Determinants of the Dividend Payout Ratio

of Companies Listed on Emerging Stock Exchanges:

The Case of the Gulf Cooperation Council (GCC) Countries

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A Thesis Submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy of Cardiff University

Accounting and Finance Section, Cardiff Business School, Cardiff University

July 2007

FOR MY MUM AND MY SISTER SABA

Acknowledgements

I would like to express my deep and sincere gratitude to my supervisor Dr.Yusuf Karbhari, Reader in Accounting, who kept a caring eye on the progress of my work while being continually available when I needed his guidance. His wide knowledge about the GCC states and his logical pattern of thinking have been of enormous value to me. His understanding, encouragement and personal advice have also contributed greatly to the realisation of this thesis.

I am deeply grateful to my econometrician supervisor, Professor Gerald Makepeace, Professor of Econometrics, for his guidance and suggestions in statistics. In particular, his constructive comments and his key advice during this work have been of great value. Also I wish to warmly thank Professor Nickolaos Travlos, Distinguished Senior Research Fellow, for his valuable advice.

I would most sincerely like to thank Professor Keith Whitfield, Associate Dean Postgraduate Studies, for his kindness, understanding and support when it was most needed. For this I will always remain grateful.

I wish to express my warm and sincere thanks to Dr. Alpa Dhanani, Lecturer in Finance, for her detailed and valuable comments. I owe her a debt of gratitude for nurturing my skills in financial analysis and for her help right through this work. She may not even realise how much I have learned from her.

I am grateful for Dr. Svetlana Taylor and Dr. Mark Clatworthy who were instrumental in helping me to master the necessary statistical software packages. They made the rocky path much smoother! I would also like to thank Dr Robin North, Research Associate, who helped to improve my English writing.

I will also give a special thanks to Elsie Phillips and Laine Clayton , of the PhD Office, for their unstinting encouragement during my study. I would like to thank my colleagues Dr.Piyapato Rucgerat, Dr. Laurian Lungu and Marwa Al-Kalbani, for their support and companionship throughout the process.

Finally, all my love and a large debt of gratitude to my parents, my brother Khalifa, and my sister Saba for their moral support and encouragement, for which I'm truly thankful.

ABSTRACT

This thesis investigates the behavior of firms listed on the stock exchanges of the Gulf Co-operation Council (GCC) countries in relation to the determination of their dividend policies. This may be considered more generally as a case study of emerging stock exchanges, where the determinants of dividend policy in emerging stock markets have received little attention.

The study uses panel data of non-financial firms listed on the stock exchanges of GCC countries as a whole, and of five individual countries (Kuwait, Saudi Arabia, Oman, Qatar and Bahrain,), for the five year period between 1999 and 2003. The study develops nine hypotheses, which relate to the agency cost theory and which have been investigated in the previous literature. Based on these hypotheses, three models have been tested to address the limitations of previous work. The first model considers the impact of *government ownership, free cash flow, firm size, growth rate, growth opportunity, business risk,* and *firm profitability.* As some of the GCC states stock markets disclosed additional information about ownership structure, two additional models have been used to investigate whether the additional information provides additional insight into dividend policy. The first additional model re-tests dividend payout policy after adding *institutional ownership* to the explanatory variables used in the general model. The second additional model introduces the variable *large shareholders,* whether government, institutions, or individuals.The hypotheses have been tested by using two methods (1) the fixed effects and random effects models, and (2) the random effects Tobit model, which is better able to represent the fact that a significant number of listed firms chose not to distribute cash dividends in some or all of the years of the study period.

In general, the fixed and random effects approaches, gave results consistent with the random effects Tobit approach. These results suggest that the main characteristics of dividend payout policy in these firms is that dividend payment relates strongly and directly to government ownership and firm profitability. These results taken as a whole indicate that firms pay dividends with the intention of reducing the agency problem and maintaining firm reputation since the legal protection for outside shareholders is limited in these countries. In addition, and as a result of the significant agency conflicts interacting with the need to built firm reputation, a firm's dividend policy depends heavily on firm profitability for the same year. This may indicate that listed firms, in the GCC states, alter their dividend policy very frequently and do not have a long-run target dividend policy.

The results also report that the common variables of transaction cost theory (growth rate, leverage ratio, and business risk) have lower importance in explaining dividend policy that may have been predicted by previous work, as these factors were found to be significant in very few cases. Hence, this study concludes that dividend policy of firms listed on the GCC stock exchanges is affected mainly by agency cost but partly by transaction cost theory.

Overall, this research indicates that government ownership plays an important role in dividend policy, and this characteristic is of particular relevance to consider when evaluating firms listed on the GCC stock exchanges.

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Saudi Arabia	Saudi Stock Market (SSE)
Oman	Muscat Stock exchange (MSE)
Qatar	Doha Stock Exchange (DSE)
Bahrain	Bahrain Stock Exchange (BSE)

CHAPTER ONE

Introduction

1.1 Introduction

Dividend policy has been a subject of considerable debate and of significant interest since Miller and Modigliani (MM) (1961) showed that under certain assumptions dividends are irrelevant and have no influence on a firm's share price. Since then, a large number of financial researchers and practitioners have disagreed with MM's dividend irrelevance proposition and have argued that MM based their proposition on perfect capital market assumptions, which do not exist in the real world. Those opposed to MM introduced competing theories and hypotheses to provide empirical evidence that when the capital market is imperfect, dividends do matter. For example, the bird in the hand theory (predating MM's paper) explains that investors prefer dividends (certain) to retained earnings (less certain): therefore, firms should set a high dividend payout ratio to maximise firm share price (e.g. Gordon, 1956; Lintner,1956; Fisher, 1961; Walter, 1963; and Brigham and Gordon , 1968).

In the early 70s and 80s, several studies (e.g. Brennan, 1970; Elton and Gruber, 1970; Litzenberger and Ramaswamy, 1979; Litzenberger and Ramaswamy, 1982; Kalay, 1982; John and Williams, 1985; Poterba and Summers, 1984; Miller and Rock, 1985; Ambarish et al., 1987) introduced the tax preference theory to explain the relevance of dividends by indicating that investors prefer capital gain over the payment of higher dividends due to tax reasons. As a result, firms should keep dividend payouts low in order to raise their value. These studies also discussed that tax effects often differ among firms' investors, who are therefore attracted to firms that have dividend polices best suiting their needs, giving rise to the tax clientele effect.

In the early 1980s, the signalling theory was analysed, showing that information asymmetry between the managers and the outside shareholders allows managers to use dividends as a tool to signal private information about the firm's performance to outsiders. As a result, the value of a firm increases with an increase in dividends and vice versa, signalling good future prospects for the firm to investors. In turn, investors may use dividend announcements as information to evaluate a firm's stock price (e.g. Aharony and Swary, 1980; Asquith and Mullins, 1986; Kalay and Loewenstein, 1985; and Healy and Palepu, 1988).

Another explanation for dividend policy is based on the transaction cost and residual theory, where transaction costs are defined as the costs incurred by a firm when it looks for external financing. This theory indicates that firms which incur high transaction cost will be required to reduce dividend payouts to avoid the costs of external financing (Mueller,1967, Higgins, 1972; Crutchley and Hansen, 1989; Alli et al., 1993; Holder et al.,1998).

A different explanation, which received little consideration prior to the 1980's, relates dividend policy to the effect of agency costs (La Porta et al., 2000). Agency costs are the costs incurred in monitoring the company management to prevent inappropriate behaviour. High dividend payouts would reduce internal cash flows, which would tend to force the managers to seek external financing and thereby making them liable to capital suppliers, thus reducing agency costs (Rozeff, 1982; Easterbrook, 1984; Lloyd, 1985; Crutchley and Hansen., 1989; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Glen et al., 1995; Holder et al., 1998; Saxena, 1999).

However, the dividend policy issue and the actual motivation behind paying dividends remain unclear due to varying hypotheses and controversial explanations. Dividend policy has been analysed for many decades but to date no acceptable explanation for the observed dividend behaviour of companies has been established. Black (1976: 5) defined this as the dividend puzzle, indicating that:

> "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that don't fit together".

The majority of recent studies seem to be in line with Black. Brealey and Myers (2005) defined dividend policy as one of the top ten most difficult and unsolved problems in financial economics. Frankfurter et al. (2002) argued that forty years have been spent researching dividend policy, but thus far it has not been resolved.

However, Adaoğlu (2000) argued that more pieces have been added to "the dividend puzzle" when current researchers have attempted to explain the dividend behaviour of firms listed in emerging markets. Specifically, dividend policy in these markets is often very different from the dividend policy that has been accepted in developed markets. However, relatively little evidence exists for emerging markets and particularly for Gulf Cooperation Council (GCC) states, making it important and worthwhile to examine the dividend policy in GCC states and provide new evidence of dividend policy in emerging markets.

The GCC states are a group of six Arab oil-exporting countries that founded the Gulf Cooperation Council (GCC) in May 1981: Bahrain, Kuwait, Qatar, Saudi Arabia, Oman, and the United Arab Emirates. The primary motive behind the creation of the GCC was to enhance the collective security of member states in the face of the Iran-Iraq war, which had begun a year earlier. Socio-economic cooperation and eventual economic integration were also among the stated objectives of the GCC constitution. To achieve this goal, the GCC Economic Agreement of June 1981 (The Economic Agreement between GCC States, 1981) identified several distinct policy objectives including, among others, the creation of a free-trade area; a common market with complete mobility of labour, financial capital, and commodities; the co-ordination of domestic economic policy; and the adoption of a common foreign trade policy. However, after two decades, and despite this strong initial commitment, the pace of economic integration within the GCC was very slow, with only a few of the stated economic goals being achieved and the GCC governments focusing on deficit and security.

The inability to attain economic integration, combined with oil price fluctuation in countries entirely dependent on exporting crude oil, motivated the governments to transfer part of their economic responsibility to the private sector and to initiate several steps to attract regional and foreign investment. Central to investment decisions on whether to enter a specific stock exchange is the dividend policy employed by companies. Dividend policy is among the factors that stimulate regional and foreign investors. It has not, however, been considered in any previous research.

1.2 Motivation of this Research

Dividend policy is one of the most intriguing topics in financial research. Even now, economists give considerable attention and thought to solving the dividend puzzle, resulting in a large number of conflicting hypotheses, theories and explanations for dividend policy. Researchers have mainly focused on developed markets however, it may be that additional insight into the dividend policy debate can be gained by a consideration of developing countries.

To date, little attention has been paid to dividend policy in emerging markets and this field is currently not well established in the financial literature. Dividend policy in emerging markets is often very different to that in developed markets. In particular, the case of the GCC states presents some interesting characteristics that make the study appropriate in terms of policy recommendations for the GCC states and other emerging countries. First, the GCC environment is unique in that tax is not paid on dividends or capital gains. Second, the stock exchanges in these countries are more volatile and entail a certain degree of information asymmetry together with an expectation that high agency costs will be incurred. Third, governments own a significant proportion of shares in the listed firms, especially the large-sized firms. However, the government participation might produce a complex setting of agency theory, where by government involvement may duplicate the agency problem and at the same time served managing[1].

As a result of these characteristics, there is considerable interest to identify dividend policy determinants for these companies and in particular the validity of the agency explanation in

[1]Gugler (2003, p.1301) is one of the first to suggest that government intervention means an extension of the agency problem where the principal-agent problem will be duplicated. That is, agency problems may appear between citizens and their representative; the government, who may not play a role in the best interests of citizens. The conflict might also might appears between the government and other managers, where managers often seek to benefit themselves from the resources available to a firm, allowing them to increase their salaries and take advantage at the expense of other shareholders. This explanation has been supported by Al-Malawi (2005) who examined dividend policy in listed firms of Amman stock exchange as an emerging stock exchange.

the listed firms of the GCC states' stock exchanges. Thus, the aim of this thesis is to follow the dividend debate into the emerging market field by presenting new evidence from the GCC states.

What might be important to mention is that dividends can be measured in 3 ways:

- Dividend per share
- Dividend payout ratio and
- Dividend yield

For the purpose of this dissertation, the dividend payout ratio is the most suitable of these because it takes consideration of the dividend payout and dividend retention. This is because the hypotheses examined in this study, namely agency theory and transaction cost (including firm growth) are concerned with the relationship between the dividend payout and the amount of cash retained in business, and how this may reduce agency costs and encourage future investment. In addition, most prior research, for example Rozeff (1982), Lloyd (1985), Jensen et al (1992), Dempsey and Laber (1992), Alli et al (1993), Moh'd et al (1995), Holder et all (1998), Chen et al (1999), Saxena (1999), Mollah et al., (2002), Manos(2002), Travlos et al., (2002), have also used dividend payout ratio to determine dividend policy to examine the agency theory explanation and transaction cost explanation. For ease of comparison with the literature it is therefore appealing to retain this measure. Finally, the dividend per share and dividend yield were considered unsuitable for this study because neither measure takes into consideration the dividend paid in relation to income level. It may also be considered that the dividend yield model is a measure of firm value and return to share holders and therefore not necessarily related agency theory.

1.3 Objective and Importance of the Study

The objective of this thesis is to identify the factors that influence dividend policy in the agency theory, specifically the thesis focuses on the explanation of agency theory and transaction cost theory in the context of GCC countries.

This research adds to current research in three keys:

i. It is the first study to examine GCC states.

ii. It provide new evidence from an emerging market. As mentioned previously, dividend policy in an emerging market is expected to be different to dividend policy in a developed market, regarding the nature and efficiency of each market. On the other hand, emerging stock markets generally share a number of similar characteristics. Therefore, examining the dividend policy of firms listed on the GCC states' stock exchanges could present a rich base for future comparative research on other emerging markets. Moreover, by reviewing the literature, it has been found that very few studies have examined the dividend policy issue in emerging economies: therefore, this work contributes to a potentially important research area. It seeks to present a new reference for future research in this area.

iii. Finally, this research highlights the differences between practices in the established markets and emerging markets. This has implications for investors' investment decisions.

1.4 Data Collection and Methodology

This study investigates the dividend policies of 191 non-financial companies listed on the stock exchanges of GCC countries for the period 1999 to 2003 using available annual data in the firms' annual reports, directories of national stock exchanges, and information published in the *Gulf Investment Guide (2004).*

The idea is to test firms listed in five countries for a certain number of years: thus, it was important to collect data for each country for the same time period. Missing data problems constrains this analysis to non-financial firms for the period 1999 – 2003, as this was the only period for which complete data for all GCC countries was available.

It should be noted that this study is based on secondary data that has been mainly collected from the directories of the GCC stock exchanges. The Gulf countries present a predominantly male-dominated society (although, as elsewhere, approximately half of the population are female) and this results in methodological difficulties if the researcher is a female, due to the conservative atmosphere. Hence, it is difficult, but not impossible, for a female to interview or administer a questionnaire in many GCC countries. Thus, while primary research methods were used where possible, this thesis focuses on the use of secondary data.

The research methodology uses panel data modelling: the fixed effects and random effects model, as well as the random effects Tobit model. These techniques are used to relate dividend payment to the attributes of companies listed on the stock exchanges of Qatar, Saudi Arabia, Bahrain, Kuwait, and Oman. The UAE security markets have been excluded from the current study due to difficulties obtaining adequate data; The UAE stock exchanges are newly established with a small number of listed firms. Thus, the age of stock exchanges and the number of companies listed on the exchange made it difficult to provide credible analysis of the dividend policy adopted by companies listed on the UAE stock exchanges.

