market capitalisation, led the increase in market capitalisation by registering a growth rate of 19.98% in the same year. The other sectors, which saw improved in market capitalisation, include insurance, non-Kuwaiti, industrial and services. Among sectors, which experienced a decline, includes investment, real estate and food sector.

The Kuwaiti index fluctuated between 1000 and 2000 points during the period 1994 and 2002 as the investors were still worried about the political and economic conditions. In 1999, the market continues to decline with the announcement of poor corporate earnings and the low market sentiments though the upturn in oil prices that began in March 1999. In addition, with the resolution of parliament in early May and the ratification of new investment laws permitting the non-GCC investors to enter the market towards the end of the same month, prices went little up then declined again to reach the lowest level by mid November 1999 since May 1996. Years 2000 through 2002 were good years for investors with the implementation of new investment laws and the global depository receipt issue by National Industries Group, which was the first local institution that taps the international equity market. By 2003 the market had soared by 57% compared with the end of 2002 reaching 4,790 points; its highest ever level since 1990. Nevertheless, by 2005 the index recorded substantial increase to reach 11,445 points. In fact, several factors participate to this sharp increase. First of all, the removal of the old regime in Iraq has made many differences to Kuwaiti economy and its stock market. In addition to benefit from an improved economic environment, the expansionary fiscal policy has boosted both current and capital spending and drove the growth in economic activity over the last two years. A highly liquid environment benefiting from United Nations

[39]The following discussion of the GCC stock markets performance based various sources 1) periodic GCC Market Review issued by the Research Unit of Global Investment House in Kuwait 2) Respective Stock Exchanges 3) Quarterly Bulletins issued Arab Monetary Fund in Abu Dhabi.

compensations for losses due to the 1990 Iraqi invasion plays a role especially in driving activity in the local stock and real estate markets.

The change of the regime in Iraq, coupled with the new economic policies underlined by the new government, creates high confidence in the investment community and repose the faith of the investors in the local market. Not only the risk premium attached with Kuwait seen permanent reduction, but also the business environment recorded steady growth rate in the last few years. Furthermore, sustained major increase in oil prices generated high liquidity most of which was directed to the stock market. In addition, the interest rate remained low for the large part in the last few years, which further spur investor's interest in the stock market.

Moving away from the sentiments, recent expansion of the Kuwait economy and improved business environment seems to have permanently changed fundamentals of a large number of Kuwaiti companies. In 2003, several Kuwaiti companies tend to diversify their revenue base by extending their operations beyond Kuwait. The prime examples of such diversification have been the banks (National Banks of Kuwait, Gulf Bank, Kuwait Finance House), Mobile operators (Mobile telecommunications, and National Mobile communications), Transportation & Logistic companies (Agility, Transport Group, Kuwait Gulf Link Transport Companies), in addition to several insurance, investment, real estate and institutional companies which have extended their operations beyond Kuwait. This phenomenon shows that the market is slowly getting sophisticated. Therefore, one can think that the rise of the stock market is not only purely a speculative phenomenon, but also supported by fundamentals. While economic fundamentals continue to remain positive, the market participants showed concerns about increased market volatility in stock prices. This led to bearish mindset in the stock market based on expected slowdown in corporate earnings and a possible liquidity squeeze.

Table 3.9 Number of listed companies, market capitalisation (bn$) and turnover ratio

Number of Listed Companies													
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Kuwait	48	51	60	74	78	85	86	88	95	108	125	156	180
Bahrain	34	36	37	40	42	41	41	42	40	44	45	47	50
Oman	68	82	97	119	137	140	131	96	140	141	123	125	177
Saudi	-	-	70	71	74	72	75	76	68	70	73	77	86
UAE	-	-	-	-	-	-	-	-	36	43	60	89	94
Qatar	-	-	-	-	-	-	-	-	25	28	30	32	36
Market Capitalisation (bn$)													
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Kuwait	10.96	14.44	20.59	27.24	18.43	19.59	19.84	26.66	35.08	59.52	73.58	128.1	141.22
Bahrain	5.12	4.70	5.01	7.82	6.77	7.16	6.62	6.60	7.71	9.70	13.51	17.36	21.12
Oman	1.85	1.97	2.75	7.31	4.53	4.30	3.51	2.64	5.26	7.24	9.31	12.06	11.7
Saudi	-	-	45.85	59.37	42.63	60.95	67.16	73.20	74.85	157.30	306.25	646.12	326.85
UAE	-	-	-	-	-	-	-	-	29.8	44.6	90.58	244.4	158.57
Qatar	-	-	-	-	-	-	-	-	10.56	26.70	40.43	87.14	60.90
Turnover Ratio													
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Kuwait	17.87	44.4	93.32	126.92	59.26	30.62	21.20	43.93	63.03	91.94	70.42	78.56	39.2
Bahrain	3.12	2.25	3.52	6.03	8.52	6.21	3.71	3.79	2.67	2.69	3.43	4.10	6..54
Oman	12.98	10.71	21.05	52.99	52.27	16.60	15.67	15.94	11.04	18.41	21.31	27.53	-
Saudi	-	-	14.76	27.87	32.24	24.75	25.78	30.36	41.38	101.11	154.44	170.8	-
UAE	-	-	-	-	-	-	-	-	9.04	10.5	47.16	120.2	24.9
Qatar	-	-	-	-	-	-	-	-	8.36	12.06	15.69	32.42	33.3

Source: The Arab Monetary Fund (AMF).

Bahrain stock market: The Bahrain Stock Exchange (BSE) has performed poorly since mid-1998, with liquidity drying up and values falling sharply. To remedy these shortcomings, the government has relaxed ownership restrictions within the market: the GCC nationals are now allowed to own up to 100% of a listed firm, rather than 49%, as was previously the case. The ceiling on the stake that other foreigners may own has also been raised, from 24% to 49%. By mid-2002, the GCC investors owned more than 50% of shares listed at the BSE. In 1999, the BSE started electronic trading on a trial basis, and in the same year, the International Finance Corporation added the BSE to its emerging stock markets index. The number of listed companies on the Bahraini stock exchange has gradually increased over the past ten years to stand at 50 in 2006 (see table 3.9). In 2006, the BSE witnessed the listing of three companies, AlSalam Bank under the banking sector, Ithmaar Bank and Al-Baraka bank under the investment

sector, which increased the number of listed companies in BSE to 50. As a result, the market capitalisation increased from $17.3bn in 2005 to $21.12bn in 2006.

The total market capitalisation of the BSE increased by nearly 58% to $21.12bn as of the end of 2006 compared to $9.7bn recorded at the end of 2003. Among the sectors, investment sector accounted for the highest market capitalisation (46.2%) followed by the banking sector (32.5%). Among the companies, Bahrain Telecommunications Company (Batelco) accounted for 14.32% of the total market capitalisation. Other major contributor to the Bahraini market capitalisation, Ahli United Bank (15.52%), Investcorp Bank (8.92%) and Gulf Finance House (7.26%). The top five companies in term of market capitalisation accounted for 54.7% of the total market capitalisation of the BSE. The aggregate volume of shares traded in 2006 was up by 58.8% to reach $1.9bn as compared to the aggregated volume reported in the previous year.

Although the post war optimistic and the high oil prices in 2003 benefited most of the regional stock markets, the Bahraini stock market lagged behind its regional peers and was unable to emulate the impressive gains as it was up only 28.2%. Overlooking its counterparts in the BSE index, insurance sector recorded outstanding performance in 2003 with the BSE insurance sector index gaining 58.3% over the previous year. AlAhlia insurance company was the highest gainer with stock appreciating by 82%. The other two major gainers were Bahraini National Holding Company, which rose by 56.4% and Bahrain Kuwait Insurance Company with a gain of 52.5%. Similarly, the banking stocks also recorded outstanding performance in 2003 with the BSE commercial banks index gaining 49.7% over the previous year. The other notable gainer in the banking sector was Bahrain Islamic Bank, which notched up a gain of 54.3% in its stock price from the previous year.

The index again witnessed another increase of 30% in 2004, this increase was driven mainly by the booming hotel and tourism sector in the country as Formula 1 race attracted international tourists. The sector index rose by 45% over the previous year. All the stock in the sector ended in positive performance. For example National Hotels Company led the sector notching up a gain of 55% followed by Bahrain Hotels Company (37.2%), and Bahrain Tourism Company (34.7%). However, at the end of 2006, the market breadth was heavily skewed towards decliners, as 30 stocks reported yearly drop while 12 stocks reported yearly gains. The price of eight stocks remained

unchanged during the period. Among the gainers at the end of 2006, Shamil Bank (32.4%), Taib Bank (27%) and Ahli United Bank (25.5%).

In general, the BSE presented a lacklustre performance compared to other GCC markets, appreciating by 28% in 2003 and 30% in 2004 and it remains one of the cheapest markets in the region. The price to earnings ratio of around 17 for Bahraini stocks is low in comparison with other GCC markets and very low internationally. Such a low valuation for the Bahraini market simply does not reflect the profit outlook of the corporate in Bahrain, which is one of the best-managed economies in the region and which has recorded highest GDP growth rate of 6.2% in 2002 compared to its GCC counterparts. Thus, there is much steam left in the Bahraini equities.

Muscat Stock Market: The Muscat Securities Market (MSM) is one of the most well-regulated markets in the region with a fully automated system trades. The MSM laws ensure that companies adhere to a reasonable level of corporate governance and are transparent in their activities. In addition to this, most of the financial institutions are closely monitored by the capital market authority (CMA) and their trust account investment management services all under direct scrutiny of the regulators. The Capital Markets Authority (CMA) is pushing forwards with an ongoing reform program designed to increase transparency, with a particular focus on improving reporting standards of listed firms and curbing insider trading in order to reassure potential investors. In January 1998, the Muscat Depository and Transfer Company -owned jointly by private institutions and the government- was set up to offer depository and transfer services. Electronic share trading was subsequently introduced in August of that year, and the CMA was established as an independent regulatory agency in 1999. The MSM itself is now responsible only for the trading of shares, bringing the system more into line with international practice. Oman was included on the International Finance Corporation's emerging market index in 1999.

The number of listed companies increased from 68 in 1994 to 125 in 2005. The market capitalisation on MSM has been increasing over the past few years. The market capitalisation in 1994 was only $1.8bn. By the end of 2004, market capitalisation is 9 time fold of 1994 representing a growth of about 480%. It continues to improve to stood at $12.03bn at the end of 2006 which represents an increase of 26% compared to 2004. The divestment of government holdings and the floatations from infrastructure and power projects are already adding to the market capitalisation of MSM. In 2006,

the trading volume of shares swelled by 76% over the trading volume observed in 2005. Overall about 379.7mn shares changed hands during 2006. The value of shares traded also increased by 106% over the 2005, totaling $ 3.3bn till June 2006.

The MSM index, which includes the 30 most actively traded equities, was launched at 1000 points and stood at 2,726 points by the end of 2003, its highest level for around five years. After an exceptional performance in 1997 when the MSM index rose by about 140% to 4,800 points and almost the good year of 1999 when the market rose 10% -after the entry of the National Investment Fund into the market that was expected to invest $260mn on behalf of pension funds- the market went through several years of sustained decline after that, with the index reaching a low point of just 1,520 points in late 2001.

In 2001, the MSM has lost 25% of its value, and remains the worst performer of the GCC markets. Although all other Gulf stock markets have posted very credible performances, MSM remains the exception to the rule. One of the reasons causing this drop was the fears about bad loan provisions, which left the bears roaming the market. At that time, analysts appeared to have woken up to the fact that Omani banks have been rather too keen to extend loans in the past, and will now have to pay for past errors. Thus, shares in Bank Muscat slid 530 baisas to 1.720 rials, and the National Bank of Oman fell 60 baisas to 1.350 rials. The Oman International Bank also lost 140 baisas to 1.110 rials. More than $100m disappeared from the banking sector's 2001 profits in one-off provisions for bad loans. For Oman there was not a bad time. Its economy is boosted by two years of excellent oil and gas revenues, and Oman remains a stable country. What is lacking only was investor confidence in good business practice and perhaps that is something that only time can cure.

The fall of 2001 damaged local confidence in the market although this has begun to recover. The recent rally, which began in the second half of 2002, in part reflects the continued strength of oil prices, which has a direct and indirect bearing on the profitability of many of the firms listed on the market. On the other hand, there may be relief in the MSM that the banks are being forced to face up to reality, and a feeling that transparency is to be welcomed. Meanwhile, there is a good argument to suggest that the MSM has become much oversold, particularly with interest rates on deposit accounts returning less than dividends on blue chip stocks. The recovery in banking sector profits has also boosted performance. Actually, the market has yielded rich

returns for the investor since 2002. Investment return from 2002 onwards stands approximately 158%, which is quite extra ordinary keeping in mind the returns witnessed in most the GCC countries.

In 2004, the MSM index shot up 24% and in 2005, it went up by 44.4% to reach 4,875 points. The growth was evident in all sectors, with the banking and investment companies' index jumping by 51.5% followed by the industrial sector, which witnessed gains of 34.4%. Similarly, the services sector index increased by 29.9%. This positive performance was due to factors such as improvements in the macroeconomic conditions based on the high oil prices leading to improve liquidity situation, good corporate performance during the past few years and increased confidence in the market. The total profitability of MSM listed companies went up by 22.5% in 2005.

Despite being a small and quiet market compared to other GCC stock markets, the Muscat Stock Market is attractive in several ways. First, most of the listed stocks have relatively small capitalisation and low floats as compared to its peers who allow the prices to propel forward and show extra ordinary gains in bullish times. Second, compared to other markets in the GCC countries, the MSM is more stable in terms of attractive valuations where the market is trading at P/E multiple of 12 vis-à-vis 24.7 for Saudi Arabia, 14.1 for the UAE, 10.2 for Kuwait, 12.6 for Bahrain, 19.7 for Qatar.[40] Third, government support for most of the company's remain high in terms of granting soft loans at significantly lower interest rates than those prevailing in the market, allowing them to show increased profitability and return to the shareholders. Finally, overall the economic outlook for the country continues to be optimistic. This along with decent growth rates reported by most of the companies is likely to have an affirmative impact on the market.[41]

Saudi Stock Market: Seventy-seven companies are traded on the Saudi stock market at the end of 2005. Nine new companies listed on Saudi stock market, which increased the total number of listed companies to eighty-six in 2006. The reason for this small number of companies is the stringent listing requirements imposed by the Ministry of Commerce (MOC), which has encouraged the listing of large well-established companies. It also should be mentioned that the top ten of these companies represent 60-70% of the overall market (measured by any indicator: size, turnover or profit). For

[40]For a comparison between the GCC P/E ratios with those of other emerging markets see Ramcharran (2002).
[41]Source: Central Bank of Oman.

example, SABIC continued to be the index heavyweight, accounting for 21.5% of the total market capitalisation followed by Saudi Telecommunication and Al-Rajhi Bank, which accounted for 13.5% and 10.6% of the total market capitalisation at the end of 2006. In addition, SABIC led, in terms of net profit as it made record of net profit of $5.4bn in 2006 compared to $5.1 in the previous year, a 6% increase. SABIC alone accounted for around 26.7% of the total profit of Saudi listed companies. In terms of trading activity, the total value of shares traded for 2006 reached $1,420bn as compared to $1,103bn recorded in the previous year, registering a yearly increase of 28.74%. The aggregate volume of shares traded on the bourse reached 54.4bn shares in 2006 compared to 12.3bn shares registered in the previous year.

The stock market index fell by almost 28% in 1998, in the wake of the Asian crisis and the stock prices hits the bottom of $11 a barrel, but it gained by 43.6% in 1999 which was the second best performance since 1985. The recovery in prices was mainly due to the rise in oil prices and to reform measures that were announced in the second half of the year (i.e. non-Saudis could invest in local shares through established mutual funds). In 2000, the share index rose by 11.3%, making Saudi Arabia one of only two Arab countries to see their stock market indices rise during the year (the other was Tunisia).

In 2001, a year when most Gulf countries witnessed double-digit percentage increases in their stock markets, the Saudi stock market index rose by just 7.6%, after losing most of its gains in the aftermath of September 11th when pessimism set in about prospects for the global economy. By the end of 2002, the index was up by 3.6% to stand at 2,518 points. In 2003, the price of oil jumped to record high of $40 to $50, which triggered a second oil boom and made Saudi Arabia's oil revenues increase dramatically. The Saudi stock market index finished 2004 with an increase of 76.23 % to close at 8,206 points before doubling up to reach 16,712 points in 2005. After the strong growth seen 2003-2005 periods, the Saudi market, however, underwent a correction and ended 2006 at 7,933 points, down a whopping 52.5% over the 2005 close. The biggest market of the GCC region was the biggest decliner in 2006. It witnessed strong volatility in 2006 as it touched high of 20,634 points on February 2006 and low of 7,665 point in December 2006. Actually, the high liquidity from record energy prices over the past few years has fed an unprecedented speculative bubble in stocks in the oil rich Gulf region, which also attracted millions of small investors and speculators.

The UAE Stock Markets: The UAE has yet to unify its stock markets. After years of delays, two formal stock exchanges were launched in 2000, the Dubai Financial Market (DFM) and the Abu Dhabi Securities Market (ADSM). Dubai Financial Market (DFM) is established as a public institution having its own independent cooperate body. It operates as secondary market for trading of securities issued by public joint companies, bonds issued by the federal or local governments and public institutions in the country, and any other financial instruments, local or foreign which are accepted by the market. The DFM reported an increase in trading volume of 49% between 2002 and 2003. The Abu Dhabi securities market, which has been linked electronically to DFM since 2004, reported an increase of 176% in trading volume of between 2002 and 2003. However, both equity markets witnessed sharp correction in November 2005, which was due to market overvaluation and the liquidation of existing positions to fund subscriptions for Initial Public Offering (IPOs).

The UAE markets are the second largest in the GCC after Saudi Arabia in terms of market capitalisation as well as value and volume traded. Despite the fact that newly listed companies increased by 15 companies during 2006, the total market capitalisation including both Abu Dhabi Securities Market (ADSM) and Dubai Financial Market (DFM) reported 35.2% decline to reach $158bn by the end of 2006 as compared with the peak of $244bn reported in 2005 (see table 3.8). In general, this decline was fuelled by the concerns of overvalued stocks and the quality of earnings. The DFM has almost lost two thirds of its value in 2006, while ADSM has declined by more than 40%. Dubai general index declined sharply from 7,426 points in 2005 reaching 4,127 points by the end of 2006. Similarly, Abu Dhabi general index fell from 5,202 points in 2005 to stay at 3,000 points level by the end of 2006. On the other hand, increased IPOs helped to increase market depth as total listed companies in both exchanges increased, reaching 104 companies by the end of the year as compared to just 89 in the previous year.

Services and investment sector continued to contribute for the largest share of total market capitalisation. Its share increased from 48% in 2005 reaching 53% in 2006. Banking sector continued to rank the second largest among sectors by market capitalisation for 36% of the total. It is worth mentioning here that DFM is highly concentrated in few companies. For example, EMAAR properties (EMAAR) constituted 49% of the market capitalisation of the services sector and it constituted almost 25% of the DFM total shares market capitalisation. Further, EMAAR, Emirates

Integrated Telecommunications Company (DU), Public Warehousing Company (WARE) and Amlak Finance (Amlak) have 84 % of the services sector market capitalisation and 42% of the total DFM shares market value. For example, EMAAR as a single company or combined with DU, WARE and Amlak play an important role in DFM and their performance can swing the market to significant extent. This is a sign of highly concentrated financial market and means that the movement in the stock market does not necessarily reflect economic reality.

Trading in the UAE markets has picked by 82.5% in 2006 where total shares traded reached 50.8bn shares. However, when compared to the previous year trading volume grew at declining rate. Total traded volume grew significantly by more than 400% for 2005 reaching 27.8bn shares. Generally, increased traded volume was a result of increased listing IPOs and stock splits. The UAE stock markets performed badly throughout 2006 after rising significantly since 2004. The UAE market witnessed a sharp correction since their unprecedented 117.8% growth for 2005. The market recorded 40.6% losses by the end of December 2006 as it closed at 4,481 points. Banking and services sectors' indices declined by 40.5% and 41.2% respectively. In terms of economic fundamentals, it is hard to find an explanation of the sharp market decline in 2006, as we mentioned above the recent economic data of the country shows a robust economic growth. The explanation of this decrease is the short-run speculative noise trading, where share prices did not response to information, but to changes in expectations and sentiments that are not fully justified by information.

Doha Stock Market: The Doha Stock Market (DSM) index surged by 37% in both 2001 and 2002 in response to the sharp increase in nominal GDP in 2000, and it rose further to peak 3,947 points by the end of 2003. By the end of 2006, it reached 7,133 points, with a decline of 35% from the previous year. The four major sectors in the DSM are banking, insurance, services and industry. In 2006 all the four sectors indices have ended the year with drop. Industrial sector index recorded the highest drop of 43.7%, followed by services sector index with fall of 39.4%, insurance index 34.4% and banking sector 32.2%. With the fall in market indices, the market capitalisation of DSM declined sharply to stand at $60bn, a steep fall of 30%. This was despite listing of four new companies: Barwa Real Estate Company, Gulf Cement Company, AlRayan Bank and First Finance during the year.

In 2005, the DSM had a market capitalisation of $87.1bn a rise of 115.5% from the previous year (see table 3.8). In line with the decline of the stock market indices, DSM also witnessed drop in its trading activity. Trading activity represented by the value of shares traded witnessed a fall of 27.1% in 2006 to reach $20.5bn. As percentage of total value of shares traded at DSM in 2006, the banking sector accounted for 44.4%; services sector accounted for 38%, industrial sector 14.5% and the insurance sector for 3.1%. However, the volume of shares trade witnessed significant jump of 80.6% to reach 1,865.4mn shares. Services sector led the trading volume in 2006 as accounted for 48.8% of total volume traded, followed by banking sector which accounted for 39.9%, industrial sector 10.29% and insurance sector .93%.

3.8 Financial Liberalisation

During the 1970s and 1980s there was no willingness for the GCC countries to attract foreign capital and this was institutionalised via laws that discourage foreign investment through high degree of screening or sectoral restrictions and barriers.[42] However, in the 1990s, almost all GCC countries changed their attitude towards foreign investment recognising the importance of adopting new policies aiming to attract foreign capital and investments. Tendency towards increasing foreign capital has been promoted on the premise that adopting such policies will revitalise the economy, attract modern technology, raise the efficiency with which the existing technology is used, promote greater efficiency of domestic financial markets, improve the competitiveness of their exports in world markets, raise marketing capabilities of local firms and upgrade skills and management techniques.

Since 1997 and as a consequence of negotiating the final agreement of the world trade organisation (WTO), the GCC countries start increasing the degree of direct and indirect access to local markets for foreign investors through a stream of new regulations designed to liberalise their financial markets. Until recently, the GCC stock markets were virtually closed to foreign investors, leading to block of foreign portfolio investment inflows. Among the GCC countries, Bahrain fast-growing economy attracts a higher proportion of foreign investment than any other Gulf state. The reasons for that include strategic location at the heart of the Arabian Gulf providing ideal access to the GCC; 100% foreign ownership of new firms and establishing companies without local sponsors, and foreign firms have been permitted to own land in Bahrain since

[42]According to the report of Gulf Organisation for Industrial Consulting (GOIC, Qatar, March 2001).

January 2001. In October 2004, the ministry of commerce opened the Bahraini Investors Centre for both local and foreign firms seeking to register in Bahrain where 80% of all licences can be processed and verified within 24 hours. Also, the high favourable tax environment -where no corporate or personal tax along with the sustained low rate of inflation of under 2% a year; no restrictions on repatriation of capital, profits or dividends and full customs duty exemption on capital goods and goods destined for re-export, raw materials, semi-finished commodities and mature legal administrative infrastructure- all these aspects help to a large extent in making Bahrain the most open economy among the GCC countries.

Kuwait is increasingly adopting more easing policies towards increasing foreign investment. In May 2000, the government passed the Indirect Foreign Investment Law, allowing the purchase of up to 100% of the stock of companies listed on the Kuwait Stock Exchange except for banks. In March 2001, the government passed a liberalised Foreign Investment Law that, together with a five-year privatisation plan announced in July 2001, is expected to substantially increase foreign investment in Kuwait. Previously, foreign investment was not permitted in certain sectors such as banking or insurance, and was restricted to less than 49% of ownership shares in permitted areas. In 2007, the Kuwaiti cabinet approves on the law of cutting corporate tax rate for foreign entities operating in Kuwait from 55% to 15%. With respect to banking sector, Law No 28 of 2004 was recently passed by the Parliament of Kuwait and opened the door to foreign banks to establish branch offices in Kuwait. In view of the recent developments in Kuwaiti laws and policies, it is expected that Kuwait will continue to ease foreign investment restrictions in the future.

On April 2005, Qatar officially allowed non-Qatari investors to purchase shares on the DSM. They were allowed up to 25% of the equity of listed companies. Another step was taken in July 2005 to allow companies to buy back 10% of their own prices to improve share prices. In 1994, the government of Oman issued the Investment Law, which is designed to encourage the foreign investment by liberalising the country's investment framework. The investment law removed all entry restrictions on local ventures and the ownership restrictions in most sectors and the reduction of minimum capital requirements. In addition, the new law provides assurances regarding the repatriation of capital and profit.

Among the GCC countries, the UAE emerged as leader in luring foreign investment, having attracted $21bn in 2005, registering record growth of 40% compared to 2004.[43] This is based on the serious economic liberalisation policies and close coordination between the public and private sector adopted by the government. In the UAE, rules allow foreign investors to own up to 49% of companies on the stock market. In 1999, foreigners were allowed to participate in Saudi equity market through open-ended mutual funds offered by Saudi banks. Only in 2006, expatriates in Saudi Arabia have been permitted to invest directly in the stock market. In addition, there are no restrictions on foreigners' investment in government securities.

The recent profile of the foreign direct investment into the GCC countries is presented in table (3.10). The numbers show that foreign direct investment flows represent a significant portion of the GDP in Bahrain, Oman and Qatar compared to both developed and developing economies in 2004. The foreign direct investment as ratio of GDP was most apparent in the case of Bahrain in which foreign direct investment stock reached more than 74% and 70% in 2000 and 2004 as percentage of GDP respectively (for the reasons discussed above). However, the relatively low percentage in the remaining countries reflects the policies that prohibit foreign investment (especially in oil sector) and curtail full foreign ownership of the most productive projects and land as well as the uncertainty about domestic legal frameworks.

Table 3.10 Foreign Direct Investment as ratio of GDP

	1990	**2000**	**2004**
Kuwait	.2	1.7	.7
Bahrain	13	74.1	70.5
Oman	16.2	12.6	14
Saudi	13.8	8.9	8.2
UAE	2.2	2	4.6
Qatar	1	10.8	14.6
Developed Economies	8.2	16.3	20.5
Developing Economies	9.8	26.2	26.4

Source: United Nations Conference on Trade and Development (UNCTAD, 2005)

[43] According to the Arab News, 26/2/2007. See www.menafn.com

3.9 Concluding Remarks

1- Oil price plays a significant role in all of the GCC economies, which, consequently, needs to be taken into consideration, and it constitutes a major element in our models in the empirical chapters.

2- Economic development in the GCC countries has proceeded at a significant rate over the past decades, which make them an interesting case for research.

3- The banking sector in the GCC countries has expanded from a small number of local banks to major players in the economy with highly sophisticated financial services. In addition, GCC banks have expanded beyond their borders by opening branches in other countries and have become the highest rated banks in all emerging countries.

4- The stock markets in all the GCC countries have become very active markets in the Arab world in terms of market capitalization and turnover. Moreover, the GCC stock markets have become progressively more sophisticated and organized.

5- The number of listed companies in the GCC stock markets has gradually increased over the past decade and has registered a positive and significant performance.

6- Many corporations and institutions are diversifying their revenue base by extending their operations beyond their borders, which has improved their profitability.

7- The GCC countries enjoy a healthy business environment and have undergone a significant degree of globalisation.

8- In the context of financial liberalisation, although much remains to be done, the GCC countries foreign investment regulations are improving gradually.

Chapter Four

Stock Markets Dynamics in Oil-Dependent Economies: Evidence from the GCC Countries

4.1 Introduction

The previous chapter indicates that, during the last few years, the stock markets in the GCC countries have grown enormously in terms of market capitalisation and trading turnover. For example, the GCC stock markets capitalisation increased from $112bn at the end of 2000 to approximately $1,061bn at the end 2005. This represents a growth of 850% in a period of less than five years.[44] In terms of domestic market capitalisation, the combined stock markets of the GCC countries are now larger than the Hong Kong Stock Exchange and nearly one-third the size of the London Stock Exchange.

The GCC market indices illustrate the extraordinary level of investor interest in the GCC stock markets. During 2005, the General Price Index in Saudi Arabia increased by 82%, the index of the Doha Securities Market by 91%, and the index of the Dubai Financial Market by 171%. The Saudi stock market accounted for more than half of the GCC markets capitalisation at the end of 2005 at $660bn, 116% increase from its end-2004 value of $306bn. The combined capitalisation of the Abu Dhabi and Dubai markets grew to $234.4bn at the end of 2005, up by 63% from $144bn in 2004. Qatar's market value grew from $40.4bn at the end of 2004 to $87.1bn in 2005, a gain of 115.6%. The Kuwait Stock Exchange capitalisation rose 90% to $140bn in 2005, from $73.8bn in 2004; while the relatively smaller stock markets in Bahrain and Oman increased by about 29% and 24% in 2005 respectively. The trading turnover in the seven stock exchanges also surged by 148% to $1.368 trillion from $552 bn in 2004. The Saudi market accounted for $1.1 trillion or 80% of turnover in all the GCC stock markets. It was followed by UAE markets with $138.9bn and Kuwait with $97.3bn. The Dubai Index rose 132.4%, followed by the Saudi Index, which gained 103.7%. The Kuwaiti index rose 78.6%, Qatar by 70.2%, while Abu Dhabi increased by 69.4%. The markets

[44]See www.ameinfo.com/financialmarkets.

of Oman and Bahrain rose by 44.6% and 23.8%, respectively.[45] Furthermore, real gross domestic product growth for the region grows at an average of around 8.5% in 2003, 5.9% in 2004, and 6.8% in 2005, and 6% in 2006.

The concurrent growth in the GCC stock markets and economies raises empirical questions regarding the fundamental connection between stock prices and key macroeconomic factors. Three factors appear to have an impact on the strong and different performance of the GCC stock markets over the last few years, high oil prices, abundant levels of liquidity in the region and the decline in the interest rates. Depending on what we discussed in chapter three about the structure of GCC as oil dependent economies, and since oil price is one of the most important macroeconomic factors in the world economy, it is expected that oil prices (oil revenues) have a major effect on the economic activities in these countries. What makes oil price changes even more interesting is not only their direct impact on economic activity, but also the changes in oil prices might reflect or even predict changes in their international stability (Leigh et al, 2003). Oil prices hovered from $25 in 2002 to $60 in 2006 to $90 in 2007. For the GCC countries, since they are major suppliers of oil in the world energy market and they collectively possess 47% of the world's proven oil reserves and account for 24% of the global petroleum production and 40% of petroleum exports, oil revenues largely determine their government budget revenues and expenditure. Thus, oil revenues are crucial component of aggregate demand in these countries. The aggregate demand highly influences corporate activities and domestic price levels, which in turn affect corporate earnings and stock prices.

The sharp increase in oil prices allows these countries to accumulate substantial wealth. Despite many efforts to diversify their economies, GCC countries remain over dependent on oil and around 80% of their budget revenues are due to oil. In this economic environment, the combination of limited business diversity and excess liquidity favoured the surge of their stock markets, and made it normal for these markets to witness much activity. For example, the domestic liquidity over 2001-2005 increased by 50%, 65%, 50% and 36% in Kuwait, Saudi Arabia, Bahrain and Oman respectively.[46] This increase has directly or indirectly fed a rapid rise in demand for credit from the real

[45]See each exchange's website: each exchange's website: Saudi Arabia: www.tadawul.com.sa, Kuwait:www.kuwaitse.com, Dubai: www.dfm.co.ae Bahrain: www.bahrainstock.com, Abu Dhabi: www.portal.adsm.ae/wps/portal, Qatar: www.dsm.com.qa, Oman: www.msm.gov.om

[46]Source: GCC Economic Statistics Bulletin (2006) issued by the Gulf Investment Company (GIC) in Kuwait.

economy, improving access for finance for corporations, facilitating the strong growth in investment and hence surging stock markets.

The other important factor that may impact the stock market activity in the GCC countries is the low interest rates, which are mainly driven by the sensitivity of the GCC interest rates to changes in the US Treasury bill rate as a result of fixing their national currencies to the US dollar. As discussed in chapter three, most of the GCC countries fix their currencies to the US dollar many years ago, whether one to one or through a basket of currencies dominated by the dollar. Thus, GCC countries by nature are overly sensitive to global factors, such as oil prices and US Treasury bill rates and domestic factors such as excess liquidity.

Nevertheless, a considerable body of literature establishes credible evidence that stock markets are affected by a number of key macroeconomic variables. However, it is quite clear that most of empirical studies related to this issue remained confined to world major stock markets with highly diversified productive sectors. Such studies include Fama (1981, 1990) Chen, Roll and Ross (1986), Hamao (1988), Eun and Shim (1989), Asprem (1989), Kim and Wadhani (1990), Joen and Von Furstenberg (1990), Thornton (1993), Arshanspalli and Doukas (1993), Kasa (1992), Kaneko and Lee (1995) Cheung and Ng (1998), Darrat and Dickens (1999). For example, Fama (1981) asserts that there is a strong relationship between stock prices and macroeconomic variables such as GNP, money supply, capital expenditure, industrial production and interest rate. Similarly, Chen, Roll and Ross (1986) find a relation between stock market prices and macroeconomic factors such as inflation, industrial production, money supply, the exchange rate and the interest rate.

Few studies conducted on developing countries include Mookerjee and Yu (1997), Maysami and Koh (2000) for Singapore, Kwon et al (1997) and Kown and Shin (1999) for South Korea, Habibullah and Baharumshah (1996) and Ibrahim (1999) for Malaysia. For example, Mookerjee and Yu (1997) note a significant relation between money supply and foreign exchange reserves and stock prices for the case of Singapore. However, Maysami and Koh (2000) find a significant relation between Singapore's stock prices and various macroeconomic variables, such as interest rate and exchange rate. Kwon et al (1997) study the Korean equity market and find evidence for the exchange rate, dividend yield, oil price and money supply as being significant macroeconomic variables. Similarly, Kwon and Shin (1999) establish a long-run

relation between stock prices and industrial production, exchange rate, trade balance and money supply for Korea.

While most studies conducted on developed countries and few on developing countries, similar work about the fast-growing emerging markets (i.e. GCC stock markets) is almost non-existent. Despite their importance, GCC markets remain under research except for a handful of studies such as Assaf (2003), Hammoudeh and Aleisa (2004) and Hammoudeh and Choi (2006).[47] These studies mainly focus on the dynamic relationships among the GCC stock market returns rather than the impact of economic activity on the stock market movements. So far, to our knowledge, no work has been done on the impact of both local and global macroeconomic factors on stock markets in the GCC countries.[48] Furthermore, the data used in the above mentioned studies predate the end of 2001,[49] which make them miss the rapid and important changes that took place in the GCC markets in the last few years. They also neglect to incorporate the influence of local factors such as money supply as a measure of the liquidity in the economy. For example, Beckers et al (1995) find both global and national factors are of roughly equal importance in explaining the co-movement of stock returns, while national factors are dominant in explaining the stock return volatility.[50]

This chapter intends to contribute to the literature by: first, overcoming the above mentioned caveats by applying time series data covering the period 1994:10-2007:12 and including two global economic factors (oil prices and US Treasury rate) and one local factor (money supply). Second, clearly, GCC stock markets belong to economies whose general features are not consistent with the standard profile encountered in recent relevant literature. The unique features of these economies discussed earlier in chapter one render the determination of stock prices in these markets significantly different from those in other countries. Not all variables used in previous studies would be suitable in the case of the GCC markets. For example, many of the standard macroeconomic variables such as industrial production index and inflation rate, which are commonly used as proxies of economic activities, would have little relevance as determinant of stock prices in the context of GCC countries.[51] For example, as we discussed in chapter

[47]These studies are discussed in chapter three.
[48]Hammoudeh and Choi (2006) focus only on the global factors.
[49]Except for Hammoudeh and Choi (2006), predate of 2004.
[50]Similar results were found by Grinold et al (1989), Drummen and Zimmermann (1992) and Heston and Rouwenhorst (1994).
[51]Most of the studies on the link between economic activities and stock prices, used the industrial production index as a proxy of macroeconomic activities (i.e. Fama (1981, 1990), Schwert (1990, Lee

three, the GCC countries enjoy low level of inflation which undermines the effect of such variable on GCC stock markets.[52] From this perspective, this chapter proposes to analyse the stock markets using the variables that reflect those unique features of GCC economies. That is, this chapter explores the dynamic relation between GCC stock markets and key macroeconomic variables that are believed to impinge on the working of these markets notably, oil prices, US Treasury bill rate and money supply. The strength of the link between the stock market movements and the substance of the economic activity are expected to vary from country to country. For example, the nature of such link in developed economies like the US and Japan may not be the same in less developed or emerging economies (such as GCC economies).

Third, we know there is a direct link between the underlying economy and asset prices for most developed and some developing countries. However, we do not know enough about the relationship between the underlying economy and asset prices for economies that rely on the export of a single product; namely, oil. Given that oil prices are determined by demand and supply at the world level, it would be interesting to know whether asset prices in oil exporting countries simply reflect changes in the value of dollar and the developments in the world economy or whether they respond to domestic macroeconomic shocks as well. Although all GCC countries performed very well over the last few years, their individual performance was not alike and their link to oil is not the same; therefore, they are worthy of further investigation. Finally, the investigation of the dynamic relationship between stock prices and macroeconomic variables becomes more and more important for smaller stock markets as their economic role is less understood compared to well-organised and mature markets as they are less liquid and said to be more affected by speculations and government interventions.

As we have seen in the literature review in chapter three, the relationship between stock prices and the real economic activity has attracted a considerable attention in both the theoretical and empirical economics as well as financial literature. There is consensus in financial economics literature that stock market prices are driven by macroeconomic variables, the so-called "fundamentals" in the economy. However, there is relatively inconclusive evidence on the interrelation between stock prices and macroeconomics

(1992) for the United States, Wasserfallen (1989) for Germany, Switzerland and the UK, Asprem (1989) for a group of European countries, Peiro (1996) for Germany, France, the UK and the US, Binswanger (2001) for G-7 countries).

[52]Only in the last two years the inflation rate increased to about 8% to 10% in both the UAE and Qatar while it remains low in the other GCC countries. Both The UAE and Qatar are not included in our analysis due to lack of consistent monthly data for these countries.

variables, especially in less developed countries. In the light of lack of literature in the context of the GCC countries, an investigation of the relation between stock prices and macroeconomic activity deserves particular attention.

The rest of the chapter will be organised as follows. Section 4.2 presents the econometric methodology employed in this chapter. Section 4.3 discusses the variable definitions and data sources. Section 4.4 reports the empirical results and section 4.5 concludes.

4.2 Econometric Methodology

This chapter employs the multivariate cointegration analysis, the Granger causality test in the context of vector error correction model (VECM), the generalised variance decompositions and the generalised impulse response functions to analyse the dynamics of stock prices in GCC stock markets. As it is common in the literature related to time series techniques, the first step in determining whether common stochastic trends are present among the variables is the detection of a unit root test in each series. For this purpose, this chapter employs the well-known Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests. These tests are performed on both the level variables and their first differences, with the null hypothesis being that the variable under investigation has a unit root against the alternative that it does not. A time series is stationary when its mean and variance are constant over time (i.e. it has no trend and the value of the covariance between two periods depends only on the distance or lag between the two periods and not on the actual time at which the covariance is computed). The use of no stationary variables in a given model leads to the spurious regression phenomenon discussed by Granger and Newbols (1974) and Phillips (1987). Moreover, Stock and Watson (1998) have also shown that the usual test statistics (t and F) will not possess standard distributions if some of the variables in the model have unit roots and are thus, no stationary.

4.2.1 Multivariate Cointegration Tests and VEC model

Having established that the variables are integrated in the first difference, and since we are interested in modelling a long-run relationship between macroeconomic variables and stock prices, cointegration analysis is an ideal tool. We proceed to the estimation of the number of co integration vectors using Johansen (1988) and Johansen and Juselius (JJ) (1990) approach. Several advantages of this approach have been identified over its predecessor popular residual based Engle-Granger two-steps approach in testing for

cointegration. First, the JJ procedure does not assume the existence at most of a single cointegrating vector; rather it explicitly tests for the number of cointegrating relationships. Second, different from Engle-Granger procedure which is sensitive to the choice of the dependent variable in the cointegration regression, the JJ procedure assumes all variables to be endogenous, and when it comes to extracting the residual from the cointegrating vector, the JJ procedure avoids the arbitrary choice of the dependent variable as in the Engle-Granger approach, and is insensitive to the variable being normalised. Third, the JJ procedure is established on a unified framework for estimating and testing cointegrating relations within the VECM formulation. Fourth, JJ provides the appropriate statistics and the point distributions to test the hypothesis for the number of cointegrating vectors and tests of restrictions upon the coefficients of the vectors. For these reasons, we follow the multivariate test for cointegration advocated by Johansen (1988) and Johansen and Juselious (JJ) (1990).

Consider the following vector autoregressive (VAR):

$$Y_t = \Phi_1 Y_{t-1} + \Phi_2 Y_{t-2} + ...\Phi_k Y_{t-k} + \mu + \eta_t \qquad (4.1)$$

Where Y_t is a k*1 vector containing the variables of our analysis. Suppose that these variables are I (0) after applying the difference filter once. If we exploit the idea that the relevant variables move together over time toward a long-run equilibrium state, then by the granger causality analysis we may posit the following testing relationship that constitutes a VECM model:

$$\Delta Y_t = \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + ...\Gamma_{k-1} \Delta Y_{t-k+1} + \Pi Y_{t-k} + \mu + \eta_t \qquad (4.2)$$

Where ΔY_t is the vector of first differences of the variables, the Γ's are the estimated parameters, Δ stands for the operator difference, η_t is a vector of impulses which represents the anticipated movements in Y_t, with $\eta_t \approx niid(0, \sum)$ and Π is the long-run parameters matrix. With r cointegrating vectors ($1 \le r \le k$), Π has rank r and can be decomposed as $\Pi = \alpha\beta$, with α and β both k*r matrices. β are the parameters in the cointegrating relationship and α is the adjustment coefficients which measure the strength of cointegrating vectors in VECM.