1.5 The Structure of this Thesis

The study is organised into several chapters as follows:

Following the introduction in this chapter, Chapter 2 gives the background of the GCC states and investigates their economic and financial characteristics. Chapter 3 discusses the capital markets, stock exchanges, and the ownership structures of the GCC states and explains the nature of dividend policy in these countries. Chapter 4 presents a review of the relevant literature, providing an explanation of different dividend theories. It also discusses previous studies in chronological order. Chapter 5 presents the research hypothesis, data collection, and research methodology. Following this, Chapter 6 tests the dividend policy of companies listed on the GCC states' stock exchanges as an aggregate sample to investigate factors that affect dividend policy. The dividend policies of companies listed on the Kuwait Stock Exchange, the Saudi Stock Exchange, the Muscat Stock Exchange, the Doha Stock Exchange, and the Bahrain Stock Exchange are tested individually in Chapters 7, 8, 9, 10 and 11 respectively. Finally, Chapter 12 discusses and compares these results and the characteristics of the five GCC states and offers a set of conclusions. Figure 1.1 summarises the structure and the content of the thesis.

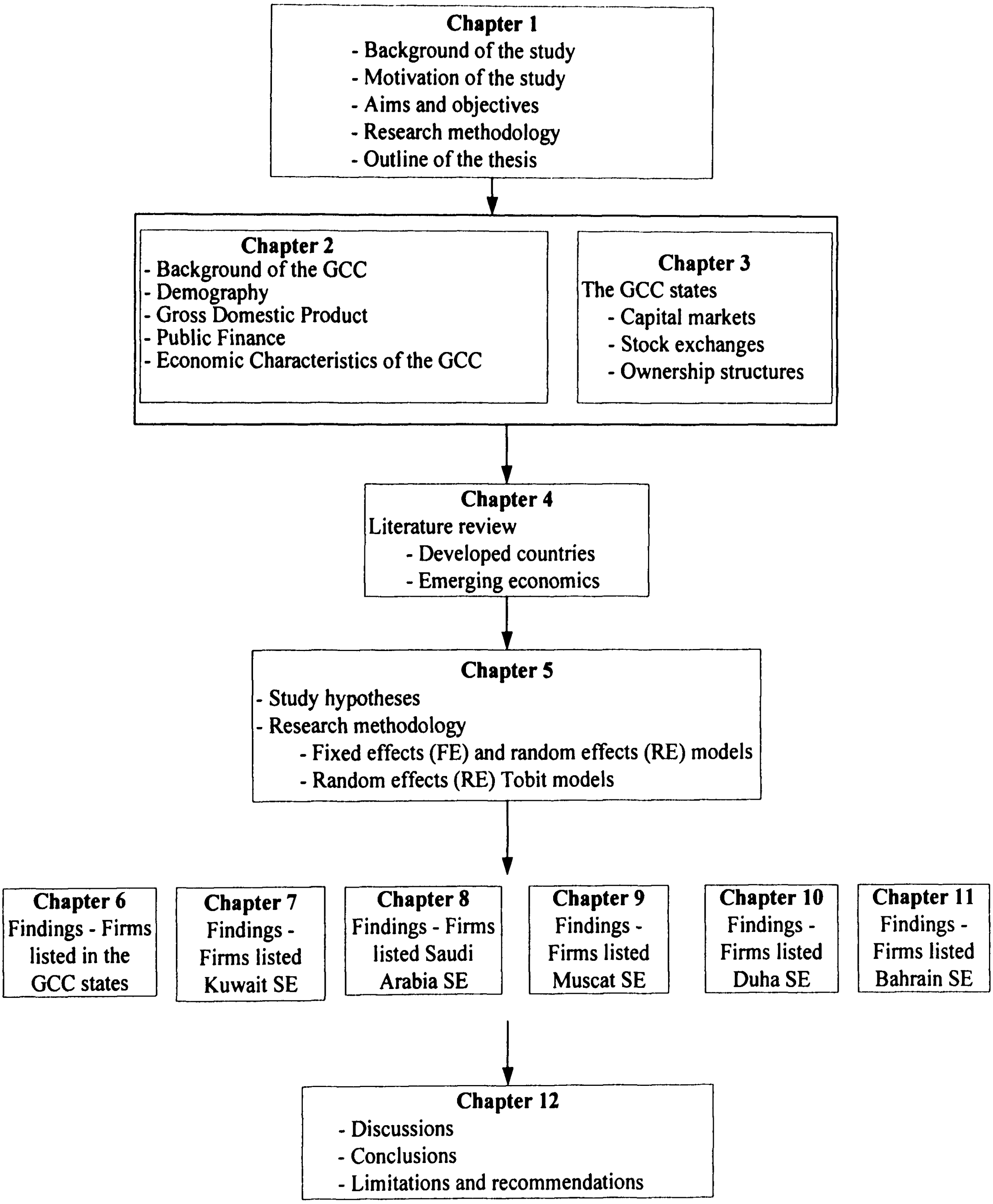

Figure 1.1: Outline of the thesis

CHAPTER TWO

The Cooperation Council for the Arab States of the Gulf (GCC): The background to the Economies

2.1 Introduction

This chapter provides an overview of the economies of GCC states and outlines the main characteristics of GCC economics. Section 2.2 outlines the background of the GCC, followed by section 2.3, which provides an overview of the demography of GCC states. Section 2.4 presents the Gross Domestic Product (GDP) of the GCC, and section 2.5 discusses public finance in the GCC. Finally, section 2.6 concludes with the main economic and financial characteristics of GCC states.

2.2 Background of the GCC

In May 1981, six oil-producing countries in the Arabian Peninsula founded the Cooperation Council for the Arab States of the Gulf (GCC) (Figure 2.1). The Council consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The basic objectives of this cooperation council, as stated in its article of association (The Gulf Cooperation Council - Charter, 1981), are:

1. To bring about co-ordination, integration and inter-connection between member states in all fields in order to achieve unity between them
2. To deepen and strengthen relations, links, and areas of cooperation now prevailing between their peoples in various fields
3. To formulate similar regulations in various fields including the following:
    a. economic and financial affairs
    b. commerce, customs, and communications
    c. education and culture
    d. social and health affairs
    e. information and tourism
    f. legislative and administrative affairs

4. To stimulate scientific and technological progress in the fields of industry, mining, agriculture, water and animal resources; to establish scientific research; to establish joint ventures and encourage cooperation by the private sector for the good of their peoples.

Figure 2.1 Map indicating the location of GCC countries

The establishment of the GCC in 1981 reflected a number of needs: official, popular, and international. These three forces combined to form the foundation of the GCC and had a significant influence on its structure and ambition. The GCC was proposed by the rulers and welcomed by the people of the area as an entity capable of achieving development and ensuring regional security. In addition to this was the possibility of effecting reform of the political system that hitherto had been traditional and autocratic. This was to be considered within a framework of political reform and integration, bearing in mind that the oil-producing states of the Arab peninsular are a part of the Arab world, with particular similarities in their political systems, alliances, economies, social roots, circumstances, and demographies.

After previous attempts in the late sixties, the GCC was founded in 1980 when the nine emirates negotiated shortly before independence from Britain to establish a union including Bahrain and Qatar as well as the seven emirates which in 1971 had established the United Arab Emirates.

A further reason for establishing the GCC is of an international nature, in the wake of the Iranian revolution in 1979, which ended the role of the Shah of Iran as 'policeman of the Gulf'. In addition to the fear of expansion of an Islamic revolution, particularly following the Iran-Iraq war of 1980, there was an international need (primarily a combination of the rulers and the Americans) to create an entity in this part of the world to provide regional security for GCC states from their neighbouring states and to provide a framework for regional security arrangements with the USA. This materialized when Iraq invaded Kuwait and the GCC countries became the bases of international military intervention in 1991.

Therefore, it was essential that the GCC Government combine the needs of the general populace, consolidated by American interests, to establish an entity between the six oil-producing states in the Arab Peninsula rendering the GCC a possible, or even desirable, arrangement for all sides. However, there was a difference between the needs of the GCC people on the one hand, and governmental and international needs on the other. This is reflected in the Article of Association and related documents of the Council's foundation, as well as the framework. This difference resulted in an attempt by the GCC Secretariat General to bridge the aims of both the government and people in a 'Development and Integration' strategy discussed by more than a hundred elite professionals and intellectuals in the six states. This strategy outlined the ambitions of the region in development and integration. The following are the strategic goals stated and adopted by the GCC Secretariat General and submitted to the council of the Planning Ministries (Al-Kuwari, 1986):

1 Gradually decrease dependency on oil revenue
2 Reduce the number of non-citizens, modify population structure and improve its quality
3 Reform public expenditure and budget
4 Reform and develop current public administration
5 Create alternative economic basis
6 Create developed technical basis
7 Reform education and relate to development need
8 Provide a suitable environment for cultural and social development

Despite the approval in principle of the Planning Ministers of the GCC, the GCC states have unfortunately, not fully adopted the suggested strategy of integration and development because the strategy requested gradual movement from cooperation to integration and federation, as stated in Part One of Article 4. However, these strategic goals have become the central topic in the ministers' councils of the GCC, providing the main issues for discussion on economic and financial integration. Furthermore, they led to many of the aspects of coordination within the financial and economic system, e.g. opening up the stock exchanges for GCC investors, thus making the stock exchanges in GCC states a factor in economic integration.

In view of its achievement of economic integration and coordinating financial policy alongside other development objectives, the GCC today stands out as one of the most important economic cooperation organisations in the Arab world. The GCC has provided a framework for cooperation and coordination among its members during the past 25 years and will continue to provide significant possibilities for development goals and effective economic and financial policies for its members. In addition, it also provides a framework for the stability of oil and gas supplies to the world at large. These countries own around 44% of the world's crude oil reserves, and around 15% of the natural gas reserves. Furthermore, they account for approximately 15% of the international production of crude oil, and crude oil exports reach around 20% of total international exports (Al-Ibrahim, 2004). On account of these characteristics, the GCC countries are unique among other developing countries in that, because of their oil revenues, they achieve a high level of income, surpassing in some instances the per capita income of developed countries. The high price of oil in the early 70s helped the GCC countries to adopt a number of plans aimed at improving the infrastructure, to invest in directly productive assets in the form of profitable public enterprises and established companies engaged in international joint ventures, as well as to invest in local public share companies.

2.3 Demography

The combined population of the six GCC countries grew from nearly 10 million in 1975 to reach around 33 million by the end of 2004. Saudi Arabia, by far the biggest GCC country, accounted for around 68% of the population at the end of 2004, with an estimated 22.7 million people. The United Arab Emirates (UAE) was the second most populated GCC state, accounting for around 13% or nearly 4.3 million people. The distribution of the total GCC population was estimated at 7.3% in Oman, 7.2% in Kuwait, 2.3% in Qatar and 2.1% in Bahrain (GCC Secretariat General's Economic Bulletin, 2006).

In effect, expatriates represent one-third of the total GCC population and account for two-thirds of the total labour force (Table 2.1). This imbalance in the population structure began during the last three decades as a result of the oil boom of the early 70s. For example, in 1975, the total population for the six countries was 10 million and expatriates accounted for 26% of this total. The total manpower in this year was 2.9 million, of which non-citizens constituted 45%. In 1981, during the second oil boom, the total population in this area increased to 12 million and total manpower was around 4 million, of which non-citizen manpower exceeded 54% (Al-Kuwari, 2004).

However, the latest available information indicates that in 2001, the Secretariat General of the GCC countries reported that the GCC population had increased to 32 million, having been no more than 10 million in 1975, and the ratio of expatriates to total population had increased to 35%, compared with 26% in 1975. Moreover, the ratio of non-citizens to total manpower reached 64.8%, having been 45% in 1975. It is important to point out here that the citizen population in a number of GCC countries is in the minority. For example, in the UAE, the citizen population constitutes no more than 22% of the total population and only 8.7% of manpower. Similarly, in Qatar, the citizen population is only 30% and manpower just 15%. Such an imbalance in the population structure and the huge amount of non-citizen manpower has caused a drain on national income and the repatriation of large sums in wages and salaries to labour exporting countries (Al-Kuwari, 2004).

Table 2.1
GCC Population and Manpower 1975 and 2001 (thousand)

State	1975				2001			
	Population		Manpower		Population		Manpower	
	total	non-citizen	total	non-citizen	total	non-citizen	total	non-citizen
Bahrain	267	22%	79	50%	651	38%	308	86%
Kuwait	1027	54%	298	71%	2243	62%	1214	80%
Oman	846	16%	192	54%	2478	26%	705	79%
Qatar	180	71%	74	83%	597	70%	323	85%
Saudi Arabia	7334	19%	1968	34%	22690	26%	6090	50%
UAE	551	61%	292	85%	3488	78%	2079	91%
Total	**10205**	**26%**	**2903**	**45%**	**32146**	**34%**	**10718**	**65%**

Source: Al-Kuwari (2004)

2.4 Gross Domestic Product (GDP)

The GCC economy in 2004 was among the largest in the world in relation to its population. The estimated GDP of Saudi Arabia accounted for 53% of the total GCC GDP, and the smallest national GDP was that of Bahrain at 2%. In 2004, the GDP of Saudi Arabia reached $251 billion, followed by $106 billion for the UAE, $65 billion for Kuwait, $28 billion for Qatar, $25 billion for Oman, and finally $11 billion for Bahrain.

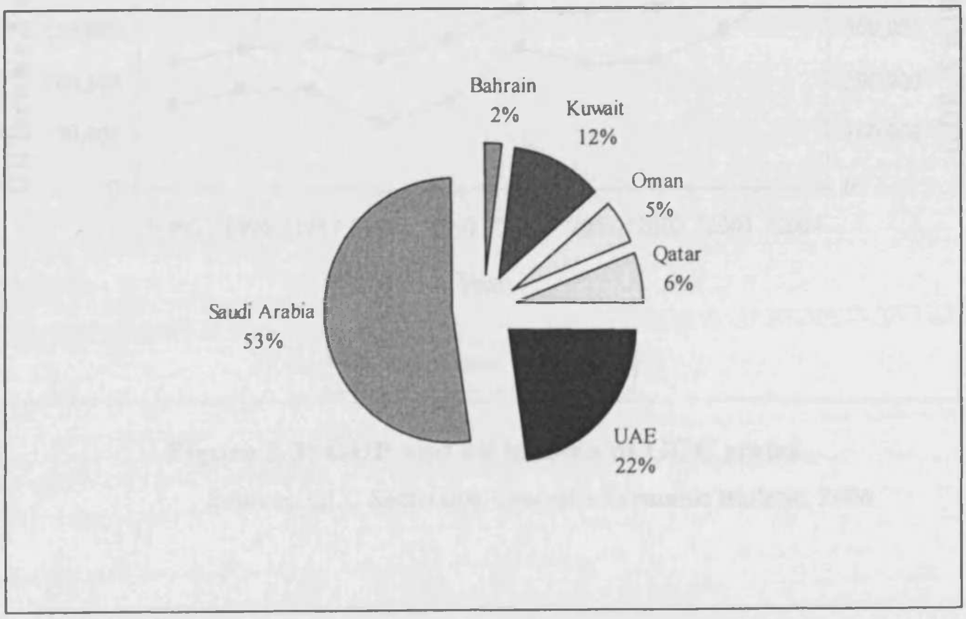

Figure 2.2: The Distribution of GCC GDP, 2004
Sources: GCC Secretariat General's Economic Bulletin, 2006

However, it should be noted that petroleum and mining are the main and largest sources of the GDP of the GCC, with the highest ratio being in Qatar (61%) and the lowest in Bahrain (24%) (See Table 2.3). Consequently, changes in GDP are strongly influenced by oil prices (Figure 2.3). For example, when the OPEC oil prices fell sharply in late 1997, and remained extremely low in 1998 (less than $10 per barrel in December 1998), the GDP shrank by 11%, having grown by 19% in 1996. However, when the price of oil increased in 2003 and continued doing so into 2004, the GDP growth improved accordingly and reached 17% for 2000 (GCC Secretariat General's Economic Bulletin, 2006). In addition, the fluctuation in oil prices is reflected in the per capita income of the GCC countries. For example, in 2000, when the oil price was high, per capita income in GCC states was $11,400. When the oil prices decreased slightly in 2001, the per capita income was reduced to $10,700, while the high increasing of oil price in 2004 the per capita income reached $14,377 (Table 2.2) (GCC Secretariat General's Economic Bulletin, 2006).

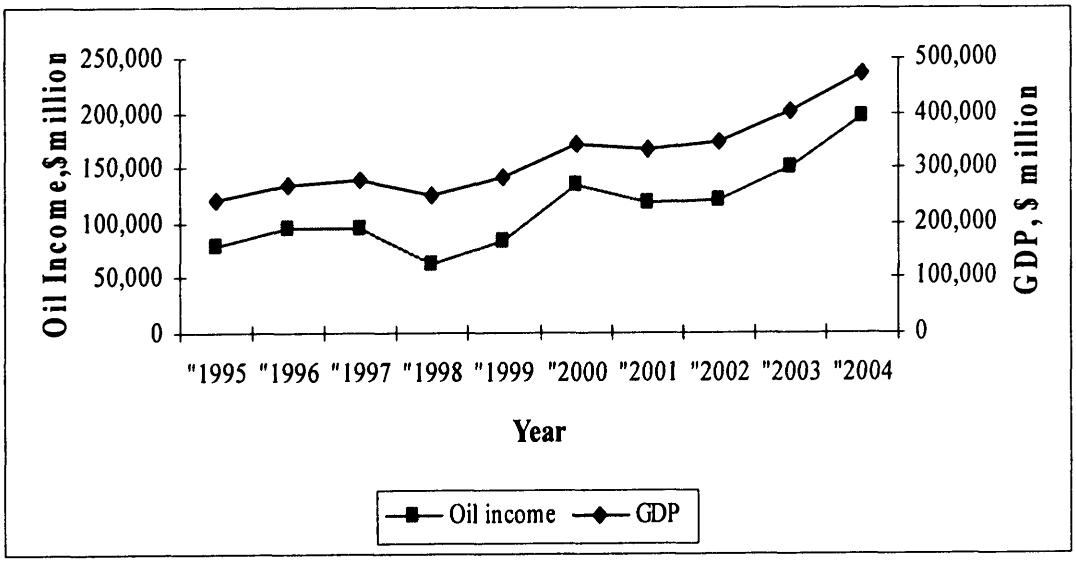

Figure 2.3: GDP and oil income of GCC states

Sources: GCC Secretariat General's Economic Bulletin, 2006

Table 2.2
GDP per capita (2000-2004)

State	2000	2001	2002	2003	2004
Bahrain	12,501	12,112	12,569	14,069	15,572
Kuwait	16,549	15,264	14,883	16,802	23,308
Oman	8,271	8,051	8,010	9,345	10,255
Qatar	28,323	24,402	28,750	32,115	37,610
Saudi Arabia	9,039	8,559	8,773	9,745	11,119
UAE	21,719	19,939	19,796	21,675	24,384
per Capita in the GCC	**11,358**	**10,674**	**10,940**	**12,282**	**14,377**

Source: Secretariat General's Economic Bulletin (2006)

The dependence on oil as a main export product renders the GDP of GCC countries vulnerable to fluctuations in the international market. The period 1994–2004 demonstrates this (see Figure 2.4). For example, in 1998 all GCC countries reported negative GDP growth. This may be attributed to a dramatic fall in international oil prices following an excess of supply, which in turn resulted from a reduction in oil demand by countries affected by the financial crisis in Asia. During this time, the average oil price reached $12.60 per barrel for Brent, compared with $19.12 the previous year The subsequent recovery in the oil demand, together with the success of OPEC in limiting oil supplies, led to an increase in economic growth after 1998. Figure 2.4 also illustrates that among the GCC countries, Bahrain was the least affected by these changes in oil prices, owing to the country's greater economic diversity and low dependence on income from oil. The strong growth of the Qatari economy indicated in the figure was, as previously mentioned, largely due to substantial capital expenditure on gas projects undertaken during this period (Al-Saeed, 2004).

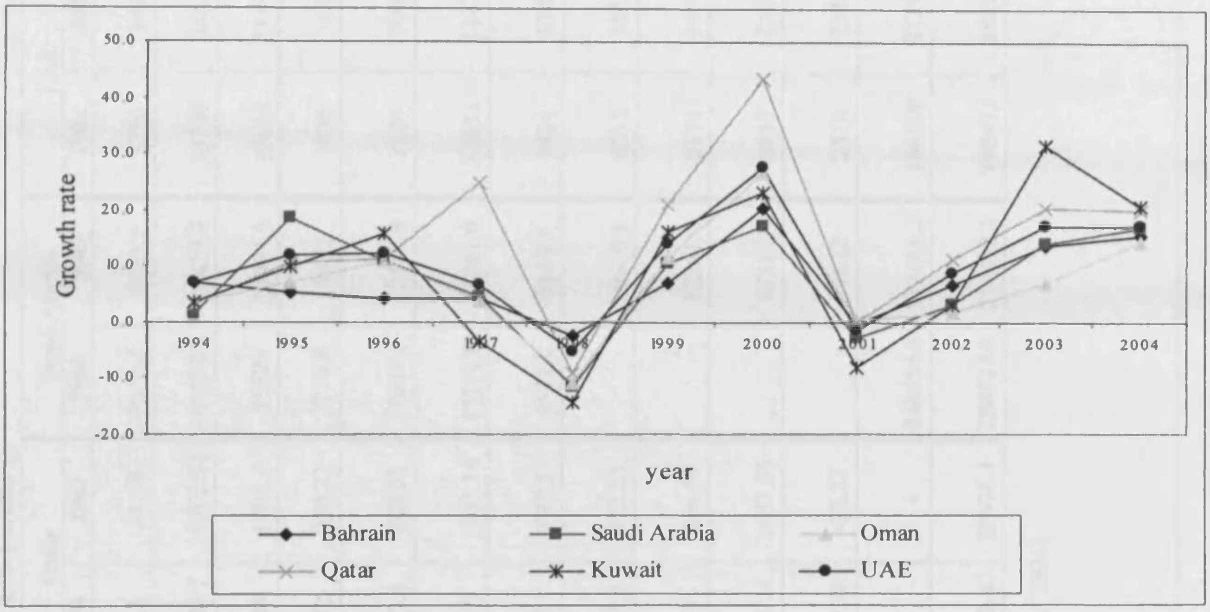

Figure 2.4:GDP growth rates of individual GCC countries over the period 1994-2004 (Source: GCC Secretariat General's Economic Bulletin, 2006)

Table 2.3

GDP by Economic Activity 2004-2003 (Millions of US Dollars)

Activity	Bahrain		Kuwaut		Oman		Qatar		Saudi Arabia		UAE	
	2004	**2003**	**2004**	**2003**	**2004**	**2003**	**2004**	**2003**	**2004**	**2003**	**2004**	**2003**
Agriculture	52.13	59.95	237.5	220.8	441.41	432.15	55.5	54.94	9916.5	9721.1	2750	2492
Petroleum & Mining	2593.35	2421.41	26594.8	19440	10501.04	8973.47	17682.7	11762.91	105708.3	78429.6	33789	25629
Manufacturing	1168.62	1073.54	4460.8	3010.6	2111.46	2616.38	1789	1401.1	25320	23004.5	13658	11495
Electricity , Gas & Water	135.37	131.78	1058.4	1009.2	355.47	280.36	638.5	269.23	2774.9	2632	1830	1636
Construction	407.18	369.81	1225	957.2	728.91	505.33	1487.4	989.01	13637.6	12569.9	7889	7099
Wholesale & Retail , Hotels & Restaurants	1336.7	982.53	3898.9	2655.6	3182.03	2742.26	1419	1107.14	15501.9	14361.6	13833	11432
Transport ,Commun. & Storage	800.27	698.48	2417.7	2123.8	1703.91	1500.13	940.1	697.8	9511.2	8859.7	7424	6723
Finance & Insurance Services	2708.78	1891.67	3726.9	2550.9	887.5	883.74	1175.3	922.53	_	10630.1	4551	3833
Real Estate Services	996.28	852.63	4147.9	2297	1214.58	1163.59	723	656.59	_	12261.1	8174	6904
Govt . Services	1548.67	1476.33	9784.2	9008.7	3761.72	3533.16	2730.21	2637.36	_	37314.4	8839	8370
Other Services	442.55	351.84 -	1833.3-	-1530.9	338.8	332.12	-189.28	-72.53	_	2632	2516	2330
G . D . P . At Cost Price	**10869.9**	**9356.9**	-	-	**24625.26**	**21528.7**	-	-	**248156.8**	**212416.3**	**104598**	**87290**
G . D . P . At Market Price	**11012**	**9606.33**	**55718.8**	**41742.9**	**24777.89**	**21697.8**	**28451.43**	**20426.1**	**250513.6**	**214572.8**	**105673**	**88215**

(Source: GCC Secretariat General's Economic Bulletin, 2006)

The services sector is the second largest sector in the GDP after the petroleum sector for each of these states. The activity of this sector is based mainly on government services and ranges between 26% in Qatar and 62% in Bahrain (average rate for the period 2002-2004, Table 2.4).

On the other hand, the manufacturing industries sector is limited. This sector ranges between 6.3% in Qatar and 29% in Kuwait. It is worth mentioning that manufacturing industries are based on oil and gas, which in turn reflects the limitation development of other manufacturing industries.

In addition, the agriculture sector is the lowest sector in the GDP, with some countries showing less than 1% (Table 2.4). It is clear that the balance of payments in the GCC states depends on a sole item in export: oil. There are high levels of imports, especially of consumer goods, and this reduces the surplus in the balance of trade.

Table 2.4
Average rate of services, manufacturing industries, and agriculture sectors in the GDP (2002-2004)

State	Average rate of services sector %	Average rate of manufacturing industries sector %	Average rate of agriculture sector%
Bahrain	62.00	11.20	0.58
Kuwait	44.33	29.46	0.47
Oman	46.33	10.57	1.95
Qatar	26.67	6.36	0.23
Saudi Arabia	41.00	10.38	4.53
UAE	44.67	13.25	2.92
GCC Average	**44.17**	**13.54**	**1.78**

Sources: GCC Secretariat General's Economic Bulletin, 2006

2.5 Public Finance

The public revenues of GCC countries depend greatly on oil revenue. Table 2.5 shows that the ratio of oil revenue to total revenue in public budgets ranges from 70% in Qatar to 78% in Saudi Arabia. As a result, revenue from other sources is very low, especially non-oil tax revenue, which forms no more than 8% of the public revenues in the GCC countries. However, it can be seen from the table that the ratio of non-oil revenue to total revenue is no more than 22% in Saudi Arabia, while in Qatar it reaches 30%. These averages confirm that oil revenue is the backbone of the government budget in GCC countries (GCC Secretariat General's Economic Bulletin, 2006).

The budget expenditure is divided into two main types: capital expenditure and current expenditure. However, the revenue allocation to each type of expenditure depends on whether the state has a surplus or a deficit: in other words, it depends on oil price and consequently revenue movement. For example, capital expenditure is assumed to have special importance because it is related to civilian infrastructure projects and public utilities expenditure, as well as the maintenance expenditure for these projects.

Capital investment expenditure was 49% of the total revenue for the period between the late 70s and mid-80s when oil revenues were high. On the other hand, capital investment expenditure was around 16% for the period between 1996 and 2001 in most GCC countries on account of the low oil price , while this amount increased slightly to 22% for the period between the 2002-2004 when the oil price increased (Al-Ibrahim, 2004, GCC Secretariat General's Economic Bulletin, 2006).

In contrast, current expenditure can be described as a continuous incremental expenditure where oil revenue is high, but resistant to control and not subject to reduction when the oil price goes down. This type of expenditure includes salaries and wages for all government ministries. It has increased continually, reaching between 74% and 85% as an average of public expenditure in most GCC countries for the period between 1996 and 2001. Moreover, the government expenditure in the GCC states is characterized by continual increases, while government revenues fluctuate according to the level of oil prices on the international market. Thus when the oil price trend decreases, it is difficult to decrease government expenditure because of its immobility (Al-Ibrahim, 2004).

The reason for this problem can be related mainly to current policies concerning wages and salary expenditure as well as expenditure on security and defence. The expenditure on salaries increases from year to year because of the role played by the governments in the GCC countries as the main employers for the national labour forces in the economy. Consequently, as a result of the growth rate of salaries and the social and political need to employ nationals, a substantial gap exists between public sector and private sector salaries and conditions of employment. In addition, security and defence expenditure exhausts a large amount of government revenue, especially since the First Gulf War in 1991.

However, it is important to mention here that entire dependency on oil revenues combined with the absence of the traditional sources of funding for the public revenue: taxes and duties, makes the public finance policy highly sensitive to external factors. This in turn deprives policy-makers of one of the most important financial policy tools to influence levels of domestic economic activity. Moreover, the current financial system in the GCC states does not achieve social justice among individuals because a global exemption from income taxes is combined with subsidised goods and services for all.

Table 2.5
The financial ratios of GCC government budgets
(Average rate for 2002-2004)

State	Oil revenue to total revenues	non-oil revenue to total revenues	Capital expenditure to total expenditures %	total expenditure to total expenditures %
Bahrain	71	29	25	25
Kuwait	75	25	45	55
Oman	75	25	23	74
Qatar	70	30	22	78
Saudi Arabia	78	22	12	94
UAE	74	26	17	83

Sources: GCC Secretariat General's Economic Bulletin, 2006

2.6 Financial and Economic Characteristics of the GCC Staates

From the previous presentation, one can identify nine significant financial and economic characteristics:

- Excessive dependency on the oil sector
- Dominance of the public sector
- Dependency of National Economies on the International Market
- Structure of government budgets
- Accumulation of national labour force in the public sector
- Impact of public reserve on currency and inflation
- Comparative advantage of gas-based industries
- Diversification policy
- Securities market

These are discussed in more detail in the following subsections.

2.6.1 Excessive Dependency on Oil Sector

The dependence of the economies of GCC states on oil has reached a significant level, as can be seen from the contribution of the oil sector to GDP, government revenues, and export earnings. Around one-third of GDP comes from crude oil production, with the remaining two-thirds coming mainly from indirect oil revenues. Oil royalties and taxes account for around 75% of government revenue, while 85% of the balance of payments is derived from exporting oil (Al-Saeed, 2004).