The Johansen (1988) and Johansen and Juselious (JJ) (1990) multivariate cointegration techniques allow us to estimate the long-run relationship between variables, using two likelihood ratio test statistics: the trace statistic and the maximum Eigen value statistic. They can be used for testing cointegrating vectors. The hypothesis that there are at most r distinct cointegrating vectors can be tested by the trace statistic: Trace test: $-T \sum_{i=r+1}^{n} \ln (1- \lambda_i)$, Where T is the number of observations and λ_i's Eigen values between the two residuals R_{0t} and R_{t1}. Alternatively the maximum Eigen values statistic tests the hypothesis of r+1 cointegrating vectors, given r cointegrating vectors and is defined as: Maximum λ test: $-T \ln (1-\lambda_{r+1})$, Where λ_{r+1} is the (r+1) the largest Eigen value. The trace tests the null hypothesis that the number of distinct cointegrating vectors is less than or equal to r against the general alternative. The max Eigen value tests the null hypothesis of r cointegrating vectors against r+1 cointegrating vectors. The critical values for both tests are available in Oster-Lenum (1992). Johansen (1991, 1992) proved that the intercept terms in the VEC model should be associated with the existence of a deterministic linear trend in the data. However, if the data do not contain a time trend, the VEC model should include a restricted intercept term associated to the cointegrating vectors.

The vector error correction model shows how the system is adjusting in each time period towards its long-run equilibrium state. Since the factors are supposed to be cointegrated, then in the short-run, any deviations from the long-run equilibrium will feed back on the changes in the dependent variables in order to force their movements towards the long-run equilibrium state. Consequently, the cointegrating vectors from which the error correction terms are derived are each indicating an independent direction where a stable long-run equilibrium state exists. However, the coefficients of the error correction terms represent the proportion by which the long-run disequilibrium in the dependent variables is corrected in each term period.

4.2.2 Causality Tests

After conducting the cointegration tests, we proceed by applying causality analysis, which enables us to investigate the direction of the relationship between the stock index and the macroeconomic variables. More specifically, we can examine if the macroeconomic variables have an effect on the stock index or they are affected by it.

Cointegration analysis allows proving the existence of the relationship but does not allow us to conclude about the direction of the causality. Granger (1989) indicates that if two variables are cointegrated, then Granger causality must exist in at least one direction. This result is a consequence of the relationship described by the VECM. Since the variables move together over time, then any variable or a combination of any of the variables in ΔY_t must be granger caused by the lagged values of the level variables. Given this, the causal relation between the variables can be investigated using the joint F-test applied to the coefficient of each explanatory variable and the coefficient of the cointegrating vector in the VECM.

4.2.3 Variance Decompositions and Impulse Responses

In order to analyse the dynamic properties of the variables under analysis, we employ the generalised variance decomposition and the generalised impulse response functions. The purpose of this investigation is to find how the index responds to shocks by other variables of the system. The forecast error of generalised variance decompositions analysis reveals information about the proportion of the movements in sequence due to its "own" shocks versus shocks to other variables. If the shocks do not explain any of the forecast error variance of one macroeconomic variable in all forecast horizons, then this variable is exogenous. At the opposite side, if shocks can explain all forecast error variance of the variable at all forecast horizon, this variable is an entirely endogenous variable. The generalised impulse response functions provide an estimate of the response of a variable in the case of innovation in another variable. Plotting the generalised impulse response functions is a practical way to explore the response of a variable to a shock immediately or with various lags.

In calculating variance decompositions and impulse response functions, it is assumed that the variables should be in particular ordering. However, according to Koop et al (1996), unlike orthogonalised variance decomposition and impulse response functions obtained using the Cholesky factorisation, the generalised variance decomposition and impulse response functions are unique and invariant to the ordering of the variables in VAR.

4.3 Data

In choosing the relevant variables to include in the model we rely on earlier empirical analysis and economic intuition. The unique economic features of GCC countries, as

discussed earlier, render the determination of stock prices in the GCC stock markets significantly different from those in other countries. As discussed earlier, many of the well-known macroeconomic variables that are well-defined in the literature to be related to the stock markets have probably little bearing in the stock market in GCC countries. Based on this point of view, we hypothesise a relationship between GCC stock prices and several variables that we view to be most pertinent to the GCC stock markets setting. In line with the following empirical studies -Chen, Roll and Ross (1986), Mookerjee and Yu (1997), Maysami and Koh (2000), Kwon et al (1997), Kown and Shin (1999), Habibullah and Baharumshah (1996), Ibrahim (1999), Assaf (2003), Hammoudeh and Aleisa (2004) and Hammoudeh and Choi (2006) - have studied three macroeconomic factors that are used in the present study: oil prices, interest rates and money supply.

The first variable, which is believed to impinge on the working of the stock markets in the GCC, is the price of oil. This choice is built on the fact that GCC economies depend mainly on oil revenues. Oil revenues are considered the main source of income and government spending. As known, the profitability of the business sector is largely affected by the level of economic activity. Since the oil prices (oil revenues) is the major component of the gross domestic product in the GCC countries,[53] an increase in oil prices, by affecting economic activity and corporate earnings, has implications for asset prices and stock markets. However, given the recent fast developments in the GCC stock markets, it is unclear to what extent the recent increase in the oil price has been directly responsible for recent turbulence in their stock markets. This strong influence of oil prices on the national economies of GCC countries makes them an interesting case to investigate the impact of oil prices on their stock markets movements. Furthermore, understanding the link between oil prices and stock prices is important for investors to make the right investment decisions and for policy makers to adopt the appropriate policies to develop the stock markets.

The financial economics literature suggests that monetary policy instruments are considered one of the most important mechanisms that affect stock markets. For example, changes in interest rate or domestic liquidity in the economy force the participants in the stock markets and investors in general to reconsider their investment

[53] The correlation coefficients between oil prices and GDP are .95, .93, .92, and .92 for Kuwait, Saudi Arabia, Bahrain and Oman respectively. For details, see Appendix B4 at the end of this chapter. It is worth to mention here that GDP is not available on monthly basis, oil price is the best proxy for it.

strategies because, as suggested by financial theories, the value of an asset today is the sum of the discounted future cash flows from this asset. As we discussed in chapter three most of the GCC countries tie their exchanges rates effectively to US dollar. Consequently, GCC monetary policies should follow US monetary policy, resulting in highly correlated relationship between their short-term interest rates and US rates as suggested by the hypothesis of interest rate parity. The correlation coefficients between local short-term interest rate in the GCC and US Treasury bill rate are about 94%, 97%, 99%, and 70% for Kuwait, Saudi Arabia, Bahrain and Oman respectively.[54] This fixing of exchange rates makes the movements of the local interest rates very tight to the US rates, which have been low over the past years, contributing to lower rates in the GCC countries. Based on this argument, short-term interest rate for the four countries is proxied by the US Treasury bill rate.

Theoretically, an increase in interest rates raises the required rate of return, which in turn inversely affects the value of the asset. Considered as opportunity cost, the nominal interest rate will affect investor's decisions on asset holdings. An increase in this opportunity cost will motivate them to substitute their equity shares for other assets in their portfolio. Thus, an increase in interest rates has negative effect on stock prices from the perspective of asset portfolio allocation. Furthermore, an increase in interest rates may restrain economic activity and cause a decline in future corporate profitability. Therefore, a negative relation between interest rates and stock prices is expected.

In addition, to the oil prices and US Treasury bill rate, we choose another variable which reflects the liquidity in the economy. This variable is the money supply proxied by domestic credit.[55] As we discussed in chapter three, all GCC countries fix their currency exchange rate to the US dollar. Under these circumstances, where there is no independent monetary policy, money supply will have limited role as an indicator of liquidity in the economy, so given the structure of the GCC countries, domestic credit appears to be an appropriate measure of liquidity and a good proxy for money supply (henceforth, we use domestic credit to describe money supply). The rational of including such variable is that we have to have a factor reflecting the liquidity effect on the stock prices. An increase in liquidity creates an excess supply of money balances and an excess demand for equity, and results in an increase in equity prices. However,

[54]See Appendix B4.
[55]The correlation coefficients between money supply and domestic credit are .90, .70, .98 and .90 for Kuwait, Saudi Arabia, Bahrain and Oman respectively. See Appendix B4.

in the long run an increase in liquidity will cause inflation and increase interest rate, which in turn will increase the discount rate in the valuation model. Therefore, the stock prices may be negatively related to domestic credit. Note, however, in case of the GCC countries, the inflation rate was low in the period under investigation. Thus, we hypothesise that the domestic credit may have a positive effect on stock prices.

Monthly data in logarithmic form used for the period 1994:10 to 2007:12 for Kuwait, Bahrain and Oman and the period 1996:1 to 2007:12 for Saudi Arabia are used in this investigation. The starting date was dictated by data availability and the need to maintain consistency. Monthly data frequency are chosen in order to avoid potential spurious correlations among the time series often found to exist in aggregated quarterly and annual data. On the other side, data frequency shorter than a month is constrained by the fact that one of our variables (domestic credit) is available only on monthly basis. It is assumed that stock prices are related to some macroeconomic variables, and hence time series, which may be able to capture both current and future directions in the broad economy. Hence the variables are: value weighted stock price index (INDEX), Crude oil price (OIL), short-term interest rate (INT) and domestic credit (DC). The index variable has been obtained from the Arab monetary funds (AMF); the oil price obtained from US energy information administration; the US Treasury rate and the domestic credit obtained from International Monetary Fund's International Financial Statistics (IFS 2008 CD ROM). Lack of consistent monthly data over the entire sample period makes it difficult to include Qatar and The United Arab Emirates in the present study.

To asses the distributional properties of the data, table (4.1) assembles some summary statistics for the above mentioned selected variables. As can be noted form the table, the Omani market registered the highest monthly returns of .39%,[56] followed by returns of Saudi Arabia's market .36% and Kuwait's market .29%. The lowest monthly return in the four countries belongs to Bahrain's market at .25%. The Saudi market exhibits the highest degree of risk as measured by the standard deviation (3.5% per month) and Bahraini market is the least risky with standard deviation of only about half (2%) of Saudi's market. Skewness as a measure of asymmetry of the series around its mean shows that the distributions of all variables in the four countries are almost symmetrical. The kurtosis statistics provides a measure of thickness of the tails of a distribution relative to normal distribution. The kurtosis far exceeds 3 across the variables

[56]In 2006, Oman's stock market was the only GCC market to have registered positive return (up by 14.5%).

suggesting that the empirical distribution has more weight in the tails and leptokurtic (peaked). These market characteristics are consistent with those found by Bekaert and Harvey (1997) for emerging markets.

Table 4.1

Descriptive Statistics

The table presents some descriptive statistics for the variables used in our estimation. Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. From the stock price index series we calculate the stock returns as 100*(Pt/Pt-1); where Pt is the value of stock price index at time t. Monthly data are used for the period 1994:10 to 2007:12 for Kuwait, Bahrain and Oman and the period 1996:1 to 2007:12 for Saudi Arabia.

	Mean	Median	Std. dev.	Skewness	Kurtosis
KUWAIT					
INDEX	0.296	0.509	2.581	-2.583	21.74
OIL	0.439	0.515	2.673	-0.021	4.135
INT	-0.006	0.015	0.188	-1.209	5.640
DC	18.14	3.870	216.5	0.755	8.026
SAUDI ARABIA					
INDEX	0.362	0.609	3.580	-2.020	12.81
OIL	0.439	0.515	2.673	-0.021	4.135
INT	-0.006	0.015	0.188	-1.209	5.640
DC	0.938	0.645	13.30	0.453	6.976
BAHRAIN					
INDEX	0.259	0.107	2.024	1.804	13.07
OIL	0.439	0.515	2.673	-0.021	4.135
INT	-0.006	0.015	0.188	-1.209	5.640
DC	20.32	20.85	55.10	0.340	5.075
OMAN					
INDEX	0.394	0.240	2.941	0.905	7.420
OIL	0.439	0.515	2.673	-0.021	4.135
INT	-0.006	0.015	0.188	-1.209	5.640
DC	20.04	16.53	89.85	0.643	13.91

Table (4.2) provides an outline of the relationship between the stock price index and the selected variables for each country. In line to what we discussed earlier in the literature review about the relationship between the stock prices index and other macroeconomic variables, the correlation matrix among the selected variables reveals that the index is positively correlated with oil prices in the four countries. The correlation coefficients between the index and oil prices are .75, .75, .88, and .70 in Kuwait, Saudi Arabia, Bahrain and Oman respectively. Also, the domestic liquidity in the economy is positively correlated to the index in the four countries ranging from about 40% in Oman to .87 in Bahrain. Furthermore, consistent with the theoretical background, the correlation between the interest rate and the index appears negative for Kuwait (-.52), Saudi Arabia (-.22) and Bahrain (-.03) while it appears positive (.20) for Oman. Further

discussion about the relationship between stock price index and the above mentioned variables will be presented in the following sections.

Table 4.2

Correlation among variables

The table presents the correlation coefficients for the variables used in our estimation. Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. Monthly data are used for the period 1994:10 to 2007:12 for Kuwait, Bahrain and Oman and the period 1996:1 to 2007:12 for Saudi Arabia.

KUWAIT				
	INDEX	OIL	TBUS	DC
INDEX	1.00			
OIL	.758	1.00		
INT	-.524	-.155	1.00	
DC	.631	.838	-.199	1.00
SAUDI ARABIA				
	INDEX	OIL	TBUS	DC
INDEX	1.00			
OIL	.754	1.00		
INT	-.226	-.041	1.00	
DC	.744	.635	-.652	1.00
BAHRAIN				
	INDEX	OIL	TBUS	DC
INDEX	1.00			
OIL	.881	1.00		
INT	-.030	-.134	1.00	
DC	.870	.919	-.318	1.00
OMAN				
	INDEX	OIL	TBUS	DC
INDEX	1.00			
OIL	.703	1.00		
INT	.207	-.121	1.00	
DC	.392	.732	-.455	1.00

4.4 The Empirical Results

This section applies the methodology described above to empirically investigate the dynamic interactions between the stock prices and the macroeconomic variables in four GCC stock markets. The main focus of our analysis is on testing for the existence of long-run equilibrium relationship between the above mentioned variables and stock prices in the context of four GCC countries, investigating the nature of the causal relation among variables considered with particular attention to the causal effects that variables may have on stock prices and to what extent do shocks in macroeconomic variables influence the stock index.

4.4.1 Test Results for Unit Roots

In testing for unit roots, this chapter employs the well-known Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests. These tests are performed on both the level variables and their first differences, with the null hypothesis being that the variable under investigation has a unit root against the alternative that it does not. If the calculate statistics is higher than McKinnon's critical value then we do not reject H_0 and the considered variable is non-stationary, if not it is stationary. In each case the lag length is chosen by minimising the Akaike Information Criterion (AIC). We also test for the existence of up-to-the-twelfth order serial correlation in the residuals of each regression using the Ljung-Box Q statistics. The result of these tests indicate the absence of serial correlation.[57]

Table (4.3) presents the results of unit root tests for the variables in level and first differences (with trend and without trend). All variables have been transformed to natural log before the analysis. The results indicate that the null hypothesis that the level variables contain unit roots cannot be rejected by both tests for the four countries. However, after differencing the data once, both tests reject the null hypothesis. Since the data appear to be stationary in first differences, no further tests are performed. Up to this stage, we can say that the ADF and PP test statistics suggest that the four variables are candidates for cointegration.

[57]See Appendix C4 at the end of this chapter.

Table 4.3

Tests Results for Unit Roots

The table presents the results for unit roots test. ADF is the Augmented Dickey-Fuller test and PP is the Phillips-Perron test. Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. Monthly data are used for the period 1994:10 to 2007:12 for Kuwait, Bahrain and Oman and the period 1996:1 to 2007:12 for Saudi Arabia. All variables are in natural log. The lag selection is based on the lowest value for Akaike Information Criterion (AIC). The null hypothesis is that the series is I (1). The critical values for rejection are: -3.4422 at 1%, -2.8798 at 5%, -2.5766 at 10% for models without linear trend and -4.0179 at 1%, -3.1288 at 5% and -3.1437 at 10% for models with linear trend. These values are based on Mackinnon (1996) provided by Eviews. (*) indicates significant at 1% for both models.

KUWAIT				
Variables	**ADF Test**		**PP Test**	
Level	**Constant, no trend**	**Constant, trend**	**Constant, no trend**	**Constant, trend**
INDEX	-.5495	-1.720	-.6551	-1.692
OIL	.1067	-1.823	.0729	-1.924
INT	-1.801	-2.448	-1.311	-1.143
DC	-.6056	-1.912	-.5119	-1.912
1st Diff.				
INDEX	-11.153	-11.129	-11.152*	-11.128*
OIL	-11.402	-11.4534	-11.357*	-11.410*
INT	-3.820	-3.8675	-7.390*	-7.410*
DC	-7.956	-14.004	-13.869*	-13.922*
SAUDIA ARABIA				
Level				
INDEX	-.9414	-2.009	-.8920	-1.953
OIL	.1067	-1.823	.0729	-1.924
INT	-1.801	-2.448	-1.311	-1.143
DC	-1.809	-.7576	-1.7600	-.8953
1st Diff.				
INDEX	-9.923	-9.888	-9.928*	-9.894*
OIL	-11.402	-11.4534	-11.357*	-11.410*
INT	-3.820	-3.8675	-7.390*	-7.410*
DC	-13.521	-13.703	-13.457*	-13.837*
BAHRAIN				
Level				
INDEX	.1767	-1.407	.0880	-1.445
OIL	.1067	-1.823	.0729	-1.924
INT	-1.801	-2.448	-1.311	-1.143
DC	-.9174	-2.056	-.9276	-2.047
1st Diff.				
INDEX	-11.719	-11.805	-11.755*	-11.818*
OIL	-11.402	-11.4534	-11.357*	-11.410*
INT	-3.820	-3.8675	-7.390*	-7.410*
DC	-9.544	-9.541	-12.249*	-12.209*
OMAN				
Level				
INDEX	-.1277	-.7404	-.0767	-.7280
OIL	.1067	-1.823	.0729	-1.924
INT	-1.801	-2.448	-1.311	-1.143
DC	-1.462	-1.7861	-1.5918	-1.986
1st Diff.				
INDEX	-6.521	-6.648	-11.322*	-11.421*
OIL	-11.402	-11.4534	-11.357*	-11.410*
INT	-3.820	-3.8675	-7.390*	-7.410*
DC	-15.759	-15.767	-15.783*	-15.770*

4.4.2 Test Results for Cointegration

Since all the variables included in the model pertain to stationary time series data, there exists the possibility that they share a long-run equilibrium relationship. To test this, we apply multivariate cointegration test of Johnson's test (1991). The Johansen method provides two different likelihood ratio tests, the trace test statistic and maximal Eigen value test statistic to determine the number of cointegrating vectors. Before applying the Johansen method to estimate the parameters of the cointegrating relationship and the adjustment coefficients β and α, it is necessary to determine the lag length (k) to be included in the VAR equation (1). The lag length should be high enough to ensure that the errors are approximately white noise, but small enough to allow estimation. We select the optimal lag length according to several different criteria. The criteria include the sequentially modified Likelihood Ratio (LR) test, Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan Quinn Information Criterion (HQ). We select the optimal lag length based on the most common lags resulting from those criteria. Three out of five criteria, the LR, FPE and AIC show that two lags are appropriate in case of Kuwait, Saudi Arabia and Bahrain and three lags in the case of Oman. The results of testing the number of cointegrating vectors are reported in table (4.4). As can bee seen in all four countries, both the trace test and the maximum Eigen value statistics yield identical results. They are both sufficiently large to reject the null hypothesis of no cointegration among the variables in the four countries (only the trace test is significant in case of Oman). Specifically both tests suggest the existence of a unique cointegrating vector linking together the four variables in the four markets over the long run.

The result that stock price index cointegrates with the remaining variables in the model means that its movement towards a long-run equilibrium state defined by the cointegrating equation characterises its long-run behaviour. Therefore, in the short run, any deviation of the stock prices from this long-run equilibrium will feed back on their changes in order to force their movement towards their long-run equilibrium state. The coefficient of the cointegrating vector in the stock prices equation is the adjustment coefficient of stock prices and measures their speed of adjustment to the long-run equilibrium state. The adjustment coefficients of stock prices are small and significant for Kuwait, Saudi Arabia and Bahrain, but insignificant for Oman. For example, (α) is .08, .08, .07 for Kuwait, Saudi Arabia and Bahrain and means that in each short-term

period, for example, Kuwait stock prices adjust by about 8 percent of the imbalance that exists at time (t-1) between its current value and its long-run equilibrium value given by the long-run equilibrium relationship. However, consistent with Hassan (2003), the coefficient on the cointegrating vector in the index of Oman appears small and insignificant, which may reflect the exogeneity of the Oman's stock price index.

After normalising the coefficients of stock price indices to one, the restricted long-run relationship between stock prices and macroeconomic variables for the four countries can be expressed as:

Kuwait Index = .049 OIL - .290 TBUS +.667 DC
[.0488] [-5.263] [14.515]

Saudi Arabia Index = .350 OIL -.113 TBUS + .746 DC
[2.511] [-1.451] [8.499]

Bahrain Index = -.691 OIL + .356 TBUS + .649 DC
[-3.256] [4.540] [2.641]

Oman Index = -2.079 OIL + .711TBUS -3.168 DC
[-4.053] [5.66] [-4.464]

t-statistics in [ ].

Before interpreting the results, it is important to emphasise here that the above estimated coefficients relate only to the long-run relationship. That is, the estimated coefficients can be viewed as describing some trend linking between the variables concerned. Also, these estimated long-run coefficients may be interpreted as elasticity measures since the variables are expressed in natural logarithms.

As expected, the oil price factor appears positive and significant for Saudi Arabia. Consistent with Hammoudeh and Choi (2006), the results reveal the existence of long-run relationship between the stock price index and oil prices. This is as anticipated and not surprising result for the Saudi Arabia, case which has the highest percentage of oil revenues to total revenues (about 90% in 2005) among GCC countries. Consequently, for the case of Saudi Arabia it is expected that an increase in oil prices (oil revenues) will boost not only the local business activities directly linked to oil, but also other businesses through its impact on government revenues and public expenditure on infrastructure and other mega projects. Furthermore, it seems that the surge in oil revenues in the last few years has fuelled an economic boom that has created many

profitable business opportunities for private firms and consequently reflected in their performance and stock prices.

However, in the case of Kuwait, the oil prices do not show statistical significant relationship with the price index, while negative and significant coefficient appears for Bahrain and Oman. The reasons of these results vary across countries. In Kuwait, the market is highly sensitive to fads and herding (Hammoudeh and Choi, 2006), and that makes the monthly connection between oil prices and stock market weak. The result of Kuwait should not mean that Kuwait's stock market is not sensitive to oil prices changes in the long run, but may be that this market is more sensitive to other changes in other variables, such as liquidity in the economy and interest rate (as evident from the above results of Kuwait), and thus corporate profits are related, but indirectly to oil revenues. Thus, it seems that the loop is too long for changes in oil prices to be reflected by the stock price index. For the case of Bahrain and Oman, the negative and significant coefficients of oil prices can be explained by the fact that since the increase in oil prices is expected to raise the production cost in industrial oil importing countries, then an increase in oil prices is expected to raise the cost of imported capital goods; and therefore, adversely affecting the prospects of higher corporate profits in these markets.

Consistent with Chen et al (1986), Burmenister and Wall (1986), Hamao (1988), Bulmash and Trivoli (1991) and Dhakal et al (1993) for the US stock market, Maysami and Koh (2000) for the Singapore stock market, Achsani and Strohe (2002) for Norway and Indonesia stock markets, the short-term interest rate appears with negative and significant coefficient in the case of Kuwait. The negative effect of interest rate is very evident from the perspective of stock valuation models, where interest rates are considered as discount factors. The result of Kuwait indicates that in this country the short-term interest rate represents alternative investment opportunities. As the interest rate rises, investors prefer to switch out of stocks, causing stock prices to fall and vice versa. However, the positive and insignificant coefficient of Saudi Arabia may refer to application of Islamic Shari'a considerations which play a role in weakening the effect of interest rate on investment. Also, this result can be explained by the fact that despite that Saudi Arabia follows the fixed exchange rate with US dollar, the risk premium for its currency varies over time and weakens the linkage.[58]

[58]See Hammoudeh and Choi (2006).

In the case of Bahrain and Oman, the coefficients appear positive and significant. It is known that interest rate can be used by the central banks as a growth stimulus instrument. Thus, decreasing interest rate might indicate a central bank response to economic downturn, and rising interest rate might be a response to economic upturn. Therefore, the positive coefficient in the case of Bahrain and Oman can be explained by counter-cycle central bank responses to economic fluctuations.

Consistent with Mukherjee and Naka (1995) for Japanese market, Cheung and Ng (1998) for Canada, Germany, Italy, the US and Japan and Kwon and Shin (1999) for Korea, the results reveal a positive and significant long-run relationship between the index and domestic credit in the case of Kuwait, Saudi Arabia and Bahrain. Conversely, the domestic credit in Oman negatively and significantly influences stock price performance. As we discussed before, the relation between domestic liquidity and stock index can be positive or negative. Higher domestic liquidity can increase future cash flows, corporate profitability, and thereby raises the stock prices, while the opposite outcome is likely to happen in recession.

So far, we can conclude that monthly stock prices, oil price, short-term interest rates and domestic liquidity are cointegrated with one cointegrating vector in all the four countries, which indicates the existence of a stable, long-term equilibrium relationship among these variables. These results are consistent with Chaudhuri and Koo (2001) who investigate the volatility of stock prices in some Asian emerging markets. They find that both domestic and international macroeconomic factors have significant relation with stock prices volatility. Also, the results are consistent with Nasseh and Strauss (2000) who find significant long-run relationship between stock prices and domestic and international economic activity in France, Germany, Italy, Netherlands and the UK. Furthermore, the results show that the stock price indices in Kuwait, Saudi Arabia and Bahrain are adjusting to the long-term equilibrium states whereas prices in Oman are not. Again, we need to emphasise here that the above estimated coefficients related only to the long-run relationship. That is, the estimated coefficients can be viewed as describing some trend linking between the variables concerned. They, however, do not tell us about the short-term relationship and the dynamic interactions among the variables. Accordingly, we proceed with testing the causality relation, variance decomposition and impulse response function based on VAR specification.

Table 4.4

Johansen cointegration tests

The table presents the cointegration test. Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. r represents the number of cointegration vectors. (**) and (*) indicates rejection the null hypothesis at 1% and 5% level of significance respectively.

KUWAIT							
Hypothesis		Max Eigen value	Critical value		Trace test	Critical value	
Null	Alternative		5%	1%		5%	1%
r=0	r=1	37.00**	23.80	28.82	54.07**	39.89	45.58
r≤1	r=2	10.34	17.89	22.99	17.06	24.31	29.75
r≤2	r=3	5.635	11.44	15.69	6.726	12.53	16.31
r≤3	r=4	1.091	3.84	6.51	1.091	3.84	6.51
SAUDI ARABIA							
Hypothesis		Max Eigen value	Critical value		Trace test	Critical value	
Null	Alternative		5%	1%		5%	1%
r=0	r=1	29.99**	23.80	28.82	42.01*	39.89	45.58
r≤1	r=2	8.333	17.89	22.99	12.02	24.31	29.75
r≤2	r=3	3.417	11.44	15.69	3.688	12.53	16.31
r≤3	r=4	0.272	3.84	6.51	0.271	3.84	6.51
BAHRAIN							
Hypothesis		Max Eigen value	Critical value		Trace test	Critical value	
Null	Alternative		5%	1%		5%	1%
r=0	r=1	24.14*	23.80	28.82	47.61**	39.89	45.58
r≤1	r=2	13.45	17.89	22.99	23.47	24.31	29.75
r≤2	r=3	7.452	11.44	15.69	10.01	12.53	16.31
r≤3	r=4	2.560	3.84	6.51	2.560	3.84	6.51
OMAN							
Hypothesis		Max Eigen value	Critical value		Trace test	Critical value	
Null	Alternative		5%	1%		5%	1%
r=0	r=1	23.44	23.80	28.82	46.30**	39.89	45.58
r≤1	r=2	13.34	17.89	22.99	22.86	24.31	29.75
r≤2	r=3	6.175	11.44	15.69	9.516	12.53	16.31
r≤3	r=4	3.340	3.84	6.51	3.340	3.84	6.51

Table 4.5

The β and α vectors from the restricted model

Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. β is the matrix of cointegrating vectors, α is the speed of adjustment coefficients. t-statistics in [ ].

KUWAIT		
	β	α
INDEX	1	-0.0873 [-3.554]
OIL	0.0495 [0.488]	-
INT	-0.2902 [-5.263]	-
DC	0.6671 [14.51]	-
SAUDI ARABIA		
	β	α
INDEX	1	-0.0892 [-3.300]
OIL	0.3504 [2.511]	-
INT	-0.1133 [-1.451]	-
DC	0.7465 [8.499]	-
BAHRAIN		
	β	α
INDEX	1	-0.0770 [-2.933]
OIL	-0.6917 [-3.256]	-
INT	0.3569 [4.540]	-
DC	-0.6497 [-2.641]	-
OMAN		
	β	α
INDEX	1	-0.0280 [-1.295]
OIL	-2.0790 [-4.953]	-
INT	0.7117 [5.660]	-
DC	-3.1689 [-4.464]	-

4.4.3 Test Results for Granger Causality

Before testing for Granger causality and since the results are sensitive to departures from the standard assumptions, we subject the residuals of the estimated VECM equations to a battery of diagnostic tests. The results suggest that the residuals pass the tests at 95%. In particular, the Lagrange multiplier test statistics indicate no serial correlation among the residuals for each country. In addition, Ljung-Box Q-statistics indicate no autocorrelation.[59]

Given that the analysis of the causal relation focuses on short-term dynamics of stock prices in Kuwait, Saudi Arabia, Bahrain and Oman and how their short-run behaviour is affected by the other variables in the system, we focus our attention on testing for the existence of Granger causality in only one direction, from oil prices, short-term interest rate and domestic credit to stock prices. The existence of such causality means that past information on oil prices, short-term interest rate and domestic credit help predict future values of stock prices in those countries. The Granger causality test results appear in table (4.4). The results vary from country to country and appear to be mixed. Generally, it is evident that economic activity represented by the three variables granger causes stock prices in the four countries. The results suggest that stock prices in Kuwait are being significantly granger caused by both oil prices and domestic credit, while the stock index in Saudi Arabia granger is caused by the three factors: oil prices, short-term interest rate and domestic credit. In Bahrain, the stock prices index is affected only by the short-term interest rate; while in Oman the index is affected by both oil prices and short-term interest rate.

It is useful to remember here that the Granger causality tests the existence of short-term causal relation from a variable to another, while the cointegration test in the previous section tests the long-term equilibrium relationship among the variables. Specifically, the results of the Granger causality test suggest that stock prices in Kuwait, Saudi Arabia and Oman are being significantly granger caused by oil price. However, no such relation is registered for Bahrain. These results are consistent to what we discussed in chapter three that despite the fact that the GCC economies depend to a large extent on oil revenues, they individually have different degree of oil dependency.[60]

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[59]See Appendix C4.
[60]For more detail refer to chapter three.

These results mean that, in the short term, stock prices in Kuwait, Saudi Arabia and Oman are sensitive to oil price changes. This is an understandable result since oil exports in these countries determine their foreign earnings and their government budget revenues and spending. Thus, they primarily determine the aggregate demand which influences the corporate activities, earnings and stock prices. However, the result of Bahrain is not surprising according to what we discussed in chapter three; namely, Bahrain is not a major oil exporter and it depends on Saudi Arabia for financial aid. For example, Bahrain has the lowest oil dependency rate measured by the oil sector as ratio of GDP (about 23% in 2005) among the GCC countries.[61]

Similarly, domestic credit appears to have a significant causal effect on the stock prices in Kuwait and Saudi Arabia in the short run; however, no causal effect is observed from domestic liquidity to the index in Bahrain and Oman. The results of Bahrain and Oman are consistent with Bhattacharya and Mukherjee (2002) for India stock market. In addition, consistent with Hammoudeh and Choi (2006), the stock price index of Saudi Arabia, Bahrain and Oman appear to be mainly driven by the short-term interest rate (proxied by US Treasury bill rate) in the short run. This makes sense since the present value model suggests that prices are determined by the future cash flows and the discount rate for those cash flows. However, there is not such causal impact for Kuwait.

Clearly, the Granger causality results brought out the importance of oil price in affecting the stock price movement. These results are consistent with Achsani and Stroch (2002) for Norway and Indonesia, Jones and Kaul (1996) for the US, Canada and Japan and Papapertou (2001) for Greece. The results indicate that our economic argument is valid for GCC countries included in the sample. In particular, oil prices do profoundly impact the stock market in both short and long run. This indicates the importance of oil prices in determining stock prices in an oil dependent economy like GCC countries. Furthermore, Granger causality test illustrates an important result which is consistent with what we discussed in chapter three that although all GCC countries rely heavily on oil exports for revenues, their macroeconomic environment is mostly different. This result is not surprising, considering the difference in the structure of the economy of these countries, including the degree of economic diversity, the direction of economic policies and the current stage of economic and financial development.

[61]For more details about the percentages across the years, refer to chapter three.

Generally, the results suggest that the historical values of economic activity, more or less, can predict current and future stock price movement in Kuwait, Saudi Arabia, Bahrain and Oman. This evidence suggests that the value of the stock price index in the four countries functions of past and current values of macroeconomic variables since they constitute the information set used to generate a flow of expected future income. Furthermore, the statistical significance of causal relations verifies the fundamental and theoretical linkages between stock prices and macroeconomic variables in the four GCC countries. Although the empirical evidence related to developing economies is limited, our results are found to be consistent with some of the studies done on the developed economies. For example, the predictive power of economic factors over the stock prices is also observed by Dhakal et al (1993), Abdullah and Hayworth (1993) and Pesaran and Timmermann (1995) among others.

Table 4.6

Causality Tests

The table presents the Granger causality test. Variables are INDEX, OIL, INT and DC indicates for stock prices index, oil prices, short-term interest rate and domestic credit respectively. (***), (**) and (*) indicates 10%, 5% and 1% level of significance respectively..

Null Hypothesis	F-Statistic	Probability
KUWAIT		
OIL does not Granger Cause INDEX	2.28537	0.10524***
INT does not Granger Cause INDEX	1.58764	0.20782
DC does not Granger Cause INDEX	3.91968	0.02199*
SAUDI ARABIA		
OIL does not Granger Cause INDEX	4.37223	0.01443*
INT does not Granger Cause INDEX	4.50455	0.01277*
DC does not Granger Cause INDEX	4.55833	0.01216*
BAHRAIN		
OIL does not Granger Cause INDEX	1.62538	0.18593
INT does not Granger Cause INDEX	2.70382	0.04765*
DC does not Granger Cause INDEX	0.77216	0.51137
OMAN		
OIL does not Granger Cause INDEX	3.95325	0.02120*
INT does not Granger Cause INDEX	2.31338	0.10245***
DC does not Granger Cause INDEX	0.04132	0.95953

4.4.4 Test Results for Variance Decomposition and Impulse Response Functions

The precise interpretation of the VAR model can be brought out through the generalised variance decomposition analysis and the estimation of the generalised impulse response functions to investigate the dynamic properties of the system. In what follows, we examine the generalised variance decomposition and the generalised impulse response

functions among the variables in order to gain insight into the following question: *to what extent do shocks in macroeconomic variables influence the stock index?*

The decomposition of the forecast error variance of stock prices due to shocks in macroeconomic variables is reported in table (4.7). The reported numbers indicate the percentage of the forecast error in the index that can be attributed to innovations in other variables at five different time horizons: one month, six months, one-year a head (short-run), eighteen months, and two years ahead (medium to long-run).

The results of generalised variance decomposition analysis and the generalised impulse response functions provide more or less the same conclusion regardless the order of decomposition since their estimation is independent of the order. The analysis of the generalised variance decompositions tend to suggest that the index in each country in this empirical analysis can be explained by the disturbances in macroeconomic variables. Not surprisingly, at short horizons, the variances in all four countries stock prices are mainly attributed to the index itself. However the effect drops as the horizon lengthens. At the two-year horizon, the portion of the forecast error variance explained by the index itself remains large in Bahrain (92%), Saudi Arabia (70%) and Oman (63%), but about the half in Kuwait (55%).

Looking through the main diagonal, we may ascertain the extent to which a variable is exogenous since this represents how much of a market variance is being explained by a movement in its own shock over the forecast horizon. Statistically, if the variable explains most of its own shocks, it does not allow variances of other variables to contribute to it being explained and it is therefore said to be relatively exogenous. The most endogenous one is the Kuwaiti market, in the sense that they allow being explained by the other variables in the model. At the one-year horizon, 5% of the variability in the index is explained by innovations in oil prices, 2% by short-run interest rate and 7% by domestic liquidity. However, these percentages increase as time lengthens. At two-year horizon, 15% of the variability in the price index is explained by innovations in oil prices, 10% by innovations in short-term interest rate and about 21% by innovations in domestic credit. This implies that past information on short-term interest rate and domestic credit together explain about 31% of the future changes in the stock prices in Kuwait; while the largest part of change is due to past (historical) information on the stock prices themselves.

For Saudi Arabia, at two-year horizon, about 11% of the variations in the price index is explained by innovations in oil prices, 10% by short-term interest rate and 9% in domestic liquidity. However, the oil price and short-term interest rate innovations together explain about 7% of the variation in index in Bahrain. As indicated in table (4.7), changes in oil prices are the main contributor to changes in stock prices in Oman, about 28% of the variation in the price index is explained by oil prices shock at two-year horizon. Moreover, for Oman, about 8% of the forecast error variance of index can be equally split between short-term interest rate and domestic credit.

While the oil price innovation explains almost 14% and 11% of the variation in the index in Kuwait and Saudi Arabia, it explains about 30% of the variation in the price index in Oman. Those three markets are relatively more sensitive to shocks coming from oil prices. The short-term interest rate innovation has the largest effect in Kuwait and Saudi Arabia, and it has the smallest in Bahrain and Oman. Generally, while much of the variation in the price index of the four countries can be attributed to their own variations, we note the prominent role of macroeconomic variables in forecasting variances of stock prices; this is consistent with Nasseh and Strauss (2000) who claim that a significant fraction of stock price variance is explained by real economic activity for six OECD countries.

An alternative way to obtain information about the relationship among the four variables included in the variance decomposition analysis is through the generalised response function to one standard error shock. Figure (4.1) shows the impulse response functions analysis for a horizon of two years illustrating the response of the stock price to a one standard deviation shocks to all macroeconomic variables in each country. The impulse response analysis shows that all the macroeconomics variables are important in explaining stock prices movement. In general, the impulse response functions appear to be consistent with the results obtained from the VECM and the variance decompositions discussed above. The index show positive response to shocks from oil prices which leads to about 5%, 4%, 2%, 11% changes in the index for Kuwait, Saudi Arabia, Bahrain and Oman respectively over 2 years. In addition, the index responds negatively to interest rates shocks. Particularly, shocks from interest rate forces the market down by 4%, 6%, 5%, and 5% in Kuwait, Saudi Arabia, Bahrain and Oman respectively over 2 years.

The innovation analyses suggest that the GCC stock markets interact with their own key macroeconomics factors. Most of the variations in the index can be captured by innovations in oil prices, short-term interest rate and domestic credit. The causal relationships that macroeconomics variables granger cause stock prices are quantitatively supported by the innovation analyses. Also, the innovation analyses reveals that all four GCC stock markets are driven by their macroeconomic variables providing further evidence concerning the causal relationships between macroeconomic variables and stock prices in these countries. The oil positive shock will benefit all GCC markets. Positive short-term interest rate shock has negative effect on Kuwaiti and Saudi markets, but neutral or positive effect for Bahrain and Oman. This may refer to the fact that some GCC countries have tied their currencies more closely to the US dollar than others.

Interestingly, across the various methodologies, the results reveal the importance of the oil prices in affecting the stock prices indices in the context of GCC countries. Therefore, we conclude that in the GCC, an oil price bust can cause fluctuations in stock prices. This conclusion is consistent with what one expects in countries in which oil revenues are the main source of national income. Thus, oil revenues become the major determinant of the level of economic activity and the mechanism by which the government can affect the circular flow of income within the economy including stock market prices.

Table 4.7

Generalised Variance Decompositions

The table presents the decomposition of the forecast error variance of stock prices due to shocks in macroeconomic variables. Variables are INDEX, OIL, INT and DC indicate for stock prices index, oil prices, short-term interest rate and domestic credit respectively. The reported numbers indicate the percentage of the forecast error in the index that can be attributed to innovations in the index itself and other variables at five different time horizons: one month, six months, one-year ahead (short run), eighteen months, and two-year ahead (medium to long run).