However, it is important to note that oil revenue has, further to its direct effect, an indirect influence that supports economic, financial, and social activities, such as the wages and salaries of the labour force, both citizens and expatriates, financing public and private consumption, and supporting production activity, such as agriculture and industries in these states. This direct and indirect dependency on oil revenue will cause the economic, political, and social future of these states to be based on unsustainable policies because of an external and unrestricted factor, the fluctuation of the international oil price, in addition to exhaustible oil reserves.

2.6.2 Domination of the Public Sector

Throughout the GCC states, there is widespread government intervention in economic activity, which is related to government control over the most important national asset: oil. Thus, oil revenue enables the government to make economic decisions without regard for the private sector. Therefore, the relation between the government and public and private sectors, in this situation, is subordinated because the private sector depends on the plans for public expenditure and government spending, which represent a hindrance to the role of the private sector. (IMF, 1996)

As a result, the development of the private sector will be restricted. Furthermore, the small scale of the private sector means it will not be capable of employing the national workforce. There is a big gap between salaries in the government sector and the private sector, as mentioned earlier, because the high salaries of the nationals in government are considered a redistribution of oil revenues and are not based on productivity as they are in the private sector, which has to relate wages and salaries to productivity (IMF, 1997).

2.6.3 Dependency of National Economies on the International market

This is related to the contribution of the large volume of imports to the GDP and the sole dependency on oil exports. In addition, the national income and total expenditure, as well as revenues of the balance of payments, depend on exporting oil to the international market. Consequently, the government is unable to use tax instruments as an important tool of economic stability, while it also remains dependent on oil revenues as a single unstable and exogenous source. However, this dependency also renders the GCC states the most open countries in the international economy, and consequently the GCC is strongly influenced by fluctuations in the international market, both for oil and for imported goods.

2.6.4 Structure of Government Budgets

There are three features that are characteristic of government budgets in GCC countries:

Domination of oil revenues

Around 70% of government revenue in the GCC states comes from oil revenue, while other revenues have a narrow production base, especially in respect of non-oil tax, which accounts for no more than 8% of total revenue. Consequently, the government budget is based on an external factor, oil revenues, rather than a traditional tool, tax. Local economic activity is affected as a result, in that financial decision-making is deprived of one of its most important tools (Al-Ibrahim, 2004). In addition, the current financial system does not realize social justice between people since the entire population enjoys exemption from tax.

The immobility of current expenditure

The most important issue to note here is that current expenditure, the largest item in government expenditure, is immobile. Therefore, reducing government expenditure, in line with government revenue, will depend heavily on reducing capital expenditure. Thus, the future of development will be affected by current expenditure, despite capital expenditure being the main tool of economic activity (Sirageldin and Al-Ebraheem, 1997).

Weak relationship between total expenditure and total revenues

The main characteristic of the total expenditure is that it is continually increasing. However, oil revenue is in accordance with the oil price in the international market and international demand. This increase is caused by salaries and wages, as there is a substantial and continual increase in the item of salaries and wages from one year to another because the government plays a major role in employing the national labour force. Moreover, military and defence expenditure also exhausts a significant amount of the total expenditure (Al-Kuwari, 1996).

2.6.5 Accumulation of National Labour force in the Public Sector

A significant feature that characterises the GCC states is the accumulation of national employment in the government sector, turning it from a development tool into an obstacle. The inflation of labour in the government sector, which has resulted in reducing the quality of performance and services offered to the public and leading to low productivity and high costs (Al-Ibrahim, 2004). However, researchers, aware of this situation, have warned that (Al-Ibrahim, 2004):

- According to the current oil price and GCC governments' policy of employing nationals, oil revenues will not be able to support salaries in the government budget.
- The budget deficit may exceed any possibility of financing from national or international sources.

2.6.6 The Impact of Public Reserves on Currency and Inflation

In the GCC countries, there is relative financial stability, which is related to two main factors. First, there are adequate reserves of foreign currency in the central banks of the GCC states, which can be used as a protection tool against any pressure on the currency. Second, GCC countries do not resort to financial inflation (issuance of money) as a finance tool for government budget deficits. In such a case, the governments will tend to use their foreign reserves or will borrow.

It is, however, important to point out that GCC states are continuing to make use of their external reserves, which erodes this source. The pressing need for financing the continual deficit in the government budget may lead these governments to inflationary financing. This will result in inflationary pressure toppling the exchange rate of the national currency and feeding imported inflation resulting from the high cost of imports (Al-Ibrahim, 2004).

2.6.7 Comparative Advantage of the Gas-based Industries

Natural-gas-based industries have been suggested as an investment tool, since the GCC countries hold around 15% of the world's proven natural gas reserves. The

GCC policy of economic diversification has led to a surge in investment in projects for the export of gas, particularly as Qatar has one of the largest non-associated gas fields in the world and holds the third largest natural gas reserves with 5.8% of the total international proven reserves (British Petroleum, 1999).

The governments of GCC states believe that economic performance will be steadily maintained and satisfactory progress will be made throughout the first five years of this century, when revenues from the export of liquefied natural gas (LNG) and gas-based industries will begin to sustain the ambitious development plans of GCC governments. The governments believe that combined revenues from both oil- and gas-based industrial exports should place GCC states, especially Qatar, which has invested heavily in the LNG project, among the richest nations (per capita) in the world by the year 2010.

2.6.8 Diversification Policy

Following the appearance of a period of deficit in state budgets and its negative influence on the GCC economy whenever the price or demand for crude oil decreases, the governments have tried to diversify their economic sources with a number of strategies.

The first type of diversification plan that was suggested is related to the production of oil and gas derivatives, as in the petrochemical industries. This proposal was prompted by recognition of the comparative advantage to be gained from abundant hydrocarbon reserves. In turn, this has led to the development of industries such as petrochemical, aluminium, and steel projects that are heavily reliant on natural gas input as energy or raw material (Al-Saeed, 2004).

The second plan is related to the promotion of import substitution. This has resulted in the establishment of many small to medium-sized light manufacturing firms in the Gulf, but has been less successful. This is largely because the current manufacturing base is not well equipped for international competition, despite the provision of various facilities, such as cheap water and power, and various tariff barriers. This situation will be further compounded with accession to the WTO, committing GCC countries to trade-barrier removal, thereby exposing these firms to greater competition (Al-Saeed, 2004).

The final type of diversification plan is related to developing the private sector, which is intended partly to create jobs in the field of financial and other services as well as manufacturing. Therefore, one of the first steps was the decision to establish a stock market to mobilize private-sector investment. However, to activate the private sector in the GCC and encourage it gradually to bring back the large sums it has invested abroad there is an urgent need to embark on the reform of private-sector incentives. This also means allowing the private sector to invest in industries with a comparative advantage, such as gas-based industries. This could be achieved through privatization as well as opening the oil and gas sectors and related industries to the national and regional private sectors. It is worth mentioning here that GCC private-sector investment abroad is estimated by the Arab Monetary Fund (AMF) to be $2400 billion (Al-Raya newspaper, 2005).

2.6.9 Securities Markets

All six of the GCC member states have officially regulated stock exchanges. The GCC stock markets provide both a mechanism for ordinary investors to participate in the region's economic growth and an alternative to bank borrowing for the finance of private and state projects.

Although stock markets have functioned formally and informally in the GCC since the 1970s, until fairly recently it was quite difficult to find reliable and consistent data on the size and growth of these markets. What has changed in recent years is the growing international interest in emerging markets, the moves in the GCC to open the stock markets to foreign investors, and the general trend towards responsible government regulation of these markets. With these changes has come a greater degree of accessibility to data. In particular, since 1999, the International Finance Corporation has included the stock exchanges of Bahrain, Oman, and

Saudi Arabia in its IFC Global Index and has begun to assemble and publish key indicators of most of the stock markets in the GCC.

However, the available data show that there has been a huge increase in stock market activity over the last decade. At the end of 1994, there were 212 companies listed on stock markets in Bahrain, Kuwait, Oman, and Saudi Arabia; by the end of 2005, around 526 companies were listed on the informal and formal stock exchanges in the GCC states (Database of Arab Securities Markets, AMF, 2006).

The combined market capitalisation of the six regions stood at US$ 300 billion at the end of 2003, which signifies an 85% increase compared to the end of 2002. However, Saudi Arabia remained the largest capitalized market of the GCC region by a wide margin with a market capitalization of $646 billion accounting for over 70% of the combined market capitalization of all the GCC equity market in 2005. Another example is the Doha stock exchange, where market capitalization jumped sharply from $10.5 billion in 2002 to $26 billion in 2003, and by the end of 2005 reached $87 billion (Database of Arab Securities Markets, AMF, 2006).

The development of the securities market of the GCC states will be discussed in greater detail in the next chapter.

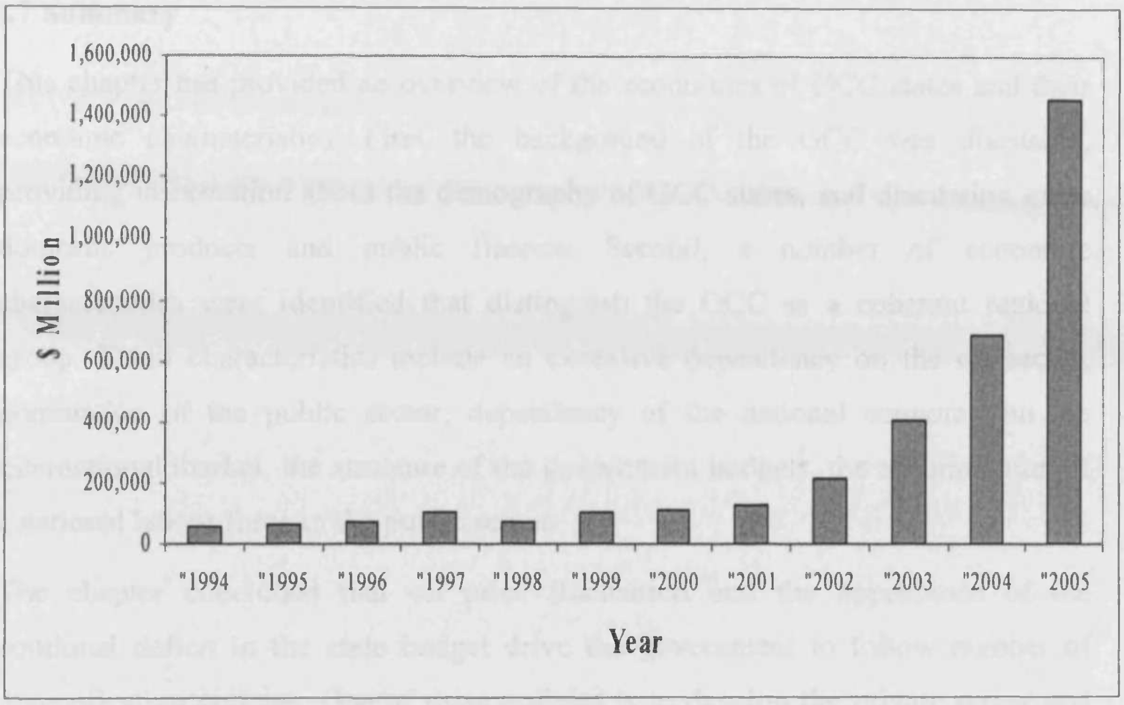

Figure 2.5: Combined market capitalisation(`1994-2005)

Source: AMF (2006)

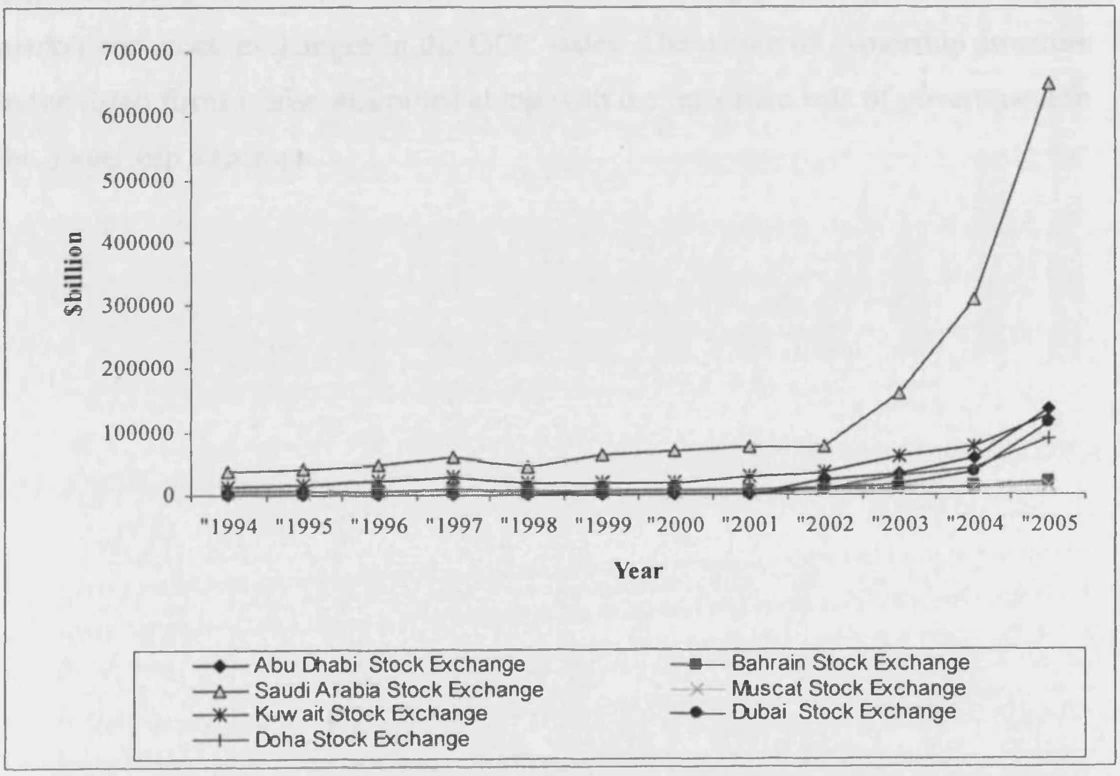

Figure 2.6: GCC stock market capitalisation(1994-2005)

Source: AMF (2006)

2.7 Summary

This chapter has provided an overview of the economies of GCC states and their economic characteristics. First, the background of the GCC was discussed, providing information about the demography of GCC states, and discussing gross domestic products and public finance. Second, a number of economic characteristics were identified that distinguish the GCC as a coherent regional group. These characteristics include an excessive dependency on the oil sector, domination of the public sector, dependency of the national economy on the international market, the structure of the government budgets, the accumulation of a national labour force in the public sector.

The chapter concluded that oil price fluctuation and the appearance of the continual deficit in the state budget drive the government to follow number of diversification policies. One of these policies is to develop the private sector and one of the first steps is the establishment of the securities market to activate private sector investment.

The next chapter will discuss in detail this development alongside the capital market and stock exchanges in the GCC states. The nature of ownership structure in the listed firms is also examined along with the important role of government in the ownership structure.

CHAPTER THREE

The Capital Markets, Stock Exchanges, and Ownership Structure of GCC States

3.1 Introduction

This chapter focuses on some economic and financial characteristics of the economies of GCC countries which may have influenced corporate dividend policy. The chapter's primary objective is to describe three major financial characteristics: capital markets, stock markets, and ownership structure. These are growing factors that might affect dividend policy. Other institutional factors, such as taxation and legal obligations, have a minimal impact on dividend policy, if any, where in GCC countries no tax is paid on dividend or on capital gain. In addition, there is no legal obligation related to dividend payout policy.

3.2 Capital Markets

3.2.1 Definition

A capital market is defined as the market for long-term sources of capital. Industry, commerce and the government can finance the long-term investment through the capital market, which consist of the primary and secondary markets for stocks and bonds. Security trading in a structured capital market is monitored by the government; new issues are agreed by financial management authorities and monitored by participating banks. Structured markets consequently generally guarantee sound investment opportunities (Hanson, 1975, Pass et al, 1988).

Based on the above definition, capital markets in the GCC states can be said to be very limited in scope and instruments. Therefore, their impact on dividend, if they have any, is minimal. The bonds are not available as alternatives to shares and there is no pressure on companies to pay high and regular dividends. Shareholding companies in some states, such as Oman and Saudi Arabia, have recently begun to utilise bonds as a means of long-term financing. Corporate bond issues are a recent phenomenon in the context of business expansion and a newly emergent trend to diversify funding resources away from bank credits and syndicated loans (Al-Awwad, 2005). This trend may allow companies to pay a higher dividend and finance their investment needs from the capital market.

As a result of underdeveloped capital markets in the GCC states, retained earnings are used to increase equity capital and are the main source of financing of capital requirements of public share companies, which might affect dividend policy. Banks, insurance companies, and other public companies in the area depend on their shareholders for expansion of activities. Most old banks and insurance firms have increased their initial equity capital ten times and more (Arab Monetary Fund, 1995). Almost all public share companies use their profit to build public reserves, which, in most cases, are distributed as free shares to increase equity capital. Such a policy redirects the attention of shareholders from dividends to the appreciation of the market value of the shares. This policy also causes a surge in demand and increased market prices for the shares of those companies distributing free shares, as well as making it easy for companies to increase their equity capital by issuing priority shares at double or more than the book value of shares, to be bought by their shareholders, thus reducing companies' need for other sources of capital financing and satisfying their shareholders' demand for profit. Such a policy of internal increase of equity is made possible because of the availability of liquidity both in general and at the disposal of members of ruling and merchant families. In addition, such policies save management and the board of directors the need to seek long-term financing from external sources and reduce the need for professionalism and the scrutiny of feasibility studies for expansion purposes (Arab Monetary Fund, 1995).

It is worth mentioning that GCC states among themselves and other Arab states, through the Arab Monetary fund, have acknowledged the need to develop a capital market in each state and regionally, but have had limited success to date (Al-Mannai, 2005). Until such a development leads to a system of taxation on income and more legal obligations are imposed on public share companies, the determinants of dividends in GCC countries will differ from those of other countries.

3.2.2 The Role of the AMF

In 1995, the Arab Monetary Fund (AMF) in cooperation with other international and regional institutions organised a seminar on "Arab Capital Markets: Opportunities and Challenges". The Central Bank of the UAE viewed the Arab Capital Market as an unorganised market lacking in infrastructure (AMF, 1995). The Chairman and Director General of the AMF, Dr. Jassim Al-Mannai, pointed to the lack of regulatory and institutional requirements (AMF, 1995:5). In May 2005, the AMF, in cooperation with the IMF, organised a workshop on "Developing a Bond Market in Arab Countries". In his opening speech, the Chairman and Director General of the AMF confirmed that very little progress had been made in the past decade and indicated that the Arab Debt Instruments Market when compared to similar developed and emerging economies is still in its initial stages. The weakness and lack of liquidity in the secondary market to which he referred are caused partially by this market's need for a legal and regulatory framework, effective government policies, and suitable infrastructure (Al-Mannai, 2005:4). At this workshop, the experiences of two GCC states were mentioned: Saudi Arabia and Oman.

3.2.3 Development of the Capital Markets of Oman and Saudi Arabia

Oman's capital market is considered by many to be the most active among GCC states. The first issues of government and commercial bonds were on 20/7/1991 and 8/7/1991, respectively (Al-Rawahi, 2005). The Omani financial sector consists of two sectors supervised by different authorities: the banking sector, supervised by the Central Bank and comprising commercial banks, specialist banks, and money exchanges; and non-banking financial institutions, for example, the capital market, and the Muscat Depository and Securities Registration Company (Al-Rawahi, 2005). The Muscat Stock Market deals in Equity Commercial Bonds and Corporate Bonds, and thus is the only stock market in a GCC state that goes beyond handling shares (Al-Rawahi, 2005). In January 2005, the issue value of 19 bonds quoted on the Muscat Security Market reached OR 820 million ($316 million): of these, 11 were Government Development Bonds, which had an issue value of RO 702 million ($270 million), and 8 Corporate Bonds, which had an issue value of OR 118 ($45 million) (Muscat Security Market Investors' Guide, 2005:14).

In Saudi Arabia, in June 1988, the Government launched debt securities to finance the state budget deficit. Government Development Bonds (GDBs) have been issued since June 1998, and are offered to banks and other financial institutions. Treasury Bills have been issued since 1991, but their availability remains restricted to banks. In Saudi Arabia however, the secondary market for government securities has a weak turnover due to a narrow investor base, with a buy and hold bias (Al-Awwad, 2005:1-4).

The corporate issuance of bonds and Islamic Sukuk in Saudi Arabia is a new phenomenon. The Saudi ORIX leasing company was the first to issue SAR 50 million ($13.33 million) of corporate debt in March 2003. Hollandi Banks issued subordinated debt for SAR 700 million ($186.67 million) in 2004. The Saudi British Bank issued Eurobond US$ 600 million in March 2005. The SABIC and Saudi Electricity issued Islamic Sukuk in 2005 and several other companies have undertaken this in Saudi Arabia. The recently introduced capital market law and the formation of the Capital Market Authority should assist the development of the domestic bond market (AMF, 2005).

The above-cited development of the Saudi capital market would suggest that while government securities were employed to finance the budget deficit in the past, in more recent times of budgetary surplus, the emphasis is on developing a secondary market and greater liquidity in the instrument.

The capital markets of countries such as Kuwait, Bahrain, and Qatar are similar to that of Saudi Arabia. Although there has always been a time lag between GCC states adopting economic and financial policies, they tend to follow each other. For more than a decade, Kuwait and Bahrain have been issuing government bonds and treasury notes and offering them to banks. Recently, in a time of budget surplus, corporate bonds and Islamic Sukuk are becoming a trend (Al-Sadoon, 2005: interview).

Qatar, which had been behind other GCC states in developing a capital market, announced recently that it is going to widen participation by offering government bonds beyond banks (Al-Raya Aleqtisadya newspaper, 27/6/2005).

In Kuwait, Bahrain, and Qatar, bonds, treasury notes, and Islamic Sukuk are offered to banks and financial institutions and not to the secondary market. Thus, until they are offered on the secondary market, they will not attract the attention of shareholders and will not create the competition that might force companies to pay higher and regular dividends.

In conclusion, one can notes that the capital market of GCC states might hear many views on how to develop an emerging capital market, but see little evidence of reform. This is due to the nature of the decision-making process in these countries, the difficulty of studying policy, and the sequencing of effective reforms for initiating an efficient capital market and developing a debt market. Intended regional reforms announced at a meeting of GCC states held in Riyadh on 25 June 2005 included the unification of the stock markets of GCC countries and the creation of a single bond market. However, Al-Shafi (2005) emphasized the many difficulties that would be encountered in unifying stock and bond markets and drew attention to a number of preconditions that would have to be met in order to achieve successful unification (Al-Shafi, 2005:5).

At an AMF/IMF workshop in Abu Dhabi in 2004, three stages were proposed for the sequence of reforms for developing the debt market: initial slag, that is, establishing the primary market and creating the foundation for secondary-market development; the deepening stage, that is, improving liquidity in the secondary market; and the maturing stage, namely, the development of sophisticated instruments and segments. The need to meet basic conditions, such as a stable macroeconomic environment, the minimisation of fiscal dominance, a liberalised interest rate, and a firm commitment to market funding, was stressed (El-Qorchi, 2005). These conditions are lacking in Arab countries in general and in the GCC countries in particular, since their economies are still overly dependent on oil revenue. Diversification of income sources is a slogan commonly heard at times of budget deficit and forgotten at times of surplus.

3.3 Stock Markets

All six GCC states have officially regulated stock exchanges, which provide a mechanism for ordinary investors to participate in the region's economic growth via an alternative to bank borrowing for the financing of private and state projects.

Although stock markets have functioned formally and informally in the GCC member states since the 1970s, it was difficult to find reliable and consistent data on the size and growth of these markets until fairly recently. What has changed in recent years is growing international interest in emerging markets, moves in the GCC states to open stock markets to regional and foreign investors, and the general trend towards responsible government regulation of these markets. With these changes has come a greater degree of accessibility to data. In particular, since 1999, the International Finance Corporation has included the stock exchanges of Bahrain, Oman, and Saudi Arabia in its IFC Global Index and has begun to assemble and publish key indicators of most of the stock markets in GCC member states.

The available data show there has been a huge increase in stock market activity over the last decade. At the end of 1991, there were 184 companies listed on stock markets in Bahrain, Kuwait, Oman, and Saudi Arabia; by the end of 2005, 437 companies were listed on informal and formal stock exchanges in the GCC member states (Databases of Arab Securities Market, AMF, 2006).

Table 3.1 shows that the combined market capitalisation of the GCC states stood at US$ 886 billion at the end of the first quarter of 2005. This represents a 100% increase compared to the end of 2004 where the market capitalisation was US$443 billion (Database of Arab Securities Markets, AMF, 2006). Saudi Arabia remained the largest capitalised market of the GCC states region by a wide margin, with a market capitalisation of $646 billion in 2005, accounting for over 72% of the combined market capitalisation of the entire GCC equity market. Another example is the Doha stock exchange, where market capitalisation increased sharply from $10.5 billion in 2002 to $87 billion by 2005 (Database of Arab Securities Markets, AMF, 2006).

Table 3.1

Information about GCC States' stock exchanges 2005

Market name	No of Listed firms	Market capitalisation (US$ billion)
Kuwait Stock Exchange (Kuwait)	156	124
Saudi Arabia Stock Exchange (Saudi Arabia)	77	646
Muscat Stock Exchange (Oman)	125	12
Doha Stock Exchange (Qatar)	32	87
Bahrain Stock Exchange (Bahrain)	47	17
Total	**437**	**886**

Source: Database of Arab Securities Markets, see AMF (2006)

3.3.1 The Background of the Kuwait Stock Exchange (KSE)

Public shareholding companies first appeared in Kuwait in the 1950s with public subscription to shares of the National Bank of Kuwait and the Kuwait National Cinema in 1952 and 1954, respectively. Rapid expansion in the formation of new shareholding companies and the issue of shares to the public took place in the early 1960s, particularly after promulgation of the commercial companies' law No. 15 in May 1960 (Gulf Investment Guide, 2004).

A sequence of legal steps was then taken; Law No. 37 issued in 1962 was the first law to organise the stock market in Kuwait for companies established abroad (Gulf Investment Guide, 2004). In 1970, Law No. 32 was issued to regulate stock trading in Kuwaiti shareholding companies. This is considered the first significant step towards the organisation of trading activities, and, in turn, necessitated the formation of a Consultation Committee. In 1972, the securities trading section was inaugurated as an independent body. Later, in 1976, Ministerial resolution No 61 was issued to organise the dealing in joint stock company shares in Kuwait. It also designated the first committee in the Ministry of Finance as supervisor and regulator of trading activities(Gulf Investment Guide, 2004).

The first stock exchange, the Kuwait Stock Exchange (KSE), was inaugurated in 1977. It was operated according to the stated rules until 14 August 1983, when an

Amiri Decree established the KSE as an independent financial institution. Following the Iraqi invasion of Kuwait in August 1990, trading on the KSE was interrupted for 28 months and the number of listed companies decreased from 54 to 28. On 25 December 1996, the KSE signed a cross-listing agreement with the stock exchanges of Bahrain and Oman, a first step towards creating a unified Gulf Stock Market (Gulf Investment Guide, 2004).

Kuwait's stock market has the following important strengths (Gulf Investment Guide, 2004):

- It is one of the best systems for clearing and settlement in the region.
- Domestic companies tend to adopt new technology speedily, which over time leads to increased efficiency and lower costs.
- Early steps have been taken towards introducing derivatives that will allow modification of portfolio risk.

When it was established in 1977, the number of firms listed on the Kuwait Securities Market was 47. This number had increased to 80 in 1990 and 156 in 2005 (Database of Arab Securities Markets, AMF, 2006).

The market capitalisation of companies listed on Kuwait's Securities Market increased by 68% to reach $124 billion in the first quarter of 2005, compared to $73.581 billion in 2004. The total volume of shares rose 39.4% to reach 9.679 billion shares in 2005 compared with 6.945 billion shares in 2004 (Database of Arab Securities Markets, AMF, 2005).

3.3.2 The Background of the Saudi Stock Exchange (SSE)

The history of Saudi joint stock companies can be traced back 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, which was followed by the privatisation of three electricity companies. In response to the economic development of the period, more joint stock companies were established (Gulf Investment Guide, 2004).

The Saudi Stock Exchange began to emerge in the late 1970s when the number of joint stock companies increased considerably. The government merged the electricity companies and distributed additional free shares to contributors. The government also nationalised (Saudised) the foreign banks and their shares were offered to Saudi nationals. These factors contributed to the increase in shares available to the public and the need for share trading facilities (Gulf Investment Guide, 2004). However, due to the lack of trading regulations at the time, stock trading was fairly limited through the early 1980s when oil prices were increasing, which resulted in an increase in both trading volume and market capitalisation (Gulf Investment Guide, 2004).

The first official stock market was established in 1984, when commercial banks were designated as the only official brokers but without any market function. In 1990, with the implementation of the government's privatisation policy, the Electronic Share Information System (ESIS) was implemented as the national electronic stock market run by the SAMA (Saudi Arabia Monetary Agency) through commercial banks (Al-Razeen, 1999). The number of joint stock companies that trade shares has steadily developed with the implementation of the government's privatisation policy. As a result of this development, share capitalisation increased from $15 billion in 1990 to more than $646 billion for 77 firms in 2005 (Database of Arab Securities Markets, 2005).

In addition, a major opening of the Saudi Stock Exchange to foreigners took place during 1997. The SAMA approved the participation of international investors in the Saudi Stock Exchange through mutual funds. The Saudi American Bank was the first Saudi bank to be granted approval to offer an investment fund based on Saudi shares to foreign investors. The new 'Saudi Arabian Investment Fund' (SAIF) is listed on the London Stock Exchange. Previously, only Saudi nationals were allowed to own shares, although GCC nationals were allowed to own Saudi equities (excluding banks) and certain other stocks (US-Saudi Arabia Business Council Report, 1999).

International financial markets affect the Saudi Stock Exchange. For example, due to turbulence in international financial markets in 1998, the total value of shares traded on the Saudi Stock Exchange decreased from $16.6 billion to $13.6 billion in 1998, an

18% drop from 26 December 1997 to the same day in 1998. The number of shares traded during the same period also decreased by 26.28% to 144.3 million in 1998 compared to 195.78 million during 1997, reflecting concern over the oil price decline and its impact on the economy (GCC market review, 2004). The drop in SABIC share prices had the greatest impact on the index in early 1998, due to concerns about earnings on petrochemical sales. However, the value of shares traded increased to $15.9 billion in 2004 when the oil price improved (GCC market review, 2004).