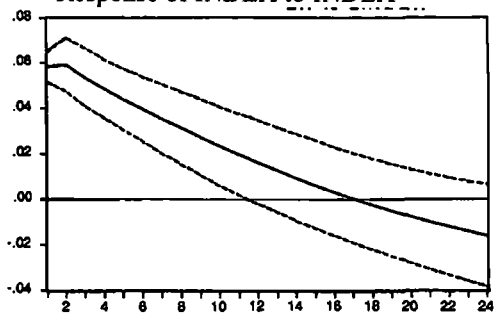
Response of KUWAIT INDEX				
Period	**INDEX shock**	**OIL Shock**	**INT Shock**	**DC Shock**
1	100.0000	0.000000	0.000000	0.000000
6	97.04194	1.730596	0.346530	0.880933
12	87.17201	4.451938	1.621697	6.754355
18	69.86399	9.399832	5.651815	15.08436
24	54.66874	14.79788	9.982315	20.55106
SAUDI ARABIA INDEX				
1	100.0000	0.000000	0.000000	0.000000
6	90.92647	5.387797	3.327844	0.357893
12	87.43212	8.602786	2.654947	1.310146
18	80.31914	10.44993	4.677941	4.552986
24	69.73686	10.87433	10.23009	9.158717
BAHRAIN INDEX				
1	100.0000	0.000000	0.000000	0.000000
6	99.09225	0.193939	0.208824	0.504989
12	98.03231	1.490031	0.190606	0.287052
18	95.71563	3.405079	0.680191	0.199099
24	92.86397	5.257992	1.709331	0.168708
OMAN INDEX				
1	100.0000	0.000000	0.000000	0.000000
6	98.08684	1.137826	0.051010	0.724323
12	88.11850	8.656432	0.303851	2.921215
18	75.20224	18.76781	1.194744	4.835207
24	63.57845	27.94545	2.648240	5.827860

Figure 4.1: Generalised Impulse responses

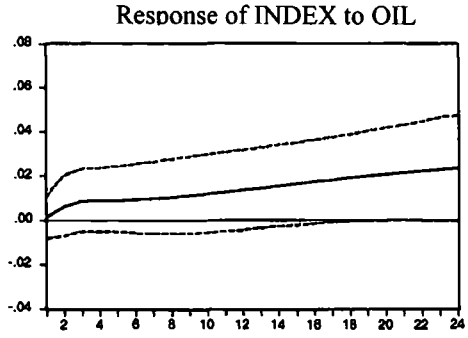
Figure (4.1) shows the generalised impulse response functions analysis for a horizon of two years illustrating the response of the stock price to a one standard deviation shocks in oil prices (OIL), short-term interest rate (INT) and domestic credit (DC) in each country.

Kuwait

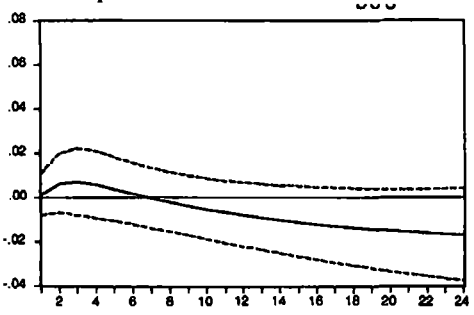
Response of INDEX to INDEX



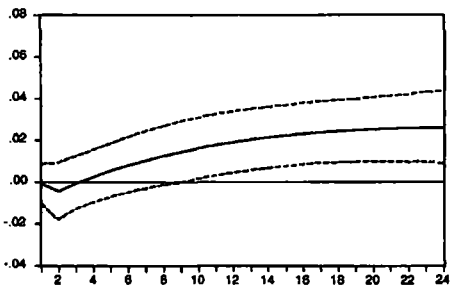
Response of INDEX to OIL



Response of INDEX to INT

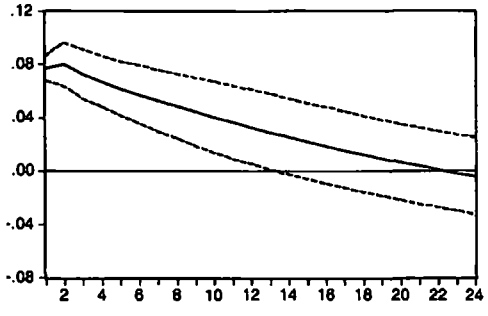


Response of INDEX to DC

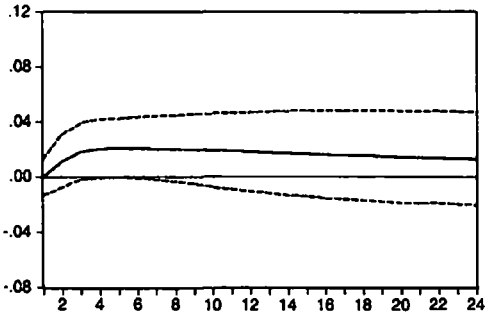


Saudi Arabia

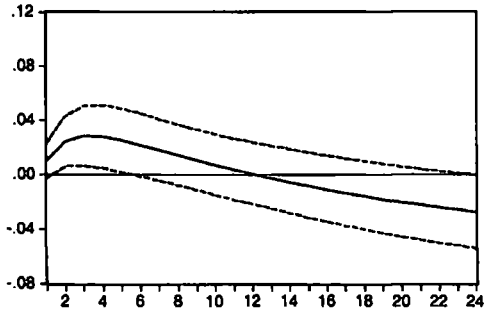
Response of INDEX to INDEX



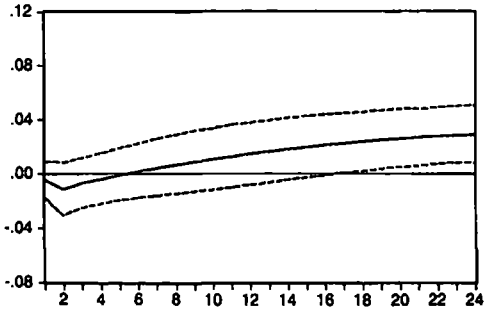
Response of INDEX to OIL



Response of INDEX to INT

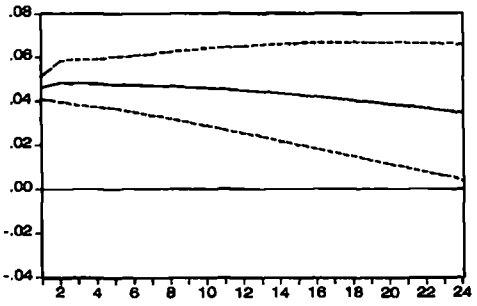


Response of INDEX to DC

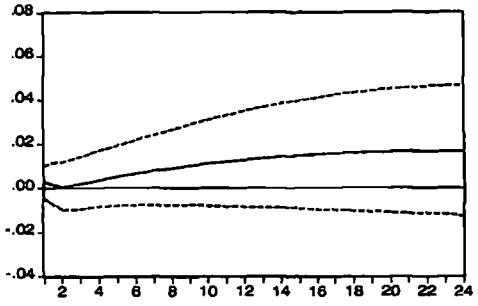


Bahrain

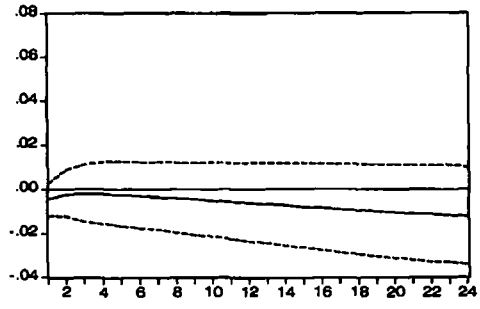
Response of INDEX to INDEX



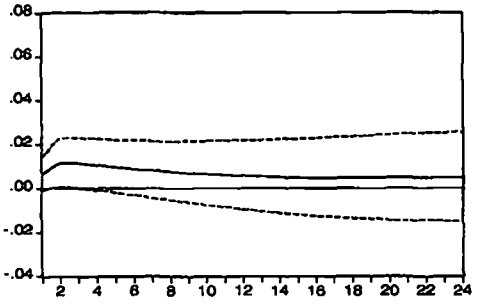
Response of INDEX to OIL



Response of INDEX to INT

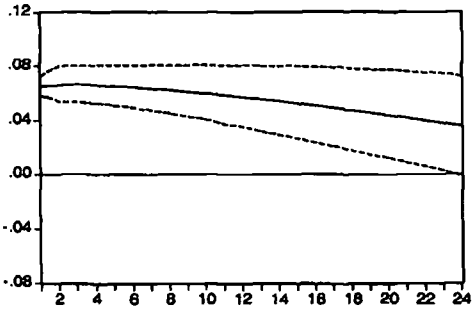


Response of INDEX to DC

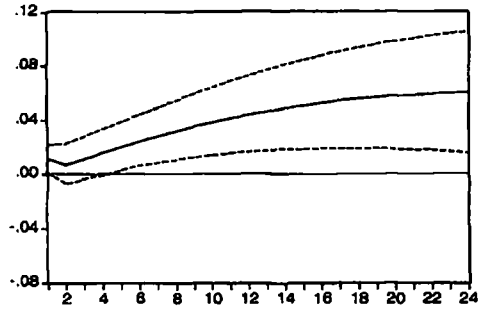


Oman

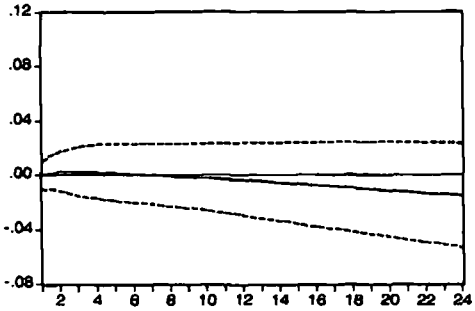
Response of INDEX to INDEX



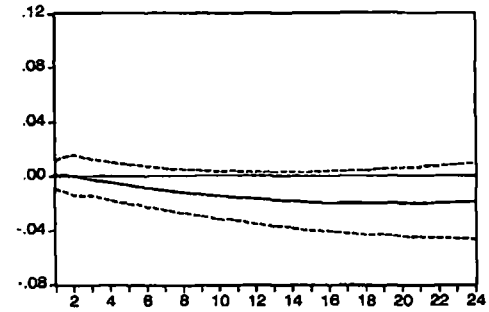
Response of INDEX to OIL



Response of INDEX to INT



Response of INDEX to DC



4.5 Summary and Conclusion

Using a recent set of monthly data covering the period 1994:10 – 2007:12, this chapter investigates the relationship between stock prices and main macroeconomic variables (i.e. oil prices, short-term interest rate and domestic credit) that are believed to affect stock prices in the context of the GCC markets. For this purpose, this chapter employed recent time series techniques of cointegration and Granger causality tests. While Granger causality tests the short-run influence of one variable on the other, the multivariate cointegration technique tests the long-run relationship among the variables. In addition, to have an idea about the relative importance of the variables in predicting the future values of stock prices, we decompose the forecast error variance of stock prices into components accounted for by innovations in the different variables in the system. These procedures enable us to evaluate the percentage of stock prices forecast error variance attributable to macroeconomics shocks. While the variance decomposition indicates the percentage of a variable's forecast error variance attributable to innovations in all variables considered, the impulse response functions capture the direction of response of a variable to a one standard deviation shock to another variable. Accordingly, the dynamics that exist among these variables may be fully addressed.

The multivariate cointegration tests identified that oil prices, interest rates (proxied by the US Treasury bill rate) and domestic credit have long-term equilibrium effects on stock market prices in the four GCC countries. We find that these factors form a cointegrating relationship with stock prices in these countries. In addition, the Granger causality test highlighted that the causality is running from oil prices to the stock price index in the case of Kuwait, Saudi Arabia and Oman. Also, the causal flow from the domestic credit to the index has been found in the case of Kuwait and Saudi Arabia; while the interest rate has causal effect on the stock price index in the case of Saudi Arabia, Bahrain and Oman. Generally, Our findings are consistent with those of Mukherjee and Naka (1995), Known, Shin and Bacon (1997), Cheung and Ng (1998), Nasseh and Strauss (2000), who examine the impact of several macroeconomic variables on stock markets in both developed and emerging economies and find that macroeconomic variables have significant impact on the stock market and/or existence of a long-run relationship between these macroeconomic variables and stock prices.

Further assessment of the relationship between these variables, based on generalised variance decomposition and generalised impulse response functions, reveals the importance of oil prices in explaining a significant part of the forecast error variance of the index in Kuwait, Saudi Arabia and Oman. The generalised impulse response functions led us to conclude that oil price shocks do have an important and significant impact on stock price index in the four countries. The results suggest that oil price fluctuations account for a major and significant influence within the system constructed. Furthermore, the innovation analyses tend to suggest that the GCC stock markets dynamically interact with their own key macroeconomic factors. Most of the variations in the stock prices can be captured by innovations in the three selected variables. Therefore, the causal relationship that macroeconomic variables granger caused stock prices are quantitatively supported by innovation analysis.

The fact that our results show that both global and local macroeconomics factors affect the performance of the stock prices in the GCC markets has important implications. Since these markets are closed and restricted to the locals only (as discussed in chapter three), one would expect, *a priori*, that these markets are insulated and not well-integrated with global financial markets. However, our results show that even though they are closed markets, they are influenced by and integrated with world events. On the basis of our findings, domestic markets are influenced through oil prices and US Treasury bill rate, and factors are determined by world related fundamentals. These factors influence the domestic economic environment of the GCCs and through this effect feed their impact on the GCC stock markets. Thus, even if the stock markets are closed to the outside world, the fact that the domestic economic fundamentals are driven by world events means that the stock markets themselves are integrated with and influenced by events and volatility shocks in the global economy. Finally, this line of research could be enhanced by considering more macroeconomic variables as GCC stock markets fundamentals and inclusion of social and political factors used as dummy variables on these grounds. However, this is beyond the aim of this chapter, it is left for future research.

Appendix A4

List of Abbreviations

	Variables	Definition
INDEX	Stock price index	Value-weighted stock price index.
OIL	Oil price	Brent Crude oil prices.
INT	Short term interest rate	Short term interest rate proxied by the US Treasury bill rate.
DC	Domestic credit	Credit to the government and credit to the economy.

Appendix B4

Correlation Matrix

The table presents the correlation coefficients between 1) oil prices and GDP 2) money supply and domestic credit 3) local short-term interest rate in each country and US Treasury bill rate, for each country.

KUWAIT			
	Oil Prices	Money supply	Short term interest rate
GDP	.95		
Domestic credit		.90	
US Treasury bill rate			.94
SAUDI ARABIA			
GDP	.93		
Domestic credit		.70	
US Treasury bill rate			.97
BAHRAIN			
GDP	.92		
Domestic credit		.98	
US Treasury bill rate			.99
OMAN			
GDP	.92		
Domestic credit		.90	
US Treasury bill rate			.70

Appendix C4

Kuwait

VEC Residual Portmanteau Tests for Autocorrelations

H0: no residual autocorrelations up to lag h

Sample: 1994:10 2007:12

Included observations: 149

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	0.387374	NA*	0.389992	NA*	NA*
2	2.721472	NA*	2.755846	NA*	NA*
3	11.46555	0.7799	11.67960	0.7657	16
4	26.76753	0.7287	27.40370	0.6985	32
5	42.44440	0.6991	43.62491	0.6526	48
6	51.63881	0.8670	53.20509	0.8299	64
7	64.84175	0.8907	67.05888	0.8486	80
8	74.69181	0.9474	77.46781	0.9171	96
9	84.05441	0.9775	87.43229	0.9586	112
10	106.2438	0.9197	111.2181	0.8546	128
11	128.0668	0.8254	134.7805	0.6970	144
12	139.2046	0.8809	146.8939	0.7630	160

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

VEC Residual Serial Correlation LM Tests

H0: no serial correlation at lag order h

Sample: 1994:10 2007:12

Included observations: 149

Lags	LM-Stat	Prob
1	8.991006	0.9138
2	15.38063	0.4970
3	9.495312	0.8916
4	16.20759	0.4386
5	16.85893	0.3948
6	9.561108	0.8885
7	13.69081	0.6217
8	10.06184	0.8634
9	9.999778	0.8666
10	23.33426	0.1051
11	22.76773	0.1201
12	12.19928	0.7302

Probs from chi-square with 16 df.

Saudi Arabia

VEC Residual Portmanteau Tests for Autocorrelations

H0: no residual autocorrelations up to lag h

Sample: 1996:01 2007:12

Included observations: 139

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	1.250879	NA*	1.259944	NA*	NA*
2	13.42141	NA*	13.60815	NA*	NA*
3	28.74315	0.0257	29.26787	0.0222	16
4	49.74825	0.0236	50.89534	0.0182	32
5	65.47029	0.0475	67.20403	0.0349	48
6	81.56727	0.0684	84.02718	0.0474	64
7	100.3550	0.0616	103.8112	0.0380	80
8	107.9710	0.1899	111.8924	0.1278	96
9	143.0864	0.0253	149.4388	0.0104	112
10	149.7338	0.0919	156.6015	0.0436	128
11	169.3731	0.0730	177.9285	0.0288	144
12	183.3727	0.0994	193.2509	0.0375	160

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

VEC Residual Serial Correlation LM Tests

H0: no serial correlation at lag order h

Sample: 1996:01 2007:12

Included observations: 139

Lags	LM-Stat	Prob
1	14.40890	0.5684
2	13.02157	0.6712
3	16.18191	0.4403
4	22.15095	0.1364
5	16.74360	0.4024
6	16.14797	0.4427
7	18.94396	0.2716
8	8.245287	0.9412
9	37.66065	0.0017
10	7.620314	0.9594
11	21.87838	0.1472
12	18.63152	0.2882

Probs from chi-square with 16 df.

Bahrain

VEC Residual Portmanteau Tests for Autocorrelations
H0: no residual autocorrelations up to lag h
Sample: 1994:10 2007:12
Included observations: 151

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	0.857920	NA*	0.863640	NA*	NA*
2	2.474846	NA*	2.502269	NA*	NA*
3	14.46228	0.5643	14.73269	0.5443	16
4	23.70387	0.8549	24.22576	0.8361	32
5	37.54190	0.8615	38.53769	0.8336	48
6	48.32117	0.9276	49.76300	0.9042	64
7	61.40780	0.9392	63.48578	0.9122	80
8	74.43471	0.9497	77.24147	0.9199	96
9	92.99037	0.9040	96.97319	0.8432	112
10	108.4035	0.8946	113.4795	0.8165	128
11	121.5091	0.9133	127.6147	0.8328	144
12	131.2073	0.9535	138.1502	0.8933	160

*The test is valid only for lags larger than the VAR lag order.
df is degrees of freedom for (approximate) chi-square distribution

VEC Residual Serial Correlation LM Tests
H0: no serial correlation at lag order h
Sample: 1994:10 2007:12
Included observations: 151

Lags	LM-Stat	Prob
1	17.16060	0.3753
2	9.615281	0.8859
3	12.58659	0.7027
4	9.462358	0.8932
5	13.87529	0.6080
6	10.97753	0.8109
7	13.09003	0.6662
8	13.06687	0.6679
9	19.77574	0.2305
10	15.86619	0.4623
11	13.93018	0.6039
12	10.21493	0.8552

Probs from chi-square with 16 df.

Oman

VEC Residual Portmanteau Tests for Autocorrelations
H0: no residual autocorrelations up to lag h
Sample: 1994:10 2007:12
Included observations: 153

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	0.474978	NA*	0.478103	NA*	NA*
2	2.580885	NA*	2.611903	NA*	NA*
3	24.93666	0.0709	25.41479	0.0628	16
4	30.12667	0.5616	30.74413	0.5300	32
5	45.94681	0.5574	47.09873	0.5097	48
6	63.49601	0.4943	65.36423	0.4291	64
7	88.48065	0.2418	91.54677	0.1776	80
8	99.27038	0.3892	102.9318	0.2958	96
9	109.4175	0.5514	113.7131	0.4371	112
10	125.6691	0.5417	131.1012	0.4075	128
11	134.5861	0.7012	140.7089	0.5620	144
12	152.4308	0.6527	160.0723	0.4835	160

*The test is valid only for lags larger than the VAR lag order.
df is degrees of freedom for (approximate) chi-square distribution

VEC Residual Serial Correlation LM Tests
H0: no serial correlation at lag order h
Sample: 1994:10 2007:12
Included observations: 153

Lags	LM-Stat	Prob
1	13.58537	0.6296
2	11.61853	0.7698
3	24.66971	0.0759
4	5.485430	0.9929
5	16.19586	0.4394
6	18.06525	0.3201
7	26.74006	0.0445
8	11.91961	0.7495
9	10.85303	0.8185
10	16.64726	0.4088
11	9.112265	0.9087
12	19.17565	0.2597

Probs from chi-square with 16 df.

Chapter Five

The Effect of Financial Sector Development on Economic Growth: Evidence from the GCC Countries

5.1 Introduction

Having established the link between stock markets and the macro economy in the GCC countries in the previous chapter, this chapter examines whether financial sector development represented by banking sector and stock markets development contribute to the economic growth in these countries. The literature review shows that the relationship between financial sector development and economic growth has been an area of concern since the earliest days of 19th century at least. The roots of this issue can be traced back to Bagehot (1873) and Schumpeter (1912) who emphasise the importance of the banking sector in promoting economic growth. They highlight the conditions in which the financial sector can actively spur innovation and growth process by identifying and funding productive investments. Earlier literature including Goldsmith (1969), McKinnon (1973) and Shaw (1973) stress the positive effect of financial development on economic growth.

Since the seminal work of Goldsmith (1969), McKinnon (1973) and Shaw (1973), a growing body of literature has been devoted to the study of the role played by financial intermediation in the growth process and capital accumulation in both developed and developing countries. (See Jung (1986), Bhatt (1989), King and Levine (1993a, b, c), Merton and Bodie (1995), Odedokun (1996) Levine (1997), Neusser and Kugler (1998), Levine et al (2000), Benhabib and Spiegel (2000), Lensink (2001) and Calderon and Liu (2003) among others). Most of these studies seem to support the argument that financial development is an important ingredient for the economic growth. However, more recently, Dawson (2003) and Gillman and Harris (2004) investigate the relationship between financial sector development and economic growth for a group of Central and Eastern European countries. They do not find a positive relation for those countries.

Prominent among the existing studies is the seminal paper of King and Levine (1993a) who emphasise the association between financial sector development and economic

growth. King and Levine (1993a) follow Schumpeter's line and argue that financial systems channel savings to their most productive uses and diversify the risks associated with these activities, which in turn increases the probability of successful innovation and speed up technological process. Specifically, they find strong positive link between the level of financial development and current and future rate of economic growth, physical capital accumulation and economic efficiency improvements. In contrast to the school of thought based on the physical capital accumulation, the modern growth theory by Romer (1990) identifies two specific channels through which the financial sector might affect long-run growth: 1) through its impact on capital accumulation (through human as well as physical capital) and 2) through its impact on the rate of technological progress. These effects arise from the intermediation role provided by financial institutions, which enable the financial sector to mobilise savings for investment, facilitate and encourage inflows of foreign capital (including foreign direct investment, portfolio investment and bonds) and optimise the allocation of capital between competing uses, ensuring that capital goes to its most productive use.[62]

In the light of the growing importance of stock markets around the world, more recent studies expand the analysis to investigate the link between stock markets development and economic growth, in addition to banking sector development. In this context, Levine and Zervos (1998) investigate the empirical relation between stock markets development, banking development and economic growth. They conclude that both stock market liquidity (measured by stock trading/GDP) and level of banking development (measured by banks credit to private sector/GDP) have important role in predicting long-run economic growth. Thus, their result was "it is not banks or stock markets, but rather its banks and stock markets." In general, Levine and Zervos (1998) conclude that a positive and robust correlation exists between measures of stock market liquidity, banking development and future rates of economic growth, capital accumulation and productivity growth. More recently, the same findings were reported by Beck and Levine (2001) who test for the impact of both banks and stock markets on growth process. They find that expansion of both banks and stock markets are equally important in enhancing growth.

[62]Levine (1997) identifies five basic functions of financial intermediaries, which give rise to these effects: (1) savings mobilisation (2) risk management (3) acquiring information about investment opportunities (4) monitoring borrowers and exerting corporate control (5) facilitating the exchange of goods and services.

According to the above argument and to the literature review in chapter two, the issue of financial sector development and economic growth has not yet been settled and further empirical work is needed on this issue. Despite the considerable attention that has been paid in the earlier literature to the relationship between financial development and economic growth, most of the studies concentrated on developed and some developing economies, while GCC countries have been largely ignored. The GCC countries as oil dependent economies do not spell out the importance of their financial sector development in the growth process. Although it is correct that the existence of well-developed financial sector is not a sufficient condition to guaranteed sustainable economic growth, it is hard to think of a strong economy with healthy growth that does not also exhibit a major role of financial sector development. On the one hand, rich countries are able to generate savings and support sophisticated financial sector which would be expensive for poor ones. On the contrary, a country is not likely to grow strongly without a supporting financial system. As we discussed in chapter three, the growth of financial system in the GCC countries in the last few decades promises well for these economies. Thus, we want to know whether the relationships established in developed and some developing countries hold for economies which rely on the export of a single product and their economies are more integrated and linked to the world economy. Given their dependence on oil and given that oil is determined by world demand and supply, there is no other economy as integrated and dependent on the world economy as the oil producing countries. Thus, this investigation would allow us to better understand the link between financial development and economic growth in small open and integrated economies with the global market.

The literature survey in chapter two also shows that financial sector development is positively correlated to the growth process. However, a considerable amount of these studies uses highly aggregate indicators of financial development, such as the ratio of M2 to GDP rather than the more direct and disaggregate measures. Furthermore, this body of empirical works though suffers from analytical lack foundations as discussed previously, financial sector development in the traditional growth theory was related to the growth rate of population, structure of labour force or productivity not the rate of economic growth, as the latter was attributed to exogenous technical process.

Hence, this chapter seeks to address the above mentioned limitations and contributes to the current literature in several ways. In the context of the new growth theory, surprisingly, there are very few empirical works on the link between financial sector

development and economic growth in developing countries. As mentioned above, Levine and Zervos (1998) were among the first to examine this issue empirically and find positive correlation between financial sector development and economic growth. However, their empirical study relies on cross section approach with well-known statistical limitations including its inability to take into considerations the country specific effects. This chapter attempts to fill this gap and address this shortcoming by using modern panel data technique to empirically re-examine this issue in the context of GCC countries.

Our sample includes five of the six GCC countries over the 28 years (1975-2003). The data are retrieved from World Development Indicators (WDI 2005). Relying on one source of data allows us to overcome the consistency and measurement problems associated with Levine and Zervos (1998) use of two different sources of data. Furthermore, including four different measures of financial sector development for both banking sector development and stock markets development opposed to single composite measure for stock market development used by Levine and Zervos (1998) provides us with clearer and richer picture than if a single measure which maximises the use of information extracted from the data. Finally, including oil price, it has not been considered as determinant of economic growth in the earlier literature.

During the past few years, the GCC economies and stock markets have grown enormously in terms of both gross domestic product and market capitalisation and trading volume. The growth in the GCC economies and stock markets raises important empirical questions regarding the relationship between financial sector development and economic growth. There is a growing interest among policy makers in these countries to explore the link between finance and growth. Thus, our investigation will have significant policy implications for the GCC countries and their further development. Although GCC countries succeed in establishing a sophisticated financial system in the last three decades, we do not know if the relationship between financial development and economic growth applies to these economies. Thus, GCC countries represent an interesting case study to investigate whether relationships developed and tested for highly liquid markets in advanced economies would also work for less liquid ones. Furthermore, it is the first study to focus on the GCC countries exclusively.

Thus, this chapter empirically investigates the effect of financial sector development on economic growth process in the GCC countries. Specifically, this chapter tests the

hypothesis that a positive relationship exists between banking sector development, stock market development and economic growth. It poses two questions: First, do the banking sector and stock markets have an influence on economic growth in the GCC countries? Second, does the banking sector complement or substitute stock markets in providing the financial services to the GCC economies? By identifying the link between financial development and economic growth and the channels through which the financial sector affects economic growth, we aim to fill the gap in this field.

The remaining of the chapter is organised as follows: section 5.2 reviews the theoretical framework of finance and growth nexus. Section 5.3 describes the econometric methodology. Section 5.4 outlines the measurement of financial sector development and economic growth and the empirical model. Section 5.5 presents the statistical analysis. Section 5.6 discusses the empirical results. Section 5.7 summarises and concludes.

5.2 Theoretical Background

The modern literature on economic growth starts with Robert Solow (1956). Solow's growth model is considered the basic point to the relationship between long-run growth rate and factors such as growth rate of population, structure of labour force and productivity growth. This early theoretical and empirical work focuses on the role of capital and labour resources and the use of technology as the source of growth. For the most part, any possible role of financial sector in the growth process was ignored (Wachtel, 2003). Since these factors are determined exogenously, it does not provide useful framework for understanding economic forces that affect economic growth such as financial variables. In Solow's model, financial factors at most can influence only the equilibrium level of capital stock per worker but not the rate of economic growth.

A new wave of research on economic growth appeared in the mid 1980s. This wave led to what has been called "Endogenous Growth Theory." This theory paved the way to model the determination of long-run economic growth rate by focusing on economic growth as an endogenous outcome of economic system. Specifically, this theory distinguished itself from previous theories by emphasising that technological progress is an endogenous outcome of an economic system not the result of outside forces.

New endogenous growth models appeared with the works of Romer (1986) and Lucas (1988). Both authors argue that long-run economic growth is driven by accumulation of

knowledge. So, rather than relying on unexplained forces of technical change as the engine of growth, instead, they focus on the existence of a variety of endogenous variables that promote economic growth. The essence and the simplest type of endogenous growth models are reflected in AK model (Pack 1994). In this model, output is reflected by A (factors that affect technology) and K (which include both human and physical capital). In the closed economy version of the AK model, the aggregate production of the economy is given by:

$$Y_t = AK_t \tag{5.1}$$

Where Y_t is the output in period t produced using capital stock K_t, with symbolising capital productivity.

This model assumes no population growth and the economy produces only one good, which can be consumed or invested. By assuming that capital stock depreciates at a rate of δ per period, investment equals to:

$$I_t = K_{t+1} - (1-\delta)K_t \tag{5.2}$$

In this model, financial intermediaries are responsible for channelling savings into investment. In doing so, they absorb resources so that a dollar saved by households will generate less than a dollar's worth of investment. If we assume that a fraction, ϕ, of each dollar saved is available for investment, then, $1-\phi$, is retained by financial intermediaries as a reward for the services supplied. This transaction cost can be considered as the spread between lending and borrowing rates charged by financial intermediaries. In equilibrium, capital market requires that the fraction of saving left after financial intermediaries have taken their shares must equal investment. Thus:

$$\phi S_t = I_t \tag{5.3}$$

Using the above equations and dropping the time (t), the growth rate of output, g, can be written as follows:

$$g = A\left(\frac{I}{Y}\right) - \delta = A\phi s - \delta \tag{5.4}$$

Thus, equation (5.4) represents the steady state growth rate of a closed economy (AK) model with financial intermediation. According to this equation, financial development could affect the economic growth through either the efficiency of financial system or the

rate of savings or the productivity of capital. A financial system is considered efficient if it allocates the available resources (savings) in the direction of investment opportunities with highest marginal product of capital. In the above context, when the financial system is able to allocate resources efficiently, it positively affects the productivity of capital (A) and thereby promotes economic growth. Nevertheless, the cost of this process has to be considered, as it is not an easy task to find profitable investment opportunities. Financial intermediaries need to monitor and screen the different opportunities, some of these opportunities may have high return and the investors could be reluctant to be committed. Hence, the role of financial intermediaries may appear to encourage investors to invest in riskier and high return projects through risk sharing. For example, as banks engage in increased intermediation, they are likely to become more efficient at what they do, and the spread between their lending and borrowing rates falls, which, in turn, results in an increase in the proportion of savings channelled to investment, thus, g will increase in equation (5.4) as result of an increase in ϕ.

Levine (1997) argues that financial intermediaries lead to allocating capital efficiently and improved productivity by diversifying and pooling risk, identifying fruitful projects, monitoring and screening management activities. For example, Greenwood and Jovanovic (1990) concentrate on the role of financial intermediary in providing information and sharing risk. They develop a model with two-production technologies. Firstly, one with safe and low return. Secondly, one with risky and high returns. The second one is affected by an aggregate and a project specific shock.

Financial intermediaries can allocate funds in the direction where there is high return; this task is difficult to be conducted by an individual investor. Diamond and Dybvig (1983) argue that, without liquid financial markets, households will focus their investment in illiquid assets. This situation will motivate them to invest in short-term, low-return investment only and avoid the higher yield investments. Furthermore, Bencivenga and Smith (1991) show that financial intermediaries play an important role in allocating resources to more illiquid and productive assets and reducing the premature liquidation of profitable investment.

Greenwood and Jovanovic (1990), Levine (1991), Bencivenga and Smith (1991) and Saint Paul (1992) have present theoretical models which implied that well-functioning financial markets play a crucial role in enhancing economic growth through improving the quality of investments, and efficiently allocating the resources. For example,

Greenwood and Jovanovic (1990) emphasise that both financial intermediation and growth are endogenous. In this context, the role of financial institutions is to evaluate investment opportunities and make the information available to investors in order to point out the investment activities that yield highest rate of return.

Bencivenga and Smith (1991) employ an overlapping generation's model and demonstrate that an intermediation industry permits an economy to reduce the fraction of its savings held in the form of unproductive liquid asset and to prevent misallocation of invested capital due to liquidity needs. They argue that since individuals face uncertainty about their future liquidity needs, they will choose to invest in liquid asset. In this context, the existence of financial intermediaries promote economic growth by allocating the resources to highly productive activities and at the same time allowing investor to reduce the risk associated with their liquidity needs. In the absence of financial intermediaries, investors are obliged to liquidate their investments when they need liquidity.

Saint Paul (1992) develops a model, where financial markets interact with the technological choice of the firm and that financial markets allow choice of riskier but more productive technologies, which in turn may affect the viability of financial markets. In his model, agents can choose between two technologies: one technology is highly flexible and allows productive diversification but low productivity, the other is rigid, more specialised and more productive. It is assumed that consumer preferences may create shocks in the economy, which in turn may result in lack of demand for some products. Therefore, in the absence of financial markets, risk averse individuals may prefer technological flexibility rather than high productivity. Instead, financial markets play important role in providing individuals with the chance to hold a diversified portfolio to insure themselves against negative demand shocks, and to choose more productive technology.

As we have shown in chapter two, an intensive debate has been conducted about the separate impacts of banks versus stock markets on economic growth. Most of the models state that well-functioning stock markets contribute positively to growth through easing information and low transaction costs, which may lead to efficient resources allocation, and that banks suffer from the problem of imperfect information and cannot achieve capital allocation. Other theoretical models have documented the essential role of banks in economic activities. They argue that banks are better in mitigating agency costs and they can handle the task of monitoring and screening mechanism. Between

these two views, Levine (1997) concludes that it is not banks or stock markets, it is banks and markets. These two different components of the financial system can promote economic growth.

5.3 Empirical Methodology

The methodology in this chapter is based on the panel data analysis. It has been discussed in the literature that panel data analysis presents several advantages in treating different economic problems. There are two kinds of information in cross-sectional time series data: the cross-sectional information is reflected in the differences between subjects and the time series, or within subject information reflected in the changes within subjects over time. Panel data techniques allow taking advantage of these different types of information. It also allows for more complex analysis over either cross-section or time series analysis individually. Moreover, pooling cross-section time series data sets usually provide an increased number of observations, which generates additional degrees of freedom and incorporates information relating to both cross-section and time series variables. In addition, it can substantially diminish the problems that arise when there is an omitted variables problem.[63] For example, with panel data, it is possible to control for some types of omitted variables even without observing them, by observing changes in the dependent variable over time. It is also possible to use panel data to control for omitted variables that vary over time, but are constant between cases. In sum, by combining time series over cross-section observations, panel data give more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency.

The general model that allows the researchers to estimate panel data with flexibility and formulate the differences in the behaviour of the cross-section units is as follows:

$$Y_{it} = \beta_0 \nu + \beta_1 X_{it} + \varepsilon_{it} \qquad (5.5)$$

Where,

Y_t and X_t are the $(1*NT)$ stacked vector and $(K*NT)$ stacked matrix of independent variables for the i^{th} individual in the t^{th} period.

ν is the $(1*NT)$ unity vector.

β_0 and β_1 are respectively the $(1*1)$ and $(K*K)$ matrix of coefficients.

[63] For more detail on pooling cross section and time, series data see: Pindyck and Rubinfeld (1998), Econometric Models and Economic Forecasts, Fourth Edition, p: 250-260.

ε_{it} is the (1*N) stacked vector of disturbances.

The simplest approach to analyse panel data is to disregard the space and time dimensions of the pooled data and just estimate the usual OLS regression. However, this way of estimation assumes that the intercept values of all units (i.e. countries) are the same. It also assumes that the slope coefficients of the variables are all identical for all units. Obviously, these are highly restricted assumptions. Therefore, despite its simplicity, the pooled regression in equation (5.5) may distort the true picture of the relationship between the dependent and explanatory variables across the units. One way to take into account the individuality for each unit is to let the intercept vary for each unit, but keep the slope coefficients constant across units.

Let Y_{it} and X_{it} respectively be $(N*T)$ and $(N*KT)$ matrices of dependent and independent variables for the i^{th} individual in the t^{th} period, let (DUM) be $(N*N)$ matrix of dummy variables, β_0 and β_1 are respectively the $(1*N)$ vector and $(K*K)$ matrix of coefficients, and let ε_{it} be the $(N*T)$ matrix of disturbances. Equation (5.5) can be rewrite as follows:

$$Y_{it} = \beta_0 \text{DUM} + \beta_1 X_{it} + \varepsilon_{it} \tag{5.6}$$

In the literature, equation (5.6) is known as "the least square dummy variable model" or fixed effects model. The term "fixed effects" is due to the fact that although the intercept may differ across individuals, each individual's intercept does not vary over time, that is, time invariant.

The null hypothesis that countries intercepts in the basic fixed effects panel data are all equal against the alternative hypothesis that each country has its own intercept can be formally tested using F-test:

$$\text{F- test} = \frac{(SSR_R - SSR_{UR})/K}{SSR_{UR}/N-K} \tag{5.7}$$

Where SSR_R is the restricted residual sum of squares, SSR_{UR} is the unrestricted residual sum of squares, K is the number of parameters and N is the number of observations. If the computed F exceeds the critical F values obtained from the table at the chosen level of significance, in this case simple pooling is not justified.

In other settings of the above discussion, it might be appropriate to view individual specific intercept terms as a random variable, such is the case of the random effects model:

$$Y_{it} = \beta_0 \nu + \beta_1 X_{it} + \mu_{it} + \varepsilon_{it} \qquad (5.8)$$

The component μ_{it} is the random disturbance characterising the *i*th observation. The choice between fixed and random effects models involves a trade off between the degrees of freedom lost to the dummy variable approach in the fixed effects model and the treatment of individual effects as uncorrelated with other regressors as is the case with the random effects formulations. Testing the othogonality of the random effects and the regressors is thus important. The usual procedure is to use the Huasman test statistic for the difference between the fixed and random effects estimates as suggested by Hsiao (1986). However, as suggested by Hsiao (1986), using the random effects model is particularly appropriate in situations where the number of cross-sectional units is large relative to the number of periods. This is actually cannot be applied to our analysis where our sample consists of only five countries. On this basis, the methodology will concentrate on testing to choose simple pooling or fixed effects model.

Despite the advantages of using panel data we mentioned in the beginning of this section, pooling time series cross sections of group of countries together assumes that parameters both slopes and intercepts are constant across countries. The fixed effect model may help controlling for the intercept bias, but still there may be present slope biases that would be the case if the effects of a given independent variable are different for each country. The similarities of the structure and nature of the GCC countries may help in undermining these possible biases. Nevertheless, this remains a limitation of this research.

5.4 Data and Empirical Model

As we mentioned in chapter two, well-functioning banking sector and stock markets can play a prominent role in the economic development process by providing risk pooling and sharing services, mobilising capital, enhancing liquidity, monitoring managers and exerting corporate control. Since none of the existing financial indicators can fully and accurately capture all of these functions, it is unwise to rely on a single measure of

financial development. Therefore, we try to choose a group of proxies for financial sector development that are commonly used by academics and practitioners to suit our purpose in this study.

Following King and Levine (1993a, b), Demetriades and Hussein (1996), Levine (1997), Levine and Zervos (1998), Beck et al (2000), Rousseau and Wachtel (2000) Dawson (2003) and Gillman and Harris (2004) we use two indicators to measure banking sector development (domestic credit to private sector/GDP and liquid liabilities/GDP), two indicators to measure stock market development (market capitalisation/GDP and value traded/GDP), one indicator for economic growth (growth rate in real GDP per capita), in addition to a set of conditional variables (gross investments/GDP, government spending/GDP, exports plus imports/GDP and oil prices). While these measures still can be seen as imperfect measures for the above mentioned functions, together they may give a clearer picture than if we strict ourselves to a single indicator. Furthermore, it is important to note that quantity indicators based on monetary and credit aggregates may not accurately assess the country's financial development, but they are the only indicators readily available in the monetary survey in international financial statistics (IFS) and world development indicators (WDI), especially for developing countries (Lynch 1996).

We would like to emphasise that the development of a well-structured financial system takes place in the Gulf countries only over the last thirty years. Consequently, establishing a statistical relationship between financial development and economic growth in the context of these countries poses data problems since the data are not sufficiently available for long annual period. A possible solution to this problem could be the use of quarterly data; however, gross domestic product (GDP) data are only available on annual basis for these countries. Thus, we use unbalanced annual data to span the period 1975-2003 for Kuwait, Bahrain, Oman, Saudi Arabia and the United Arab Emirates. Qatar is eliminated from the analysis due to data unavailability. Data are retrieved from World Development Indicators (WDI) database (CD-ROM 2005).

The following section provides a description of our indicators, which are classified as: banking sector development indicators, stock market development indicators, and conditional information set variables.

5.4.1 Banking Sector Development Indicators

Since we are interested in testing the usefulness of the banking sector vis-à-vis stock markets, the need to understand the independent channels of transmission that both the banking sector and stock markets in the GCC countries have in the growth process is of special important. A large theoretical literature argues that banks can emerge to lower the cost of acquiring information about firms and lower the transactions costs (see Levine 1997). By providing accurate information about production technologies, exerting corporate control, managing risk, improving the liquidity of assets to savers and reducing transaction costs, banks can influence resource allocation in ways that may accelerate long-term growth rates (Greenwood and Smith 1997). Although researchers do not determine specific variables that capture the above functions, we use two indicators that are commonly used in the literature to measure banking sector development: domestic credit to private sector/GDP and liquid liabilities/GDP

The first indicator is the *domestic credit to private sector as ratio of GDP (DCPS)* - which includes all credit to various sectors on a gross basis, with the exception of credit to the central government- is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available. This variable can quantify the growth of banking sector since it reflects the level of financial savings as well as measuring the activity of banking sector development. Development of the banking sector would probably increase the level of credit provided by banks. An improvement in the amount of credit by banks can ease trading, mobilise savings and allocate resources to expand capital accumulation or technological innovation to establish economic growth. Taking into account the above considerations, this indicator seems to be important in testing the relationship between financial sector development and economic growth and a relevant indicator of the magnitude and extent of financial intermediation. Furthermore, as Levine (1997) pointed out '*financial systems that allocate more credit to private firms are more engaged in researching firms, exerting corporate control, providing risk management services, mobilizing savings, and facilitating transactions than financial systems that simply funnel credit to the government or state owned enterprises*' (p.705).