Although the government acknowledges the importance of developing the stock market, stock price movements correlate closely with oil price movements. It is important to note that the Ministry of Commerce issued a circular in early 1997, upon recommendations from a special committee, to circumvent the problem of insider trading and leakage of corporate information through informal channels in the Saudi Stock Exchange. The circular contained the following main points (Al-Razeen, 1999):

- The board's chairman, or his deputy, must promptly announce to the public any information and events that might directly or indirectly affect the securities prices of all companies.
- All members of boards and top management are prohibited from short-term trading in their company's securities. They are also prohibited from trading with the deliberate purpose of influencing the prices of their company's securities in the period immediately preceding an announcement of any important information and must wait at least one day after the announcement.
- Members of boards and top management are prohibited from trading in their company's securities in the ten days immediately preceding the end of any quarter of the fiscal year and until the quarterly report is published.
- No person shall be allowed to trade in any security based on private information that is not available to the public.
- No person is allowed to perform any security transaction set up for the purpose of misguiding other participants in the market. Examples of such transactions are deals made for the purpose of creating a market for inactive securities.
- Unfair securities transactions based on inside information are specifically prohibited.

Broadly, these requirements serve to manage the agency problem. However, although the circular has set the stage for the promotion of fairness in the Saudi Stock Exchange, it is very general in its wording and the majority of the prohibitions are not clarified operationally. This is beside the absence of a set of regulations that oblige its articles (Al-Razeen, 1999).

The market capitalisation for all companies listed in the SSE increased by 100% to reach $646 billion in 2005, compared with a market capitalisation in 2004 of $306.256 billion. On the other hand, the total volume of shares during 2005 decreased by 3.5% to 1.757 billion shares compared with 1.820 shares in 2004 (Database of Arab Securities Markets, AMF, 2005).

3.3.3 The Background of the Muscat Stock Exchange (MSE)

The Muscat Stock Exchange (MSE) was established in June 1989 by royal decree. Its Executive Regulation, a basic law that regulates the incorporation of companies and issuance of shares, is administrated by the Ministry of Commerce and Industry, whose Minister acts as Chairman of the Board of Directors of the MSE. The initial flotation of shares took place in the primary market following approval of the MSE. Companies with a low level of general public shareholding and those that have declared losses for two years are normally placed in the parallel market. There is also a "Third Market" where trading is conducted outside the trading floor and is registered in the brokers' offices (Gulf Investment Guide, 2004).

Trading activities in the MSE started in 1989. The market started with 68 joint stock companies, including 19 closed joint stock companies, having a combined paid up capital of US$663 million. Since its inception, the total market capitalisation has expanded fourfold(Gulf Investment Guide, 2004). The value of traded shares had increased from US$31 million in 1989 to $742.9 million in the first quarter of 2005. At the end of 1996, 110 joint stock companies were listed on the MSE, with a total market capitalisation of $4.2 billion. In the fourth quarter of 2005, the number of joint stock companies had reached 127, with a market capitalisation of $12 billion (Database of the Arab Securities Markets, AMF, 2006).

The MSE price index started in 1991 with a value equal to 100 points. This value had increased by 42.1% in 2004. Under an amendment to the Omani Commercial Companies' Law, introduced in February 1996, the nominal value of each share in joint stock companies was fixed at 1 Omani Ryal ($2.60). To avoid confusion among investors about the profitability and market value of shares listed on the MSE, all joint stock companies were required to amend their articles of association to provide for the new nominal value by the end of 1996 (Gulf Investment Guide, 2004).

On 25 December 1996, the Muscat Stock Exchange signed a cross-listing agreement with the stock exchanges of Bahrain and Kuwait in a first step towards a unified Gulf Stock Market. Bahrain International Bank was listed on the MSE and the Commercial Bank of Oman, Oman International Development and Investment Company, and Oman Cement Company were listed on the Bahrain Stock Exchange. Eligible investors, Omanis and, in some cases, GCC nationals who desired to trade could do so via licensed brokers. At the end of 2004, a number of joint stock firms had opened the door for foreign investment. That year, the involvement of foreign investors to listed joint stock firms reached 10.6% of total market capitalisation. Of this, GCC nationals accounted for 5.84% and the residual 4.76% was accounted for by other nationals (Gulf investment Guide, 2004).

Foreign Participation in the MSE is controlled and restricted by the Muscat Stock Exchange Law. As a result of an amendment to article 51 of this law, foreigners were allowed to buy Omani shares by subscribing to a mutual fund that was invested in the MSE. It was proposed that such investment should not exceed 49% of the total investment in the fund. A new law was subsequently passed in early 1997 allowing foreign investors up to 49% ownership of all listed companies. In 1995, Oman raised the foreign participation ceiling from 49% to 65% in special cases and 100% in exceptional circumstances (Gulf Investment Guide, 2004). In November 1998, a new Capital Market Law came into effect and the MSE was restructured. A separate regulatory body was established to organise and monitor the securities market in Oman (Gulf Investment Guide, 2004).

3.3.4 The Background of the Doha Stock Exchange (DSE)

Dealing in stock through the stock market in the state of Qatar goes back to the 1970s. Stocks had previously been traded through unspecialised and unlicensed offices acting as intermediaries between sellers and buyers, which led to the absence of an appropriate foundation for a developed and regulated stock exchange market and a resultant lack of proper controls and transparency, which in turn led to unfairness in pricing and wide fluctuations in the prices of stocks. As a result, a pressing need was felt to organise and regulate the stock market in such a manner as to ensure appropriate dealings and the protection of investors' interests, through the adoption of sound modern mechanisms for determining the price of stocks in accordance with the market forces of supply and demand. Continued pressure to achieve such goals resulted in issuance of the Emiri Decree Number (14) of 1995, which established the Doha Stock Exchange (DSE) (Gulf Investment Guide, 2004).

The Doha Stock Exchange officially commenced its operations on 26 May 1997, initially with seventeen companies and an estimated market capitalisation totalling \$2.6 billion, compared with \$1.6 billion before the establishment of the securities market. A year after establishment, on 25 May 1998, market capitalisation had doubled to \$3.3 billion. This increase continued to \$5 billion in December 1998 and \$7 billion in December 1999. Market capitalisation was reduced, however, to \$6 billion in 2000. In 2001, capitalisation return increased to \$7.3 billion. This increasing trend continued to \$10.5 billion in 2002, a 44% increase. By the end of 2003, market capitalisation had increased sharply to around \$26.7 billion. This sharp increase continued to \$87 billion in 2005, an increase of 124% over the previous year. Furthermore, the total volume of shares increased sharply by 264.9% to reach 209.5 million compared with 57.4 million in 2004 (Database of Arab Securities Markets, 2005).

The continued increase in market capitalisation was a result of four factors: first, an increase in share market prices; second, the growth of subscribed shares resulting from a capital increase in some listed companies; third, the establishment of a number of new companies in the services sector; and fourth, reduced par value per share from

$27.50 to $2.70 (QR 100 to QR 10), which caused the market price to increase. (Database of Arab Securities Markets, 2005).

The number of firms listed on the Doha Stock Exchange was 18 at the end of 1997. This number had increased to 19 in 1998, 22 in 2000, 25 in 2002, and 32 in 2005.

At the beginning of its operation, the Doha stock market allowed only Qatari citizens to trade in the stock of companies listed on the stock exchange. However, a new law was recently passed allowing citizens of Gulf countries to invest in the stock of companies listed under industrial and services sectors to a maximum of 25. The new law also allows non-Qataris in general to invest in the capital stock of newly established or privatised companies, such as the Qatar Telecommunication Company and Al-Salam International. The Qatari government is expected to issue a new law permitting non-Qataris to invest in the capital stock of all companies through investment funds.

3.3.5 The Background of the Bahrain Stock Exchange (BSE)

The first commercial bank in the region opened in Bahrain in 1920 in order to meet the financial needs of the business community at that time. The first public shareholding company, the National Bank of Bahrain, opened in 1957.

It was not, however, until the late 1970s and early 1980s that Bahrain realised there was a growing need for an organised stock market, due to growth resulting from the oil price boom in the region. Consequently, the Government, in cooperation with the International Finance Corporation (IFC), prepared a feasibility study highlighting the importance of establishing an official stock market in Bahrain. In 1987, Amiri Decree No. 4 was issued establishing the Bahrain Stock Exchange (BSE), which officially commenced operations on 17 June 1989, with 29 companies listed on the Exchange. This figure had grown to 40 in 2004 (Table 3.2) and included the first non-GCC company to be listed in the region (Gulf Investment Guide, 2004).

In 1999, the market was opened up to foreign investors, with GCC nationals allowed to own up to 100% - up from 49% - and permitted non-GCC investment increased from 24% to 49%, with the Minister of Commerce and Industry given the authority to increase this limit if deemed necessary. This move reflected positively on trading figures, with the contribution of GCC investors increasing from 16.4% in 1998 to 29% in 2003, and non-GCC investors from 1.5% in 1998 to 9% in 2003 (Bahrain Stock Exchange Investors' Guide, 2004).

Foreign brokerage firms were allowed to operate independently in Bahrain for the first time in a move viewed as enhancing expertise, raising standards, and providing a better service to investors. In addition, all brokers now had to pass the Investment Representative Programme Certificate, equivalent to the Securities and Exchange Commission (SEC) Series 7 qualification required for US brokers, to be allowed to trade (Gulf Investment Guide, 2004).

The year 1999 also saw the installation of the Automated Trading System. The successful implementation of this system was followed by the commissioning of an automated Clearing, Settlement, Depository and Registration System, which is currently being tested now that the legal infrastructure for its operation has been drawn up and is in place (Bahrain Stock Exchange Investors' Guide, 2004).

In 2003, the Exchange concentrated its efforts on introducing and implementing the IOSCO[2] international disclosure standards, as well as other standards used in international stock markets. The disclosure standards adopted are some of the most far-reaching to have been introduced in the region (Bahrain Stock Exchange Investors' Guide, 2004).

[2] The International Organisation of Securities Commissions.
Member agencies currently assembled together in the International Organisation of Securities Commissions have resolved, through its permanent structures:

- to cooperate together to promote high standards of regulation in order to maintain just, efficient and sound markets;
- to exchange information on their respective experiences in order to promote the development of domestic markets;
- to unite their efforts to establish standards and an effective surveillance of international securities transactions;
- to provide mutual assistance to promote the integrity of the markets by a rigorous application of the standards and by effective enforcement against offences.

The BSE aims to be a leading listing centre in the region by improving all aspects of the business environment, increasing the number of investors, and diversifying the range of securities it lists. Its goal is to operate in a completely transparent environment with timely dissemination of information to all. Further, companies listed on the Exchange are required to publish their financial statements within three months of the end of their annual financial year (down from six months), giving investors faster access to up-to-date information (Bahrain Stock Exchange Investors' Guide, 2004).

Currently, the BSE has plans to concentrate on providing measurements for investor education and protection, to avoid possible malpractice and to contribute positively to the stability of the global financial system. It is also working on increasing the amount of information it shares with other regional and international stock exchanges, and is continually emphasising the importance of applying international standards to all functions being performed by the Exchange (Bahrain Stock Exchange, 2004).

Market capitalisation in increased to $17 billion from $14 in 2004. On the other hand, the total volume of shares decreased by 12.4% to 88 million in the first quarter of 2005, having been 100.5 million in 2004 (Database of Arab Securities Markets, AMF, 2006).

3.3.6 The Stock Exchanges of GCC States and other Arab Stock Markets: a brief comparison

Al-Malkawi (2005) stated that a comparison between the Arab stock markets is useful for two reasons: first, the Arab stock exchanges are good examples of an emerging Arab market; second, they have a common culture.

Arab stock markets presently include those in Algeria, Egypt, Jordan, Lebanon, Morocco, Sudan, and Tunisia, and in the GCC, Abu Dhabi, Bahrain, Dubai, Kuwait, Qatar, Oman, and Saudi Arabia. Generally, the Arab stock markets have been described by the Arab Monetary Fund as smaller and less active relative to other emerging markets in developing countries; as an example, "in 2001 Arab market capitalization to GDP and turnover ratios averaged 26 % and 6 % respectively against corresponding averages of 33% and 20% for developing countries. They also suffer from concentrated ownership, a modest number of listings, and a fair number of closed companies. As a result, the Arab financial system is still considered largely bank based" (Bolbol and Omran, 2004: 9).

However, to compare some characteristics of the stock exchanges of GCC states with other Arab stock exchanges, Table 3.2 below shows some indicators for some Arab stock exchanges in 2003, including the study sample of GCC states (Kuwait, Saudi Arabia, Oman, Qatar and Bahrain).

Table 3.2
Some examples of Arab stock markets (2005)

Market name	No of Listed firms	Market capitalisation (US$ Million)	Value traded (US$ Million)	Value traded to market capitalisatio
Amman Stock Exchange (Jordan)	201	37,638.81	23,806.35	63.25
Bahrain Stock Exchange (Bahrain)	47	17,364.31	711.10	4.10
Beirut Stock Exchange (Lebanon)	15	4,917.18	923.42	18.78
Cairo & Alexandria Stock Exchange (Egypt)	744	79,507.56	27,720.39	34.87
Casablanca Stock Exchange (Morocco)	54	27,274.39	7,859.25	28.82
Doha Stock Exchange (Qatar)	32	87,143.34	28,252.28	32.42
Khartoum Stock Exchange (Sudan)	49	3,157.15	504.48	15.98
Kuwait Stock Exchange (Kuwait)	156	123,892.58	97,289.56	78.53
Muscat Stock Exchange (Oman)	125	12,062.05	3,320.41	27.53
Saudi Arabia Stock Exchange (Saudi Arabia)	77	646,120.80	1,103,582.77	170.80
Tunis Stock Exchange (Tunisia)	45	2,821.40	528.83	18.74
Total	**1,545**	**1,041,900**	**1,294,499**	**494**

Source: Database of Arab Securities Markets, see AMF (2006)

It can be seen from the table that based on the number of listed firms in 2005, the Kuwait Stock Exchange ranks third after Egypt and Jordan. Oman is the fourth, Saudi Arabia is the fifth, while Bahrain ranks eighth, and finally the Doha Stock Exchange ranks tenth just before the last, the Beirut Stock Exchange (Database of Arab Securities Markets, 2006).

However, based on market capitalisation, Saudi Arabia ranks first, where its market capitalisation captures 62 % of the total market capitalisation in Arab stock exchanges. Kuwait ranks second and Qatar third while the Bahrain and Muscat stock exchanges rank seventh and eighth respectively. Here, the combined market capitalisation of Saudi Arabia, Kuwait, Doha, Bahrain, and Muscat captures more than 85 % of the total market capitalisation for Arab stock exchanges, indicating that the stock exchanges of the GCC states are the largest among the other Arab stock exchanges based on market capitalisation as can be seen in figure 3.1 (Database of Arab Securities Markets, 2006).