Monetary aggregates provide a set of variables, which may capture the extent of financial development (see DeGregorio and Guidotti (1995) and Lynch (1996)). The most simple and commonly used measure of banking sector development in the literature is the broad money stock (M2) as ratio of GDP which measures the degree of

monetisation in the economy ((King and Levine (1993a,b), Wood (1993), Murinde and Eng (1996), Lyons and Murinde (1994), Berthelemy and Varoudakis (1996), Arestis and Demetriades (1997) and Agung and Ford (1998)). A common proxy of this variable is the currency plus demand and interest bearing liabilities of banks divided by GDP. This is a typical measure of financial depth, thus, the overall size of financial intermediary sector (King and Levine 1993a). However, this commonly used measure of financial sector development has shortcomings. It may not accurately represent the effectiveness of the financial sector in ameliorating the effects of informational asymmetries and transactions costs. As an alternative to the broad money ratio we use *the ratio of liquid liabilities of commercial banks to GDP (LL)* which has been used in the literature as proxy for the size of financial sector (Levine, 1997). The hypothesis is that the size of the financial sector is positively related to the provision of financial services.

The financial sector evolves to channel savings into long-term assets that are more productive than short-term assets, as the financial sector facilitates portfolio diversification for savers and investors. Development of the financial sector offers more choices to the investors allowing them to allocate resources to more productive activities. An increase in the size of financial sector, according to these arguments, would provide better framework for the channelling from financial development leading to economic growth.

5.4.2 Stock Market Development Indicators

The market capitalisation divided by gross domestic product (MC) is used as an indicator of the stock market size. Market capitalisation refers to the total value of listed shares on the stock exchange. Market size is important because savings mobilisation and risk diversification depend strongly on this indicator. Also, it is important that market size takes into account the dimension of the economy overall. For this reason, we take the ratio of market capitalisation to GDP. Rajan and Zingales (1998), Demirguc-Kunt and Maksimovic (1998) argue that the underlying assumption for using this indicator as a measure of financial development is that the size of the stock market is a measure of the availability of finance and the ability to mobilize capital, diversify risk and resources allocation. Furthermore, Demirguc- Kunt and Levine (1996a) state that large stock markets measured by market capitalisation to GDP are more liquid, less volatile, more internationally integrated, stronger with regards to information disclosure laws and have unrestricted capital flows than smaller market.

Although market size is an important indicator of stock market development by itself, it will not be able to capture all relevant aspects of stock market development. A developed financial market is also said to be efficient and liquid in which funds can be mobilised at low transaction costs. As we discussed in chapter two, liquidity is one of the most important functions that stock markets provide. Theoretically, stock markets with higher liquidity improve the allocation of capital to their optimal use, influence investment in the long term and facilitate technological innovation; thereby, enhancing long term growth. In addition, higher liquidity has a direct impact on the effectiveness of the governance function of the stock markets. First, increased market activity encourages information acquisition which in turn increases the information content of share prices. Second, the effective use of the stock market for corporate control activities requires that the market should be liquid.

To measure liquidity, we use value traded as ratio of GDP (VT). Value traded refers to the value of all trades in the stock exchange. Value traded is divided by the GDP to adjust for the size of the economy. A higher value traded/GDP is corresponding to greater liquidity in the market. If trading in the market represents the actions of investors buying and selling to attain their desired position, then trading activity measures the speed at which the new information is incorporated into prices.

5.4.3 Economic Growth Indicator

The growth rate in real GDP per capita is used as a proxy of the economic growth. It has been found to be a valid variable to reflect economic growth and changes in the standard of living (See Levine, 1997). GDP per capita is gross domestic product divided by midyear population.

5.4.4 Conditional Information Sets Variables

In estimating the relationship between financial sector development and economic growth, it is important to control for other determinants of growth rate, to exclude conditions that might influence the results and to control for the effects of financial development on economic growth. The following variables are well-defined in the literature to be controlled variables.

Investment ratio: Countries that grow quickly are those that invest a substantial fraction of their GDP and countries that fail to grow are those that fail to invest. According to the basic neoclassical growth model of Solow (1956) and endogenous growth theories, it

is known that the fundamental variables affecting economic growth are: physical capital, labour and human capital. The most popular measure of physical capital growth is the ratio of gross investments to GDP. This ratio has been widely used in the literature as determinants of economic growth. Following Levine et al (2000), Dawson (2003), and Gillman and Harris (2004), we use this variable in the present study.

We would like to indicate that proxies for labour and human capital could not be included in the present analysis for two reasons: First, unavailability of the data related to these two variables. Second, and more important, the labour markets (discussed in chapter three) in the GCC countries have a peculiar nature. On the contrary, the great majority of indigenous population obtains employment opportunities within the government sector irrespective of the state of the economy. On the other hand, nearly all the private sector jobs are filled with imported labour. This abnormal situation in the labour market makes the inclusion of a variable for labour and human capital unnecessary and may poorly explain the variability of the growth patterns.

Government Spending: The theoretical background of including government spending based on Barro's (1990) model in which government spending is categorised into productive and unproductive categories. The former is expected to be growth promoting and the latter growth retarding. The relationship between government spending and economic growth is of special importance in the GCC case because of the large size of the public sector in these countries (as discussed in chapter three). There is a debate however, on whether government spending increases the long-run steady state growth rate of economy. The general view is that the public spending on human capital and physical infrastructure can enhance growth. On the other hand, the financing of such spending can retard growth because of disincentive effects.

Research on the relation between government spending and economic growth does not reach consistent evidence for negative or positive direction. The results differ by country, methodology, category of public expenditure, productive or unproductive (expenditures are classified as productive if they are included as arguments in private production functions, and unproductive if they are not). For example, Folster and Henrekson (1999), using a sample of OECD countries, argue that the relationship between government spending and economic growth is negative. However, Agell et al (1999) argue that it is not significant. According to Barro (1990), productive spending contributes positively to growth and negatively to unproductive spending. This classification implies that productive expenditures have a direct effect on the growth

rate, but unproductive expenditures have an indirect or no effect. Nevertheless, given the unique features of GCC economies which are characterised at all by high level of public expenditure and more importantly by the absence of taxation, the government spending could only increase the economic growth. Unlike all previous studies, where the government spending may increase or decrease economic growth in the GCC countries, the absence of taxation means that it can only increase growth.

Trade openness: The effect of international trade on growth is captured by the trade openness variable, which is measured as the sum of imports and exports as percentage of GDP (Levine et al 2000). A considerable number of studies use trade openness as major determinant of growth performance and find a positive and strong relationship with growth (Harrison 1996). The anticipated effect of international trade on growth is positive in as it magnifies the benefits of international knowledge spill over and technological diffusion as well as enforces cost discipline through import competition and the drive of exports. Edwards and Fischer (1994) discuss that the literature on endogenous growth emphasises that economies that are more open to international trade can grow more rapidly by taking advantage of larger markets and becoming more efficient. Exports may have positive effects on growth if they increase the market for domestic products, and imports may positively affect growth if they are associated with capital goods. For the GCC countries, we can argue that they receive much benefits from trade with developed countries which are technologically advanced and innovative countries. Thus, including the openness variable in the case of GCC countries is very important giving their dependence on oil exports, and giving that oil prices depend on the value of the dollar and demand and supply of the world economy.

Oil prices: oil prices are included due to their importance in determining government revenues in the GCC countries. Naturally, GCC countries economies are extremely vulnerable to oil price variations. As we have seen in chapter three, GCC countries and their economic growth depend to large extent on oil prices movement. They produce together about 24% of the world's oil and control more than 45% of the world's oil revenues. Oil is the main commodity they produce and export. Consequently, their incomes and growth process depends substantially on oil prices.

Complete definition of the above variables and their expected signs is provided in appendix A5.

5.4.5 The Empirical Model

Our empirical analysis consists of a number of panel data regressions. Our empirical implementation involves questioning whether the independent indicators can explain variations in the dependent variable. In other words, we empirically investigate whether the financial sector development influences the process of economic growth in the context of GCC countries. In reference to earlier literature, the dependent variable is the real growth rate in GDP per capita. The independent variables are the two-bank based indicators and the two-market based indicators in addition to a vector of various variables that might affect economic growth.

Odedokun (1996) indicates that all the existing empirical studies on the influence of finance on growth have no framework with standard theoretical underpinning. To overcome this shortcoming, the traditional endogenous growth model is used in which financial sector development constitutes an input. The functional form of the model is as follows:

$$GDPPC_{it} = f(INV_{it}, F_{it}, GOV_{it}, OPEN_{it}, OIL_{it})$$

Where, GDDPC is the economic growth, INV is a measure of physical capital growth, F is a measure of financial sector development, GOV is the government spending, OPEN is a measure of trade openness and OIL is the oil prices.

The general regression models are based on panel data that consist of five countries (cross country units) and 28 years (time series) thus, i=1,2,3,4,5 and t= 1975,1976,,,,,2003 can be expressed as follows:

$$GDPPC_{it} = \beta_0 + \beta_1 X_{1,i} + \beta_2 X_{2,i} + \varepsilon_{i,t} \qquad i=1,..n \qquad t=1,...t \tag{5.9}$$

Where

$GDPPC_{i,t}$ = Growth rate in GDP per capita.

$X_{1,i}$ = (DCPS, LL, MC, VT) includes the financial variables assumed to influence growth

$X_{2,i}$ = (INV, GOV, OIL, OPEN) represents a matrix of conditioning information to control for other factors associated with economic growth.

A List of the above abbreviations is provided in appendix A5.

5.5 Summary of Statistical Analysis

Table (5.1) provides summary statistics for the entire list of variables over the sample period used for estimation (1975-2003). As can be seen, most of the variables have significant values for Kurtosis and positive/negative skewness. This indicates that these variables significantly depart from a normal distribution. Jarque-Bera test statistics for the normality are high and significant for most of the variables, suggesting that for the given level of standard deviations, observations of this variable cluster around the central point with a small number of large outliers. In addition, the Jarque-Bera test statistics are highly significant suggesting that our variables depart significantly from a normal distribution. Therefore, this justifies the use of F-statistic used to test for heterogeneity (table 5.3).

Table 5.1

Descriptive Statistics

The table presents descriptive statistics for the variables used in our estimation. The data are retrieved from World Development indicators (WDI 2005 CD) for five GCC countries, namely, Kuwait, Bahrain, Oman, the United Arab Emirates and Saudi Arabia for the period 1975-2003. The variables are: GDPPC is the growth rate in GDP per capita. INV is the gross investments/GDP, DCPS is the domestic credit to private sector/GDP, LL is the liquid liabilities/GDP, MC is the market capitalisation/GDP, VT is the value trade/GDP, OPEN is the exports plus imports/GDP, OIL is the oil prices, GOV is the government spending/GDP.

	GDPPC	DCPS	LL	MC	VT	INV	OPEN	OIL	GOV
Mean	-0.955	43.79	50.72	53.13	12.32	22.82	108.49	19.46	23.90
Median	0.060	42.46	47.34	42.17	4.320	21.282	95.696	16.89	23.83
Maximum	20.36	104.32	192.2	142.08	113.83	46.127	251.13	35.15	76.22
Minimum	-25.18	4.18	10.85	9.3741	0.2943	7.642	56.474	10.76	8.29
Std. Dev.	7.72	20.61	26.27	32.481	21.193	7.9442	38.450	6.824	8.544
Skewness	-0.33	0.531	1.367	0.580	3.042	0.7035	1.5067	0.767	2.024
Kurtosis	4.06	2.94	7.750	2.458	12.539	3.1129	5.1063	2.488	13.287
Jarque-Bera	8.37	6.229	165.21	3.757	298.70	10.958	73.783	15.268	667.170
Probability	(0.015)	(0.04)	(0.000)	(0.152)	(0.000)	(0.004)	(0.000)	(0.000)	(0.0000)

Table (5.2) provides an outline of the relationship between economic growth variables and the selected variables. Table (5.2) shows the correlation between financial indicators and economic growth. Both bank indicators and stock markets indicators are positively correlated with economic growth indicator.

Table 5.2

Correlation among variables

The table presents the correlation coefficients for the variables used in our estimation. The data retrieved from World Development indicators (WDI 2005 CD) for five GCC countries; namely, Kuwait, Bahrain, Oman, the United Arab Emirates and Saudi Arabia for the period 1975-2003. The variables are: GDPPC is the growth rate in GDP per capita. INV is the gross investments/GDP, DCPS is the domestic credit to private sector/GDP, LL is the liquid liabilities/GDP, MC is the market capitalisation/GDP, VT is the value trade/GDP, OPEN is the exports plus imports/GDP, OIL is the oil prices, GOV is the government spending/GDP,

	GDPPC	DCPS	LL	MC	VT	INV	OPEN	OIL	GOV
GDPP	1.000								
DCPS	0.224	1.000							
LL	0.664	0.721	1.000						
MC	0.606	0.662	0.817	1.000					
VT	0.490	0.488	0.588	0.288	1.000				
INV	-0.333	-0.167	-0.286	-0.078	-0.451	1.000			
OPEN	0.369	-0.043	0.357	0.624	-0.291	0.134	1.000		
OIL	0.220	-0.094	0.077	0.096	0.086	-0.517	0.027	1.000	
GOV	-0.258	-0.402	-0.317	-0.615	0.105	0.127	-0.461	-0.326	1.000

The correlation among the bank based indicators shows that they are positively correlated. The correlation coefficient between domestic credit to private sector and liquid liabilities is almost 70%, which means that these two measures are substitutes and may reveal similar aspects of banking sector development. In addition, the stock market indicators are positively correlated. For example, the correlation coefficient between the markets size indicator namely the market capitalisation and the liquidity indicator namely the value traded is almost 30%. This can be explained by the fact that when the size of the stock market increases, the stock market becomes more liquid. Thus, our results are consistent with the findings of Demirguc-Kunt and Levine (1996a) that large stock markets measured by equity capitalization to GDP are more liquid.

In addition, we can see from table (5.2) that there is correlation between banking sector development indicators and stock markets development. This correlation can be attributed to the fact that stock market transmits information that is useful to creditors. Prices of stock in the stock exchange at least partially reveal information that more informed investors possess. This revealing of information may make lending to publicly listed firms less risky. As a result, greater development in the stock market may increase the ability of firms to obtain credit and encourage banks to provide more credit. Thus, our preliminary results confirm the findings of Demirguc-Kunt and Levine (1996a) that the banking sector development and stock market development are complements rather than substitutes.

Our next step is to test whether the hypothesis that financial sector development leads to economic growth is valid.

5.6 Empirical Results

In order to determine whether the panel data specification that simply pools together all available data for all countries and the period is adequate to conduct the regressions, we apply an F-test. Hsiao (1986) pointed out that simple least square estimation of pooled cross section and time series data may be seriously biased. Table (5.3) reports the results for a simple F-test for the equality of intercepts across countries. The tests are performed in each country separately and then for all five countries for comparison purposes. The results reject the null hypothesis that countries' intercepts are all equal i.e. homogeneity. On this basis, the decision to use the fixed effects model is justifiable.

Table 5.3

F-Test

F-test of simple pooled ordinary least square against fixed effects specification. The test statistic is for testing the null hypothesis that countries' intercepts in the basic fixed effects panel data model are all equal, against the alternative hypothesis that each country has its own distinct intercept. The test assumes identical slopes for all independent variables across all countries and it is distributed F (df1, df2), significant at the 1% level.

Regressions of table (5.4)	Computed F	Critical F	
1	19.12	F(3,137)	3.95
2	102.9	F(3,137)	3.95
3	26.31	F(4,136)	3.47
4	19.38	F(5,127)	3.17
5	27.5	F(5,135)	3.17
6	20.66	F(6,127)	3.17
7	8.70	F(4,66)	3.65
8	10.81	F(5,66)	3.34
9	15.8	F(4,136)	3.48
10	34.85	F(5,135)	3.17
11	24.68	F(6,126)	2.95

Regressions of table (5.5)	Computed F	Critical F	
1	20	F(3,136)	3.95
2	31.5	F(3,136)	3.95
3	23.5	F(4,136)	3.47
4	17.5	F(5,127)	3.17
5	24.88	F(5,145)	3.17
6	8.59	F(4,61)	3.65
7	10.19	F(5,57)	3.34
8	10.07	F(5,61)	3.34
9	39.4	F(4,136)	3.48
10	33.6	F(5,135)	3.17
11	24.0	F(6,126)	2.95

The regression results for the model specified in equation (5.9) are reported in tables (5.4) and (5.5). The results are obtained from panel data analysis using the general least squares (since the units are heterogeneous). Tables (5.4) and (5.5) present a series of regressions to test the hypothesis of whether financial sector development influences the economic growth in the GCC countries. A series of regressions are conducted, using the four financial development variables; namely, domestic credit, liquid liabilities, market capitalisation, value traded and the other various variables: investment ratio, oil prices, government spending and trade openness. The dependent variable is the economic growth proxied by the growth rate in GDP per capita.

Table (5.4) provides in the first column the results for a regression of oil prices and investment ratio as the only explanatory variables without including any financial variable. In columns (2) to (6), in addition to oil prices and investment ratio, the table reports a set of regressions including domestic credit to private sector/GDP as an indicator of banking sector development, and the other two variables are government spending and trade openness. As can be seen, regressions from (1) to (6) explain up to 60 percent of the variation in measuring the economic growth in GCC countries. The F-statistics for the regressions on average reject the null hypothesis of no explanatory power for the regression as a whole at the one percent level.

Particularly, in column (1), as expected, the entered oil prices and investment ratio are positive and significant (at one percent). The coefficient value of oil prices in the first column is .64 and indicates that 10% increase in oil prices leads to 6.4% increase in economic growth. The coefficient value of investment ratio is 2.6 and means that, for example, an increase of 10% in investment ratio leads to 26% in economic growth. Also, it seems that oil prices and investment ratio explain about 43% of the variations in economic growth rate among the five countries during the sample period. Column (2) reports a regression including oil prices and domestic credit. Column (3) includes the three variables, oil prices and investment ratio and domestic credit. Columns (4) and (5) introduce the government spending and trade openness alternatively; while column (6) introduces both government spending and trade openness at the same time.

The results of the regressions (2) to (6) reveal that the domestic credit to private sector as indicator of banking sector development is positively and significantly correlated with growth rate of GDP per capita at 1% level of significance. This result supports our hypothesis in both sign and statistical significance, and it is consistent with King and

Levine (1993) and Levine and Zervos (1996, 1998). Furthermore, Beck et al (2000) and Levine et al (2000) argue that domestic credit to private sector has a clear advantage over other measures such as banks assets ratio, in that it more accurately represents the actual volume of funds channelled into the private sector. The coefficient values of the domestic credit in column (2) to (6) range from .94 to 1.9 and means that, for example, an increase of 10% in domestic credit leads to an increase of 9.4% in economic growth.

In addition, oil prices in columns (2) to (6) and investment ratio in columns (3) to (6); retain the same sign and same level of the significant of the regression in column (1). These results confirm the prominent role of oil prices as proxy of oil revenues in the economic growth process in the GCC countries. The coefficient values of oil prices range from .33 to .77 and means that, for example, an increase of 10% in oil prices leads to rise by 3.3% in economic growth. While the importance of investment ratio is emphasised by the positive and statistically significant (at one percent) relationship that it exhibits with economic growth. This result is consistent with the findings of Bassanini et al (2001). Their empirical evidence asserted that high output growth is associated by high investment rates. The coefficient values of investment ratio range from .64 to 2.6 and means that, for example, an increase of 10% in investment may lead to rise by 6.4% in economic growth. This is consistent with the findings of Sinha and Tapen (1999) who study the effects of investment on the growth of GDP in 15 countries. They find that the coefficient of investment is highly and positively correlated with economic growth. Furthermore, the result is consistent with economic theory, which assumes that higher rates of savings and investment are essential to the long-run rate of growth of a country.

In columns (5) and (6), trade openness proxies by exports plus imports/GDP enter positively and statistically significantly correlated with (at one percent) economic growth in all regressions. Consistent with Harrison (1996), Bailliu (2000), Bassini et (2001) and others, our results support the hypothesis that countries with higher trade openness share in GDP are likely to grow faster than other countries. The coefficient of trade openness ranges between .38 and .50 and implies that, for example, an increase of 10% in trade share would increase the average growth by 3.8%. The implication of this result is that an increase in the value of exports and imports relative to the GDP of the country increases the economic growth. Exports can affect economic growth through two channels. Exports provide an outlet for this excess production and generate income. In the long run, exports help growth because exports tend to gather technical process and

more savings. In addition, they improve the credit rating of the country by generating hard currency and thus make obtaining foreign loan easier. Imports of capital goods can energise economic growth if they are used efficiently. For the case of GCC, their imports have large components of capital goods, which mean enhancing the output of the economy in the long run. Our result is consistent with what is suggested by the new growth theory that states that a country can obtain advanced technology from its trading partners through trade.

In columns (4) and (6), the government spending enters positive and significant. This result is expected for the case of GCC countries, where the sharp increase in oil prices over the past three decades, helps to a large extent government spending to increase as fast as oil revenues. Government spending rose through a massive public investment projects in infrastructure, fiscal incentives dedicated to partnership with the private sector in development of projects and the adoption of a generous welfare system. This result also indicates that although the growing role of private sector, the government in these countries still plays a leading role in the development process. The coefficient value of government spending varies from .18 to .40 across the regressions. This means that, for example, a 10% increase in government spending leads to 4% increase in economic growth. It also confirms that in the absence of taxation, government spending has positive impact on economic growth.

Generally, the government spending results are consistent with Yavas (1998) who shows that an increase in government size will increase the steady state level of output if the economy is at low steady state (developing) and will decrease the steady state level of output if the economy is at high steady state (developed). He argues that in developing countries a significant portion of the government spending is directed to building the infrastructures of the economy which in turn will have its effects on stimulating the productivity of the private sector. In contrast, the developed countries already have infrastructure built and a major part of government spending is on social services programs. Accordingly, the positive effect of spending on these programs will not be as large as that of spending on infrastructure.

In addition to the above mentioned variables, columns (7) to (11) introduce two different indicators of stock market development; namely, market capitalisation as a proxy of market size and value traded as a proxy of market liquidity. The aim of including these variables is to test the importance of stock markets vis-à-vis banking sector. By

including these variables, we try to answer the following questions: does the inclusion of other variables that are supposed to influence growth change the significance of banking sector indicator as proxies by domestic credit to private sector? Second, does the domestic credit to private sector as an indicator of banking sector exert an independent channel of influence? On the other hand, are different proxies of the market development correlated with economic growth?

The regression results for market capitalisation and value traded indicate that the stock market development in our sample is related to economic growth in ways identified in the literature. They both appear positive and significant (at one percent). However, turning to the coefficient values of the sock market indicators, they are significantly lower than the coefficient of banking indicators. The coefficient values of market capitalisation range between .14 and .09 and the coefficient value of value traded ranges between .19 and .34 related to value traded. This means that, for example, an increase of 10% in the market size leads to a 1.4% increase in the economic growth; while an increase of 10% in the market liquidity leads to 1.9 % rise in economic growth. These results can be explained by the fact that the banking sector is well-established in the GCC and have a long history of being the source of capital for the business community. In fact, many banks are either owned or controlled by the business leaders and consequently, cater to their needs. Alternatively, stock markets in these countries are new and relatively small and thin.

Furthermore, when we include the stock market indicators and other control variables, the results further validate the previous ones. Most of the control variables continue to appear in similar level of significance as those in previous regressions. We include these variables to see if the results for financial indicators remain significant after including them. It is noted that including these variables do not change the results of the four financial variables. Interestingly, after controlling for the indicators of stock market development, the banking sector indicator represented by domestic credit to private sector remains positively and significantly correlated (at one percent level) with economic growth. Also, the R squared looks reasonable across the regressions of table (5.4) with an average of 55%.

Generally, an increase in domestic credit provided by banks explains economic growth through mobilising savings or the allocation of resources to a higher number of investors. Capital flows and reduced credit constraints, from augmented private credit,

can lead to both capital accumulation and technological innovation. As mentioned before, this variable can quantify the growth of banking sector since it reflects the level of financial sector development. If the variables imply a demonstration of the activity in the financial sector, and if the regression states a positive link between financial development and growth, this means that the financial sector development has a positive relation with economic growth. Countries with high levels of bank credit variable can have better chance in promoting economic growth. The development of the banking sector would probably increase the level of credit provided by banks, which in turn would ease trading, mobilise savings and allocate resources to expand capital accumulation or technological innovation to promote economic growth.

As we discussed earlier, it is unwise to rely on one financial indicator. Based on this point of view, table (5.5) replaces the domestic credit variable as an indicator of banking sector development by another indicator; namely, liquid liabilities, which capture another aspect (the size) of the banking sector development. The other variables are similar to those included in the previous regressions. Columns (1) to (5) include the liquid liabilities plus other various variables, investment ratio, oil prices, trade openness and government spending. Liquid liabilities variable enter positively and statistically significant at 1% level. The coefficient values of the liquid liabilities range from .81 to 1.6 and means that, for example, an increase of 10% in the size of banking sector leads to 8.1% increase in economic growth. Furthermore, the coefficient values of oil price, investment ratio, and government spending and trade openness do not substantially vary in both sign and level of significance across the regressions, which indicate robustness of the results.

Although some studies, such as Dawson (2003) and Gillman and Harris (2004), have reported a negative relationship between liquid liabilities/GDP and economic growth in the transition countries, our results show positive relationship. The difference between the two results can be explained by noting that the negative result was reported for countries characterised by high inflation caused by the desire of these governments to solve their budget deficit problems by inflationary policies. Naturally, the rise in money supply in such a case will be counterproductive and will negatively impact the process of economic growth. However, in the case of GCC countries, the rise of money supply was not induced by inflationary policies, but rather a rational response to the growing needs of their economies. This can be verified by noting that inflation rates (discussed in

chapter three) in GCC countries has been very low through-out the time period under consideration.

Columns (6) to (8) introduce the stock market capitalisation; while columns (9) to (10) introduce the value traded. The results are more or less similar to those obtained from table (5.4). The positive relation between market liquidity represented by value trade and economic growth continues to hold even after controlling for other economic factors that may affect economic growth. This result is consistent with Levine (1997). However, the market capitalisation appears positive but insignificant. The important result from the regressions in both tables (5.4) and (5.5) regressions is that even after controlling for both market indicators and other control variables, the banking sector indicator represented by liquid liabilities and domestic credit retains the same sign and level of significance in all regressions. These results shed light on the increasing role of the banking sector in the GCC countries in the growth process. These results are generally consistent with the seminal work of King and Levine (1993a) and Levine et al (2000). Also, it has to be noted that we are still better off with models (4) and (11); they are yielding better results throughout the regressions, which improve that these two models are best representatives of the data set.

The fact that both banking indicator and market indicator enter positively and significantly, this may reflect the fact that the banking sector and stock market provide different bundle of services in the economy. If they provide the same financial services, they would not both enter the growth regression significantly. Importantly, it should be noted that the coefficients of banking sector development indicators in most of the regressions of both tables (5.4) and (5.5) are consistently larger than the coefficient of the stock market indicators suggesting that the banking sector development has a bigger effect on economic growth than stock market development. Furthermore, the magnitude of banking development indicators' coefficients compared to stock markets indicators can be explained by the fact that the stock markets in these countries are new and relatively small and thin. In other words, stock markets in GCC do not reach a threshold that enables them to support a sustainable growth.

In an effort to narrow down the model choices presented in both tables (5.4) and (5.5), a careful examination of these tables reveals that models (4) and (11) best describe the relationship between financial sector development indicators and economic growth. It is also clear, for the two models, that all coefficients values are statistically significant and

have the best fit among all regressions. Moreover, it is clear that the wide range of the coefficient values of investment ratio observed previously have been narrowed down to .92 and .94 and 1.04 and 1.12 in tables (5.4) and (5.5) respectively. It is also clear that they become very close to each other in the above mentioned preferred models (4) and (11).

Generally, the positive role of financial sector development in economic growth process is consistent with King and Levine (1993), Levine (1997) and Levine and Zervos (1998). In the context of the GCC countries, this may be explained by the growing role of the banking sector in extending financial support and providing loans to the private sector, which in turn is involved in increasing the investment activities and productivity in the economy. It is important to mention here that the GCC governments have embarked on ambitious programs of privatisation, which pave the way for a growing role of the private sector as the engine of growth in the future. It should be also emphasised here that the public sector is mainly a service sector; whereas the private sector is the one that carries out the productive activities in these economies.

From the above discussion, a clear picture arises. First, our results confirm the findings that the banking sector and stock markets indicators are correlated with economic growth even when including other variables that affect economic growth. Second, the results indicate that if we include the stock market development indicator, the banking sector development remains an important determinants which implies that the stock market and the banking sector are complementary than substitutes for each other in the process of economic growth in GCC countries.

Table 5.4

The effect of financial Sector Development on Economic Growth in the GCC countries: Growth rate in real GDP per capita as a function of Domestic Credit to Private Sector

The table shows the results of panel data regression analysis (using the fixed effects model) of the relationship between financial sector development and economic growth in five GCC countries; namely, Kuwait, Bahrain, Oman, The United Arab Emirates and Saudi Arabia for the period 1975-2003. The data are retrieved from the World Development Indicators (WDI 2005 CD). Total panel observations are 140. C1, C2, C3, C4, C5 are the intercepts for Bahrain, Kuwait, Oman, Saudi Arabia and the United Arab Emirates respectively. GDPPC is the growth rate in GDP per capita used as proxy for economic growth is regressed against a set of independent variables. The independent variables are as follows: INV is the gross investments/GDP, DCPS is the domestic credit provided by banking sector/GDP, OIL is the oil prices, MC is the market capitalisation/GDP, VT is the value trade/GDP, OPEN is the exports plus imports/GDP, GOV is the government spending/GDP. R square adjusted is the usual R square adjusted for the degrees of freedom. The F-test statistics test the null hypothesis that all coefficients except for the intercept are zero. p-values are in parentheses. t-statistics are in brackets

*significant at the 1% level, **significant at the 5% level, ***significant at the 10% level.

variable	1	2	3	4	5	6	7	8	9	10	11
C1	-.008	-.007	-.008	-.003	-.004	-.001	-.078	-.049	-.007	-.009	-.003
C2	.089	-.065	.016	-.002	.034	.014	.013	.069	-.064	0.01	-.003
C3	-.006	-.073	-.020	-.023	-.021	-.024	-.090	-.067	-.077	-.023	-.026
C4	-.022	-.092	-.063	-.058	-.049	-.054	-.024	-.014	-.112	-.076	-.072
C5	-.033	-.094	-.047	-.159	-.048	-.147	-.164	-.115	-.098	-.050	-.160
OIL	.642* (.001) [3.239]	.552* (.008) [2.672]	.677* (.000) [3.464]	.772* (.000) [4.552]	.333* (.058) [1.912]	.428** (.015) [2.465]	.662* (.016) [2.475]	.374* (.047) [2.026]	.600* (.003) [3.008]	.729* (.000) [3.729]	.821* (.000) [4.792]
DCPS		1.914 (.000) [17.26]	1.07* (.000) [7.607]	1.37* (.000) [8.758]	.941* (.000) [6.961]	1.21* (.000) [7.868]	2.041* (.000) [14.964]	1.608* (.000) [10.39]	1.830* (.000) [16.40]	1.080* (.000) [7.610]	1.35* (.000) [8.599]
INV	2.665* (.000) [26.47]		1.56* (.000) [9.056]	.943* (.000) [5.395]	.899* (.000) [5.182]	.641* (.000) [3.696]				1.51* (.000) [8.796]	.929* (.000) [5.311]
MC							.140* (.032) [2.191]	.091* (.031) [2.201]			
VT									.348* (.006) [2.786]	.192** (.074) [1.798]	.193* (.031) [2.180]
GOV				.402* (.002) [3.145]		.186** (.089) [1.709]					.384* (.002) [3.138]
OPEN					.500* (.000) [5.777]	.389* (.000) [4.720]		.459* (.000) [3.759]			
Adj.R	.43	.37	.55	.59	.57	.60	.20	.37	.40	.55	.59
F-Stat	120.03	50.38	132.13	188.04	161.85	177.42	43.76	94.45	41.91	117.09	162.04

Table 5.5

The effect of financial Sector Development on Economic Growth in the GCC countries: Growth rate in real GDP per capita as a function of liquid liabilities

The table shows the results of panel data regression analysis (using the fixed effects model) of the relationship between financial sector development and economic growth in five GCC countries; namely, Kuwait, Bahrain, Oman, The United Arab Emirates and Saudi Arabia for the period 1975-2003. The data are retrieved from the World Development Indicators (WDI 2005 CD). Total panel of observations is 140. C1, C2, C3, C4, C5 are the intercepts for Bahrain, Kuwait, Oman, Saudi Arabia and the United Arab Emirates respectively. GDPPC is the growth rate in GDP per capita used as proxy for economic growth is regressed against a set of independent variables. The independent variables are as follows: INV is the gross investments/GDP, LL is the liquid liabilities/GDP, OIL is the oil prices, MC is the market capitalisation/GDP, VT is the value trade/GDP, OPEN is the exports plus imports/GDP, GOV is the government spending/GDP. R square adjusted is the usual R square adjusted for the degrees of freedom. The F-test statistics tests the null hypothesis that all coefficients except for the intercept are zero.
p-values are in parentheses. t-statistics are in brackets
*significant at the 1% level, **significant at the 5% level, ***significant at the 10% level.

variable	1	2	3	4	5	6	7	8	9	10	11
C1	-.007	-.001	-.008	-.003	-.004	-.052	-.022	-.021	-.008	-.008	-.003
C2	--.046	.043	.032	.012	.048	.010	.025	.070	-.046	.028	.009
C3	-.074	-.008	-.016	-.018	-.018	-.088	-.059	-.059	-.074	-.019	-.023
C4	-.056	-.032	-.042	-.040	-.031	-.030	-.003	-.017	-.075	-.056	-.057
C5	-.092	-.035	-.042	-.141	-.044	-.197	-.219	-.123	-.093	-.045	-.145
OIL	.581* (.000) [4.188]		.640* (.000) [3.398]	.686* (.000) [3.950]	.330** (.036) [2.107]	.485 (.157) [1.433]	.539 (.101) [1.665]	.234 (.304) [1.035]	.623* (.000) [4.422]	.685* (.004) [3.649]	.751* (.000) [4.431]
LL	1.688* (.000) [13.900]	.863* (.000) [6.521]	.931* (.000) [7.143]	1.27* (.000) [8.594]	.817* (.000) [6.680]	1.88* (.000) [12.036]	1.99* (.000) [13.273]	1.512 (.000) [9.255]	1.690* (.000) [14.324]	.950* (.000) [7.272]	1.27* (.000) [8.558]
INV		1.695* (.000) [10.350]	1.65* (.000) [10.252]	1.12* (.000) [6.542]	.879 (.000) [5.499]					1.59* (.000) [9.867]	1.04* (.000) [6.130]
MC						.120 (.148) [1.466]	.070 (.371) [.900]	.058 (.275) [1.100]			
VT									.271 (.007) [2.716]	.192* (.087) [1.722]	.255* (.015) [2.460]
GOV				.231* (.029) [2.200]			.184 (.197) [1.307]				.258* (.012) [2.550]
OPEN					.567* (.000) [6.239]			.487 (.000) [3.773]			
Adj.R	.32	.52	.52	.54	.54	.20	.35	.30	.33	.53	.54
F-Stat	33.02	123.97	112.4	137.38	144.66	30.22	75.08	75.35	31.09	101.06	121.56

5.7 Summary and Conclusion

The success of this chapter has been the evidence on the positive relationship between various financial sector development and economic growth in the context of GCC countries. We have seen that the relationship between financial development and economic growth has attracted a lot of research interest. We have also seen that the classical works of Goldsmith (1969), Mckinnon (1973) and Shaw (1973) paved the way for more recent models that emphasised the role of efficient financial intermediaries and markets in ameliorating information and transaction costs, and thereby fostering the efficient allocation of scarce economic resources (Bencivenga and Smith 1991), King and Levine (1993a)). While most of the empirical works reported positive impact of financial development on economic growth, no such positive evidence documented for GCC economies.

This chapter examines whether financial sector development facilitate economic growth in the GCC countries by employing data for five GCC countries over the period 1975-2004. It focuses on the effects of two aspects of financial sector development on growth process: baking sector and stock markets development. Using the endogenous growth model and panel data analysis technique, our investigation produced the followings: 1) banking sector and stock markets indicators have influence on economic growth even after including other factors that affect economic growth 2) banking sector and stock markets complement each other in providing financial services to GCC economies.

Generally, our results are consistent with most of the theoretical and empirical studies conducted on both developed and developing economies. However, our results show that the banking sector development has stronger effect on growth compared to the effect of stock markets. This suggests that the well-developed banking sector in GCC facilitates financial development and therefore boost economic growth. The positive relation remains significant even after controlling a set of conditional variables, such as government spending, trade openness and investment ratio.

Also, the results reveal that oil prices are consistently positive and significant in relation to economic growth. This is not a surprising result, but it implies that GCC economies are likely to remain dependent on volatile oil revenue for many years to come, government efforts and ongoing privatisation efforts must be directed towards increasing non-oil activities from government stimulus and accelerate economic growth. One way

of diversification is through strengthening their financial sector both banking and stock markets.

For the most part, the above results should serve as evidence for the need for continued efforts by policy makers in these countries to promote a market oriented financial sector in the future. Policy makers in the GCC countries should continue their efforts towards broadening and strengthening their financial sector, so that they can achieve a better mobilisation of their domestic and international assets in support of more rapid economic growth. On the banking sector level, policy makers of these countries should continue their efforts in increasing banking efficiency in terms of several issues such as quality of assets, ownership structure and size and enhancing the competitiveness between banks through allowing new banks to enter the market and easing the regulatory framework of foreign banks.

Also, stock markets should gain depth, efficiency, transparency, diversification and sophistication at national as well as regional level. This can be achieved in several ways such as increasing the volume of attractiveness of corporate bonds and government papers encourage equity investment by pension funds and small savers through mutual funds and make further steps towards reforming stock markets. In addition, efforts should focus on establishing regional financial markets in which savings and investments flows can be pulled together under homogenous conditions.

The GCC stock markets should contemplate integration into larger regional markets, which would greatly enhance their growth. This may include cross listing of shares, coordination of primary issues, common secondary trading arrangements and coordination of supervisory functions. These markets will act as a cushion for volatile oil prices by pumping private wealth that was accumulated during the oil boom into the local financial system, thus minimising the power of swings in oil prices that determine government revenues.

Although our results confirm the view that there is positive relation between stock market and banking sector and economic activity, other questions need to be addressed. Are the banking sector and the stock markets leading sectors in the process of economic development? If yes, is it one-way direction? or two-way direction? Actually we do not address this issue because the data for such analysis were not perfect due to unbalanced series in regard of stock market indicators. The need of long-time series of stock market

development indicators narrows down the focus of our empirical analysis to use panel data approach. Much work remains to be done to better understand the relationship between financial sector development and economic growth. Future studies are urged to include other financial proxies to capture different aspects of financial sector development. It was argued earlier in this chapter that there is no perfect proxy of financial development; therefore, the results of all financial variables should be jointly explained in larger picture.

Appendix A5

List of Abbreviations

	Variables	Definition	Expected sign
	Dependent Variable		
GDPPC	Growth rate of GDP per capita	Real growth rate in gross domestic product divided by midyear population.	
	Independent Variables		
DCPS	Domestic credit / GDP	Domestic credit includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net as ratio of GD.P	+
LL	Liquid liabilities (M3)/ GDP	The variable of liquid liabilities equals the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and saving deposits, certificates of deposit, and securities repurchase agreements (M2), plus travellers' cheques, foreign currency time deposits, commercial papers and shares of mutual funds or market funds held by residents as ratio of GDP.	+
MC	Market capitalisation / GDP	The total value of listed shares on the stock exchange as ratio of GDP.	+
VT	Value traded / GDP	The value of all trades in the stock exchange as ratio of GDP.	+
OIL	Oil prices	Crude oil prices	+
INV	Gross investments/GDP	Gross domestic investment consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements, plant, machinery, and equipment purchases, and the construction of roads, railways and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings as ratio of GDP.	+
GOV	Government spending/GDP	Government spending consists of expenditure, including imputed expenditure, incurred by general government on both individual consumption goods and services and collective consumption services as ratio of GDP.	+
OPEN	Exports plus imports/ GDP	The sum of imports and exports as ratio of GDP.	+

Chapter Six

The Determinants of Capital Structure: Evidence from the GCC Countries

6.1 Introduction

The previous chapter established that stock markets and banks are important ingredients in the process of financial development in the GCC countries. Consequently, to complete the circle, a crucial issue is to understand how firms operating in the GCC stock markets finance their activities and determine their capital structure. The corporate finance literature is rich in both theoretical and empirical studies that examine the determinants of capital structure. However, most of the literature related to this area is concentrated on firms operating in developed economies. Our intention in this chapter is to contribute to the literature by examining the capital structure decisions of firms operating in the GCC countries stock markets, and how stock market development affects these firms' financing choice.

The capital structure choice is considered one of the most important subjects in corporate finance. Although it attracts a great deal of attention in the previous empirical literature, we still do not fully know whether firms have an optimal capital structure and what determines their capital structure decisions. The seminal work of Modigliani and Miller (M&M) (1958) is considered the cornerstone of the capital structure theory, concludes that financial leverage does not affect the firm's market value. However, their theory was based on very restrictive assumptions that do not hold in the real world such as perfect capital markets, homogeneous expectations, no taxes and no transaction costs. They argue that if the financial market is perfect and if there are no taxes or transaction costs, a firm's value depends solely on the level and risk of its future cash flows. In that case, firms will be indifferent with regard to financing investment with internal or different forms of external funds. This implies that an optimal capital structure does not exist because a firm's value cannot be affected by its choice of financing.

This seminal work of M&M has been followed by a vast theoretical literature, which led to the formulation of alternative theories such as the static trade off model and the pecking order theory. These theories point out a number of specific factors that may affect the capital structure of firms. For example, trade off models postulate that an

optimal capital structure does exist. A firm is regarded as setting a target debt level and gradually moving towards it. The firm's optimal capital structure will involve the trade off among the effects of corporate and personal taxes, bankruptcy costs and agency costs. In contrast, the pecking order hypothesis suggested by Myers and Majluf (1984) states that there is no well-defined target debt ratio. According to this theory, retained earnings are the main source of funds for investment opportunities. Next in order of preference is less risky debt, and last comes risky external equity financing. This is so because of the existence of the asymmetric information problem between inside and outside investors.

Which theory is more powerful in explaining firms' financing behaviour? Unfortunately, there is no conclusive answer. The issue of capital structure has also attracted a considerable attention in the empirical literature with mixed results. Shyam-Sunder and Myers (1999) test the static trade off against pecking order models, using a sample of 157 U.S. firm trades over the period 1971 to 1989. They find that the trade off model can be rejected and the pecking order model has much greater time series explanatory power than the trade off model by testing the statistical power of alternative hypotheses. Fama and French (2002) test the trade off and pecking order predictions about debt and dividend for an over 3000 firms covering the period 1965-1999. They find that the pecking order and trade off models each explains some of a company's financing behaviour, and none of them can be rejected.

A number of studies have investigated the capital structure choice for developed markets. Marsh (1982) studies the determinants of capital structure in the United Kingdom firms between 1959 and 1974. Titman and Wessels (1988) perform an empirical study on the determinants of capital structure in the United States between 1974 and 1982. Rajan and Zingales (1995) study the capital structure for a sample of G7 countries (the United States, Japan, Germany, France, Italy, The United Kingdom and Canada) in 1991. Bevan and Danbolt (2002) analyse the determinants of capital structure of 822 UK companies between 1991 and 1997. Antoniou et al (2007) employ data from France, Germany, Japan, the United Kingdom and the United States over the period 1987 to 2000. They show that the firm's capital structure is heavily influenced by the economic environment and its institutions, corporate governance practices, tax systems, exposure to capital markets and the level of investor protection in the country in which the firm operates. Finally, Buettner et al (2006) investigate the question of taxation and capital structure choice in Germany. Germany represents an excellent case

study to investigate the question whether, and to what extent, taxes influence the debt-equity decision of firms, because the relative tax burdens on debt and equity vary across communities. They present a stylised model incorporating these taxes. The model shows that taxes create substantial incentives for firms to use debt financing.

In addition to the above studies there have been a limited number of empirical studies that used data from developing countries. For example, Booth et al (2001) analyse data from ten developing countries (Brazil, Mexico, India, South Korea, Jordan, Malaysia, Pakistan, Thailand, Turkey and Zimbabwe) between 1980 and 1991. Pandy (2001) uses data from Malaysia for the period 1984-1999, and Chen (2004) employs data from China for the period 1995-2000. Furthermore, Deesomsak, Paudyal and Pescetto (2004) investigate the determinants of capital structure in four Asia Pacific countries; namely, Thailand, Singapore, Malaysia and Australia between 1993 and 2001. Deesomsak, Paudyal and Pescetto (2004) suggest that the capital structure of firms operating in these countries is not only influenced by the determinants of capital structure that are widely defined in the literature, but also by the environment where they operate. Thus, while there is no agreement as to what determines the capital structure decisions of firm or if firms have an optimal capital structure, it is clear that the environment where firms operate affect their capital structure. This later finding provides a good rationale for investigating the capital structure decisions of firms operating in unique developing markets such as the GCC countries. Consequently, the investigation of GCC countries will provide out of sample evidence as to whether the findings of previous studies based on developed stock markets and economies hold irrespective of the specific economic conditions of the countries in which the firms operate. If this is not the case, it would also strengthen the findings of Antoniou et al (2007) and Deesomsak, Paudyal and Pescetto (2004).

Furthermore, while the literature is rich in studies which examine the importance of firm specific factors in determining a firm's financing choice, empirical evidence on the effect of stock market development on capital structure choice is very limited. For example, Demirguc-Kunt and Maksimovic (1996) conduct a comprehensive study that empirically explores the effect of stock market development on firms' financing choices. Using a sample of 30 industrial and developing countries for the period 1980-1991, they investigate the extent to which the variation in aggregate debt-equity ratios within these countries can be explained by: (1) the level of development of the country's financial markets; (2) macroeconomic factors such as growth rate and the rate of inflation; and (3)

firm specific factors that have been identified in the corporate finance literature as determining financial structure. They find a statistically significant negative correlation between stock market development (as measured by the ratio of market capitalisation to GDP) and the ratio of both long-term and short-term debt to firm's total equity. When they compare developed and developing countries stock markets, they find that stock market development leads to a substitution of equity for debt financing in developing countries. In contrast, in developed countries, large firms become more leveraged as the stock market develops, whereas the smallest firms appear not to be significantly affected by market development. Their results have important implications, for banks in emerging markets, since they do not need to be fearful of stock market development. They find that improvements in the functioning of a developing stock market result in a higher debt-equity ratio and thus more business for banks. In other words, stock markets and banks are complementary to each other.

However, Demirguc-Kunt and Maksimovic' study suffers from a number of problems. In particular, it does not consider country specific effects and uses data for both developed and developing countries from different country sources, implying variations in the definition, collection procedure, and measurement of these variables. Such problems render generalisations, comparisons and inferences difficult to make. This chapter will directly address this issue by using a panel approach. Furthermore, their measures are averaged over the 1980-1991 period. Averaging over long periods is problematic as many changes occur simultaneously that are ignored. Aggregation over time may blur important events and differences across countries.

Finally, Booth et al (2001) examine the capital structure decision of firms in ten developing countries. They find that the determinants of capital structure in these countries are similar to those in developed countries. However, they find that there are differences in the way leverage is affected by macroeconomic variables such as GDP growth, inflation and capital market development. Particularly, they find that the relation between the financial activity of stock markets and leverage is negative and significant. However, they conclude that more research needs to be done in order to understand the impact of such factors on firm's capital structure decisions.

This chapter contributes to the literature on corporate finance in several ways. First, while there has been a growing number of studies that examine capital structure in developed and developing countries, the absence of any published study which examines

and compares the capital structure of firms listed in GCC stock markets provides us with a unique opportunity to shed some light on the applicability and validity of different theories of capital structure on firms that operate in unique economies such as GCC countries. Second, we know from the M&M theory that optimal capital structure could exist due to market imperfections. One such imperfection is the presence of taxation. Thus, the GCC countries offer an ideal opportunity to examine the determinants of capital structure in an environment free of taxation. Under the assumption of homogenous expectations and perfect market the M&M capital structure irrelevance proposition asserts that it does not matter whether firms issue debt or equity, but in the presence of taxation an optimal capital structure may exist. While Buettner et al (2006) consider this issue, using Germany's differential taxation system, a more appropriate way to test whether taxation is of central importance to capital structure decisions to use data from countries where there is no tax. Thus, this chapter extends the literature by re-visiting the question of capital structure choice in countries with no taxation. In the light of this argument, it would be interesting to investigate whether in economies in which there is no taxation such as GCC countries, previous studies' findings hold. This chapter will help us to understand whether the stylised facts about capital structure learned from developed and developing countries are also applicable to such tax-free economies, but would also help us understand the importance of taxation to capital structure decisions in general.

Third, none of the above studies adopted the approach of combining the dynamism of capital structure and the impact of stock market development on firms financing choices. To our knowledge, the approach has not yet been applied in empirical research. This chapter intends to estimate a dynamic adjustment model within a panel data set taking into account the effect of stock market development on corporate capital structure in the selected countries. In fact, using the dynamic model is of special importance in emerging markets where stock markets go through regular changes and thus firms may have to move faster in the light of market changes. This model allows us to capture the dynamics of capital structure and see if the firms indeed move towards optimal leverage ratios or away from them, and the speed with which they do that. In addition, it is important to mention here that this study represents the first attempt to examine empirically the effect of stock market development on firms' financial structure within the GCC context.

Fourth, very few studies have used a cross-sectional country comparison to test the theories of corporate capital structure. Three studies are notable exceptions, Antoniou et al (2007), where they analyse the determinants of capital structure in the UK, the USA, France, Germany and Japan. Booth et al (2001) investigate the same issue for a group of 10 developing countries and Rajan and Zingales (1995) use data from the United States, Germany, Canada, Italy, France, Japan and the United Kingdom. Our data for three GCC countries, Kuwait, Saudi Arabia and Oman are from a new and very original firm level data-base which has not been used before by any study in the literature. To date, the lack of high quality databases constitutes the major barrier to conducting capital structure research in the GCC countries. Data are not available electronically. Our data are hand-collected for a group of 142 firms operating in three GCC stock markets

Finally, the objective of this chapter is to introduce GCC countries as case studies to the research community in this area of research. The GCC countries are more or less distinct from other developed and developing countries. For example, GCC have less developed capital markets. Firms face less bankruptcy costs due to the fact that dominant control of equity belongs to the influential private sector and they are much more dependent than most other economies on the value of the US dollar and the world economy.

The objective of this chapter is to answer these questions:

1) What are the main determinants of the firm's capital structure in three GCC stock markets; namely, Kuwait, Saudi Arabia and Oman?

2) Do factors that affect cross-sectional variability of capital structure in other developed and developing countries have similar effects on GCC firms' capital structure?

3) Do firms operating in these markets set a target capital structure and move towards it over time?

4) Has the development of these stock markets had a significant impact on the financing patterns of these firms? In other words, is the firm financing choice influenced by the level of development of the stock market in these countries?

The rest of the chapter is organised as follows: section 6.2 presents the theories of capital structure. Section 6.3 outlines the empirical model and measurement of the variables. Section 6.4 presents the data and summary statistical analysis. Section 6.5 discusses the empirical results and section 6.6 summarises and concludes.

6.2 Theories of Capital Structure

The conclusion of Modigliani and Miller differs from what we see in the real world, where capital structure matters and firms are extremely reluctant to finance a project with hundred percent debts. M&M spurred economists to come up with the conditions under which financial structure would indeed matter. Such research still continues today and consists the foundation of modern corporate finance. Broadly speaking, three theoretical approaches can be distinguished as related to this subject. These theories identify many firm specific factors that may affect a firm's capital structure. The following section presents a discussion of these theories.

6.2.1 Static Trade-off Theory of Capital Structure: (Tax-based theory)

According to static trade-off models, the optimal capital structure does exist. A firm is regarded as setting a target debt level and gradually moving towards it. Static trade-off theory of capital structure explains observed capital structures as its name implies as a static trade-off of costs and benefits of debt. It is built on the concept of target capital structure that balances various costs and benefits of debt and equity. It is the oldest theory and is directly related to the Modigliani and Miller (1958) irrelevance theorem on capital structure. It postulates that companies increase their debt level such that marginal tax advantages of additional borrowing are offset by the increase in the cost of financial bankruptcy. In other words, since interest payments are tax deductible, raising more debt increases the tax benefits. However, an increase in debt also increases the probability and default and hence the expected cost of bankruptcy.

The modern versions of trade-off were stimulated by the seminal paper of Jensen and Mekling (1976). They state that a value-maximizing firm will pursue an optimal capital structure by considering the marginal costs and benefits of additional unit of financing, and then choosing the form of financing that equates these marginal costs and benefits. Benefits of debt include its tax advantage and the reduced agency costs of free cash flow. Costs include the increasing risk of financial distress and increases monitoring and contracting costs associated with higher debt levels. Thus, the trade-off theory of the capital structure suggests that a firm's target leverage is driven by the three competing factors: 1) taxes 2) costs of financial distress (bankruptcy costs) 3) agency conflicts.

Static trade-off theory argues that since less profitable firms provide low shareholder returns, greater leverage in these firms merely increases bankruptcy risk and the cost of

borrowing, and will therefore lower shareholder returns still further, which in turn limit equity issue. Therefore, firms with low profits facing a positive NPV investment projects will avoid external finance in general and leverage in particular and at the same time market will be reluctant to provide capital to such firms. Thus, trade-off theory predicts a positive relationship between leverage and profitability. Furthermore, this theory predicts a positive relation between tangible assets and financial leverage. This insight is based on the argument that the cost of financial distress is the most serious for growth firms with high proportions of intangible assets.

6.2.2 Pecking Order Theory (Information Asymmetry Theory)

The next generation of capital structure literature theories is the pecking order theory pioneered by Myers and Majluf (1984). This theory (based on informational asymmetry) suggests that firms do not have leverage target. This theory focuses on information costs and signalling effects. Myers and Majluf (1984) show that companies prefer to finance their projects from internally generated cash flows; namely, retained earnings and depreciation expenses. When this source of funds is exhausted, they move on to debt, and only when the latter is not sufficient to fill financing needs, additional equity is issued. This hierarchy is justified by the differences in financing costs. Issuing additional equity is the most expensive source of financing as it suffers from information asymmetries between managers, existing shareholders and potentially new shareholders. In view of its fixed payments, debt is already less sensitive to information problems, while internally generated resources do not suffer at all from issuing costs. In contrast to the static trade-off theory, according to the pecking order theory, there is no unique optimal capital structure to which a firm gravitates in the long run. The central issue of the theory is a choice between internal and external sources of financing. Thus, according to pecking order theory, there exists a financial hierarchy descended from internal funds to debt to external equity.

In an attempt to explain this hierarchy behaviour in companies financial policy that is not consistent with the prediction of static trade-off theory, Myers and Majluf (1984) try to construct a model of information asymmetry assuming that firm managers act on behalf of current shareholders. If external funds are needed to finance new investment, the market will interpret the equity issues as sign that company shares are overvalued and thus will have a negative impact on the share price. Thus, Myers and Majluf (1984) argue that if the company does not have enough funds to finance new investment, it will

issue equity only when there are very profitable investments that can neither be postponed nor financed through debt, or when managers believe that the stock is overvalued enough that shareholders will be disposed to tolerate the market penalty. The information asymmetry may cause current shareholders to renounce positive NPV investment projects in order to avoid a drop in share price due to the issue of equity, thereby causing an underinvestment problem. To avoid these results, it seems reasonable that companies will implement financing policies that give them the capacity to finance investments and avoid external financing.

As Pecking order theory predicts that firms will use retentions first, then debt and equity issues as a last resort, firms with low profits facing positive NPV investment projects will be more willing to use external funds if cash flows are weak. Therefore, there will be negative relationship between leverage and profitability. Titman and Wessels (1988), Rajan and Zingales (1995), Antoniou et al (2007) and Bevan and Danbolt (2002) in developed countries, Booth et al (2001), Pandey (2001) Um (2001), Wiwattanakantang (1999), Chen (2004) in developing countries find a negative relationship between leverage ratio and profitability which is consistent with the pecking order theory. Bevan and Danbolt (2002) state that more profitable firms should hold less debt because high levels of profits provide a high level of internal funds.

In addition, Myers (1984) suggests that issuing debt secured by collateral may reduce the asymmetric information related costs in financing. The difference in information sets between the parties involved may lead to the moral hazard problem (hidden action) and or adverse selection (hidden information). Hence, debt secured by collateral may mitigate asymmetric information related cost in financing. Therefore, a positive relationship between tangibility and financial leverage may be expected. Also, Titman and Wessels (1988) and Rajan and Zingales (1995) report a positive relationship between tangibility and leverage for developed countries, while Wiwattanakantang (1999) and Um (2001) report a positive relationship between tangibility and leverage for Thailand and South Korea respectively.

Fama and French (2002) argue that the two theories share many common predictions about the determinants of leverage and dividends. In a study of US corporations, they argue that the two theories can only identify two predictions on which either theory performs better than the other. Trade-off theory does better in one case (large equity

issues of low leverage firm) and pecking in the other (the negative impact of profitability on leverage). Thus, rendering the verdict on the two is inconclusive.

Prasad, Green and Murinde (2001b) survey a large volume of empirical literature on company capital structure. They conclude that the evidence on trade-off versus pecking order theories remains inconclusive. Singh and Hamid (1992) study the corporate capital structure in developing countries. They conclude that firms in developing countries rely more heavily on equity than on debt to finance growth relative to their counterparts in the developed economies. Similarly, Booth et al (2001) reach the same conclusion. They argue that it is difficult to distinguish between trade-off and pecking order models because variables used in one model are also relevant in the other model.

6.2.3 The Agency Cost Theory

Jensen and Meckling (1976) define agency costs as the sum of the monitoring expenditure by the principal, bonding costs by the agent, and a residual loss. It is well-known in the corporate finance literature that agency costs are an important determinant of firm's capital structure (See Harris and Raviv 1991).

The agency cost theory states that an optimal capital structure will be determined by minimizing the costs arising from conflicts between the parties involved. Jensen and Meckling (1976) argue that agency costs play an important role in financing decisions due to the conflict that may exist between shareholders and debt holders. If companies are approaching financial distress, shareholders can encourage management to take decisions, which in effect, expropriate funds from debt holders to equity holders. Debt holders will then require higher return for their funds if there is potential for this transfer of wealth. Debt and the accompanying interest payments, however, may reduce the agency conflict between shareholders and managers. Debt holders have legal redress if management fails to make interest payments when they are due. Hence, managers concerned about potential loss of job will be more likely to operate the firm as efficiently as possible in order to meet the interest payments, thus aligning their behaviour closer to shareholder wealth maximisation.

Jensen and Meckling (1976) state that debt agency costs arise due to a conflict of interest between debt providers on one side and shareholders and mangers on the other side. Managers have motivation to invest funds in risky business for shareholders' interest because if the investment fails, the lenders are likely to bear the cost as the shareholders

have limited liability. The use of short-term debt may, however, mitigate the agency problems, as any attempt by shareholders to extract wealth from debt holders is likely to restrict the firm's access to short-term debt in the immediate future.

Um (2001) suggests that if a firm's level of tangible assets is low, the management for monitoring cost reasons may choose a high level of debt to mitigate equity agency costs. Therefore, a negative relation between debt and tangibility is consistent with an equity agency costs explanation. He also argues that firm size may proxy for the debt agency cost (monitoring cost) arising from conflicts between mangers and investors. He emphasized that the monitoring cost is lower for large firms than for smaller firms.

Gleason et al (2000) argue that the legal environment, the tax environment, the economic system and the technological capabilities influence the capital structure in the fourteen European community member countries examined in their study. Similarly, Antoniou et al (2007) find that capital structure decision of firms are not only affected by its own characteristics, but also in their surrounding environment. The surrounding environment may affect the firm's capital structure for different reasons, such as the deterioration or the improvement in the state of the economy, the existence of a stock market and or the size of bank sector. Furthermore, Korajczyk and Levy (2003) argue that both macroeconomic conditions and firm specific factors have an effect on firms financing choices. Deesomsak, Paudyal and Pescetto (2004) suggest that the capital structure of firms is influenced by the environment in which they operate.

However, an important concept that can be concluded from the above capital structure theories is called "target" debt level. As we have discussed in theory, firms should issue equity if debt level is above a target level and debt otherwise. With no floatation costs, such adjustments can be instantaneous and continuous. In practice, however, the existence of significant floatation costs implies fluctuation in the leverage ratios around their target level overtime. Based on this argument, any empirical work needs to identify this target level and how it might change due to any external shocks. However, since the target level is unobserved, one can study its past behaviour. The use of panel dynamic approach in this chapter will allow us to study the target leverage ratio this way.

6.3 The Empirical Methodology and Measurement of the Variables

6.3.1 Empirical Model

To assess the determinants of capital structure in our sample countries, individual firm's leverage ratios are modelled as function of several firm specific factors in cross sectional framework. Specifically, the following relationship is estimated using OLS for each country:

$$\mathrm{LVR}_{i,t} = a + \sum_{j=1}^{n} b_j \mathrm{X}_{i,j,t} + \varepsilon_{i,t} \qquad (6.1)$$

Where $\mathrm{LVR}_{i,t}$ is the leverage ratios for the *i*th firm at time *t*, and $\mathrm{X}_{i,j,t}$ is the *j*-th set of the explanatory variables of firm *i*th at time t, and *a* is the intercept. Rajan and Zingales (1995) estimated their regression by using maximum likelihood and censord Tobit model. They argued that the OLS results are very similar to those results that are obtained using the alternative techniques. Furthermore, Bevan and Danbolt (2002) have confirmed these findings.

Since the role and effects of the factors influencing firms' capital structure decisions do change over time, a cross sectional analysis of leverage ratios alone would not be sufficient to understand the dynamism of capital structure. It is important to take into account whether firms react to new conditions that occur in financial markets and how quickly they revert to their target capital structure when moved away by external shocks. This is especially important in emerging markets where stock markets go through regular changes and thus firms may have to move faster in the light of market changes.

Recently, Graham and Harvey (2001) and Drobetz and Fix (2004) conduct a survey on a group of US and Swiss firms respectively. They document that managers seek a target debt-equity ratio. The main objective in setting capital structure policy is not to minimise a firm weighted average cost of capital but rather to keep financial flexibility in the context of a pecking order theory. Also, they find evidence that firms may temporarily deviate from their optimal capital structure. To take into consideration these stylised facts, several studies used a dynamic model approach where the actual and optimal leverage ratio may differ due to the presence of adjustment costs. For example, in an early paper, Jalilvan and Harris (1984) argue that firm's financing behaviour is characterised by partial adjustment to long run financing target. They find that the speed of adjustment is affected by firm specific factors and hence is allowed to vary over time.

Even recently, De Miguel and Pindado (2001) develop a target adjustment model that allow them to explain a firm's leverage ratio in terms of its leverage ratio in the previous period and its target leverage level, the latter being a function on well-known firm characteristics such as size, profitability and growth opportunities. They present a new methodology to capture the dynamic nature of the capital structure decisions; they also endogenised the target leverage ratio, and this allowed them to identify the determinants of optimal capital structure rather than the observed capital structure. They specify a dynamic adjustment model with predermined variables and apply General Method of Moments estimator suggested by Arellano and Bond (1991). They report that Spanish firms face lower adjustment costs than US firms.

In the light of the above argument, the next section will take into consideration the dynamism of capital structure in the models of leverage.

As can be seen from equation (6.1), the optimal leverage level is allowed to vary across firms and over time. Since the factors that determine a firm's optimal leverage change over time, it is likely that the optimal leverage ratio moves over time even for the same firm. In a perfect frictionless world, with no adjustment costs, the firm would immediately respond to a variation in the independent variables by varying its existing leverage ratio to equal its optimal leverage (complete adjustment). Thus at any point of time, the observed leverage of firm i, (LVR_{it}) should not be different from the optimal level of leverage i.e. $LVR_{it} = LVR^{*}_{it}$. This implies that the change in the existing leverage from the previous to the current period should be exactly the change required for the firm to be at optimal leverage at time t, i.e. $LVR_{it} - LVR_{it-1} = LVR^{*}_{it} - LVR_{it-1}$. In practice, however, the existence of significant adjustment costs (i.e. legal fees in case of issuing new debt or equity) means that the firm will not completely adjust its actual leverage to LVR^{*}. Thus, with less than complete adjustment, the firm's observed leverage ratio at any point in time would not equal its optimal leverage ratio. Following previous work in this field (i.e. De Miguel and Pindado (2001), Hovakimian, Opler and Titman (2001) and Drobetz and Wanzenried (2006)) the dynamic capital structure model can be represented by:

$$LVR_{it} - LVR_{it-1} = \alpha_{it}(LVR^{*}_{it} - LVR_{it-1}) \qquad (6.2)$$

Where α_{it} is the coefficient of adjustment or the speed of adjustment. Equation (6.2) postulates that the actual change in leverage ratio at any point in time for firm *i*, is the

same fraction α of the optimal change for that period. If $\alpha_{it} = 1$, it means that the actual leverage ratio is equal to the optimal leverage, that is, the actual leverage adjusts to the target leverage instantaneously and continuously, i.e. for all t a firm will consistently be its target leverage. If α_{it} is less than one, it means the adjustment from the period t-1 to t falls short of the adjustment required to attain the target. However, if α_{it} is greater than one, it means that the firm makes adjustment more than necessary, but still not the target level (over-adjustment).

The above dynamic capital structure model can alternatively be written as:

$$LVR_{it} = \alpha LVR^{*}_{it} + (1-\alpha) LVR_{it-1} \tag{6.3}$$

Assume that the target debt level LVR^{*}_{it} is a linear function of the proxy variable, as specified in the regression analysis in equation (6.1). Denote the *j*-th (*j*=one,two,,,,n) proxy variable including a constant of firm i, at time t, as X_{ijt} and plug into equation (6.3) to get:

$$LVR_{it} = \alpha \beta_1 + (1-\alpha) LVR_{it-1} + \alpha \sum_{j=2}^{n} \beta_j X_{ijt} + d_t + \eta_i + \upsilon_{it} \tag{6.4}$$

Where d_t is a time specific effect, η_i is a firm specific effect and υ_{it} is a white disturbance. Panel data allows us to estimate the model in equation (6.4), thereby studying the dynamic nature of capital structure decisions. In fact, this model is preferable to previous specifications because it does not rely on target debt levels, which have been determined externally.

Since equation (6.1) represents the optimal or long-run firm leverage, equation (6.4) represents the short-run firm leverage since the actual leverage ratio may not be equal to its optimal leverage. When an equation in the form of (6.4) is estimated, the coefficient of the observed lagged leverage ratio, LVR_{it-1}, gives the estimate of one minus the partial adjustment. If the coefficient value of the lagged leverage ratio is greater than zero, we can conclude that the adjustment from period t-1 to t falls short of the adjustment required to attain the target, but if the coefficient is less than zero then the firm over adjusts in the sense that it makes more adjustment than is necessary and still does not reach the target. The coefficients of the remaining explanatory variables are estimates of the long-run impact multiplied by the partial adjustment.

6.3.2 Measurement of the Variables

There is consensus in the literature that leverage increases with fixed assets, non-debt tax shields, investment opportunities, and firm size and decreases with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product (Harris and Raviv, 1990). However, recent studies have updated our understanding about the determinants of capital structure. For example, Wald (1999) shows that leverage decreases rather than increases with non-debt tax shields.

The choice of suitable explanatory variables is potentially contentious (Titman and Wessels 1988). In this chapter, in order to identify which of the capital structure theories is relevant in the context of GCC firms, we concentrate on a group of variables identified in the previous literature. The selected explanatory variables are firm size, liquidity, profitability, tangibility and growth opportunities. In addition, the chapter uses three-stock market indicators and the lending rate. We limit ourselves to these variables for two reasons. First, these factors have shown up most consistently as being correlated with leverage in previous studies (Bradley, Jarrell and Kim (1984), Long and Maltiz (1985), Harris and Raviv (1991), Rajan and Zingales (1995), Booth et al (2001), Deesomsak, Paudyal and Pescetto (2004) Antoniou et al (2007)). Second, the data availability severely limits our ability to include any other factors. The variable definitions and their expected signs are listed in appendix A6.

6.3.2.1 Dependent and Independent Variables

6.3.2.1.1 Measures of Leverage Ratio

The academic literature does not provide clear-cut definition of leverage. The specific choice depends on the objective of the analysis. Rajan and Zingales (1995) apply four alternative definitions of leverage. The first and broadest definition of leverage is the ratio of total liabilities to total assets. This can be viewed as a proxy of what is left for shareholders in case of liquidation. However, this measure does not provide a good indication of whether the firm is at risk of default in the near future. In addition, since total liabilities include items like accounts payable, which are used for transaction purposes rather than for financing, it is likely to overstate the amount of leverage. Furthermore, this measure of leverage is potentially affected by provisions and reserves, such as pension liabilities.

The second definition of leverage is the ratio of debt (both short and long term) to total assets. This measure of leverage only covers debt in narrower sense (i.e. interest bearing debt) and excludes provisions. However, it fails to incorporate the fact that there are some assets that are offset by specific no-debt liabilities. For example, an increase in the gross amount of trade credit is reflected in a reduction in this measure of leverage. Because the level of accounts payable and accounts receivable may differ across industries, Rajan and Zingales (1995) suggest using a measure of leverage unaffected by the gross level of trade credit.

The third definition of leverage is the ratio of total debt to net assets, where net assets are total assets less accounts payable and other current liabilities. This measure of leverage is unaffected by non-interest bearing debt and working capital management. However, it is influenced by factors that have nothing to do with financing. For example, assets held against pension liabilities may decrease this measure of leverage. The fourth and final definition is the ratio of total debt to capital, where capital is defined as total debt plus equity. This measure of leverage looks at the capital employed and thus represents the effects of past financing decisions. It relates more directly to the agency problems associated with debt.

An additional issue is whether leverage should be computed as the ratio of the book or market value of equity. Again, the correct choice is not easy. Fama and French (2000) argue that most of the theoretical predictions apply to book value. Similarly, Thies and Klock (1992) suggest that book ratios better reflect management's target book ratios. The market value of equity is dependent on a number of factors which are out of direct control for the firm. Therefore, using market values may not reflect the underlying alterations within the firm. In fact, corporate treasurers often explicitly claim to use book ratios to avoid "distortions" in their financial planning caused by the volatility of market prices. Furthermore, if only the market value of equity is used in order to compute leverage and the firms use the book value of equity in their decisions on leverage, we shall underestimate the leverage of firms whose market to book ratio is very high. Similarly, if only the book value of equity were used when measuring leverage and firms used the market value of equity in their decisions on the level of debt financing, we would overestimate the level of leverage of firms that have high market to book ratio.

Another aspect relating to the choice between book value and market value is the point that book values tend to be influenced by the choice of accounting methods; whereas market values tend to vary considerably, which may result in changes in leverage without changes in either the amount of outstanding debt or the book value of equity. In order to alleviate the impact of these biases, and following Booth et al (2001) and Antoniou et al (2007) we use both book and market leverage ratios. Book leverage is defined as ratio of book value of total debt to book value of total assets; while the standard definition of the market leverage is the ratio of book value of total debt to market value of equity plus book value of total assets. The market value of equity is calculated using the data on market capitalization on the balance sheet date. According to Booth et al (2001), these two ratios should help us analyse the empirical validity of capital structure models.

6.3.2.1.2 Independent variables

a. Size

It is generally accepted in the literature that firm size is an important consideration in the ability of firms to raise capital through debt or equity from the capital markets. The majority of studies suggest a positive relation between leverage and size. The most important argument is that informational asymmetries are less severe for larger firms than for smaller ones. If the public is more aware of what is going on at larger firms, the firm will find it easier to raise debt. Further, larger firms can diversify their investment projects on a broader basis and limit their risk to cyclical fluctuation in one particular line of production. Thus, the financial distress risk can be considered lower for larger firms.

The trade-off theory states a positive relation between firm size and leverage, since larger firms have been shown to have lower bankruptcy risk and relatively lower bankruptcy cost. In addition, large firms have lower agency costs of debt, relatively smaller monitoring costs, less volatile cash flows, easier access to credit market, and requires more debt to fully benefit from the tax shield. Furthermore, Titman and Wessels (1988) argue that larger firms tend to be more diversified and fail less often, so size may be an inverse proxy for the probability of bankruptcy, which means a positive relation between size and debt capacity of the firm. In general, larger firms with less asymmetric information problems should tend to have more equity than debt and thus have lower leverage. Also, larger firms may be able to take advantage of economies of

scale in issuing long-term debt, and may even have bargaining power over creditors; thus, it will be able to borrow at lower cost. Many theoretical studies such as Narayanan (1988), Harris and Raviv (1990) and Stulz (1990) suggest that leverage increases with the value of the firm. Also, empirical studies such as Marsh (1982), Rajan and Zingales (1995), Wald (1999), Booth et al (2001) and Antoniou et al (2007) generally find that leverage is positively related to company size.

Following the above mentioned studies, we proxy firm size by the logarithm of total assets. Most of the empirical studies find positive relation between leverage and size. Wiwattanakantang (1999), Booth et al (2001), Pandey (2001) and Huang and Song (2002) find a significant positive relationship between leverage ratio and size in developing countries. Rajan and Zingales (1995) find a positive relationship between size and leverage in G7 countries. In addition, Titman and Wessels (1988) report a positive correlation between the size of the firm and total debt ratio and long-term debt ratio for the US firms. However, Bevan and Danbolt (2002) report that size is negatively related to short-term debt and positively related to long-term debt. Thus, we expect that size will be positively related to leverage for three reasons: (1) leverage is closely related to size and bankruptcy costs, larger firms tend to be more diversified, which means that they are less risky, and as consequence they have a lower probability of default (2) larger firms may be able to reduce transaction cost associated with debt (3) information costs are lower for larger firms because the quality of financial information improves as the firm becomes larger and mistrust is diminished.

b. Profitability

There are conflicting theoretical predictions on the effects of profitability on leverage. According to the pecking order theory of Myers and Majluf (1984), firms prefer raising capital, first from retained earnings, second from debt and third from issuing new equity. If a firm has more retained earnings, it will be in a better position to finance its future projects by retained earnings, instead of external debt financing. This behaviour is due to the costs associated with new equity issues in the presence of information asymmetries between managers and outside investors. Debt typically grows when investment exceeds retained earnings and falls when investment is less than retained earnings. Accordingly, the pecking order predicts a negative relation between leverage and profitability.

Jensen (1986) and Williamson (1988) define debt as discipline device to ensure that managers pay out profits rather than build empires. Most of empirical studies showed that leverage is negatively related to profitability, which confirms the pecking order hypothesis. Friends and Lang (1988), and Titman and Wessels (1988) obtain such findings from US firms. Kester (1986) finds that leverage is negatively related to profitability in both the US and Japan. In addition, Rajan and Zingales (1995), Wald (1999), Booth et al (2001) and Antoniou et al (2007) confirm this finding.

However, in the trade-off theory, agency costs and bankruptcy costs push more profitable firms toward higher book leverage. First, expected bankruptcy costs decline when profitability increases. Second, the deductibility of corporate interest payments induces more profitable firms to finance with debt. Finally, in the agency models of Jensen and Meckling (1976), Easterbrook (1984), and Jensen (1986), higher leverage helps to control agency problems by forcing managers to pay more of the firm's excess cash. The stronger commitment to pay out a larger fraction of their pre interest earnings to debt payments suggests a positive relation between book leverage and profitability. In other words, in profitable firms with excess cash flow, a high debt level is needed to refrain managers from engaging in sub optimal investment projects. Thus, a positive relationship between profitability and leverage is hold.

An important question is whether these predictions for book leverage carry over to market leverage (Fama and French 2000). As mentioned above, the trade-off theory predicts that leverage increases the profitability. Since the market value also increase with profitability, this positive relation does not necessarily apply for market leverage. In contrast, the pecking order theory predicts that firms with a lot of profits and little investment have little debt. Since the market value increases with profitability, the negative relation between book leverage and profitability also holds for market leverage. Again, the empirical evidence on the issue is mixed. For example, Rajan and Zingales (1995) report a negative relationship between leverage and profitability (supporting the pecking order theory), while Jensen, Solberg and Zorn (1992) find a positive one (supporting trade-off theory). Thus, negative or positive relation is expected. Following Titman and Wessels (1988), we use Return on asset (ROA) as measures of profitability.

c. Asset Tangibility

Titman and Wessels (1988), Rajan and Zingales (1995), Fama and French (2000) argue that the ratio of fixed to total assets (tangibility) should be an important factor for

leverage. According to the trade-off hypothesis, tangible assets act as collateral and provide security to lenders in the event of financial distress. Jensen and Meckling (1976) argue that stockholders of levered firms are prone to over invest, which gives rise to the classical shareholder-bondholder conflict. However, if debt can be secured against assets, the borrower is restricted to using debt funds for specific projects. Creditors have an improved guarantee of repayment and recovery rate is higher, i.e. assets retain more value in liquidation. Without collateralised asset such as guarantee does not exist, i.e. the debt capacity should increase with the proportion of tangible assets on the balance sheet. Hence, the trade-off theory predicts a positive relationship between measures of leverage and the proportion of tangible assets.

Conversely, Grossman and Hart (1982) argue that the agency costs of managers consuming more than the optimal level of perquisites is higher for firms with lower levels of assets that can be used as collateral. Managers of highly levered firms will be less able to consume excessive perquisites, since bondholders more closely monitor such firms. The monitoring costs of this agency relation are higher for firms with less colleteralizable assets. Therefore, firms with less colleteralisable assets might voluntarily choose higher debt levels to limit consumption of perquisites. This agency model predicts a negative relation between tangibility of assets and leverage. Jensen and Meckling (1976) point out that the agency cost of debt exists as the firm may shift to riskier investment after the issuance of debt, and transfer wealth from creditors to shareholders to exploit the option nature of equity. If a firm's tangible assets are high, these assets can be used as collateral, diminishing the lender's risk of suffering such agency costs of debt. Hence, a high fraction of tangible assets is expected to be associated with high leverage.

While the majority of empirical studies ((Marsh (1982), Long and Malitz(1985), Friend and Lang (1988), Titman and Wessels (1988), Harris and Raviv (1990), Rajan and Zingales (1995), among others)) find positive relationship between tangibility and leverage, some other empirical studies in developing countries find mixed relationships. For example, while Um (2001) in Korea reports a positive relationship between tangibility and leverage, other studies such as Booth et al (2001) in ten developing countries, and Huang and Song (2002) in China, find that tangibility is negatively related to leverage. It is argued, however, that this relation depends on the type of debt. Nuri (2000) argues that companies with high fixed asset ratio tend to use more long-term debt. Bevan and Danbolt (2002) also find a positive relationship between tangibility and

long-term debt, whereas a negative relationship is observed for short-term debt and tangibility in the United Kingdom. Based on the above argument, positive or negative relation between tangible assets and leverage might be expected. We use the ratio of tangible asset to total asset to measure asset tangibility.

d. Growth Opportunities (Market to Book ratio)

The relation between expected growth of a firm and its leverage ratio is expected to be negative for two reasons. First, the cost of financial distress increases with expected growth, forcing managers to reduce the debt in capital structure (trade-off theory). Second, firms issue equity, instead of debt, when overvaluation leads to higher expected growth (information asymmetry). Sometimes internal sources of firms may not be sufficient to finance their investment opportunities and hence may have to raise external funds. If firms require external finance, they issue debt before equity (pecking order theory). Hence, growth opportunities should be positively associated with leverage (Kremp et al 1999).

Jensen and Meckling (1976) and Myers (1984) argue that when firms issue debt, managers have an incentive to engage in asset substitution and transfer wealth away from bondholders to shareholders. It is generally known that associated agency costs are higher for firms with substantial growth opportunities. Thus, the trade-off model predicts that firms with more investment opportunities have less leverage because of stronger incentives to avoid underinvestment and asset substitution that can arise from stockholder-bondholder agency conflicts. This prediction is strengthened by Jensen's (1986) free cash flow theory, which predicts that firms with more investment opportunities have less need for the discipline effect of debt payments to control free-cash flow. Thus, the trade off theory predicts a negative relation between leverage and growth opportunities since the market value grows at least in proportion with investment outlays.

The market to book ratio is used by Rajan and Zingales (1995) as a proxy for the level of growth opportunities available to the firm. Rajan and Zingales suggest that one would expect a negative relation between growth opportunities and the leverage ratio. This is consistent with the theoretical predictions of Jensen and Mekling (1976) who argue that due to information asymmetries, firms with high leverage would have a tendency to pass up positive NPV investment opportunities. Thus, companies with large amounts of investment opportunities would tend to have low leverage ratios.

In addition, Myers (1999) suggests a negative relationship between profitable investment opportunities and long-term debt. The argument is that firms' growth opportunities are intangible assets instead of tangible assets. The cost of financial distress, which is associated with high leverage, may affect a firm's ability to finance its future growth. Therefore, he suggested that managers of firms with valuable growth opportunities should choose low leverage. However, according to Lang, Ofek and Stulz (1996), leverage is negatively related to growth only for firms with low Tobin's Q ratio, i.e. for firms whose growth opportunities are not recognized by the capital market. However, the negative relation between leverage and growth does not hold for firms or industries with high Tobin's Q ratio.

Following Myers (1984), Smith and Watts (1992), Rajan and Zingales (1995) and Lang, Ofek and Stulz (1996), we use Tobin's Q as a proxy for firm's growth opportunities. Tobin's Q is used as a rough measure of agency costs because it captures the changing relationship between future investment opportunities and existing assets. The standard definition of Tobin's equation is the ratio of book value of total asset, less book value of equity, and market value of equity (year-end stock price multiply by number of shares outstanding) divided by book value of total assets.

e. Liquidity

Liquidity is defined as the ratio of current assets to current liabilities. This ratio shows the ability of the firm to cover its short-term financial commitments and it measures the liquidity of the firm. Pecking order theory predicts that firms with high liquidity will borrow less. In addition, managers can manipulate liquid assets in favour of shareholders against the order of debt holders, increasing the agency cost of debt. A negative relation is expected simply because using more debt means more liabilities which imply fewer current assets remaining after covering the liabilities. Nevertheless, when firms employ more current assets, they can generate more internal funds which can be used to finance their investment activities. If a negative relation is found, this will imply that firms finance their activities following the financing hierarchy of pecking order theory.

f. Interest Rate (cost of debt)

The level of interest rates proxy by lending rate which is defined as the maximum rate charged by commercial banks as recorded by the IMF international financial statistics. In the presence of frictions such as bankruptcy costs, changes in interest rates can affect

capital structure, as firms are more likely to use debt when the cost of borrowing is low. Higher interest rates make borrowing more expensive or even unattainable. According to this hypothesis, the level of interest rate is expected to be negatively related to leverage. However, in case of Saudi Arabia we expect less impact of interest rate on leverage as the use of interest rate is restricted according to Islamic Shari'a.

g. Financial Market Development Variables

Stock market activity is measured by three indicators; namely, the ratio of stock market capitalisation to GDP (market capitalisation ratio), the ratio of value traded to GDP (value traded ratio) and the ratio of total value of shares traded to market capitalisation (turnover ratio). Market capitalisation is a measure of both the stock market ability to allocate capital to investment projects and to provide significant opportunities for risk diversification to investors. The traded value measures the organised trading of a firm's equity as a share of GDP, which reflects the liquidity on economy wide basis. The value-traded ratio complements the market capitalisation ratio. Although a market may be large, there may be a little trading. Booth et al (2001) indicate that the actual amount of equity capitalisation is important, so is the volume of transactions. If a large amount of equity is not traded, it can be just inhibited to corporate financing as small amount is traded.