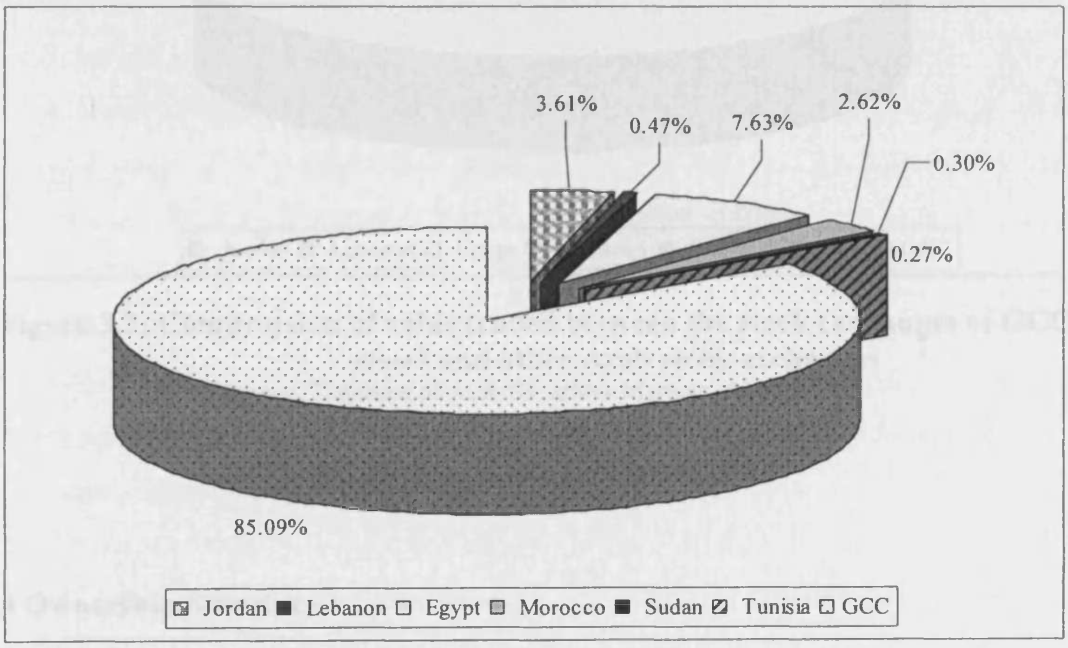

Figure 3.1: Comparison of market capitalisation between the stock exchanges of GCC states and other Arab stock exchanges
Source: Database of Arab Securities Markets, AMF, 2006

Traded value to market capitalisation can be used as a useful tool to measure the activity level in the market (Kumar and Testsekos, 1999). Table 3.2 shows that Saudi Arabia appears first among the Arab stock exchanges, followed by the Kuwait Stock Exchange. The Doha Stock Exchange is fifth after the Amman and Casablanca Stock Exchange. The Muscat Stock Exchange is seventh after the Egyptian security market. Finally, the Bahrain Stock Exchange is the last among the Arab stock exchanges. The value traded in the GCC sample represents more than95 % of the total, indicating that those GCC stock exchanges are very active among other Arab stock exchanges (see figure 3.2).

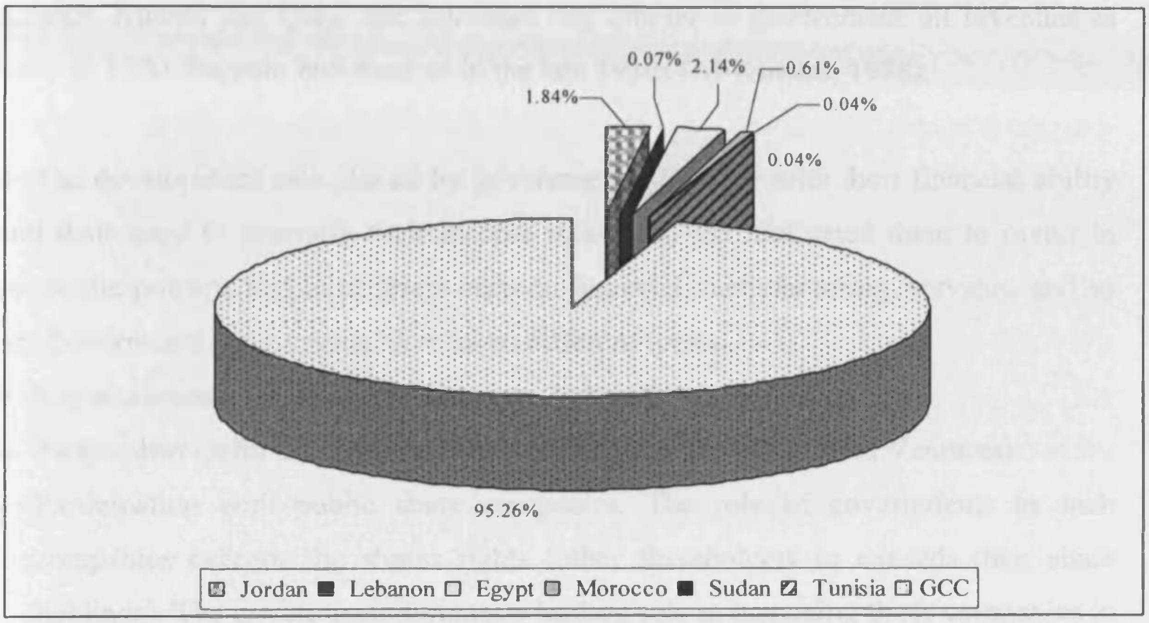

Figure 3.2: Compression of value traded between the stock exchanges of GCC states and other Arab stock exchanges

Source: Database of Arab Securities Markets, AMF, 2006

3.4 Ownership Structure

The ownership structure in shareholding companies in GCC countries consists of government and private sector ownership, which mostly represents individuals and institutional ownership.

Government plays an important and leading role in public share companies in GCC states. The government's role is still greater than that of large shareholders for a number of reasons:

1- The government, as the sole owner of oil resources, consequently owns the oil revenue, which enables it to be a large investor in the public and private sectors.

2- The government is bound, legally and practically, to invest part of the oil revenue under the General Reserve, Investment Reserve, or Future Generation Reserve, as in Kuwait. Kuwait and Qatar had allocated one quarter of government oil revenues as early as 1950. Bahrain had done so in the late 1930s (Al-Kuwari, 1978).

3- The development role played by governments, together with their financial ability and their need to diversify their income recourses, has motivated them to invest in economic projects and in different sectors: financial, manufacturing, services, and so on. Government investments have taken different forms:

- Projects owned 100% by governments (Public Enterprises)
- Participation with other governments and foreign investors (Joint Ventures)
- Participation with public share companies. The role of governments in such companies exceeds the shares rights (other shareholders or exceeds their share holdings). The government assumes a leading role in managing those companies in which it participates with the private sector. The government here becomes the backbone of the shareholding companies it initiated.
- Sale of companies wholly or partially owned by government to the private sector for privatisation purposes.

Government ownership and development roles give governments the ability to dominate those companies in which they own shares, even if such shares form less than 50% or even less than 25% of a company's capital.

Although it is important to mention here that the company law of GCC states prevents the ownership of each investor from being more than a specific percentage (small or large) of the capital. It can however be concluded from the names dominating many boards of directors that small and medium-sized firms are controlled by families, who monopolise the shares and keep them in the hands of family members.

In light of the above regarding the leading and relatively dominating role of governments in public share companies in GCC states, ownership type is classified mainly into two major groups: first, government control of shareholding companies and its agencies; and second, private sector ownership, which is concentrated in that handful of large shareholders. Each ownership structure will be discussed in turn below.

3.4.1 Government ownership

The previous section indicated that in the GCC member states, government ownership plays an important role in the activity and management of shareholding companies in which the government holds shares. The government influences firms' decisions and sets policies, including the dividend policy, even when it owns a low fraction of shares. Usually, government shares are in firms with a large amount of capital. For example, the government sector in Saudi Arabia owns around 70% of SABIC, the largest company on the Saudi Stock Exchange. In Bahrain, the government sector owns more than 50% of shares in the Bahrain Telecommunications Company and the Bahrain Tourism Company.

Government ownership has a clearer form in Kuwait compared with other GCC states. Government ownership in Kuwait falls under the name "The Public Organisation for Investment (POI)", which is run by the Ministry of Finance. The POI, in the early 1990s, owned most of the shares on the stock market. This large ownership was a result of intervention from the Ministry of Finance to solve financial crises in 1978 and 1982 to rescue the banking system. At this time, shares were financed by domestic loans and investment firms. Therefore, the POI's ownership of public share companies was not driven by the aims of obtaining a return or maximizing the capital value (Al-Shall, 2005).

However, in the mid-1990s, the POI started to sell shares to the private sector for privatisation purposes, an ownership transfer process. This transfer policy coincided with the availability of high liquidity, which led to active movement in Kuwait's stock market. This transfer programme was suspended after 1997, as a result of the stock market's under-performance during the previous four years (Al-Shall, 2005).

There are also Public institutions owned by the government, which include the Social Insurance Corporation. This General Institution invests its money in domestic firms and plays a neutral role in the decision-making process of its board of directors (Al-Shall, 2005:2).

3.4.2 Private Sector Ownership

The private sector consists of members of royal families and rich families. This type of ownership plays an influential role in the decision-making process of boards of directors and certain family names reoccur in many firms. However, only Oman discloses information about their large shareholders in the private sector.

The disclosure of ownership structure differs among GCC states. Oman discloses information about government ownership, institutional ownership, and large shareholders exceeding 10% in the investment guide of the Muscat Stock Exchange. Kuwait discloses information about government ownership and institutional ownership in the Kuwaiti national news paper, while Saudi Arabia, Qatar, and Bahrain disclose information only about government ownership in the Gulf Investment Guide.

3.5 Some Characteristics of Dividend Policy in the Stock Exchanges of GCC States

It is worth noting that the company law of the GCC states does not include any article or item imposed on firms to distribute a certain percentage of their income as a dividend, but leaves it to each firm to decide whether to pay as well as the dividend payout proportion decision. The following section will present some characteristics of dividend policy in the stock exchanges of GCC states.

There are some general characteristics of dividend policy in the firms listed in the GCC states, as follows:

Bahraini firms have the highest dividend ratio, which is more than 60 %; Kuwait, Saudi Arabia, and Qatar pay almost half of their cash dividend (around 50%), while Oman distributes the lowest amount of cash dividend, with a dividend ratio of no more than 26 %. It is important to note here that in Bahrain, the government owns a proportion of shares in all firms listed on the stock exchange, while government ownership in Oman is the lowest among the firms listed in GCC states (Figure 3.4)(Gulf Investment Guide,2004).

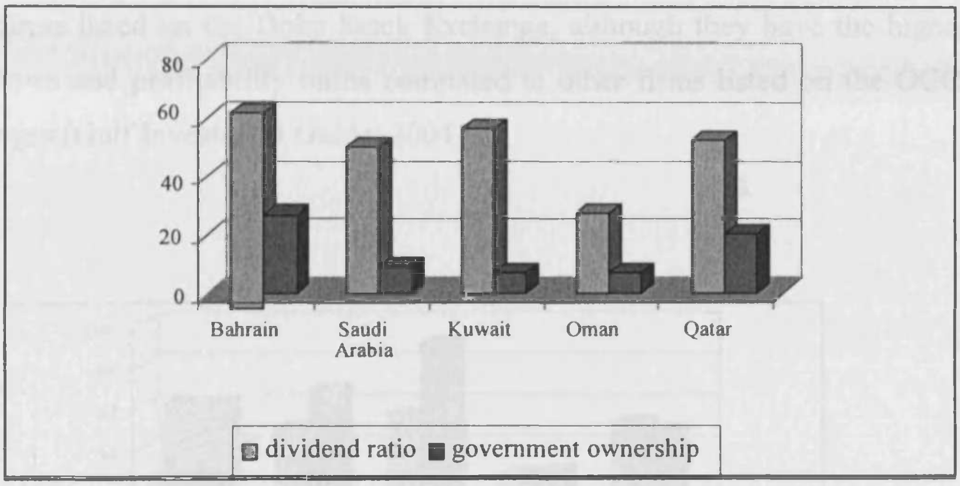

Figure 3.3: Dividend ratio and government ownership percentage
Source: Gulf Investment Guide, 2004

Another interesting point is that firms listed on the Muscat Stock Exchange - who pay the lowest dividend ratio among stock markets of GCC states - have the highest leverage ratio and the highest growth rate among the GCC states (Gulf Investment Guide, 2004).

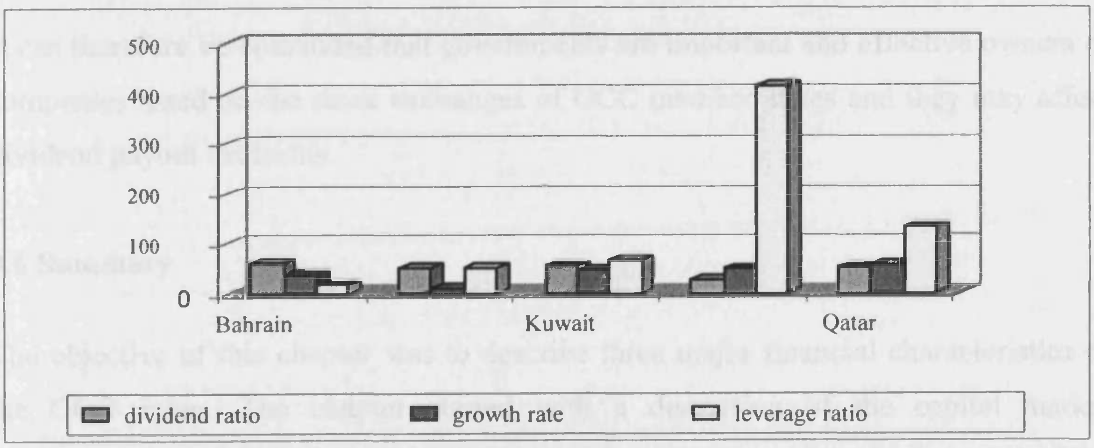

Figure 3.4: Dividend ratio, growth rate, and leverage ratio
Source: Gulf Investment Guide, 2004

The firms in the GCC, except those in Qatar, tend to pay a higher dividend ratio when the government owns a proportion of their shares (Figure 3.6). Kuwait's listed firms, where the government owns no more than 8 % of their shares, pay almost the entire realised profit (89%). On the other hand, in Qatari firms where the government owns a proportion of their shares, firms choose to pay a lower dividend compared with other firms listed on the Doha Stock Exchange, although they have the highest free cash flows and profitability ratios compared to other firms listed on the GCC stock exchanges (Gulf Investment Guide, 2004):

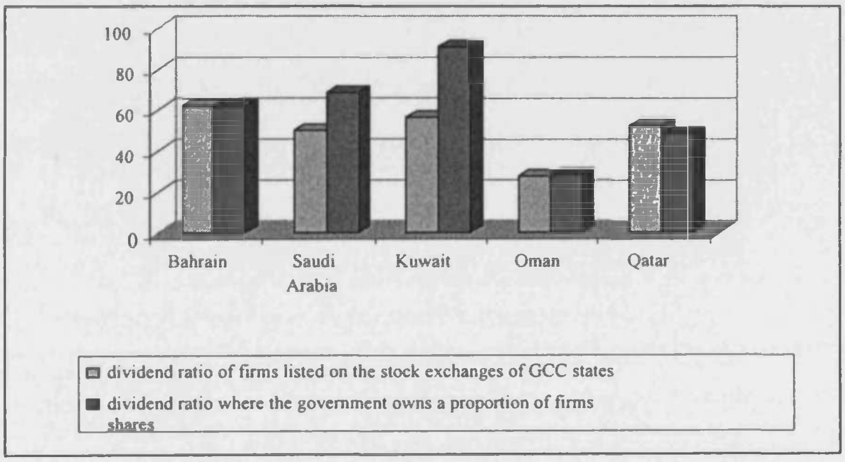

Figure 3.5: Dividend ratios of firms owned completely by the private sector and those where the government owns a proportion of their shares
Source: Gulf Investment Guide, 2004

It can therefore be concluded that governments are important and effective owners of companies listed on the stock exchanges of GCC member states and they may affect dividend payout decisions.