The turnover ratio equals the value of total shares traded divided by the value of shares listed. Although it is not a direct measure of theoretical definitions of liquidity, high turnover is often used as an indicator of low transaction costs. The turnover ratio complements the market capitalisation ratio. A large but inactive market will have a large market capitalisation ratio but a small turnover ratio. Turnover ratio also complements the total value traded ratio. While the total value traded ratio captures trading relative to the size of the economy, the turnover ratio measures trading relative to the size of the stock market. A small liquid market will have a high turnover ratio, but small total value traded ratio.

According to Demirguc-Kunt and Maksimovic (1996), financial market development plays an important role in the firm's financing choice. As stock market activity increases, firms' preference for equity over debt also increases. A negative coefficient estimate for the stock market variable indicates that the firm leverage decreases with development in the stock market, i.e. the firm substitute equity for debt. On the other hand, a positive coefficient estimate implies complementarities between stock market

development and debt. If the coefficient estimate is not significant, we can conclude that stock market development does not affect the financing choice of firms. Overall, we expect stock market's activity to be inversely related to debt in the case of GCC countries.

6.3.3 Dynamism of Capital Structure

The trade-off theory suggests that firms have a target capital structure and managers adjust the ratios towards this target. Including a one-period lagged leverage ratio test whether firms have a target capital structure are not. In other words, whether firms try to maintain a specified debt ratio. If the coefficient value of the lagged dependent variable is positive and below unity, we can conclude that firms have a target leverage ratio and revise their capital structure over time. However, if the coefficient is greater than unity, the leverage ratio implies that firms do not have any target leverage ratio. In other words, the leverage ratio is not stable and divergent, implying that over time firms will choose different leverage ratios depending on the stage of economic development and do not aim to maintain fixed leverage ratio over time.

6.4 Data and Summary Statistical Analysis

As we mentioned earlier, the data set is original and hand-collected by the researcher. It consists of 142 firms operating in three GCC stock markets. The source of this data is the Gulf Investment Guide issued by Zughaibi and Kabbani Financial Consultants in Jeddah. Our intention was to include all listed companies in the GCC countries. However, depending on the availability of the data, our final sample contains 59 companies for Kuwait, 41 for Saudi Arabia, 42 for Oman covering the period 1998-2005[64]. In 2005, the number of listed companies was 147, 66, and 122 (excluding 10, 8 and 3 banks) in Kuwait, Saudi Arabia and Oman respectively. Consequently, our sample covers 40%, 65% and 35% of the companies listed in Kuwait, Saudi Arabia and Oman and overall represents about 35% to 50% of the market capitalisation in each country. Banks are excluded from our sample as their financial characteristics and uses of leverage are substantially different from other companies.

Table (6.1) provides summary descriptive statistics for the variables used in this chapter. On average, Omani firms have the highest book and market leverage ratios, 49% and 44%, Saudi firms have the lowest 28% and 20% and for Kuwaiti firms are 34% and 26%

[64] List of the companies classified by sector presented in appendix B6.

respectively. The relatively higher debt ratio of Omani firms means that they borrow more than Kuwaiti and Saudi firms. Kuwait firms leverage ratios are very similar to leverage ratio of Poland firms (32.2%) reported by Cornelli, Porter, and Schaffer (1996). In addition, it is similar to Indian firms (34%, 34.7%) and Pakstani firms (26%, 19%) reported by Booth et al (2001) and Japanese firms (30.1%, 32.3%) reported by Antoniou et al (2007). On the other side, the low leverage ratios of Saudi firms are similar to leverage ratios of American (27.4%, 27.4%) and British firms (18%, 21.3%) reported also by Antoniou et al (2007) implying the importance of equity over debt financing in these countries. Possible reasons for these low leverage ratios can be the growing stock markets in the GCC countries and the small and quite underdeveloped bond markets.

Overall, our sample of firms have debt level, regardless of whether market or book leverage, that is lower than the debt level median reported by Rajan and Zingales (1995) for G7 countries (58% for the USA, 69% for Japan, 73% for Germany, 71% for France, 70% for Italy, 54% for the UK and 56% for Canada). This is consistent with Demirguc-Kunt and Maksimovic (1999) who argue that developing countries have substantially lower amounts of debt. Finally, it is evident from the higher moments of distribution (namely, skewness and kurtosis) and Jarque-Bera that the data are not normally distributed[65]. The econometrics results will be tested for robustness against the violation of non-normality assumption.

[65] Further investigation has revealed that the main cause of non normality is some outliers.

Table 6.1
Descriptive Statistics

The table presents descriptive statistics for the variables used in our estimation. The data are collected by the researcher from the Gulf Investment Guide issued by Zughaibi and Kabbani Financial Consultants in Jeddah. The sample contains 142 firms listed in three GCC countries (Kuwait, Saudi Arabia and Oman) for the Period 1998-2005. BL is the book leverage defined as the ratio of book value of total debt to book value of total assets. ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). GROW is the growth opportunities defined as the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. LR is the maximum lending rate charged by commercial banks as recommended by international financial statistics. TR is the turnover ratio defined as the ratio of value traded to market capitalisation. MC is the market capitalisation as ratio of GDP. VT is the value trade as ratio of GDP.

Kuwait

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
Mean	0.3448	0.2667	4.7323	5.9363	0.0822	0.5229	1.5882	0.0728	57.366	0.9887	0.6366
Median	0.3610	0.2387	4.7300	2.5000	0.0720	0.5283	1.3250	0.0706	61.146	0.8515	0.5057
Maximum	0.8750	0.8638	6.3120	170.40	0.5540	0.9887	11.005	0.0906	91.938	1.6608	1.3041
Minimum	0.0016	0.0021	3.5845	0.1000	-0.3700	-2.3644	-2.4921	0.0529	21.203	0.5381	0.1141
Std. Dev.	0.2069	0.1979	0.4681	12.545	0.0848	0.2925	0.9529	0.0131	22.532	0.3662	0.4220
Skewness	0.1634	0.7030	0.0230	7.8531	0.0464	-2.1102	3.4283	-0.0471	-0.1714	0.5529	0.3840
Kurtosis	2.1324	2.7707	3.1798	86.074	8.3851	21.543	27.503	1.6454	1.9060	1.9680	1.6391
Jarque-Bera	16.903	39.916	0.6779	139388.0	570.50	7112.56	12732.7	36.257	25.848	45.001	48.024
Probability	0.0002	0.0000	0.71249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Saudi Arabia

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
Mean	0.2885	0.2012	5.9311	2.2463	0.0787	0.6971	2.4660	0.0320	72.608	0.7342	0.8470
Median	0.2349	0.1559	6.0450	1.6000	0.0530	0.7240	1.5445	0.0309	36.811	0.3979	0.1426
Maximum	0.7713	0.6625	8.1365	17.600	0.3890	0.9965	37.347	0.0607	170.80	2.0993	3.5857
Minimum	0.0050	-0.2814	4.6258	0.1000	0.0000	-2.2524	-0.7813	0.0111	24.751	0.2920	0.0917
Std. Dev.	0.1810	0.1667	0.5548	2.3163	0.0715	0.2562	2.9278	0.0154	57.122	0.5916	1.1896
Skewness	0.7419	0.6719	0.9294	3.4652	1.2875	-6.1636	6.2111	0.5417	0.7639	1.4533	1.4673
Kurtosis	2.5126	2.7318	5.8550	17.964	4.3078	65.340	65.593	2.2749	1.8347	3.7247	3.6971
Jarque -Bera	33.337	25.662	158.62	3716.7	94.888	55190	55653	23.230	50.466	122.65	124.33
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Oman

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
Mean	0.4974	0.4482	3.9906	2.5883	0.0568	0.5165	1.2161	0.0893	22.346	0.5923	0.1189
Median	0.5220	0.4720	4.0004	1.3000	0.0420	0.5413	1.1263	0.0889	17.507	0.3280	0.0707
Maximum	0.9975	0.9634	5.0479	82.300	0.2740	0.9876	4.2780	0.1032	52.269	2.7391	0.4547
Minimum	0.0119	0.0075	2.4014	0.0100	-0.0620	0.0001	0.4359	0.0742	11.041	0.1320	0.0210
Std. Dev.	0.2344	0.2308	0.4905	5.5186	0.0536	0.2688	0.4552	0.0108	12.189	0.8172	0.1353
Skewness	-0.2275	-0.1042	-0.1782	10.188	1.1830	-0.2801	2.1094	-0.0730	1.7105	2.2156	1.7857
Kurtosis	1.9853	1.9540	3.0698	136.44	4.2613	2.1928	10.954	1.4526	4.6915	6.0143	4.8511
Jarque-Bera	17.313	15.924	1.8474	255129	100.64	13.516	1135.0	33.820	203.90	402.12	226.55
Probability	0.0001	0.0003	0.3970	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000

Table 6.2
Correlation among variables

The table presents the correlation coefficients for the variables used in our estimation. BL is the book leverage defined as the ratio of book value of total debt to book value of total assets. ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). GROW is the growth opportunities defined as the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. LR is the maximum lending rate charged by commercial banks as recommended by international financial statistics. TR is the turnover ratio defined as the ratio of value traded to market capitalisation. MC is the market capitalisation as ratio of GDP. VT is the value trade as ratio of GDP.

Kuwait

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
BL	1.0000										
ML	0.8517	1.0000									
SIZE	0.4262	0.3904	1.0000								
LIQ	-0.2259	-0.1208	-0.0872	1.0000							
PROF	-0.2753	-0.4540	0.0699	-0.0237	1.0000						
TANG	-0.0508	0.0168	0.1032	-0.2333	-0.0633	1.0000					
GROW	-0.1785	-0.4465	-0.0826	-0.0799	0.4579	-0.0435	1.0000				
LR	-0.1117	0.0636	-0.1556	0.1460	-0.2121	-0.1318	-0.2004	1.0000			
TR	0.1285	-0.1041	0.2271	-0.1660	0.2745	0.1020	0.2737	-0.7379	1.0000		
MC	0.1504	-0.0822	0.3066	-0.1677	0.3452	0.1199	0.2435	-0.5722	0.8438	1.0000	
VT	0.1448	-0.0946	0.2859	-0.1685	0.3400	0.1167	0.2628	-0.6417	0.9296	0.9726	1.0000

Saudi Arabia

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
BL	1.0000										
ML	0.6919	1.0000									
SIZE	0.3606	0.1587	1.0000								
LIQ	-0.3721	-0.3055	-0.0585	1.0000							
PROF	-0.2447	-0.5274	0.0781	0.3552	1.0000						
TANG	-0.1048	0.0419	0.1820	-0.2088	-0.3505	1.0000					
GROW	-0.0950	-0.4691	-0.0235	0.1559	0.4006	-0.3235	1.0000				
LR	0.0501	0.0643	0.0247	-0.0107	-0.0578	0.0074	-0.0137	1.0000			
TR	-0.1017	-0.4900	0.0351	0.1759	0.3244	-0.1226	0.5641	-0.0131	1.0000		
MC	-0.0891	-0.4656	0.0418	0.1624	0.3020	-0.0779	0.6079	-0.0206	0.9322	1.0000	
VT	-0.0871	-0.4636	0.0422	0.1611	0.2991	-0.0759	0.6093	0.0081	0.9322	0.9984	1.0000

Oman

	BL	ML	SIZE	LIQ	PROF	TANG	GROW	LR	TR	MC	VT
BL	1.0000										
ML	0.8633	1.0000									
SIZE	0.1351	0.0672	1.0000								
LIQ	-0.4066	-0.3839	-0.2947	1.0000							
PROF	-0.4713	-0.5992	0.0556	0.0368	1.0000						
TANG	0.0440	0.0757	0.3109	-0.3396	-0.0713	1.0000					
GROW	-0.0726	-0.4551	-0.0112	0.0606	0.5002	-0.0512	1.0000				
LR	0.0488	0.0280	-0.1209	0.1019	-0.1625	-0.0361	-0.0399	1.0000			
TR	0.0004	-0.0845	-0.0338	0.1519	-0.0901	-0.0306	0.1212	0.1695	1.0000		
MC	0.0196	-0.0306	-0.0445	0.0308	-0.1157	-0.0235	0.0672	0.4176	-0.1345	1.0000	
VT	0.0192	-0.0552	-0.0525	0.0736	-0.1401	-0.0322	0.1024	0.4542	0.1539	0.9581	1.0000

The correlation matrix among the variables used in this chapter is presented in table (6.2). We find that book and market leverage are highly correlated in the three countries. The correlation is .85 for Kuwait, .69 for Saudi Arabia and .86 for Oman. This result is consistent with Bowman (1980) who indicates that the correlation between the book and market values of debt is very large. Consistent with the predictions of the pecking order theory, the results of correlation analysis reveal a negative association

between both book and market leverage ratios and profitability across the three countries. Also, the results show that growth and size are positively related to profitability, while tangibility has a negative relationship with profitability. This implies that larger companies and growing companies tend to have higher profitability; whereas, profitable companies tend to have less tangible assets. Furthermore, while the size variable has positive correlation with both book and market leverage ratios, profitability has negative correlation with them. This implies that firms employ more debt as their size increases but reduce their debt as their profitability improves. However the correlation does not give the complete picture of the relationship between leverage ratios and the determinants of capital structure. Therefore, leverage ratios are modelled as a function of different variables.

6.5 Empirical Results

6.5.1 Cross Sectional Analysis Results for Individual Country

The cross-sectional results from estimating equation (6.1) for each individual country are reported in table (6.3).[66] The book and market leverage ratios are regressed on the following independent variables: firm size, liquidity, profitability and tangibility. Generally, our results are consistent with the predictions of the theoretical and empirical previous studies. At first glance, we observe that the impact of the independent variables is similar across the three countries. As predicted, the signs of liquidity, tangibility and profitability are consistently negative and highly significant; while the firm size appears positive and consistently significant for the three countries. The adjusted R squares look reasonable between 40% and 50%; while it is uniformly higher for the market leverage ratio than the book leverage ratio. The F-statistics prove the validity of the estimated model. The following section will discuss the results in details.

Size: Consistent with Rajan and Zingales (1995), Wiwattanakantang (1999), Booth et al (2001), Pandey (2001), Prasad et al (2001), Deesomsak, Paudyal and Pescetto (2004),), Antoniou et al (2007) we find that the coefficient for the size of firms is positive and statistically significant in the case of the three countries. If we look at the coefficient values of the size we find it .27, .23 and .04 related to BL for Kuwait, Saudi Arabia and Oman respectively. These figures imply that a firm which is, for example for Kuwaiti

[66]The regression results presented in the thesis were checked against violations of the normality assumption. This process involved removing a few outliers from the sample and running the regressions again. The results are qualitatively the same, and thus confirm that the reported results are robust against non-normality. For the interest of brevity the latter results are not reported here

firms, 10% larger will have a book leverage ratio 2.7% greater. Turning to the coefficients of size related to market leverage ratio, we find them relatively closed to the book leverage (.33, .20, and .07). These results are consistent with the theoretical background, which confirms the hypothesis that larger firms tend to be more diversified and less prone to bankruptcy and the direct cost of issuing debt or equity is smaller. Should size be a proxy for the inverse probability of bankruptcy, the positive relation between size and leverage complies with the predictions with the trade-off theory of capital structure. This is because larger firms can diversify their investment projects on a broader basis and limit their risk to cyclical fluctuations in any one particular line of production. Moreover, informational asymmetries tend to be less severe for larger firms than for smaller ones; hence, larger firms find it easier to raise debt finance. Also, we notice that the size of firms seems to have only limited impact on capital structure in Oman compared to Kuwait and Saudi Arabia. The coefficient value is very small (about .04 and .07). This result may indicate smaller differences in informational asymmetries between large and small companies in Oman.

Liquidity: The coefficient values of liquidity are consistently negative and significant in the three countries. The values are -.40, .-47 and -.37 related to book leverage for Kuwait, Saudi Arabia and Oman respectively and turn to -.34, .-59, -.32 when market leverage is used as dependent variable. The two values of coefficient are close in magnitude. As an example of the impact of liquidity for Saudi firms, if liquidity goes up by 10%, book leverage ratio will go down by 4.7%. This result indicates that firms with higher liquidity tend to avoid raising external loan capital in the three countries. As we discussed earlier, a negative relation may indicate that firms operating in these markets finance their activities according to the financing hierarchy of the pecking order theory. This result is consistent with Deesomsak, Paudyal and Pescetto (2004).

Table 6.3

Firm specific determinants of capital structure in Kuwait, Saudi Arabia and Oman: Cross-section analysis using static model

The table shows the results of regressions of both book and market leverage ratios on firm-specific variables in the three countries (Kuwait, Saudi Arabia and Oman) using cross-section analysis (static model). The dependent variable: BL is the book leverage defined as the ratio of book value of total debt to book value of total assets and ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. The independent variables are: SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). p-values are in parentheses. t-statistics are in brackets.

*significant at the 1% level, **significant at the 5% level,***significant at the 10% level.

$$LVR_{i,t} = \beta_1 + \beta_2 SIZE_{i,t} + \beta_3 LIQ_{i,t} + \beta_4 PROF_{i,t} + \beta_5 TANG_{i,t} + \varepsilon_{i,t}$$

	KUWAIT		SAUDI ARABIA		OMAN	
Variable	**BL**	**ML**	**BL**	**ML**	**BL**	**ML**
C	.742* (.000) [4.043]	.423* (.036) [2.099]	2.939* (.000) [9.126]	2.924* (.000) [6.943]	1.771* (.000) [15.233]	1.661* (.000) [13.477]
SIZE	.272* (.000) [8.221]	.336* (.000) [9.254]	.230* (.000) [8.141]	.205* (.000) [5.559]	.043* (.1060) [1.621]	.0710* (.0136) [2.046]
LIQ	-.403* (.000) [-11.77]	-.346* (.000) [-9.216]	-.477* (.000) [-8.918]	-.590* (.000) [-8.441]	-.373* (.000) [-11.153]	-.320* (.000) [9.011]
PROF	-.135* (.000) [-3.72]	-.368* (.000) [-9.218]	-.114* (.000) [-3.346]	-.513* (.000) [-11.425]	-.118* (.000) [-3.547]	-.277* (.000) [-7.839]
TANG	-.201* (.000) [-6.76]	-.189* (.000) [-4.001]	-1.518* (.000) [-9.927]	-1.416* (.000) [-7.084]	-.125* (.000) [-4.825]	-.106* (.000) [-3.846]
Adj R	.40	.41	.42	.50	.44	.48
Obs	432	433	266	266	288	288
F-statistics	70.19	78.41	49.69	69.90	58.67	68.75

Profitability: Our empirical results reveal that firm profitability has a statistically negative and significant relationship with both the book and market leverage in the three countries. This finding is consistent and reliably supports the predictions of the pecking order theory that denotes that firms prefer internal financing from external one, but it may also support the view that the lack of well-developed financial markets forces firms to rely mostly on internal financing. The latter explanation is consistent with Booth et al (2001) who report the same results for profitability variable and argue that the importance of profitability is related to the significant agency and informational asymmetry problems in developing countries. They indicate that it is also possible that profitability is correlated with growth opportunities so that the negative correlation between profitability and leverage is a proxy for the difficulty in borrowing against intangible growth opportunities. Thus, firms that generate relatively high internal funds,

generally tend to avoid gearing. The results are also consistent with Titman and Wessels (1988), Rajan and Zingales (1995), Cornelli et al (1996), Bevan and Danbolt (2002) in developed countries, Pandey (2001) Um (2001), Wiwattanakantang (1999), Chen (2004), Deesomsak, Paudyal and Pescetto (2004) and Antoniou et al (2007).

The coefficient values of profitability in relation to book leverage are very similar in the three countries. They are -.13, -.11, and -.11 related to BL for Kuwait, Saudi Arabia and Oman respectively. This implies that, for example, an increase in profitability of Kuwaiti firms by 10% leads to a decrease in book leverage ratio of about 1.3%. However, turning to the coefficient values when market leverage is used as dependent variable, they become notably higher (-.36, -.51, -.27) than those when book value is used. As we discussed in section 6.2, the negative coefficient of profitability indicates to information asymmetries which lead to higher external financing premiums and pecking order behaviour.

Tangibility: The stylized fact in the theory is that the tangibility variable is positively related to the availability of collateral, which in turn may reduce the agency cost of debt. Jensen and Meckling (1976) and Myers (1984) argue that this cost is related to the incentive of stockholders of leveraged firms to invest sub optimally in order to expropriate wealth from the firm's bondholders. These arguments suggest a positive relation between tangibility and the firm's leverage. This relation is uniformly confirmed by Rajan and Zingales (1995) and Titman and Wessels (1988).

Contrast to these theoretical predictions, we find that tangibility is negatively statistically significant related to both book and market value of leverage in the three countries. The coefficient values of tangibility related to book leverage are -.20, -1.5 and -.12 related to BL for Kuwait, Saudi Arabia and Oman and turn to be -.18, -1.4 and -.10 when market leverage is used as dependent variable of the value. This implies that, for example, an increase by tangible assets in Kuwaiti firms by 10% leads to a decrease in book leverage ratio by 2%. The large coefficient value of tangibility for Saudi Arabia firms may indicate that firms in this country have an effective guarantee against bankruptcy. In general, a negative sign between leverage and tangibility in our sample can be explained by the fact that those firms that maintain a large proportion of fixed assets in their total assets tend to use less debt than those which do not. This can be referred to the fact that a firm with increasing level of tangible assets may have already found a stable source of return, which provides it with more internally generated funds and avoid using external

financing. Overall, our results are consistent with Cornelli et al (1996), Hussain and Nivorozhkin (1997), Booth et al (2001), Nivorozhkin (2002) who the suggested negative relation between tangibility and debt ratio. Yet, another argument for the negative relationship is the traditional view that firms with higher operating leverage (high fixed assets) would employ lower financial leverage.

Following Deesomsak, Paudyal and Pescetto (2004), equation (6.1) is re-estimated using fixed effect panel and pooled OLS procedures to examine the robustness of the results. The data of the three sample countries are pooled together to create one panel. Note that the coefficients of the independent variables for each country in equation (6.1) are assumed to be the same, but the regression intercept can vary across firms over time. The simplest model is to pool the data in which the case is one fixed intercept. However, it is unlikely that the capital structure models are fully specified. Consequently, a simple pooling might not result in either efficient or unbiased parameter estimates. In order to overcome this situation, a fixed effects model allows us to use all the data while the intercept is allowed to vary across firms and time. In doing that, the effects of omitted explanatory variables can be captured by the changing firm intercept. However, Hsiao (1986) pointed out that in the presence of measurement errors the fixed effects model can produce more biased estimators than simple pooling. For this reason, we report both the pooled ordinary least squares as well as fixed effects estimates.[67]

Table (6.4) presents the results of both pooled OLS and fixed effect models based on the fullest possible data set for the three countries. Interestingly, the models continue to show consistency in supporting the determinants of leverage ratios. Almost all variables appear at the same level of significance and retain same signs.[68] The adjusted R squares continue to look reasonable; while it is uniformly higher than the simple pooling model, indicating the existence of omitted variables. The F-statistics prove the validity of the estimated model. Nevertheless, it is interesting to consider the predictive ability of one pooled model across all countries.

[67] See Booth el (2001).
[68] Except for the size variable which was generally positive across the countries, but it turns negative and smaller in magnitude when pooled model is introduced.

Table 6.4

Firm specific determinants of capital structure in Kuwait, Saudi Arabia and Oman: Pooled regression

The table shows the results of regressions of both book and market leverage ratios on firm-specific variables based on the fullest possible data set for the three countries using both pooled OLS and fixed effects models. The dependent variable: BL is the book leverage defined as the ratio of book value of total debt to book value of total assets and ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. The independent variables are: SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). p-values are in parentheses. t-statistics are in brackets. *significant at the 1% level, **significant at the 5% level,***significant at the 10% level

$$LVR_{i,t} = \beta_1 + \beta_2 SIZE_{i,t} + \beta_3 LIQ_{i,t} + \beta_4 PROF_{i,t} + \beta_5 TANG_{i,t} + \varepsilon_{i,t}$$

Variable	Book Leverage		Market Leverage	
	Pooled OLS model	Fixed effects model	Pooled OLS model	Fixed effects model
C	2.078* (.000) [31.744]	-.3011 (.103) [-1.628]	2.452* (.000) [31.541]	.423 (.115) [1.573]
SIZE	-.0059 (.5968) [-.529]	.439* (.000) [12.034]	-.073* (.000) [-5.494]	.280 (.000) [5.293]
LIQ	-.438* (.000) [-18.94]	-.336* (.000) [-15.477]	-.433* (.000) [-15.78]	-.349 (.000) [-11.062]
PROF	-.078* (.000) [-3.394]	-.0341* (.037) [-2.083]	-.336* (.000) [-12.33]	-.229 (.000) [-9.607]
TANG	-.243* (.000) [-9.078]	-.158* (.000) [-4.645]	-.253* (.000) [-7.950]	-.137 (.000) [-2.767]
Adj R	.30	.81	.37	.75
Obs	986	986	987	987
F-statistics	109.53	31.762	146.21	21.78

Up to this stage we can draw an important conclusion. The proxies of the determinants of capital structure do have explanatory power for leverage ratios. This provides an answer to our question we raised in the introduction about the determinants of capital structure in the GCC countries. Importantly, we reach the conclusion that the variables that influence the capital structure choice in the GCC countries are similar to those in developed countries and thus have established that despite the specific circumstances in which they operate, firms respond in a similar fashion. However the sign on some coefficients, particularly tangibility, is opposite to what we would expect due to some reasons we explained above.

It is important to assert here that variables (size, liquidity, profitability and tangibility) hold as determinants of capital structure in a tax-free environment and thus the MM

theory that an optimal capital structure exists only in the presence of taxation is not confirmed by our findings. In other words, in line with modern theories of capital structure, optimal capital structure may exist due to market imperfections other than taxes.

6.5.2 Target Leverage and Speed of Adjustment

As we discussed at the beginning of this chapter, in addition to investigating the determinants of capital structure we are also interested in exploring the dynamism of capital structure and the impact of stock market development on firms' financing choice. In the light of the discussion in section 6.3.1 about the dynamic capital structure model, we assume that each firm dynamically adjusts its capital structure towards optimal level. For this purpose, we include lagged values of book and market leverage ratios as independent variables. We also expand our set of explanatory variables in the regressions to include growth opportunities, the three market indicators and the lending rate to test the persistence of the results of the static model.

Tables 6.5a, 6.5b and 6.5c present the results of the estimation of the dynamic equation (6.4) for Kuwait, Saudi Arabia and Oman respectively. Across the three countries, the results reveal significant and positive coefficients for the one-period lagged dependent variables. These positive effects of the one-period lagged dependent variable of leverage on the capital structure in the three countries are consistent with De Miguel and Pindado (2001), Frank and Goyal (2004) and Antoniou et al (2007). These coefficients allow us to determine whether firms' observed leverage is different from their target leverage and whether firms do move towards target leverage ratio and the speed to which they do that. The results show that the coefficient values of lagged book and market leverage ratios enter positively and significantly between zero and one at any level of significance. Specifically, about .38 for Kuwait, .60 for Saudi Arabia and .26 for Oman when book value is used as the dependent variable and about .35, .31 and .21 is respectively when market leverage ratio used as dependent variable. These results imply that the leverage ratios in Kuwaiti, Saudi and Omani firms converge to its desired level over time and confirm the existence of dynamism in the capital structure decision firms operating in these markets, in the sense that firms adjust their leverage ratio in order to achieve their target. Moreover, the explanatory power of the model increases remarkably from about 50% in the static model to 90% when dynamic model is used.

This means that about 90% of the variations in both book and market leverage ratios could be explained by the dynamic model.

The speed of adjustment varies across the three countries being the fastest in the Omani firms followed by Kuwait and Saudi respectively. For example, the lagged value of book leverage in Oman has coefficient about .26 which correspond to .74 to partial adjustment (the partial adjustment is one minus the estimated coefficient of the lagged dependent variable, 1-.26 =.74). Kuwaiti firms have a coefficient of about .39 which corresponds to a partial adjustment of about .61; while in the case of Saudi Arabia, the lagged dependent variable has coefficient of about .60 which correspond to partial adjustment of about .40. The speed of adjustment in Saudi firms (.40) is close to that of French firms (.39) reported by Antoniou et al (2007); while the speed of adjustment in Kuwaiti firms (.61) is similar to that reported by Shyam-Sunder and Myers (1999) for US (.59) and by Ozkan (2000) for UK firms (.57). Also, the speed of adjustment of Omani firms (.74) is close to that reported by De Miguel and Pindado (2001) for the Spanish firms (.79). However, our results are considerably higher than that reported by Antoniou et al (2007) for Germany (.24), Japan (.12), the UK (.32) and USA (.33). Generally, the closer the speed of adjustment to one, indicates rapid adjustment process toward optimal capital structure. This can be the case when banks in an economy serve as the primary source of debt financing for listed firms and these firms incur low transaction costs when they borrow from banks.

Generally, our results can be justifiable by the fact that GCC have small, illiquid and less developed corporate markets. However, the fact that Omani firms adjusted faster to the target leverage than Kuwait and Saudi firms result can be explained by the fact that Omani corporate credit markets were less supply constrained than those of the Kuwait and Saudi Arabia during the period under investigation. Also, it seems that conservative financing policies followed by Saudi banks where using fixed interest rate on loans and deposits is prohibited due to following the Islamic Shari'a, and Kuwaiti banks exposure control, are responsible for the slower adjustment among the Saudi and Kuwaiti than Omani firms. These results also strengthen our previous argument that firm's optimal capital structure is influenced by the environment in which they operate and support the findings of Antoniou et al (2007).

Overall, the results reveal the presence of dynamism in the capital structure decisions of firms operating in the three countries. Nevertheless, the results show that the firms

operating in Kuwait, Saudi Arabia and Oman adjust relatively quickly towards the target and that they seem to adjust slightly more quickly towards market values target than book value targets. It is an expected result since stock markets put more pressure on the firms. The book market is reported annually while the market value is adjusted daily.

Table 6.5 a

Stock Market Development Influences on Capital Structure Choice in Kuwait: Cross-Section Analysis Using Dynamic Model

The table shows the results of regressions of both book and market leverage ratios on firm-specific variables and stock market development indicators in Kuwait using cross-section analysis (dynamic model). BL is the book leverage defined as the ratio of book value of total debt to book value of total assets. ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). GROW is the growth opportunities defined as the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. LR is the maximum lending rate charged by commercial banks as recommended by international financial statistics. TR is the turnover ratio defined as the ratio of value traded to market capitalisation. MC is the market capitalisation as ratio of GDP. VT is the value trade as ratio of GDP.

p-values are in parentheses. t-statistics are in brackets.

*significant at the 1% level, **significant at the 5% level,***significant at the 10% level.

$$LVR_{i,t} = \beta_1 + \beta_2 LRV_{i,t-1} + \beta_3 SIZE_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 PROF_{i,t} + \beta_6 TANG_{i,t} + \beta_7 GROW_{i,t} + \beta_8 LR_{i,t} + \beta_9 Market_{i,t} + \varepsilon_{i,t}$$

	Book Leverage			Market Leverage		
Variable	1	2	3	1	2	3
C	.6829* (.012) [2.524]	.1337 (.595) [.531]	-.0888 (.729) [-.346]	.0774 (.782) [.275]	-.3851 (.136) [-1.492]	-.5738 (.029) [-2.192]
BL(-1)	.3914* (.000) [10.843]	.3884* (.000) [10.662]	.3896* (.000) [10.745]			
ML(-1)				.3531* (.000) [10.353]	.3526* (.000) [10.269]	.3526* (.000) [10.304]
SIZE	.4916* (.000) [7.421]	.4900* (.000) [7.016]	.4928* (.000) [7.226]	.5484* (.000) [8.326]	.5478* (.000) [7.914]	.5498* (.000) [8.120]
LIQ	-.2752* (.000) [-9.753]	-.2758* (.000) [-9.692]	-.2756* (.000) [-9.728]	-.2793* (.000) [-9.793]	-.2795* (.000) [-9.741]	-.2795* (.000) [-9.771]
PROF	-.0810* (.000) [-3.406]	-.0812* (.000) [-3.388]	-.0810* (.000) [-3.395]	-.0923* (.000) [-3.818]	-.0925* (.000) [-3.803]	-.0923* (.000) [-3.807]
TANG	-.2054* (..000) [-4.465]	-.2053* (.000) [-4.435]	-.2053* (.000) [-4.449]	-.1957* (.000) [-4.196]	-.1955* (.000) [-4.172]	-.1956* (.000) [-4.184]
GROW	.3439* (.000) [5.226]	.3420* (.000) [5.113]	.3438* (.000) [5.180]	-.4389* (.000) [-6.368]	-.4400* (.000) [-6.318]	-.4389* (.000) [-6.332]
LR	-.9504* (.000) [-4.461]	-.2974* (.014) [-2.463]	-.6025* (.000) [-3.758]	-.6383* (.004) [-2.887]	-.0892 (.4780) [-.708]	-.3470** (.037) [-2.078
TR	-.5143* (.000) [-5.004]			-.4338* (.000) [-4.131]		
MC		-.4377* (.000) [-4.538]			-.3724* (.000) [-3.786]	
VT			-.2384* (.000) [-4.778]			-.2020* (.000) [-3.966]
Adj R	.8825	.8810	.8818	.9014	.9006	.9010
Obs	386	386	386	386	386	386
F-statistics	44.84	44.20	44.52	54.37	53.89	54.14

Table 6.5 b

Stock Market Development Influences on Capital Structure Choice in Saudi Arabia : Cross-Section Analysis Using Dynamic Model

The table shows the results of regressions of both book and market leverage ratios on firm-specific variables and stock market development indicators in Saudi Arabia using cross-section analysis (dynamic model). BL is the book leverage defined as the ratio of book value of total debt to book value of total assets. ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). GROW is the growth opportunities defined as the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. LR is the maximum lending rate charged by commercial banks as recommended by international financial statistics. TR is the turnover ratio defined as the ratio of value traded to market capitalisation. MC is the market capitalization as ratio of GDP. VT is the value trade as ratio of GDP.
p-values are in parentheses. t-statistics are in brackets.
*significant at the 1% level, **significant at the 5% level,***significant at the 10% level.

$$LVR_{i,t} = \beta_1 + \beta_2 LRV_{i,t-1} + \beta_3 SIZE_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 PROF_{i,t} + \beta_6 TANG_{i,t} + \beta_7 GROW_{i,t} + \beta_8 LR_{i,t} + \beta_9 Market_{i,t} + \varepsilon_{i,t}$$

	Book Leverage			Market Leverage		
Variable	1	2	3	1	2	3
C	-1.8838 (.021) [-2.328]	-1.7351 (.039) [-2.075]	-2.032 (.016) [-2.421]	-1.6974 (.0606) [-1.887]	-1.542 (.098) [-1.659]	-1.890 (.044) [-2.026]
BL(-1)	.6009* (.000) [9.983]	.6008* (.000) [9.678]	.5970* (.000) [9.814]			
ML(-1)				.3196* (.000) [6.770]	.3094* (.000) [6.299]	.3121* (.000) [6.541]
SIZE	.4839* (.000) [3.827]	.4686* (.000) [3.465]	.4928* (.002) [3.800]	.5806* (.000) [4.141]	.5710* (.000) [3.814]	.5931* (.000) [4.129]
LIQ	-.1796* (.000) [-3.564]	-.1907* (.000) [-3.749]	-.1830* (.000) [-3.617]	-.2582* (.000) [-4.738]	-.2725* (.000) [-4.947]	-.2624* (.000) [-4.792]
PROF	.0173 (.631) [.4798]	.0095 (.793) [.2623]	.0148 (.682) [.4092]	.0216 (.591) [.5381]	.0124 (.760) [.3055]	.0187 (.643) [.463]
TANG	-.1469 (.441) [-.7711]	-.1943 (.316) [-1.004]	-.1564 (.416) [-.815]	-.3179 (.131) [-1.514]	-.3695*** (.086) [-1.726]	-.3264 (.125) [-1.541]
GROW	.1136*** (.072) [1.805]	.0809 (.346) [.9448]	.1211*** (.097) [1.668]	-.7227* (.000) [-9.829]	-.7554* (.000) [-7.973]	-.7137* (.000) [-8.647]
LR	.0161 (.729) [.3467]	.0256 (.620) [.4956]	.0269 (.574) [.5628]	.0303 (.557) [.5877]	.0453 (.432) [.7871]	.0440 (.409) [.826]
TR	-.1295** (.013) [-2.501]			-.1594* (.005) [-2.786]		
MC		-.1026 (.275) [-1.093]			-.1434 (.173) [-1.367]	
VT			-.0729** (.0384) [-2.085]			-.0919** (.018) [-2.376]
Adj R	.8541	.8500	.8526	.9097	.9069	.9087
Obs	231	231	231	232	232	232
F-statistics	29.05	28.17	28.72	49.53	47.88	48.94

Table 6.5 c

Stock Market Development Influences on Capital Structure Choice in Oman: Cross-Section Analysis Using Dynamic Model

The table shows the results of regressions of both book and market leverage ratios on firm-specific variables and stock market development indicators in Oman using cross-section analysis (dynamic model). BL is the book leverage defined as the ratio of book value of total debt to book value of total assets. ML is the market leverage defined as the ratio of book value of total debt to market value of equity plus book value of total assets. SIZE is the firm size defined as the natural logarithm of total assets. LIQ is Liquidity defined as the ratio of current assets to current liabilities. PROF is the profitability defined as the ratio of operating profit to book value of total assets. TANG is Tangibility defined as the ratio of tangible assets to total assets (book value). GROW is the growth opportunities defined as the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. LR is the maximum lending rate charged by commercial banks as recommended by international financial statistics. TR is the turnover ratio defined as the ratio of value traded to market capitalisation. MC is the market capitalisation as ratio of GDP. VT is the value trade as ratio of GDP.

p-values are in parentheses. t-statistics are in brackets.

*significant at the 1% level, **significant at the 5% level,***significant at the 10% level.

$$LVR_{i,t} = \beta_1 + \beta_2 LRV_{i,t-1} + \beta_3 SIZE_{i,t} + \beta_4 LIQ_{i,t} + \beta_5 PROF_{i,t} + \beta_6 TANG_{i,t} + \beta_7 GROW_{i,t} + \beta_8 LR_{i,t} + \beta_9 Market_{i,t} + \varepsilon_{i,t}$$

	Book Leverage			Market Leverage		
Variable	1	2	3	1	2	3
C	-1.0205* (.008) [-2.642]	-1.0154* (.007) [-2.708]	-1.0212* (.007) [-2.719]	-1.3675* (.000) [-3.572]	-1.297* (.000) [-3.472]	-1.299* (.000) [-3.469]
BL(-1)	.2622* (.000) [6.825]	.2583* (.000) [6.767]	.2581* (.000) [6.743]			
ML(-1)				.2165* (.000) [6.149]	.2050* (.000) [5.956]	.2052* (.000) [5.917]
SIZE	.3825* (.000) [5.215]	.3879* (.000) [5.389]	.3904* (.000) [5.407]	.4381* (.000) [6.086]	.4571* (.000) [6.522]	.4582* (.000) [6.505]
LIQ	-.2631* (.000) [-6.7150]	-.2536* (.000) [-6.458]	-.2539* (.000) [-6.437]	-.2615* (.000) [-6.557]	-.2490* (.000) [-6.208]	-.2509* (.000) [-6.224]
PROF	-.0384** (.086) [-1.722]	-.0438** (.046) [-2.001]	-.0441** (.0471) [-1.997]	-.0424*** (.062) [-1.873]	-.0517** (.020) [-2.328]	-.0511** (.023) [-2.275]
TANG	.0395 (.355) [.9263]	.0439 (.303) [1.032]	.0437 (.305) [1.026]	.0378 (.385) [.870]	.0444 (.308) [1.021]	.0435 (.318) [.999]
GROW	.1257*** (.0616) [1.879]	.1558** (.028) [2.204]	.1516** (.033) [2.145]	-.7724* (.000) [-10.723]	-.7477* (.000) [-9.887]	-.7558* (.000) [-10.032]
LR	.6853* (.000) [4.449]	.7024* (.000) [4.962]	.680* (.000) [4.877]	.8411* (.000) [5.459]	.8027* (.000) [5.662]	.7835* (.000) [5.610]
TR	.0114 (.852) [.186]			.0610 (.342) [.951]		
MC		-.0190 (.259) [-1.131]			-.0155 (.368) [-.900]	
VT			-.0147 (.331) [-.973]			-.0091 (.559) [-.5842]
Adj R	.9053	.9059	.9057	.9199	.9198	.9196
Obs	254	254	254	254	254	254
F-statistics	50.39	50.73	50.64	60.24	60.21	60.06

Tuning to the firms specific characteristics as determinants of capital structure, we observe that the results of the dynamic model have more explanatory power compared to the results of the static model used in the previous section. The coefficient values of the size variable remain positively and significantly related to both book and market leverage ratios across the three countries. On average the coefficients values are .49, .47 and .38 related to BL and .54, .58 and .45 related to ML for Kuwait, Saudi Arabia and Oman respectively. These results confirm the importance of the size variable as determinants for firms operating in GCC markets. Given the underdeveloped corporate bond markets, pecking order considerations in the GCC context would mean that large firms are able to get bank credit, whereas small firms are obligated to depend on internal financing sources.

The coefficient values of the liquidity variable retain the same significant and negative signs across the three countries. The values are -.25, -.17, -.25 related to BL and -.27, -.26 and -.24 related to ML for Kuwait, Saudi Arabia and Oman respectively. These results confirm our previous discussion that firms with high liquidity do not use much debt in their capital structure.

The coefficient values of the profitability retain the same negative and significant signs (-.08 related to BL and -.09 related to ML) for Kuwait and (-.04 related to BL and -.05 related to ML) for Oman, but it turns to be positive and insignificant in case of Saudi Arabia. The results of Kuwait and Oman support the pecking order assumption that high profit firms use internal financing; while low profit firms use more debt because their internal funds are not adequate. However, our results are not in line with Cornelli et al (1996) who argue that the use of retained earning by profitable firms in the European economies should be considered as bad signal and can be interpreted that firms are unable to achieve their optimal capital structure due to credit rationing. This behaviour in line with the prediction of the trade-off models, which rely on the assumption that profitable firms demand more debt, may be to increase their tax shield. This argument is not applicable to Kuwait and Omani firms which are still characterised by information asymmetry as we discussed earlier. This result could also be related to the absence of taxation and thus the Cornelli argument does not apply in tax-free countries.

While our negative results for Kuwait and Oman are consistent with Booth et al (2001) for ten developed countries, the positive and insignificant results of Saudi Arabia are consistent with Long and Maltiz (1985) who find that leverage ratio is positively related

to profitability, but not statistically significant. The different results of Saudi Arabia can be due to sampling problems or the effect of missing variables.

The coefficient values of tangibility retain the same negative and significant signs and magnitude for Kuwait (-.20 related to BL and -.19 related to ML). However, these values turn to be insignificant for Saudi Arabia; while positive and insignificant for Oman. The negative relationship between tangibility and leverage ratio is not in line with the trade-off theory expectations as we discussed earlier. Our results contradict the proposition that serving as collateral for debt - the greater the proportion of tangible assets on the balance sheet - the more willing lenders should be to supply debt, and leverage should be higher.

Most variables show consistency in their signs and level of significance for book and market leverage ratios. The significant difference between the results of BL and ML is the influence of market to book ratio variable (growth opportunities) which changes from positive (related to BL) to uniformly negative and higher coefficients (related to ML). The coefficient values are on average .34, .08 and .15 related to BL and -.34, -.72 and -.74 related to ML for Kuwait, Saudi Arabia and Oman respectively. These results are consistent with Booth et al (2001) who find similar phenomena in 10 developing countries. They argue that this phenomenon would refer to spurious correlation introduced by having market values in the numerator of the market to book ratio and the denominator of the market long-term debt ratio. For example, short-term market movement and absent immediate reaction by corporations will automatically induce a negative correlation between the two.

Also, the same results are reached by Rajan and Zingales (1995) who study the capital structure determinants in seven industrialized countries. They report that market to book ratio, a proxy for a firm's growth opportunity has negative and significant relationship with debt ratio in almost all countries. They justify this conclusion by the strong negative correlation between the number of equity issuance and market to book ratio. Furthermore, they find a significant negative relation between leverage and growth when leverage is measured at market value.

Generally, negative relation between growth opportunities and leverage consistent with the predictions of the agency theory that high growth firms use less debt, since they do not wish to be exposed to possible restrictions by lenders. The normal explanation is

that growing firms have more options of choosing between risky and safe sources of funds. On one side, managers as agent to shareholders will try to go for risky projects and maximize return to shareholders. On the other side, creditors will be reluctant to give funds to such firms as they will bear more risk for the same return. To compensate additional risk in growing firms, creditors will demand premiums. Facing extra cost of debt, growing firms will use less debt and more equity. The relatively large magnitude of the growth coefficient may suggest the higher degree of information asymmetry in these markets, which restricts the corporate managers from raising external debt capital as it would be expensive.

It is also important to note that firm-specific (such as size, liquidity, profitability and tangibility) coefficients are almost identical. However, variables such as market to book ratio reflect the capital market valuation of the firm, which in turn is affected by the conditions of the capital market. Consequently, the market to book ratio is most closely associated with external country factors. This could partially explain the difference in its sign and the magnitude of the coefficient.

Since firms are not operating in vacuum, they are operating in growing stock markets. It is essential to test the impact of stock market development in the three countries on firms financing choice. For this purpose, we include three market development indicators: market capitalisation, value traded and turnover ratio. The results show that these indicators are negatively and highly significant in case of Kuwait and Saudi Arabia while negative and insignificant in the case of Oman. A negative relation between leverage ratios and stock market indicators means that firms decrease debt issue as the stock market becomes more developed. The results imply that equity markets in Kuwait and Saudi Arabia, become more developed and they become a viable option for corporate financing. Firms make less use of debt financing. Overall, our findings are consistent with the Demirguc-Kunt and Maksimovic (1996) study in which they find negative correlation between leverage and stock markets development and also with Deesomsak, Paudyal and Pescetto (2004) who find that the relation between financial activity of stock markets and leverage is negative and significant in Thailand, Malaysia, Singapore and Australia.

However, these indicators enter negatively and insignificantly in the case of Oman. The differences in result might stem from the differences in the importance of the stock market as a provider of finance in these countries. Referring to what we discussed in

chapter three about the development of stock markets in the GCC countries and according to the data for 2005, market capitalization of all listed companies firms expressed as a fraction of GDP is much larger in Saudi Arabia (122%) Kuwait (166%) than in Oman (40%) and supports this claim. Furthermore, the turnover is also considerably larger in Saudi Arabia (170) Kuwait (79) than in Oman (28). This implies that market values might indeed play a more important role in decisions on leverage in Kuwait and Saudi Arabia than they do in Oman.

In addition, this result can be partially explained by the fact that, in the last few years, most of the GCC countries have significantly liberalised their financial sector policies but in different degree. As we discussed in chapter three, during the last few years, Kuwait and Saudi Arabia liberalized their capital markets by opening them to regional and foreign investors, easing financial sector regulations and listing requirements and adopting international financial standards. For example, in 2000, Saudi Arabia adopted a new investment law, which allows foreign firms to make direct investment in most of economic sectors even without domestic participation. Also, steps towards opening up the equity market to foreigners are also adopted (since 1999 in Saudi Arabia and since 2000 in Kuwait); foreigners have been allowed to participate in the Saudi equity market through open-ended mutual funds offered by Saudi banks. In addition, in both countries, there are no restrictions on foreigners to invest in government securities which provide a wide range of maturities to facilitate portfolio diversification and liquidity management.

What we discussed above is only one aspect of financial liberalisation which usually takes place in the entire economy. The benefits of financial liberalisation will have its effect on the financial activities and seeking external equity finance. For example, stock market listing would help firms to balance their equity and debt structure and easing financing constraints faced by firms. Nevertheless, very limited empirical work has been done on the real effect of liberalisation on firm level capital structure (Schmulker and Vesperoni 2001). One reason for this is the fact that the effect of liberalisation is somehow complicated since it has multifaced nature which involves for example, banks entry into domestic market, opening markets to foreigners, trading systems that remove interest rate ceilings, reduction in reserves requirements, privatisation, cross listings and mergers and acquisitions.

Consistent with the theoretical background the lending rate is negative and significant in the case of Kuwait. However, in the case of Saudi Arabia, the coefficient of interest rate

appears small and insignificant; this can be explained by the fact that Saudi financial institutions are Islamic in nature. Therefore, the use of interest rate is forbidden according to Islamic Shari'a. This situation renders the use of interest rate insignificantly in determining the capital structure. For the case of Oman, the coefficient while positive is insignificant; this may refer to the fact that changes in interest rate during our sample period do not vary largely in a way that reflects statistical impact.

Lastly, there are several messages that can be drawn from this chapter and help answer the questions posed in the introduction. First, in cross-sectional framework, the determinants of capital structure that are widely used in the literature such as size, liquidity, tangibility, profitability and market to book ratio are similar across developed and developing (including GCC countries). Second, those variables hold as determinants of capital structure in tax-free entities and thus the MM theory that an optimal capital structure exists only in the presence of taxation is not confirmed by our findings. In other words, in line with the modern theories of capital structure, optimal capital structure may exist due to market imperfections other than taxes. Third, the development of the stock markets in Kuwait and Saudi Arabia do have their impact on the firms financing choice in these countries. Fourth, the dynamism of capital structure is present in these firms, in the sense that these firms set a target capital structure and move gradually towards it. Finally, there is strong support of the pecking order theory across the three countries in our data set and also there is some support for non-tax aspects of trade-off theory i.e. agency issues.[69] Thus, the investigation of GCC countries helped us to understand how firms operate in different market conditions and thus should never generalize results from well-developed and functioning markets.

6.6 Summary and Conclusion

This chapter employs a new database of firms listed in three GCC stock markets to examine the determinants of their capital structure during the period 1998-2005. The data shows that the leverage ratio in the GCC market is still below that found in developed countries. The empirical results indicate that financing decisions of these companies can be explained by the determinants suggested by corporate finance model. Specifically, we find that liquidity, tangibility and profitability are negatively and significantly related to the leverage ratios; while the firm size is positively and

[69] As we discussed earlier, for example the negative relation between profitability and leverage may refer to agency issues. The lack of information in emerging markets makes the agency problems more pronounced.

significantly related to leverage ratio in the three countries. Finally, growth opportunities are positively related to book leverage and negatively related to market leverage in the three countries.

The findings of this chapter contribute towards a better understanding of corporate capital structure model. Our findings show that tax considerations are of less importance. Since our investigation was carried out in markets where there is no taxation, in some way, this also suggests that even in the absence of taxation capital structure does matter and similar factors are influencing firms.

Furthermore, unlike most previous capital structure studies on the determinants of capital structure, we employ a dynamic adjustment model to shed the light on the nature of dynamic capital structure adjustment by firms i.e. if firms do indeed move towards target leverage ratio or away from them, and the speed to which they do that. Our results confirm the presence of the dynamism in the capital structure decision of the firms operating in the three countries, in the sense that firms adjust their leverage ratio in order to achieve their target level. Specifically, the coefficients of lagged book and market leverage enter significantly between zero and one at any level of significance, which implies that the leverage ratios of the firms in the three countries converge to their desired level over time. In fact, the dynamic model is found to provide more insight into the behaviour of companies than the simple static model. Compared to static capital structure model, the dynamic model increases the explanatory power significantly. Although the determinants of the target leverage in the three countries were rather similar, results indicate that Omani companies adjusted faster to the target leverage than Kuwait and Saudi firms.

Equally important, this chapter investigates also the relationship between the stock market development and firms financing choice in the three countries. We find that, stock market indicators are negatively and significantly related to the leverage ratios in both Kuwait and Saudi Arabia, which implies that equity markets in these countries become more developed and important tool for corporate financing. As stock markets become more developed, firms will have access to equity; consequently, they will use more equity instead of debt. We should emphasise here the gradual expansion of the GCC stock markets (discussed in chapter 3) over the last decade has resulted in high liquidity inflow. This flow finds its way to the stock markets due to the difference between the investment revenues in these markets and the returns on deposits. This

difference is due to the limited availability of investment instruments and the fact that this flow is confined to stocks. Moreover, great facilities offered by the banks to investors in the markets play important role in increasing the volume of liquidity. In addition, the short sale permitted by mediators to their major speculator, has contributed to the rise in demand and the emergence of liquidity. All these factors make it easier for firms to obtain equity and decrease the amount of debt. This result led us to important conclusion that the capital structure decision of a firm is not only determined by its own characteristics, but also a consideration should be given to the external environment in which it operates. Again, this finding supports the findings of Antoniou et al (2007) for developed markets.

Finally, the lack of high quality databases might constitute a major barrier on conducting capital structure research in the GCC listed companies. Consequently, there is a need to develop validated databases as more data become available in future. Also, in the light of the findings of this chapter that Kuwait and Saudi firms rely on lower level of leverage than Omani firms, further research can investigate the reasons behind this behaviour. For example, are they reluctant to get into debt and long-term obligations? Is it related to banking sector efficiency? Such questions can be answered through a comprehensive survey in the three countries.

Appendix A6

List of Abbreviations

	Variables	Definition	Expected sign
	Dependent Variable		
BL	**Book Leverage**	Ratio of book value of total debt to book value of total assets	
ML	**Market Leverage**	Ratio of book value of total debt to market value of equity plus book value of total assets	
	Independent Variables		
SIZE	**Size**	Natural logarithm of total assets	+
LIQ	**Liquidity**	Ratio of current assets to current liabilities	-
PROF	**Profitability**	Return on assets	-/+
TANG	**Tangibility**	Ratio of tangible assets to total assets	+
GROW	**Growth**	Ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets	+
LR	**Lending rate**	Interest rate charged by commercial banks	-/+
MC	**Market capitalisation**	Ratio of market capitalisation /GDP	-
VT	**Value traded**	Ratio of value traded/GDP	-
TR	**Turnover ratio**	Value traded/market capitalisation	-

Appendix B6

Companies of Kuwait	Companies of Saudi Arabia	Companies of Oman
Investment sector	**Industrial sector**	**Industrial sector**
Commercial Facilities Co.	Saudi Basic Industries Corp. (SABIC)	Oman National Dairy Products Co. Ltd.
Kuwait Investment Co.	Savola Group	National Detergent Co.
Coast Investment & Development Co.	Saudi Arabian Amiantit Co.	National Aluminium Products Co.
The Securities House Co.	National Gas & Industrialization Co.	Salalah Mills
National Investments Co.	Saudi Arabia Fertilizers Co. (SAFCO)	Al Khaleej Polypropylene Products Co.
Al Ahlia Investment Co.	Saudi Cable Co.	Al Ahlia Detergent Co.
Securities Group Co.	SPIMACO	Dhofar Cattle Feed Co.
International Finance Co.	Saudi Ceramic Co.	National Beverages Co. Ltd
Aref Investment Group	National Gypsum Co.	National Gas Co.
Kuwait Financial Center	Arabian Pipe Company	National Biscuit Industries Co.
Kuwait and Middle East Financial Inv. Co.	Arabian Industrial Dev. Co. (NAMA)	Muscat Gases Co.
The International Investor Co.	Madniah	National Mineral Water Co.
Industrial & Financial Investments Co.	Filling & Packing Materials Mfg Co. (FIPCO)	Al Anwar Ceramic Tiles Co.
Kuwait Projects Co. (Holdings)	The National Co. for Glass Indus. (ZOUJAJ)	Oman Textile Mills Co.
Insurance sector	Saudi Industrial Services Co. (SISCO)	Computer Stationary Ind. Co.
Gulf Insurance Co.	Saudi Advanced Ind. Co.	Muscat Thread Mills
Al Ahleia Insurance Co.	Al Ahsa Development Co.	Dhofar Beverages & Foodstuff Co.
Kuwait Insurance Co.	**Cement sector**	Construction Materials Ind. Co.
Warba Insurance Co.	Southern Province Cement Co.	**Investment sector**
Real Estate sector	Yamamah Saudi Cement Co. Ltd.	Al Sharqiya Inv. Holding Co.
Salhia Real Estate Co.	Yanbu Cement Co.	National Finance Co.
Al Enma'a Real Estate Co.	Eastern Province Cement Co.	United Finance Co.
National Real Estate Co.	The Qassim Cement Co.	Al Omaniya Financial Services Co.
Kuwait Real Estate Co.	Arabian Cement Co. Ltd.	Dhofar International Dev. & Inv.
Kuwait Building and Construction Co.	Tabouk Cement Co.	Global Financial Inv. Co.
The United Realty Co.	**Service sector**	Financial Services Co.
Tamdeen Real Estate Co.	The National Shipping Co. of Saudi Arabia	**Insurance sector**
Arab Real Estate Co.	Saudi Public Transport Co. (SAPTCO)	Dhofar Insurance Co.
Union Real Estate Co.	Tihama Advertising & Public Relations Co.	**Industrial sector**
Al Massaleh Real Estate Co.	Al Mawashi Al Mukairish Co.	Oman Cement Co.
Pearl of Kuwait Real Estate Co.	Saudi Hotels & Resort Areas Co.	Oman Refreshment Co. Ltd
Industrial sector	Arriyadh Development Co.	Areej Vegetable Oils & Deriv. Co.
The National Industries Group	Saudi Real Estate Co.	Oman Chromite Co.
Kuwait Shipbuilding & Repairyard Co.	Taiba Inv. & Real Estate Dev. Co.	**Service sector**
Aerated Concrete Industries Co.	Saudi Land Transport Co. (MUBARRAD)	United Power Co.
Kuwait Cement Co.	Saudi Automotive Services Co. (SASCO)	Oman National Electric Co.
Gulf Cable and Electrical Industries Co.	**Agriculture sector**	Salalah Port Services Co.
Kuwait Portland Cement Co.	National Agricultural Dev. Co. (NADEC)	Port Services Corporation
Al Hilal Cement Co.	Hail Agricultural Dev. Co. (HADCO)	Oman International Marketing Co.
Contracting & Marine Service Co.	Saudi Fisheries Co.	Oman Agriculture Dev. Co.
Refrigeration Industries Co.	Tabouk Agricultural Dev. Co. (TADCO)	Oman Orix Leasing Co.
Shuaiba Paper Products Co.	Ash Sharqiyah Agricultural Dev. Co.	Interior Hotels Co.
Kuwait Pipes Industries & Oil Services	Gassim Agricultural Co. (GACO)	National Hospitality Institute
Gulf Glass Manufacturing Co.		
Kuwait Metal Collecting & Shredding Co.		
Kuwait Foundry Co.		
United Industries Co.		
Service sector		
Independent Petroleum Group Co.		
Mobile Telecommunication Co.		
Sultan Center Food Products Co.		
Al Arabi Group Holding Co.		
The Public Warehousing Co.		
Kuwait National Cinema Co.		
National Cleaning Co.		
Kuwait Commercial Markets Complex Co.		
Kuwait Establishment for Educational Services Co.		
Kuwait Computer Co.		
Food sector		
Kuwait Food Co. (Americana)		
Livestock Transport & Trading Co.		
United Fisheries of Kuwait		
Kuwait United Poultry Co.		

Chapter Seven

Conclusion

This thesis investigates stock markets in the context of the GCC countries from three distinct but related dimensions: First, it identifies the main macroeconomic variables that affect the movement of these stock markets. Second, it investigates the impact of stock markets and banking sector development on the process of economic growth in these countries. Third, it examines the impact of stock market development on the financing choices of firms operating in these markets and the determinants of their capital structure. In what follows, we conclude the thesis by highlighting the main findings and implications for each of the three dimensions.

First, the thesis begins by exploring the relationship between the stock prices and the main macroeconomic factors that are believed to affect stock prices in the GCC markets; notably, oil prices, short-term interest rate (proxies by US Treasury bill rate) and money supply (proxies by domestic credit). For this purpose, recent time series techniques of cointegration and granger causality tests are employed. While Granger causality tests the short-term influence of one variable on another, multivariate cointegration technique tests the long-term relationship among the variables. In addition, to acquire a better understanding about the dynamics that exist among these variables, we apply the generalised variance decomposition and the impulse response function. While variance decomposition indicates the percentage of a variable's forecast error variance attributable to innovations in all variables considered, the impulse response function captures the direction of response of a variable to a one standard deviation shock to another variable.

Specifically, we tried to answer the following question: Do macroeconomic variables such as oil prices, short-term interest rate and money supply affect stock prices in the GCC countries? The multivariate cointegration tests indicated that these factors have long-term equilibrium effects on stock market prices in the four GCC countries. We find that these factors form a cointegrating relationship with stock prices in these countries, which leads us to deduce that the variables tend to evolve together over time. For the most part, the causality test results have highlighted that macroeconomic activities represented by the three variables, more or less, granger cause the stock price

movement in the context of GCC countries. Generally, the major finding of the empirical analysis of this part is that macroeconomic factors represented by oil prices, short-term interest rate and domestic credit affect the performance of the stock markets in the GCC countries.

The result that both oil prices and the US Treasury bill rate (global factors) affect the stock market movements in the GCC countries supports the assertion that these countries are integrated with the world economy and world events. Recall, in chapter three, we discussed that these stock markets are generally closed as they are restricted to nationals only, and are characterised by lack of financial liberalisation. Given the above observations, one would expect these stock markets to be far from being integrated in the world economy. However, our results show that even though they are closed markets, they are relatively integrated and are influenced by world events. The previous statement seems to suggest that even if the stock markets are closed to the outside world, the fact that the economic fundamentals are driven by world events means that the stock markets themselves are influenced by events and volatility shocks in the global economy. This happens when the local economy is fully integrated into the world market. Clearly, the above not only highlights the specific features of the GCC countries, but also the importance of studying them. Here, one can conclude that for emerging economies which are not linked to the global economy, it might be important that the deregulation of the capital markets takes place in early stages to facilitate growth and development. However, for small open economies deregulation of capital markets is may not be such a significant factor.

Second, the thesis investigates empirically the link between the financial sector development and economic growth in the context of the GCC countries and examines whether the banking sector and stock markets are complementary or substitutes for each other in providing financial services and thereby enhancing economic growth in the case of GCC countries. Specifically, we pose the following questions: do the banking sector and the stock markets have any influence on the process of economic growth in the GCC countries? And do stock markets complement or substitute for the banking sector in providing the financial services to the GCC economies? The results show that 1) The banking sector and stock markets indicators have influence on economic growth even after including other factors that affect economic growth; 2) the banking sector and stock markets complement each other in providing financial services to the GCC economies.

While our results are consistent with most of the theoretical and empirical studies conducted on both developed and developing economies, they also support the assertion that the banking sector development has stronger effect on growth compared to the effect of stock markets. The coefficients of the banking sector indicators appear to be consistently larger than the coefficients of stock market indicators. This suggests that the well-developed banking sector in GCC facilitates financial development and therefore boost economic growth. The positive relation remains significant even after controlling a set of conditional variables, such as government spending, trade openness and investment ratio.

Nevertheless, the results also imply that despite the lack of financial liberalisation in the context of banking sector and stock markets (as discussed in chapter three) in the GCC countries, this situation does not seem to hinder the development potential in these economies. This, however, may be true because of the integration of the underlying economies with global markets. In conclusion, while financial liberalisation is fundamental to economic growth, the results suggest that the above is necessary if the underlying economies are not well-integrated in the global economy. Thus, economic growth and development could come about either by liberalising the financial markets or through export-led growth policies that integrate the underlying economies with the world market.

Third, the thesis investigates the determinants of capital structure of a group of firms listed in the stock markets of three GCC countries; namely, Kuwait, Kingdom of Saudi Arabia and Oman. The aim was to ascertain the effect of these stock markets development on the firms financing choices. Specifically, an attempt was made to answer the following questions: What are the main determinants of the firm's capital structure in the GCC countries? Among the external sources, how do firms choose between stock markets and borrowing, and whether the development of stock markets has a significant impact on the financing pattern of the companies? Given the fact that listed companies in the GCC stock markets are not subject to tax; do their capital structure decisions reflect any significant patterns? Do factors that affect cross-sectional variability of capital structure in other countries have similar effects on GCC firms' capital structure?

The empirical results indicate that the financing decisions of these companies can be explained by the determinants suggested by corporate finance models. Generally, we

find that well-known firm characteristics such as liquidity, profitability, growth, tangibility, pay-out ratio and firm size have an impact on the level of debt. Furthermore, unlike most previous capital structure studies on the determinants of capital structure, we employ a dynamic adjustment model to shed light on the nature of the dynamic capital structure adjustment by firms. Our results tend to confirm the presence of the dynamism in the capital structure decisions of firms operating in the three countries, in the sense that firms adjust their leverage ratios in order to achieve their target level. In fact, the dynamic model is found to provide more insight into the behaviour of companies than the simple static model. Although the determinants of the target leverage in the three countries were rather similar, results of the speed of adjustment indicate that Omani corporate credit markets were less supply constrained than those of Kuwait and Saudi companies during the period under investigation. Importantly, the results of the dynamic model confirm the argument presented in chapter one, that firms operating in emerging markets may move faster towards their optimal capital structure due to the fact that emerging markets are usually subject to regular changes.

We also find that stock market indicators are negatively and significantly related to the leverage ratios in both Kuwait and Saudi Arabia, which implies that equity markets in these countries have become more developed and important tools for corporate financing. In other words, as stock markets become more developed, firms will have greater access to equity. Consequently, firms will tend to use more equity instead of debt. This result leads to the important conclusion that the capital structure decision of a firm is not determined by its own characteristics only, but, is also dependent on the external environment in which it operates.

Generally, the empirical results reported in our study have several implications. First, since we have established that capital structure in the GCC countries is driven by the same factors that those found by other emerging markets, it is re-assuring to know that these results hold even in economies where there is no taxation. Hence, while the presence of taxation is considered an imperfection, the important variables that determine the capital structure in the GCC countries remain significant. To state it differently, firms decide their capital structure by looking at other factors which have direct bearing to the environment to which they operate with and affect their competitive position and profitability.

Second, our results indicate that the banking sector has a positive impact on economic growth in the GCC countries. Hence the governments (policy makers) of these countries need to continue their efforts in several directions, such as: 1) increasing banking efficiency in terms of several issues such as quality of assets, ownership structure and size; 2) enhancing the competitiveness between banks through allowing new banks to enter the market and easing the regulatory framework of foreign banks; and 3) encouraging mergers and acquisitions between banks in the light of the expected increase in competition at the domestic and the international financial environment in the coming years.

Third, the results also indicate that stock markets in the GCC countries also have a positive impact on both macro and micro level economy. In this context, policy makers are urged to adopt policies that allow these markets to gain depth, efficiency, transparency, diversification and sophistication at the national as well as the regional level. This can be achieved in several ways such as increasing the attractiveness of corporate bonds and government papers, encouraging equity investment by pension funds and small savers through mutual funds and making further steps towards reforming the stock markets. Thus, policy makers in the GCC countries should continue their efforts towards broadening and strengthening their financial sector in order to improve the mobilisation of their domestic and international assets in support of a more rapid economic growth.

Fourth, our results indicate that the GCC stock markets are affected more by the same macro economic variables. This result may imply that the GCC stock markets could be more integrated into a much larger regional market in which savings and investments flows can be pulled together under homogenous conditions, which in turn would greatly enhance their growth. This may include, among other things, cross listing of shares, coordination of primary issues, common secondary trading arrangements and coordination of supervisory functions.

Fifth, since the results established that oil prices appear to be an important player in the economy of GCC countries, this should make GCC countries pay more attention to diversify their economies. One way of diversification is through strengthening their financial sector both banking and stock markets. This sector can act as a cushion for volatile oil prices by pumping private wealth that is accumulated during oil booms into the local financial system; thus, minimising the effects of the swings in oil prices that

determine government revenues. While the GCC economies are likely to remain dependent on oil revenue for many years to come, government-spending efforts must be directed towards increasing non-oil activities through government stimulus to accelerate economic growth.

Finally, since our results show that the macroeconomic indicators have an important effect on the stock markets and banking sector; governments (policy makers) of GCC countries should improve the measurement of the economic indicators; facilitate the publication of such statistics; and provide better forecasts of economic activity. Moreover, the governments may need to exercise caution when dealing with monetary and fiscal policy, as they are influential in moving stock prices.

In addition, the lack of high quality databases might to some degree constitute an important barrier to conducting capital structure research for the GCC listed companies. Consequently, there is a critical need to develop validated databases as more data become available in the future. Using such databases can help in examining and identifying additional variables that could influence the financing behaviour of GCC firms. Clearly, further work is needed in this area of research, possibly with a larger sample that takes more specific account of variations in the quality of accounting data.

8. References

Abdullah, D., and S.C. Hayworth (1993) "Macro-econometrics of Stock Price Fluctuations," *Quarterly Journal of Business and Economics,* winter, 50-67.

Achsani, N. and H.G. Strohe (2002) "Stock Market Returns and Macroeconomic Factors, Evidence from Jakarta Stock Exchange of Indonesia: 1990-2001," University of Potsdam, Discussion Paper.

Agung, F. and J. Ford (1998) "Financial Development Liberalisation and Economic Development in Indonesia, 1966-1996: Co integration and Causality," University of Birmingham, Department of Economics, Discussion Paper No. 98-12.

Agell, J., T. Lindh and H. Ohlssonn (1999) "Growth and the Public Sector: A reply," *European Journal of Political Economy,* 15(2), 359-366.

Akaike, H. (1973) Information Theory and an Extension of the Maximum Likelihood Principle, In: Petrov, B. and Csake, F. (Eds) 2nd International Symposium on Information Theory. Budapest: Akademiai Kiado.

Allen, F. and G. Douglas (1995) "A welfare Comparison of Intermediaries and Financial Markets in Germany and the US," *European Economic Review,* 39, 179-209.

Allen, D. and L. Ndikumana (2000) "Financial Intermediation and Economic Growth in Southern Africa," *Journal of African Economies,* 9, 132-160.

Ang, J., J. Chua, and McConnell (1982) "The Administrative Costs of Corporate Bankruptcy: A Note," *Journal of Finance,* 37, 219-226.

Antoniou, A., I., Garrett and R. Priestley (1998) "Macroeconomic Variables as Common Persuasive Risk Factors and the Empirical content of the Arbitrage pricing Theory," *Journal of Empirical Finance,*5(3), 221-240.

Antoniou, A., Y., Guney and K., Paudyal (2007) "Determinants of Corporate Capital Structure: Capital Market Oriented versus Bank Oriented Institutions," *Journal of Financial and Quantitative Analysis, Forthcoming.*

Arestis, P. and P. Demetriades (1995) "Finance and Growth: Schumpeter Might be Right: A comment on King and Levine," University of East London mimeo.

Arestis, P. and P. Demetriades (1997) "Financial Development and Economic Growth: Assessing the Evidence," *Economic Journal,* 107, 754-770.

Arestis, P., P. Demetriades and K. Luintel (2001) "Financial Development and Economic Growth: The Role of Stock Markets," *Journal of Money, Credit and Banking,* 33, 16-41.

Arestis, P. and P. Demetriades (1997) "Financial Development and Economic Growth: Assessing the Evidence," *Economic Journal,* 107 (442), 754-770.

Arellano, M., and S., Bond (1991) "Some Tests for Panel Data: Monte Carlo Evidence and an application to Employment Equations, *Review of Economic Studies*, 58, 277-297.

Arshanapalli, B., and J. Doukas (1993) "International Stock Market Linkage: Evidence from the Pre and Post-October 1987 Period," *Journal of Banking and Finance,* 193-208.

Asperm, M. (1989) "Stock Prices, Asset Portfolios and Macroeconomic Variables in ten European Countries," *Journal of Banking and Finance,* 4, 589-612.

Assaf, A. (2003), "Transmission of Stock Price Movements: The Case of GCC Stock Markets," *Review of the Middle East Economic and Finance,* 1, 89-171.

Atje, R. and B. Jovanovic (1993) "Stock Market and Development," *European Economic Review,* 37, 632-640.

Bagehot, W. (1873) Lombard Street. Homewood, IL: Irwin.

Barro, R. J. (1990) "Government Spending in a simple Model of Endogenous Growth," *Journal of Political Economy,* 98, 103-125.

Barro, R.J. (1991) "Economic Growth in a Cross-Section of Countries," *The Quarterly Journal of Economics,* 106, 407-443.

Barro, R.J. and X. Sala-i-Martin (1995) Economic Growth, *Cambridge*, MA: MIT Press.

Barro, R.J. (1997) "Determinants of Economic Growth: A Cross Country Empirical Study," *Massachusetts Institute of Technology Press.*

Barclay, M. and C. W. Smith (1999) "The Capital Structure Puzzle: Another Look at the Evidence, *Journal of Applied Corporate Finance,* 12, 8-20.

Barclay, M. J., C. W., Smith, and R. L. Watts (1995) "The Determinants of Corporate Leverage and Dividend Policies," *Journal of Applied Corporate Finance,* 7, 4-19.

Baskin, I (1989) "An Empirical Investigation of the Pecking Order Hypothesis," *Financial Management,* 1, 26-35.

Bailliu, J. (2000) "Private Capital Flows, Financial Development and Economic Growth in Developing Countries," Working Paper, 00-15 Bank of Canada.

Beck, T. (2002) "Financial Development and International Trade: Is there a link?" *Journal of International Economics*, 57, 107-131.

Beck, T. and R. Levine (2002) "Stock Markets, Banks, and Growth: Panel Evidence," Cambridge, MA, NBER Working Paper 9082.

Beck, T., A. Demirguc-Kunt and R. Levine (2000) "A New Database on Financial Development and Structure," *World Bank Economic Review*, 14, 597-605.

Beck, T. and R. Levine (2001) "Stock Market, Banks and Growth: Correlation and Causality," Mimeo (World Bank).

Beck, T., R. Levine and N. Loayza (2000) "Finance and the Sources of Growth," *Journal of Financial Economics,* 58, 261-300.

Beck, N. and J.N. Katz (1995) "What To Do and Not To Do with Time Series Cross-Section Data?" *American Political Science Review,* 89, 634-647.

Beck, T., A., Demirguc-Kunt, and V., Maksimovic (2002) "Financing Patterns around the World: The Role of Institutions," World Bank Policy Research Working Paper 2905.

Beckers, S., G. Connor and R. Curds (1995) "National versus Global Factors in Equity Returns," LSE Financial Markets Group, London, Unpublished Working Paper.

Bekaert, G. and C.R. Harvey (2000) "Foreign Speculators and Emerging Equity Markets," *Journal of Finance,* 55, 565-613.

Bencivenga, V. and B. Smith (1991) "Financial Intermediation and Endogenous Growth," *Review of Economic Studies,* 58, 195-209.

Bencivenga, V., B. Smith, and R. Starr (1996) "Equity Markets, Transaction Costs, and Capital Accumulation: An Illustration," *World Bank Economic Review,* 10, 241-265.

Benhabib, J. and M. Spiegel (2000) "The Role of Financial Development in Growth and Investment," *Journal of Economic Growth,* 5, 341-360.

Berthlemy, J.C. and A. Varoudakis (1998) "Financial development, Financial Reforms and Growth: A Panel Data Approach," *Revue Economique,* 49,195-206.

Bencivenga, R., and Smith, D. (1991) "Financial Intermediation and Endogenous Growth," *Review of Economic Studies*, 58 (2), 195-209.

Bevan, A. and J. Danbolt (2002), "Capital Structure and its determinants in the United Kingdom: A Decomposition Analysis," *Applied Financial Economics*, 14, 55-66.

Bevan, A.A. and J. Danbolt (2004) "Testing for Inconsistencies in the Estimation of UK Capital Structure Determinants," *Applied Financial Economics,* 14, 55-66.

Binswanger, M., (2001) "Does the Stock Markets still Lead Real Activity? An Investigation of G-7 Countries," Discussion Paper 2001-2004, Solothurn University of Applied Sciences.

Bhide, A. (1993) "The Hidden Costs of Stock Market Liquidity," *Journal of Financial Economics*, 34, 1-51.

Bhaduri, S.N. (2002) "Determinants of Capital Structure Choice: A Study of the Indian Corporate Sector," *Applied Financial Economics,* 12, 655-665.

Bhatt, V. (1989), "Financial Innovation and Credit Market Development," Policy, Planning and Research Working Papers, 52, the World Bank, Washington D.C.

Bhattachraya, B., and J. Mukherjee (2002) "Causal Relationship between Stock Market and Exchange Rate, Foreign Exchange Reserves and value of Trade Balance: A case study for India," www.igidr.ac.in.

Blackburn, K. and V., Hung (1996) "A Theory of Growth, Financial Development and Trade," *Economia,* vol. 65, pp. 107-124.

Black, A., P., Fraser, and R. MacDonald (1997) "Business Conditions and Speculative Assets," The Manchester School, 65 (4), 379-393.

Bond, S., J. Elston, J. Mairess and B. Mulkay (1997) "Financial Factors and Investment in Belgium, France, Germany and the UK: A Comparison using Company Panel Data," NBER working paper No 5900.

Boyd, J. and E. Prescott (1986) "Financial Intermediary-Coalitions," *Journal of Economic Theory,* 38, 211-232.

Boyd, J. and B. Smith (1998) "The Co-evolution of the Real and Financial Sectors in the Growth Process," *World Bank Economic Review,* 10, 371-396.

Boyd, J., R., Levine, and B., Smith (2000) "The Impact of Inflation on Financial Sector Performance," *Journal of Monetary Economics, forthcoming.*

Boyle, G.W. and K.R. Eckhold (1997) "Capital Structure Choice and Financial Market Liberalization: Evidence from New Zealand," *Applied Financial Economics,* 7, 427-437.

Booth, L., V. Aivazian, A. Demirguc-Kunt, and V., Maksimovic (2001) "Capital Structures in Developing Countries." *Journal of Finance,* 56, 87-130.

Bowman, R. (1980) "The Importance of Market Value Measurement of Debt in Assessing Leverage," *Journal of Accounting Research,* 242-254.

Bradley, M., G. A. Jarrell, and E. H. Kim (1984) "On the Existence of Optimal Capital Structure Theory and Evidence," *Journal of Finance,* 39 (July), 857-878.

Brealey, R., and S. Myers (2000) Principles of Corporate Finance, McGraw-Hill, 6th Ed.

Bulmash, S.B. and G.W Trivoli (1991) "Time Lagged Interactions between Stock Prices and Selected Economic Variables," *Journal of Portfolio Management,* 17 (4), 61-67.

Burmeinster, E. and K. Wall (1986) "The Arbitrage Pricing Theory and Macroeconomic Factors Measures," *Financial Review,* 21, 1-20.

Burbidge, J. and A. Harrison (1984) "Testing for The Effects of Oil Price Rises using Vector Autoregressive," *International Economics Review,* 25, 459-484.

Buettner, T., M. Overesch, U. Schreiber and G.Wamser (2006) "The Impact of Thin Capitalization Rules on Multinational Financing and Investment Decisions," CESifo Working Paper Series.

Bulter, K. and J. Malaikah (1992) "Efficiency and Inefficiency in Thinly Traded Stock Markets: Kuwait and Saudi Arabia," *Journal of Banking and Finance,* 16, 197-210.

Cameron, R. (1967) Banking in the Early Stages of Industrialization, Oxford University Press.

Cameron, R. (1972) Banking and Economic Development, Oxford University Press.

Campbell, J. Y. and R. Shiller (1987) "Cointegration and Tests of Present Value Models," *Journal of Political Economy*, 95, 1062-1088.

Campbell, J. and R. Schiller (1988) "Stock Prices, Earnings and Expected Dividends," *Journal of Finance*, 43, 661-676.

Calderon, C. and L. Liu, (2003) "The Direction of Causality between Financial Development and Economic Growth," *Journal of Development Economics,* 72, 321-360.

Cassar, G. and S., Holmes (2003) "Capital Structure and Financing of SMEs: Australian Evidence," *Accounting and Finance*, 43,123-147.

Cho, Y. J. (1988) "The Effect of Financial Liberalization on the Efficiency of Credit Allocation," Journal *of Development Economics,* 29, 101-110.

Choe, C. and I. A. Moosa (1999), "The Financial System and Economic Growth: The Korean Experience," *World Development*, 27, 1069-1082.

Chen, J. (2004) "Determinants of Capital Structure of Chinese Listed Companies," *Journal of Business Research,* 57, 1341-1351.

Chirinko, R. S. and A. R Singha (2000) "Testing Static Tradeoff Against Pecking Order Models of Capital Structure: A Critical Comment," *Journal of Financial Economics,* 58, 417-425.

Chen, L. and X. Zhao (2004) "The Modified Pecking Order Theory: New Empirical Evidence from Corporate Financing Decisions," Working Paper, Michigan State University.

Chen, N.F., R. Roll and S.A. Ross (1986), "Economic Forces and the Stock Market," *Journal of Business,* 59, 383-403.

Cheung, Y. and L. Ng (1998) "International Evidence on the Stock Market and Aggregate Economic activity," *Journal of Empirical Finance*, 5, 281-296.

Chaudhuri, K. and S. Smile (2004) "Stock Market and Aggregate Economic Activity: Evidence from Australia," *Applied Financial Economics*, 14, 121-129.

Chaudhuri, K. and L. Koo (2001) "Volatility of Stock Return: Importance of Economic Fundamentals," *Economic and Political Weekly*, 6, 3852-56.

Colombo, E., (2001) "Determinants of Corporate Capital Structure: Evidence from Hungarian Firms," *Applied Economics,* 33, 1689-1701.

Corbett, J. and T. Jenkinson (1997) "How is Investment Financed? A Study of Germany, Japan, the UK and the US," Manchester School, 65, 69-93.

Corbett, J. and T. Jenkinson (1994) "The Financing of Industry, 1970-1989: An International Comparison," *Journal of the Japanese and International Economies,* 10, 71-96.

Cornelli, F., R. Portes and M. Schaffer (1996) "The Capital Structure of Firms in Central and Eastern Europe," CEPR Discussion Paper No. 1392, London: Centre for Economic Policy Research.

Cobham, D. and R., Subramaniam (1998) "Corporate Finance in Developing Countries: New Evidence for India," *World Development,* 26, 1033-1047.

De Miguel, A., and J. Pindado (2001) "Determinants of Capital Structure: New Evidence from Spanish Data," *Journal of Corporate Finance*, 7, 77-99.

Dhakal, D. M. Kandil, and S.C. Sharma (1993) "Causality between the Money Supply and Share Prices: a VAR Investigation," *Quarterly Journal of Business and Economics*, 32 (3), 53-74.

Darrat, A. F. (1990) "Stock Returns, Money and Fiscal Policy," *Journal of Financial and Quantitative Analysis*, 24 (3), September 387-398.

Darrat, A. F. (1996) "Financial Deepening and Economic Growth in Some ERF Countries: An Empirical Inquiry," Paper presented at the Workshop on Financial Market Development, Arab Monetary Fund and the Economic Research Forum for the Arab Countries, Iran and Turkey, Abu Dhabi, UAE, 25-27.

Darrat, A., and R.N., Dickens (1999) "On the Interrelationship among Real, Monetary, and Financial Variables," *Applied Financial Economics,* 9, 289-293.

Darrat, A., and T.K. Mukherjee (1987) "The Behavior of the Stock Market in a Developing Economy," *Economics Letters,* 22, 273-278.

Darrat, A., and S.R. Hakim (1997) "Price Linkages, Efficiency and Integration of Emerging Stock Markets in the Middle East," Paper presented at the ERF Annual Conference on Regional Trade, Financial Labor Markets in Transition, Beirut, Lebanon.

Dawson, P. (2003) "Financial Development and Growth in Economics in Transition," *Applied Economic Letters,* 10, 833-836.

Deesomsak, R., K. Paudyal, and G. Pescetto (2004) "The Determinants of Capital Structure: Evidence from the Asia Pacific Region," *Journal of Multinational Financial Management*, 14, 387-405.

Defina, R. (1991) "Does Inflation Depress the Stock Market?" Business Review-Federal Reserve Bank of Philadelphia Nov/Dec pp.3-12.

Demirguc-Kunt, A., and V. Maksimovic (1996) "Stock Market Development and Financing Choice of Firms," *World Bank Economic Review,* 10, 341-369.

De Bondt, G.J. (1998) "Financial Structure: Theories and Stylized Facts for Six EU Countries," *De Economist*, 146, 271-301.

De Gregorio, J. and P. Guidotti (1995) "Financial Development and Economic Growth," *World Development*, 23, 433-448.

Demetriades, P. and K. Luintel (1996) "Financial Development Economic Growth and Banking Sector controls: Evidence from India," *Economic Journal,* 106, 359-374.

Demetriades, P. (1998). "Financial Markets and Economic Development," *Working Paper No. 27.* Cairo: Egyptian centre for Economic Studies.

Demetriades, P. and K. Hussein (1996) "Financial Development and Economic Growth: Cointegration and Causality: Tests for 16 Countries," *Journal of Development Economics,* 51, 387-411.

Demirgucs-Kunt, A. and R. Levine (1996) "Stock Market Development and Financial Intermediaries: Stylized Facts," *World Bank Economic Review,* 10, 291-322.

Demirgucs-Kunt, A. and R. Levine (1996a), "Stock Markets, Corporate Finance, and Economic Growth: An Overview," *World Bank Economic Review,* 10, 233-240.

Demirgucs-Kunt, A., and V. Maksimovic (1996a) "Stock Market Development and Financing Choices of the Firms," *World Bank Economic Review,* 10, 341-370.

Demirgucs-Kunt, A., and V. Maksimovic (1998) "Finance and Firm Growth," *Journal of Finance,* 53, 2107-2137.

Demirgucs-Kunt, A., and H., Huizinga (2000) "Market Discipline and Financial Safety Net Design," World Bank Policy Research Paper, No. 2247.

Demetriades, P. and K. Hussein (1996) "Does Financial Development causes Economic Growth? Time series Evidence from 16 countries," *Journal of Development Economics,* 51, 387-411.

Demirguc-Kunt, A. and V. Maksimovic (2002) "Funding Growth in Bank-based and Market-based Financial Systems: Evidence from Firm-Level data," *Journal of Financial Economics*, 65, 337-363.

DeMiguel, A., and J. Pindado (2001) "Determinants of the Capital Structure: New Evidence from Spanish Data," *Journal of Corporate Finance,* 7, 77-99.

Devereux, M.B. and G.W. Smith (1994) "International Risk Sharing and Economic Growth," *International Economic Review*, 35, 535-550.

Diamond, D. and P.H. Dybnig (1983) "Bank Runs, Deposit Insurance and Liquidity," *Journal of Political Economy,* 91, 401-419.

Dickey, D.A. and W.A Fuller (1981) "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root," *Econometrica,* 49, 1057-1072.

Dickinson, D. (2000) "Stock Market Integration and Macroeconomic Fundamentals: An Empirical Analysis: 1980-95," *Applied Financial Economics,* 10, 261-276.

Dickey, D.A. and W.A. Fuller, (1979) "Distribution of Estimators for Autoregressive Time Series with a Unit Root," *Journal of the American Statistical Association,* 74,427-431.

Dow, J. and G. Gorton (1997) "Stock Market Efficiency and Economic Efficiency: Is There a Connection?" *Journal of Finance*, 52, 1087-1129.

Drobetz, W., and R. Fix (2003) "What are the Determinants of Capital Structure? Some Evidence from Switzerland," *Swiss Journal of Economics and Statistics, forthcoming.*

Drobetz, W., and G. Wanzeried (2006) "What Determines the Speed of Adjustment to

the Target Capital Structure?" *Applied Financial Economics*, 16, 941-958.

Drummen, M. and H. Zimmermann (1992) "The Structure of European Stock Returns," *Financial Analyst Journal,* 48, 15-26.

Easterbrook, F. (1984) "Two-Agency Cost Explanations of Dividends," *American Economic Review,* 74, 650-659.

Easterly, W. and S. Robelo (1993) "Fiscal Policy and Economic Growth: An empirical Investigation," *Journal of Monetary Economics,* 32, 417-58.

Edwards, J. and K. Fischer (1994) "Banks, Finance and Investment in Germany," Cambridge University Press.

El-Erian, M. and M. Kumar (1995) "Emerging Equity Markets in Middle Eastern Countries," *International Monetary Fund Papers,* 42(2), 313-343.

Engle, R. F. and W. W. J. Granger (1987) "Cointegration and Error-Correction: Representation, Estimation, and Testing," *Econometrica*, 55, 251-76.

Eriotis, N., D. Vasiliou and Z. Neokosmidi (2007) "How Firms Characteristics affect Capital Structure: An Empirical Study," *Managerial Finance,* 33, 321-331.

Eun, C., and S.Shim (1989) "International Transmission of Stock Market Movements," *Journal of Financial and Quantitative Analysis,* 24, 241-256.

Fama, E. and G. Schwert (1977) "Asset Returns and Inflation," *Journal of Financial Economics,* 5, 115-146.

Fama, E.F. and K.R. French (2005) "Financing Decisions: Who Issues Stock?" *Journal of Financial Economics, forthcoming.*

Fama, E.F. and K.R., French (2002) "Testing Trade-off and Pecking Order Predictions about Dividends and Debt," *The Review of Financial Studies,* 15, 1-33.

Fama, E. and K. French (2000) "Testing Tradeoff and Pecking Order Predictions about Dividends and Debt," Working Paper, University of Chicago and Sloan School of Management (MIT).

Fama, E. (1981) "Stock Returns, Real Activity, Inflation and Money," *American Economic Review*, 71, 545-565.

Fama, E., and M, Gibbons (1982) "Inflation, Real returns and Capital Investments," *Journal of Monetary Economics,* 9, 297-323.

Fama, E., (1990) "Stock returns, Expected returns, and Real Activity," *Journal of Finance*, 45, 1089-1108.

Fama, E. (1991) "Efficient Capital Markets," *Journal of Finance*, 46, 1575 1617.

Fama, E. and K.R., French (1989) "Business Conditions and Expected Returns on Stocks and Bonds," *Journal of Financial Economics*, 25, 23-49.

Fang, H. and J. Loo (1994) "Dollar Value and Stock Returns," *International Review of*

Economics and Finance, 3, 222-231.

Fasano, U. and R. Goyal (2004) "Emerging Strains in GCC Labour Markets," Washington DC, International Monetary Fund, Working Paper.

Favara, G. (2003) "An Empirical Reassessment of the Relationship between Finance and Growth," IMF Working Paper 123.

Fernandez, D., and A. Galetovic (1994) "Schumpeter Might be Right- But why? Explaining the relation between Finance, Development and Growth," Working Paper, School of Advanced International Studies, Johns Hopkins University.

Ferson, W. and C. Harvey (1991) "The Variation of Economic Risk Premiums," *Journal of Political Economy*, 99, 385-415.

Ferderer, J. P. (1996) "Oil Prices Volatility and the Macro-economy: A Solution to the Asymmetry Puzzle," *Journal of Macroeconomics*, 18, 1-26.

Fischer, S. (1993) "The Role of Macroeconomics Factors in Growth," *Journal of Monetary Economics,* 32, 485-512.

Fischer, E.O., R. Heinkel and J. Zechner (1989) "Dynamic Capital Structure: Theory and Tests," *Journal of Finance,* 44, 19-40.

Folster, S. and M., Henrekson (1999) "Growth and the Public Sector: A Critique of the Critics," *European Journal of Political Economy,* 15 (2), 337-358.

Frank, M.Z. and V.K. Goyal (2003) "Testing the Pecking Order Theory of Capital Structure," *Journal of Financial Economics,* 67, 217-248.

Frank, M.Z. and V.K. Goyal (2003) "Capital Structure Decisions," *Working Paper,* SSRN.

French, K.R., G.W. Schwert and R.F.Stanbaugh (1987), "Expected Stock Returns and Volatility," *Journal of Financial Economics*, 19, 3-29.

Friend I. and L. Lang (1988) "An Empirical Test of the impact of Managerial Self-Interest on Corporate Capital Structure," *Journal of Finance,* 43, 271-281.

Fry, M., (1995) Money, Interest and Banking in Economic Development, Baltimore: John Hopkins University Press.

Fry, M., (1989) "Financial Development: Theories and Recent Experience," *Oxford Reviews of Economic Policy,* 5, 13-28.

Fung, H. and C. Lie (1990) "Stock Market and Economic Activities: A Causal Analysis," in S.G.Rhee and R.P. Chang (Eds) Pacific- Basin in Capital Markets, Elsevier Science Publishers, North Holland.

Galai, D., and R. Masulis (1976) "The Option Pricing Model and the Risk Factor of Stock," *Journal of Financial Economic,* 3, 631-644.

Gerschenkron, A. (1962) "Economic Backwardness in Historical Perspective: A Book of Essays," Cambridge, Mass: Harvard University Press.

Geske, R, and R. Roll (1983) "The Fiscal and Monetary Linkage between Stock Returns and Inflation," *Journal of Finance*, 38 (1), 7-33.

Gillman, M, and M. Harris (2004) "Inflation, Financial Development and Growth in Transition Countries," Working Paper 23/04, Department of Econometrics and Business Statistics, Monash University. www.buseco.monash.edu.au/depts/ebs/pubs/wpapers.

Gjerde, O. and F. Saettem (1999) "Causal Relations among Stock Returns and Macroeconomic Variables in a Small, Open Economy," *Journal of International Financial Markets, Institutions and Money,* 9, 61-74.

Gleason, K., L. Mathur and I. Mathur (2000) "The Interrelationship between Culture, Capital structure, and Performance: Evidence from European Retailers," *Journal of Business Research,* 50, 185-191.

Goldsmith, R. W. (1969) Financial Structure and Development, New Haven, CT: Yale University press, New Haven.

Gonzalo, J. (1994) "Five Alternative Methods of Estimating Long Run Equilibrium Relationship," *Journal of Econometrics*, 60, 203-233.

Granger, C.W.J. (1986) "Developments in the Study of Cointegrated Economic Variables," *Oxford Bulletin of Economics and Statistics,* 48, 213-228.

Granger, C.W.J. (1969) "Investigating Causal Relationship by Econometric Models and Cross Spectral models," *Econometrica,* 37, 424-438.

Granger, C.W.J. (1981) "Some Properties of Time Series Data and their Use in Econometric Model Specification," *Journal of Econometrics,* 11, 121-130.

Granger, C.W.J. (1988) "Some Recent Development in the Concept of Causality," *Journal of Econometrics,* 39, 199-211.

Granger, C.W.J and A. Weiss,(1983) "Time Series Analysis of Error-Correcting Models," In *Studies in Econometrics, Time Series, and Multivariate statistics,* 255-278 New York: Academic Press.

Granger, C.W.J., and P. Newbols (1986) Forecasting Economic Time series (2nd ed), New York: Academic Press.

Graham, J., and C. Harvey (2001) "The Theory and Practice of Corporate Finance: Evidence from the Field, *Journal of Financial Economics,* 60, 187-243.

Green, W. (2000) Econometric Analysis, 4th edition, New York University, Prentice Hall Int., New Jersey.

Greene, W. H (2003), Econometric Analysis, 5th Ed., Prentice Hall, New Jersey.

Green, C., V. Murinde, and J. Suppakitjarak (2003) "Corporate Financial Structures in India," *South Asian Economic Journal,* 4, No. 2, July-December, 245-274.

Greenwood, J. and B. Jovanovic (1990) "Financial Development, Growth and the Distribution of Income," *Journal of Political Economy,* 98, 1076-1107.

Greenwood J. and B.Smith (1997) "Financial Markets in Development, and the Development of Financial Markets," *Journal of Economic Dynamics and Control,* January 21(1), 145-181.

Greenwald, B.C. and J.E. Stiglitz (1989) "Financial Market Imperfections and Business Cycles," *Quarterly Journal of Economics*, 108, 77-114.

Grinold, R., A. Rudd and D. Stefek (1989) "Global Factors: Fact or Fiction?" *Journal of Portfolio Management,* 16, 79-88.

Grossman, S. (1976) "On the Efficiency of Competitive Stock Markets Where Trades have Diverse Information," *Journal of Finance,* 31, 573-85.

Grossman, S. and M., Miller (1988) "Liquidity and Market Structure," *Journal of Finance,* 43, 617-633.

Grossman SJ. and O. Hart (1982) "Corporate Financial Structure and Managerial Incentives," in McCall, ed.: *The Economics of Information and Uncertainty,* University of Chicago Press, Chicago.

Gupta, K.L. (1984) Finance and Economic Growth in Developing Countries, London: Croom Helm.

Habibullah, M.S. and AZ. Baharumshah (1996) "Money, Output and Stock Prices in Malaysia: An Application of the Cointegration Tests," *International Economic Journal,* 10,121-130.

Hamao, Y. (1988) "An Empirical Investigation of the Arbitrage Pricing Theory," *Japan and the World Economy,* 1, 45-61.

Hamilton, J.D. (1983) "Oil and the Macro-Economy since World War 2nd, *Journal of Political Economy*, 91, 228-248.

Hammoudeh, S., and E. Aleisa (2004) "Dynamic Relationship among GCC Stock Markets and NYMEX Oil Futures," *Contemporary Economic Policy*, 22, 250-269.

Hammoudeh, S., and K. Choi (2006) "Behavior of GCC Stock Markets and Impacts of US oil and Financial Markets," *Research in International Business and Finance,* 20, 22-44.

Hall, G., P. Hutchinson and N. Michaelas (2000) "Industry Effects on the Determinants of Unquoted SMEs' Capital Structure," *International Journal of the Economics of Business,* 7, 297-312.

Harris, M. and A. Raviv (1990) "Capital Structure and the Informational Role of Debt," *Journal of Finance*, American Finance Association, 45(2), 321-49.

Harrison, A. (1996) "Openness and Growth: A Time Series, Cross Section Analysis for Developing Countries," *Journal of Development Economics,* 48, 419-447.

Harris, M. and A. Raviv (1991) "The Theory of Capital Structure," *Journal of Finance,* 46, 297-356.

Harris, M. and A. Raviv (1992) "The Design of Bankruptcy Procedures," Working Paper, University of Chicago.

Harris, R. (1997) "Stock Markets and Development: A Re-assessment," *European Economic Review*, 41, 139-146.

Harvey, C., K.Lins and A.Roper (2004) "The Effect of Capital Structure when Expected Agency Costs are Extreme," *Journal of Financial Economics,* 74, 3-30.

Hassan, A.M. (2003) "Financial Integration of Stock Markets in the Gulf: A Multivariate Cointegration Analysis," *International Journal of Business,* 8, 336-346.

Heston, S.L. and K.G. Rouwenhorst (1994) "Does Industrial Structure Explain the Benefits of International Diversification?" *Journal of Financial Economics,* 36, 3-27.

Henry, P.B. (2000) "Do Stock Markets Liberalisations cause Investment Booms?" *Journal of Financial Economics,* 58, 301-334.

Hicks, J. (1969), Theory of Economic History, Clarendon Press.

Holmstrom, B. and J. Tirole (1993) "Market Liquidity and Performance Monitoring," *Journal of Political Economy*, 1, 678-709.

Homaifar, G., L. Zietz and O. Benkato (1994) "An Empirical Model of Capital Structure: Some New evidence," *Journal of Business Finance and Accounting*, 21, 1-14.

Hovakimian, A., T. Opler and S. Titman (2001) "The Debt-Equity Choice," *Journal and Financial and Quantitative Analysis,* 36, 1-24.

Huang, S. and F. Song (2002) "The Determinants of Capital Structure: Evidence from China," Working Paper, the University of Hong Kong.

Hussain, Q. and E. Nivorozhkin (1997) "The Capital Structure of Listed Companies in Poland" IMF Working Paper, WP/97/175, December

Hsiao, C. (1986) "Analysis of Panel Data," Cambridge University Press, Cambridge, England.

Ibrahim, M. H. (1999) "Macroeconomic Variables and Stock Prices in Malaysia: An Empirical Analysis," *Asian Economic Journal,* 13, 219-31.

Jalilvand, A., and R. Harris (1984) "Corporate Behaviour in Adjusting to Capital Structure and Dividend Targets: An Econometric Study," *Journal of Finance*, 39, 127-144.

Jappelli, T. and M. Pagano, (1994) "Saving, Growth and Liquidity Constraints," *Quarterly Journal of Economics,* 109, 83-109.

Jensen, M., and W. Meckling (1976) "Theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure," *Journal of Financial Economics*, 3, 305-360.

Jensen, M.C. and W.H., Meckling (1976) "Theory of the Firm: Management Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics,* 3, 305-360.

Jensen, M.C. (1986), "Agency Costs of Free Cash Flows, Corporate Finance, and Takeovers," *American Economic Review,* 76, 323-329.

Jensen, G.R., D.P. Solberg and T.S. Zorn (1992) "Simultaneous Determination of Insider Ownership, Debt and Dividend policies," *Journal of Financial and Quantitative Analysis*, 247-263.

Joen, B.N. and G.M. Furstenburg (1990) "Growing International Co-Movement in Stock Price Indexes," *Quarterly Review of Economics and Business,* 30, 15-30.

Johnson, A.J. (1997), "An Empirical Analysis of the Determinants of Corporate Debt Ownership Structure," *Journal of Financial and Quantitative Analysis,* 32, 47-69.

Johansen, S. (1988) "Statistical analysis of Cointegration Vectors," *Journal of Economic Dynamics and Control,* 12, 231-254.

Johansen, S. and K. Juselius, (1990) "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money," *Oxford Bulletin of Economics and Statistics,* 52, pp.169-210.

Johansen, S. (1991) "Estimation and Hypothesis Testing of Cointegration Vectors III Gaussian Vector Autoregressive Models," *Econometrica,* 59, 1551-1580.

Johansen, S. (1992) "Determination of the Cointegration Rank in the Presence of a Linear Trend," *Oxford Bulletin of Economics and Statistics,* 54, 383-397.

Jones, C. M. and G. Kaul (1996) "Oil and Stock Markets," *Journal of Finance,* 51, 463-491.

Judson, R. A. and A. L Owen (1997) "Estimating Dynamic Panel Data Models: A Practical Guide for Macro Economists," Federal Reserve Board, Finance and Economics Discussion Series 1997-3.

Jung, W.S. (1986) "Financial Development and Economic Growth: International Evidence," *Economic Development and Cultural Change,* 34,333-346.

Kar, M. and E.J. Pentescot (2000) "Financial Development and Economic Growth in Turkey: Further evidence on the Causality Issue," Economic Research Paper No. 00/27, Loughborough University, and mimeo.

Karam, P. (2001) "Exchange Rate Policies in Arab Countries: Assessment and Recommendation," Economic Policy Institute, Arab Monetary Fund, UAE, Working Paper.

Kasa, K. (1992) "Common Stochastic Trends in International Stock Markets," *Journal of Monetary Economics,* 29, 95-129.

Kaneko, T. and B., Lee (1995) "Relative Importance of Economic Factors in the US and Japanese Stock Markets," *Journal of the Japanese and International Economies,* 9, 290-

307.

Keyens, J. (1936) "The General Theory of Employment, Interest and Money," London: Macmillan.

Keister, L. (2000) "Capital Structure in Transition: Financial Strategy in China's Emerging Economy," Working Paper, the Ohio State University.

Khan, M.S. and S.A. Senhadji (2001) "Threshold Effects in the Relationship between Inflation and Growth," IMF, Staff papers, Vol. 48, No. 1.

Khil, J. and B.S. Lee (2000) "Are Common Stocks a Good Hedge against Inflation? Evidence from the Pacific Countries," *Pacific Basin Financial Journal,* 8, 457-82.

Kincaid, G.R. (1988) "Policy Implications of Structural Changes in Financial Markets," *Finance and Development,* March, IMF, 2-5.

King, R., and R. Levine (1993a) "Financial Intermediation and Economic Development," in *Financial Intermediation in the Construction of Europe.* Eds.: Colin Myer and Xavier Vives. London: Center for Economic Policy Research, 156-189.

King, R., and R. Levine (1993b) "Finance and Growth: Schumpeter Might be Right," *Journal of Economics,* 108 (3), 717-737.

King, R., and R. Levine, (1993c) "Finance, Entrepreneurship, and Growth: Theory and Evidence," *Journal of Monetary Economics*, 32, 513-542.

King, R.G. and R. Levine, (1993) "Finance, Entrepreneurship, and Growth: Theory and Evidence," *Journal of Monetary Economics,* 32, 513-542.

Kim, S.W. and S. Wadhwani (1990) "Transmission of Volatility Between Stock Markets," *Review of Financial Studies,* 3, 5-33.

Koop, G., M. H. Pesaran, and S. M. Potter (1996) "Impulse Response Analysis in Nonlinear Multivariate Models," *Journal of Econometrics,* 74: 119-147.

Koray, F. and W.D. McMillin (1999) "Monetary Shocks, the Exchange Rate and the Trade Balance," *Journal of International Money and Finance,* 18, 925-940.

Korajczyk, R. A., D. Lucas and R.L. McDonald (1992) "Equity Issues with Time-Varying Asymmetric Information," *Journal of Financial and Quantitative Analysis*, 27, 397-417.

Korajczyk, R., and A. Levy (2003) "Capital Structure Choice: Macroeconomic Conditions and Financial Constraints," *Journal of Financial Economics*, 68, 75-109.

Korajczyk, R., D. Lucas and R.L. McDonald (1991) "The Effects of Information Releases on the Pricing and Timing of Equity Issues," *Review of Financial Studies,* 4, 685-708.

Krasker, W. (1986) "Stock Price Movements in Response to Stock issues under Asymmetric Information," *Journal of Finance,* 41, 93-105.

Kremp, E., E. Stoss and D. Gerdesmeier (1999) "Estimation of a Debt Function:

Evidence from French and German firm Panel Data," in: Sauve, A and Scheuer, M. eds., Corporate finance in Germany and France, A joint research of the Deutsche Bundesbank and the Banque de France, 139-194.

Kwon, C., T. Shin and F., Bacon (1997) "The Effect of Macroeconomic Variables on Stock Market Returns in Developing Markets," *Multinational Business Review,* Fall, 63-70.

Kwon, C. and T. Shin (1999) "Cointegration and Causality between Macroeconomic Variables and Stock Market Returns," *Global Finance Journal,* 10, 71-81.

Kyle, A.S. (1985) "Continuous Auctions and Inside Trading," *Econometrica,* 53, 1315 1336.

Lasfer, M. (1999) "Debt Structure, Agency Costs and Firm's Size: An Empirical Investigation," City University Business School Working Paper.

Lang, L., E. Ofek, and R.M. Stulz (1996) "Leverage, Investment, and Firm Growth," *Journal of Financial Economics,* 40, 3-29.

Lee, B.S. (1992) "Causal Relations among Stock Returns, Interest Rates, Real Activity and Inflation," *Journal of Finance,* 47 (4), 1591-1603.

Leigh, L. (1997) "Stock Return Equilibrium and Macroeconomic Fundamentals, International Monetary Fund Working Paper No 97/15, 1-41.

Leigh, A., J. Wolfers and E. Zitzewitz (2003) "What do Financial Markets think about the War in Iraq?" Stanford Graduate School of Business, Stanford, CA Working Paper.

Levine, R. (1991) "Stock Markets, Growth, and Tax policy," *Journal of Finance,* 46, 1445-1465.

Levine, R., N. Loayza and T. Beck (2000) "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics,* 46, 31-77.

Levine, R. and S., Zervos (1996) "Stock Markets, Banks, and Economic Growth," World Bank Policy Research, Working Paper, no. 1690.

Levine, R. and S. Zervos (1998) "Stock Markets, Banks, and Growth," *American Economic Review,* 88, 537-558.

Levine, R. (1997) "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature,* 35, 688-726.

Levine, R. (1998) "The Legal Environment, Banks, and Long-Run Economic Growth," *Journal of Money, Credit, and Banking,* 30, 596-613.

Levine, R. (2002) "Bank-Based or Market-Based Financial Systems: Which is better?" NBER Working Papers, 9138, National Bureau of Economic Research.

Lichtenberg, F. and D. Siegel (1990) "The Effects of Leveraged Buyouts on Productivity and Related Aspects of Firm Behaviour," *Journal of Financial Economics,* 27, 165-194

Lin, S.A.Y (1994) "Government Spending and Economic Growth," *Applied Economics,* 26, 83-94.

Long, M. and I. Maltiz, (1985) "The Investment Financing Nexus: Some Empirical Evidence," *Midland Finance Journal,* 53-59.

Luintel K. and M. Khan (1999) "A Quantitative Re-assessment of the Finance-Growth Nexus: Evidence from Multivariate VAR," *Journal of Development Economics,*" 60, 381-405.

Lucas, R.E. (1988) "On the Mechanics of Economic Development," *Journal of Monetary Economics,* .22, 3- 42.

Lynch, D. (1996) "Measuring Financial Sector Development: A Study of Selected Asian Pacific Countries," *Developing Economies*, 34, 3-33.

Lyons, S.E. and V. Murinde (1994) "Cointegration and Granger Causality Testing of Hypotheses on Supply Leading and Demand Following Finance," *Economic Notes*, 23, 308-316.

Mallaris, A.G. and J.L. Urrutia (1991) "An Empirical Investigation among Real, Monetary, and Financial Variable," *Economic Letters*, 37, 151-158.

Masulis, R. W. (1983) "The Impact of Capital Structure Change on Firm Value: Some Estimates," *Journal of Finance,* 38 (1), 107-126.

Masulis, R. (1980) "The Effect of Capital Structure change on Security Prices," *Journal of Financial Economics*, 8, 139-178.

Masulis R.W. (1988) "The Debt/Equity Choice," *Financial Management Association Survey and Synthesis Series,* Cambridge, Mass.: Harper and Row, Ballinger.

Marsh, P. (1982) "The Choice between Equity and Debt: An Empirical Study," *Journal of Finance*, 37, 121-144.

Martinez, M.A., G. Rubio (1989) "Arbitrage Pricing with Macroeconomic Variables: An Empirical Investigation using Spanish Data," Working paper, Universidad Del Pais Vasco.

Maysami, R. C., and T. S., Koh (2000) "A Vector Error Correction Model of the Singapore Stock Market," *International Review of Economics and Finance,* 9, 79-96.

Mayer, C. (1988) "New Issues in Corporate Finance," *European Economic Review*, 32, 1167-89.

McMillan, D. G., (2001) "Cointegration Relationships between Stock Market Indices and Economic Activity: Evidence from US Data," Discussion Paper from the Department of Economics, University of St. Andrews.

Mckinnon R, I. (1973) Money and Capital in Economic Development, the Brookings Institution, Washington.

McConnell, J. and H., Servaes (1995) "Equity Ownership and the Two Faces of Debt," *Journal of Financial Economics,* 39, 131-157.

Merton, M. (1991) Financial Innovations and Markets Volatility, Basil Blackwell Inc.

Merton, R. and Bodie, Z. (1995) "A Conceptual Framework for Analysis the Financial Environment," *The Global Financial System,* Harvard Business School Press, Boston, 3-31.

Miller, M.H. (1977) "Debt and Taxes," Journal *of Finance,* 32, 261-297.

Miller, M. and K. Rock (1985) "Dividend Policy under Asymmetric Information," *Journal of Finance* 40, 11031-1051.

Miller, M. (1991) "The Modigliani–Miller Propositions after Thirty Years," *Journal of Economic Perspectives,* 2, 99-120.

Mishkin, F., (1998) "Does Unanticipated Money matter? An Econometric Investigation," *Journal of Political Economy*, 91, 22-51.

Mira, F. (2001) "On Capital Structure in the Small and Medium Enterprises: The Spanish Case," Working Paper, Faculty of Social Sciences, University of Cardenal Herera.

Modigliani, F. and M.H. Miller (1958) "The Cost of Capital, Corporation Finance and the Theory of Investment," *American Economic Review, 48*, 261-297.

Modigliani, F. and M. Miller (1963) "Corporate Income Taxes and the Cost of Capital: A Correction," *American Economic Review*, 53, 433-443.

Mookerjee, R. and Q., Yu (1997) "Macroeconomic Variables and Stock Prices in a Small Open Economy: the Case of Singapore," *Pacific Basin Finance Journal*, 5, (3), 377-88.

Morck, R., A. Shleifer, and R. Vishny (1988) "Management Ownership and Market Valuation: An Empirical Analysis" *Journal of Financial Economics* 20, 293-315

Murinde, V. and F. Eng, (1996) "Financial Development and Economic Growth in Singapore: Demand following or Supply Leading?" *Applied Financial Economics*, 4, 391-404.

Mukherjee, T. K., and A. Naka (1995) "Dynamic Linkage between Macroeconomic Variables and the Japanese Stock Market: An Application of a Vector Error Correction Model," *Journal of Financial Research,* 18, 223-237.

Myers, S.C. and N.S. Majluf (1984) "Corporate Financing and Investment Decisions when Firms have Information that Investors do not have," *Journal of Financial Economics,* 13, 187-221.

Myers S. (1984) "The Capital Structure Puzzle," *Journal of Finance,* 39, 575-592.

Myers S. (1999) "The Search for Optimal Capital Structure," in H. Chew, Jr., ed.: The New Corporate Finance: Where Theory Meets Practice, Second Edition, Irwin McGraw-Hill.

Nasseh, A. and J. Strauss (2000) "Stock Prices and Domestic and International

Macroeconomic Activity: A Cointegration Approach," *Quarterly Review of Economics and Finance,* 40, 229-245.

Ndikumana, L. (2000) "Financial Determinants of Domestic Investment in Sub-Saharan Africa: Evidence from Panel Data," *World Development,* 28, 381-400.

Narayanan, M. (1988) "Debt versus Equity under Asymmetric Information," *Journal of Financial and Quantitative Analysis*, 23, 39-51.

Neusse, K. and Kugler, M. (1998) "Manufacturing Growth and Financial Development Evidence from OECD Countries," *Review of Economics and Statistics,* 80, 638-646.

Nivorozhkin, E. (2002) "Capital Structures in Emerging Stock Market: the Case of Hungary," *The Developing Economies,* 40,166-187.

Nivorozhkin, E. (2004) "Firms Financing Choices in EU Accession Countries," Bank of Finland Discussion Papers 2004, No. 6.

Nuri, L. (2000) "A study of Capital Structure in the UK: Hotel and Retail Industries," unpublished PhD thesis, Surrey University.

Obstfeld, M. (1994) "Risk Taking, Global Diversification and Growth," *American Economic Review,* 1310-1329.

Odedokun, M. (1989) "Causalities between Financial Aggregates and Economic Activities in Nigeria: the Results from Granger's test," Savings *and development*, 23, 101-111.

Odedokun, M. (1996) "Alternative Econometric Approaches for Analysing the Role of Financial Sector in Economic Growth: Time Series Evidence from LDC's," *Journal of Development Economics,* 50, 101-118.

Ozkan, A. (2001) "Determinants of Capital Structure and Adjustment to Long Run Target: Evidence from UK Company Panel Data," *Journal of Business Finance & Accounting,* 28, 175-198.

Pack, H. (1994) "Endogenous Growth Theory: Intellectual Appeal and Empirical Shortcomings," *Journal of Economic Perspectives,* 8.

Pagano, M. (1993) "Financial Markets and Growth: An Overview," *European Economic Review,* April, 37 (2-3), 613-622.

Pandey, L., (2001) "Capital Structure and the Firm Characteristics: Evidence from an Emerging Market," IIMA Working Paper 2001-10-04.

Papapertou, E., (2001) "Oil Prices Shocks, Stock Market, Economic Activity and Employment in Greece," *Energy Economics,* 23, 511-532.

Patrick, H., and Y., Park (1994) "Financial Development in Japan, Korea and Taiwan. New York: Oxford University Press.

Patrick, H., (1966), "Financial Development and Economic Growth in Underdeveloped Countries," *Economic Development Cultural Change,* January 14 (2), 174-189.

Park, Y., (1993) "The Role of Finance in Economic Development in South Korea and Taiwan," in *Finance and Development: Issues and Experience.* Ed.: Alberto Giovannini Cambridge: Cambridge University Press, 121-150.

Park, K. and A., Ratti (2000) "Real Activity, Inflation, Stock returns and Monetary Policy," *The Financial Review*, 35 (2), 59-79.

Peiro, A. (1996) "Stock Prices, Production and Interest Rates: Comparison of Three Countries with the USA," *Empirical Economics,* 21, 221-234.

Pesaran, M.H. and A., Timmermann (1995) "The Robustness and Economic Significance of Predictability of Stock Returns," *Journal of Finance*, 50, 1201-1228.

Pindyck, R., and D. Rubinfeld (1998), Econometric Models and Economic Forecasts, McGraw-Hill, Singapore.

Phillips, P. and P. Perron (1988) "Testing for a Unit Root in Time Series Regression," Biometrika, 75, 335-346.

Phillips, P. C. B. (1987) "Time Series Regression with a Unit Root," *Econometrica*, 55, 277-346.

Poon, S., and S. J. Taylor (1991) "Macroeconomic Factors and the U.K Stock Market," *Journal of Business Finance and Accounting,* 18, 619-636.

Prasad, SJ. Green, C.J., and V. Murinde (2001a) "Company Financing, Capital Structure, and Ownership: A Survey, and Implications for Developing Economies," *SUERF Studies,* No. 12, February.

Prasad, S.J., Green, C.J., and V. Murinde (2001b) "Corporate Financial Structures in Developing Economies: Evidence from a Comparative Analysis of Thai and Malay Corporations," *Finance and Development Research Program, Working Paper,* no. 35, December.

Purfield, C., H. Oura, C. Kramer and A. Jobst (2006) "Asian Equity Markets: Growth, Opportunities and Challenges," IMF Working Paper 266.

Rajan, R, and L. Zingales (1998), "Financial Dependence and Growth," *American Economic Review,* 88, 559-586.

Rajan, R., and L. Zingales (1999a) "Financial Systems, Industrial Structure, and Growth," mimeo.

Rajan, R., and L. Zingales (1999b) "The Politics of Financial Development," mimeo.

Rajan, R. and L. Zingales (1995) "What Do We Know About Capital Structure? Some Evidence from International Data," *Journal of Finance,* 50(5), 1421-460.

Ramcharran, H. (2002) "Empirical Analysis of the Determinants of the P/E ratio in Emerging Markets," *Emerging Markets Review*, 3 (2), 165-178.

Romer, D. (1996) *Advanced Macroeconomics,* Berkeley: University of California.

Romer, P.M. (1990) "Endogenous Technological Change," *Journal of Political Economy,* 98, 71-102.

Roubini, N. and X. Sala-i-Martin (1995) "A Growth Model of Inflation, Tax Evasion and Financial Repression," *Journal of Monetary Economics,* 35, 275-301.

Rousseau, P., and P., Wachtel (1998) "Financial Intermediation and Economic Performance: Historical Evidence from Five Industrialized Countries," *Journal of Money Credit and Banking,* 657-678.

Rousseau, P., and P., Wachtel (2000) "Equity Markets and Growth: Cross-Country Evidence on Timing and Outcomes, 1980-1995," *Journal of Business and Finance*, 24, 1933-57.

Robinson J. (1952), The Rate of Interest and other Essays, Macmillan, London.

Ross, S. (1977) "The Determination of Financial Structure: The Incentive Signaling Approach," *Bell Journal of Economics,* 8, 23-40.

Ross, S.A. (1976) "The arbitrage Theory of Capital Asset Pricing," *Journal of Economic Theory,* 12 (3), 341-60.

Rozeff, M.S. (1982) "Growth Beta and Agency Costs as Determinants of Dividend Payout Ratios," *Journal of Financial Research*, 249-259.

Sadorsky, P. (1999) "Oil Price Shocks and Stock Market Activity," *Energy Economics* 21, 449-469.

Saint Paul, G., (1992) "Technical Choice, Financial Markets and Economic Development," *European Economic Review*, 36, 763-781.

Schumpeter J., (1912) the *Theory of Economic Development*, Cambridge: Harvard University Press. First published in Germany.

Scott, J. (1977) "Bankruptcy, Secured Debt and Optimal Capital Structure," *Journal of Finance,* 32, 1-19.

Schwert, W., (1990) "Stock Returns and Real Activity: A Century of Evidence," *Journal of Finance,* 45, 1237-1257.

Sharpe, W.F., (1994) "The Sharpe Ratio," *Journal of Portfolio Management,* Fall, 49-58

Shapiro, A., E. Douglas, and B., Thomas, (1975) "Financial Goals and Debt Ratio Determinants: A Survey of Practice in Five Countries," *Financial Management,* 4, 27-41.

Shah, A., and S. Thomas (1998) "Market Microstructure Consideration in Index Construction," In CBOT Research Symposium Proceedings, pages 173-193, Chicago Broad of Trade.

Shaw E., (1973), Financial Deepening in Economic Development, New York: Oxford University Press.

Shyam-Sunder, L. and S.C., Myers (1999) "Testing Static Trade-off against Pecking order Models of Capital Structure," *Journal of Financial Economics,* 51, 219-244.

Shyam-Sunder, L. (1988) "Essays in Corporate Financing," Ph.D. Dissertation, MIT.

Shleifer, A. and R., Vishny (1997) "Large Shareholders and Corporate Control," *Journal of Political Economy,* 94, 461-488.

Shin, H., and R. Stulz, (2000) "Firm value, Risk and Growth opportunities," Working Paper, University of New York at Buffalo, mimeo.

Sims, C.A. (1990) "Rational Expectations Modeling with Seasonally Adjusted Data," *Journal of Econometrics*, 55 (1-2), 9-19.

Singh, A. and B. Weisse (1998) "Emerging Stock Markets Portfolio Capital Flows and Long-term Economic Growth: Micro and Macroeconomic Perspectives," *World Development,* 26, 607-22.

Sinha, D., and S. Tapen (1999) "The Relation between Openness and Economic Growth: Post-war Evidence from 124 Countries, *Seoul Journal of Economics,* 12 (spring), and 67-84.

Singh, A., (1995) "Corporate Financial Patterns in Industrializing Economics: A Comparative Study," IFC Technical Paper no.2: IFC, Washington DC, USA.

Singh, A. and L. Hamid, (1992) "Corporate Financial Structures in Developing Countries," IFS Technical Paper, no. 1, Washington D.C., IFC.

Smith, C. and R. Watts, (1992) "The Investment Opportunity and Corporate Financing, Dividend and Compensation Policies, *Journal of Financial Economics,* 32, 263-292.

Solow, R.M. (1956) "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics,* 70.

Schmukler, S. and E. Vespironi (2001) "Globalization and Firms Financing Choices: Evidence from Emerging Market," IMF Working Paper 01/95.

Stammer, D.W. (1972) "Financial Development and Economic Growth in underdeveloped Countries: Comments," *Economic Development and Cultural Change,* 20, 318-325.

Stern, N. (1989), "The Economics of Development: Survey," *Economic Journal,* 100, 597-685.

Stiglitz, J., (1985) "Credit Markets and the Control of Capital," *Journal of Money, Credit, Banking,* 17, 133-152.

Stiglitz, J., and A., Weiss (1981) "Credit Rationing in Markets with Imperfect information," *American Economic Review,* 71, 393-410.

Stiglitz, J. (1989) "Financial Markets and Development" *Oxford Review of Economic Policy,* 5, 55-68.

Stock, J. H. and M. W. Watson, (1998) "Business Cycle Fluctuations in Macroeconomic Time Series," NBER Working Paper no. 6528.

Stulz, R.M. (2000) "Does Financial Structure matter for Economic Growth? A Corporate Finance Perspective," Mimeo, Ohio State University.

Summers, L.H., (1986) "Does the Stock Market Rationally reflect Fundamental Values?" *Journal of Finance*, 46, 591-601.

Summers, L.H., (2000) "International Financial Crisis: Causes, Prevention and Cures," *American Economic Review Papers and Proceedings,* 90, 1-16.

Taylor, L., (1983) Structuralist Macroeconomics: Applicable Models for the Third World.

Temple, J. (1999) "The New Growth Evidence," *Journal of Economic Literature,* 37(1), 112-156.

Thiel, M., (2001) "Finance and Economic Growth: A Review of Theory and the Available Evidence," Economic Paper. No. 158, European Commission Brussel.

Thies, C., and M. Klock, (1992) "Determinants of Capital Structure," *Review of Financial Economics* 1, 40-52.

Thornton, J., (1993) "Money, Output and Stock Prices in the UK: Evidence on Some Relationships," *Applied Financial Economics,* 3,335-338.

Titman, S. (1984) "The Effect of Capital Structure on a Firm's Liquidation Decision," *Journal of Financial Economics*, 13 (1), 137-51.

Titman, S, and R. Wessels (1988) "The Determinants of Capital Structure Choice," *Journal of Finance,* 43(1), 1-19.

Tobin, J., (1965) "Money and Economic Growth," *Econometrica,* 33, 671-684.

Tsuru, K. (2000) "Finance and Growth: Some Theoretical Considerations, and A review of the Empirical Literature," Economic Department Working Paper 228, Organization for Economic Co-operation and Development, Paris.

Wachtel, P. (2003) "Growth and Finance: What do we and how do we know it?" in *International Finance.*

Wald, J. (1999) "Capital Structure with Dividend Restrictions," *Journal of Corporate Finance,* 5, 193-208.

Wald, J. (1999) "How Firm Characteristics Affect Capital Structure: An International Comparison," *Journal of Financial Research,* 22(2), 161-187.

Watson, R. and N. Wilson (2002) "Small and Medium Size Enterprise: A Note on Some of the Implications of a Pecking Order," *Journal of Business Finance and Accounting,* 29, 557-578.

Welch, L. (2004) "Capital Structure and Stock Returns," *Journal of Political Economy,*

112, 106-131.

Williamson, O, (1988) "Corporate Finance and Corporate Governance," *Journal of Finance* 43, 567-591

Wiwattanakantang, Y., (1999) "An Empirical Study on the Determinants of the Capital Structure of Thai Firms," *Pacific-Basin Finance Journal,* 7, 371-403.

Wood, A., (1993) "Financial Development and Economic Growth in Barbados: Causal Evidence," *Savings and Development*, 17, 379-390.

Um, T., (2001) "Determination of Capital Structure and Prediction of Bankruptcy in Korea," Unpublished PhD Thesis. Cornell University.

Van Wijnbergen, S., (1983a) "Interest Rate Management in LDCs," *Journal of Monetary Economics,* 12, 433-452.

Van Wijnbergen, S., (1983b) "Credit Policy, Inflation and Growth in a Financially Repressed Economy," *Journal of Development Economics,* 13, 45-65.

Wasserfallen, W. (1989) "Macroeconomic News and the Stock Market," *Journal of Banking and Finance,* 13, 613-626.

Xu, Z., (2000) "Financial Development, Investment, and Economic Growth," *Economic Inquiry,* 38, 311-344.

Yavas, A. (1998) "Does too Much Government Investment Retard Economic Development of a Country," *Journal of Economic Studies,* 25, 296-308.