3.6 Summary

The objective of this chapter was to describe three major financial characteristics of the GCC states. The chapter started with a discussion of the capital market development of the GCC states, followed by a presentation of the background of the stock exchanges in each of the GCC states, and a comparison of the stock exchanges of GCC states and other Arab stock exchanges. After that, an explanation of the nature of ownership of the firms listed in GCC states was given, and the chapter concluded by showing some dividend payout characteristics of these stock exchanges where there is no legal obligation for firms to distribute a certain percentage of their net profit. The next chapter will discuss the previous studies which discussed dividend policy.

CHAPTER FOUR

Dividend Policy: The Literature Review

4.1 Introduction

This chapter discusses previous studies related to dividend policy, focussing especially on the agency theory and transaction cost explanation. The chapter will start by presenting several theories and explanations that accrued in the literature to explain the dividend policy behavior of firms, namely:

- The "bird in the hand" explanation
- Taxation Effect Hypothesis and Clientele Preference
- Signalling theory and the information asymmetry problem
- Transaction costs of external financing and residual theory
- The role of dividends in decreasing agency problems.

Based on the agency theory as well as transaction cost theory, this chapter will discuss the empirical studies of dividend policy in both developed and emerging markets respectively. This is followed by a summary and comparison of characteristics that might affect the dividend policy based the empirical evidence of developed markets' studies and emerging markets' studies. The chapter then presents a discussion of the limitations of previous studies and concludes by explaning the motivation of this research.

4.2 Dividend Policy

Dividend policy has been a popular topic among researchers since Miller and Modigliani (1961) established their famous "irrelevance of dividend" proposition, which argues that "Dividend policy is irrelevant to the value of the firm". Their proposition is based on a number of assumptions that include perfect capital markets, rational behaviour on behalf of investors and perfect certainty about future profits and the investment programme of the corporation. Miller and Modigliani showed that the value of a firm is dependant on the earnings of the firm and the investment decisions it makes, and it is unaffected by the amount of dividend being paid to its investors as well as different dividend policies. Assuming perfect capital markets, the dividend policy of a company with a particular investment policy will affect only the level of outside financing required to raise capital for new investment and to pay dividends. This means that a dollar of dividend shows a dollar of capital gains lost. Miller and Modigliani concluded by stating that the investment policy of a company is the most important determinant of its market value, as it has a major impact on the profitability of the company.

Miller and Modigliani went on to consider this issue from an investor's point of view. They stated that dividend policies do not affect investors either, as investors can adjust their wealth/portfolio by creating self-made dividends from an increase/decrease in the share value.

To date, most practitioners and financial managers do not agree with the dividend irrelevance proposition of Miller and Modigliani. They argue that Miller and Modigliani based their proposition on perfect capital market assumptions, which do not tend to hold in the real world In practice there are differential tax rates, flotation and contracting costs, brokerage fees, conflicts of interest between managers and shareholders, differences in information between insiders and outsiders, and irrationality in the behaviour of shareholders, which provide significant hurdles to establishing the irrelevance of dividend policy proposition (Leas et al., 1999).

According to this argument, many empirical studies offer five common explanations of dividend relevance, namely the bird in the hand, taxes, signalling and information asymmetry, transaction coast, and agency cost explanations. These explanations are summarised in the following section.

4.3 Dividend Policy Explanations

The following section gives a short review of various dividend explanations, highlighting different factors that determine dividend policy.

4.3.1 The Bird in the Hand Explanation

The bird in the hand theory is one of the early theories used to explain why firms tend to pay high dividends. The basic idea is that investors prefer certain gain (in the form of dividends) to less certain gain (in the form of share price appreciation). In other words, this theory explains that dividends represent a sure thing for shareholders as compared to an increase in wealth due to an increase in the share price, and investors therefore prefer dividends (bird in the hand) to capital gain (bird in the bush). Gordon (1959), as an important representative of this explanation, indicated that dividends have more effects on share price than do capital gains. Further, he argues that by paying a high dividend ratio the firm's future cash flow will be less uncertain, which in turn will decrease the cost of capital and increase firm value.

The reasoning behind Gordon's argument is that as dividends are taken to be less risky than capital gains, the firm should pay high dividends today to reduce the uncertainty of future cash flows among the investors. Paying a high dividend ratio results in a decrease in the cost of capital because cash flow uncertainty is reduced, therefore leading to an increase in the firm value. This explanation has also been supported by Lintner (1956), Walter (1963), and Brigham and Gordon (1968).

Bhattacharya (1979) argues that a firm's risk does affect the way it distributes its dividends, but the way of distributing dividends does not affect the riskiness of the firm. Extending the argument, it is suggested that an increase in the riskiness of cash flows increases the firm's risk and this in turn influences the firm's decision to pay dividends (as risky firms tend to make lower dividend payments than less risky firms). On the other hand, an increase or decrease in dividend payments will not in any way affect the riskiness of the firm, stressing the fact that a firm's riskiness will affect dividend policy but the dividend policy will not affect the riskiness of the firm.

Overall, firms with riskier cash flows tend to pay lower dividends than firms with more stable cash flows. There are a number of reasons for this; Riskier firms tend to keep the dividends low in order to avoid a dividend cut that might be necessary later on due to a decrease in the projected earnings. Secondly, riskier firms often do not like to commit themselves to a high dividend payment due to their internal uncertainty concerning future earnings. For these reasons the riskiness of cash flow may affect dividend policy and this finding has been supported by several empirical studies (see for example Rozeff, 1982; Crutchley and Hansen, 1989; Alli et al., 1993; Moh'd et al., 1995).

In addition, several empirical studies argue that Gordon (1959) did not take account of risk factors in his regression, causing bias in the coefficient of dividends. Of those studies, Diamond (1967) tried to correct this bias by examining the regression equations to find the impact of dividend and return earnings on share prices. The results showed that investors hardly have any preference concerning dividends. He also found that investors in industries with higher rates of growth prefer capital gains to dividends, whereas in the other type of industries (lower growth rate), investors prefer dividends to capital gains.

Concluding the argument, Miller and Modigliani (1961) disagreed with the bird in the hand theory and named the assumption that a high dividend would raise a firm's value "the bird in the hand fallacy", arguing that firm riskiness is affected by the riskness of asset cash flow and not by dividend payout policy that the firm is follows.

4.3.2 Taxation Effect Hypothesis and Clientele Preference

Another explanation for the relevance of dividend payout policy is the tax effect hypothesis, which suggests that dividends are subject to a higher tax cut than capital gains. It is further argued that dividends are taxed directly while capital gains tax is not realised until the stock is sold. Therefore investors prefer retention of a firm's profit rather than distributing cash dividends for tax-related reasons. The advantage of capital gain treatment may lead investors to favour a low dividend payout rather a high payout. This theory suggest that firm should keep dividend payments low if they want to maximise stock prices (e.g. Brennan, 1970; Elton and Gruber, 1970; Litzenberger and Ramaswamy, 1979; Bhattacharya, 1979; Kalay, 1982a; Poterba and

Summers, 1984; John and Williams, 1985; Miller and Rock, 1985; Ambarish et al., 1987; Baker et al.,1999).

However, one of the important studies that discussed the tax effect hypothesis is Brenan's paper (Brennan, 1970), which used the after-tax Capital Asset Pricing model to show that there is a positive linear relationship between pre-tax returns of stocks and dividend yield, suggesting that an increase in dividend yield should be associated with an increase in the pre-tax returns in order to compensate investors for the tax disadvantages.

Several empirical studies have examined Brenan's model. Of those studies, Black and Scholes' paper (1974) examines Brennan's findings but the results showed that investors can take dividends to be irrelevant while constructing their portfolios. The study of Litzenberger and Ramaswamy (1979) did not agree with the argument of Black and Scholes about the tax effect. Litzenberger and Ramaswamy found that there is a positive relationship between dividend yield and the stock return, with a high significance level. Litzenberger and Ramaswamy therefore supported the dividend tax effect. Miller and Scholes (1982) pointed out a number of drawbacks, showing that Litzenberger and Ramaswamy ignored information effects and announcements of dividend omissions, thus causing a bias in the results. Litzenberger and Ramaswamy (1982) addressed this issue by using expected short-term dividend yields in order to remove the bias and their results showed significant positive coefficients of dividend yield. Keim (1985) also found a statistically significant positive dividend yield coefficient.

However, several studies related the dividend-tax association to the Clientele Effect. Miller and Modigliani (1961) coined the term the "Dividend Clientele Effect" for the tendency of certain investors to be attracted to a specific dividend paying stock. Miller and Modigliani agreed that the clientele theory does affect the firm's dividend policy, but due to their assumption of perfect capital markets, no single client can have an affect on the market, thus leaving the firm value unaffected by dividend or capital gain. In the real world, taxes (clientele effects) exist and this allows the creation of specific types of client. Therefore, each firm will look to attract their clientele, represented by the investors that favour the firm's payout ratio. Thus, tax-included clientele preference may affect the firm's dividend policy.

The discussion regarding clientele theory is elaborated here by stating the tax clientele effect. Due to different rates of tax among different investors in the market, the investors tend to be attracted to dividend policies that are most suitable to their tax requirements/cuts, thus giving them the most revenue. This notion is known as the tax clientele effect, as highlighted in the above paragraph. Elton and Gruber (1970) published one of the earlier studies which support empirically the idea that the dividend-tax clientele effect is a strong factor affecting investors' decisions. Furthermore, several recent studies also came to the same conclusion (see for example Long, 1978; DeAngelo and Masulis, 1980; Bajaj and Vijh, 1990; Denis et al., 1994; Dhaliwal et al., 1999; Seida, 2001).

On the other hand, the results of studies by Lewellen et al. (1978), Asquith and Krasker (1985), and Richardson et al. (1986) show only weak evidence to support the clientele effect hypothesis.

Nevertheless, it should be noted that a number of studies argue that tax theory in explaining dividend policy may not depend on tax alone: amongst those are Brennan and Thakor (1990), Chaplinsky and Seyhun (1990), Sterk and Vanderberg (1990), and DeAngelo (1991). Moreover, several studies have investigated whether investors may favour firms paying high dividend for reasons other than tax, since high dividends reduce information asymmetry and agency problems. The information asymmetry explanation will be discussed in the following section, and the agency theory explanation will be discussed in section 4.2.5.

4.3.3 Signalling Theory and Information Asymmetry Problem

Signalling theory concerns the use of dividends to act as a signal to convey information to the market. In a symmetrically informed market, all interested participants have the same information about a firm, including managers, bankers, shareholders, and others. However, if one group has superior information about the firm's current situation and future prospects, the problem of informational asymmetry will occur. It has been argued that managers tend to have inside information about their firm's current and future performance, as compared to other interested parties: managers often have better information about their firm's value, product, strategies, and investment opportunities. This results in an informational gap between the insiders and outsiders resulting in misinterpretation of the intrinsic value of the firm. In order to close this gap between the two groups, managers use a change in dividends paid in order to convey the private information that they hold and hence, information asymmetry will be reduced.

Bhattacharya (1979) published one of the earlier studies to introduce a dividend-signalling model. He assumed that managers of a firm have more information about their firm's profitability than do outside investors. Managers can convey such information to the capital market by announcing a high level of cash dividends. He explained that when a firm's project is profitable the firm will be able to pay dividends from the realised earnings easily. On the other hand if the firm's project makes a loss, the only source for the firm to pay dividend from is external finance and this choice will incur the burden of transaction costs. Therefore, firms only find it useful to pay a high dividend level if they forecast good future profitability. Miller and Rock (1985) and John and Williams (1985) developed Bhattacharya's models and reached the same conclusion, that managers have an incentive to signal private information to the investment public through changes in dividends when they believe that the current market value of their firm's stock is below or above its intrinsic value. The managers and directors care about the market value assigned by the outsiders, thus they actively use dividends as signals and are pushed to disclose information to assist potential investors in making a decision.

A large amount of empirical evidence supports the dividend–signalling hypothesis that dividend announcements positively affect share price (e.g., Aharony and Swary, 1980; Kalay and Lowenstein, 1985; Asquith and Mullins, 1986; Richardson et al., 1986; Healy and Palepu, 1988; Aharony and Dotan, 1994; Bernheim and Wantz, 1995; Michaely et al., 1995; Brook et al., 1998; Bali, 2003).

On the other hand, studies undertaken by Watts (1973) and Penman (1983) show that dividends are not a good sign for future earnings. Kumar and Lee (2001) found that changes in dividends reveal information about a firm's current and future prospects but they were very weak predictors of earnings. Miller and Scholes (1978) pointed to evidence that the dividend payment policy has no effect on information asymmetry problems, while Watts (1973) and Penman (1983) documented that dividends are not good predictors of a firm's future earnings. Similarly, DeAngelo, DeAngelo, and Skinner (1996) and Benartzi, et al. (1997) reported no proof that dividends convey information about future earnings. Crockett and Friend (1988) further stressed that there is strong empirical evidence against the signalling of dividend payout ratios.

Moreover, Easterbrook (1984) criticised the signalling explanation in that it is ambiguous what dividend information actually signals. He also questioned whether dividends are preferable to signal the appropriate value of the firm rather than a lower-cost approach such as growth or firm profitability.

4.3.4 Transaction Cost and Residual Theory

Another explanation for dividend policy is the transaction cost and residual theory since several studies argue that dividend policy depends on investment opportunities and capital position. These studies have therefore investigated the relationship between the dividend policy and transaction costs of a firm (Mueller,1967; Higgins 1972; and McDonald et al.,1975).

Transaction costs are the costs incurred by a firm when it looks for external funding. The transaction cost explanation assumes that due to the limited nature of internal funds and the high cost of external finance, the sources of funds will affect the uses of funds (e.g., for investments and dividends). If a firm spends a large sum of its limited internal funds on investment, it will consequently tend to pay less in dividends and/or resort more to external financing. Because of external sources of funds are costly, dividends compete with investments for internally generated funds. On the other hand, the residual theory of dividends assumes that a firm will pay dividends only if the internally generated funds have not been entirely used in profitable investment opportunities.

A number of earlier studies examined the relationship between dividend policy and other financial policies (e.g., investment policy and debt policy). For example, Mueller (1967) discussed the relationship between investment policy and dividend policy. He used several equations to show what sort of problems a firm faces while raising funds from profits. The findings showed that the sources of funds will affect the uses of funds (e.g., for investment and dividend policies). If a firm uses a large amount of its limited cash flow on investment, it will automatically tend to pay less in dividends and/or require more debt. Muller carried out a cross-sectional analysis for each year for the period 1951-1960. His results showed that due to capital market imperfection, internal funds are a cheaper source of financing compared to a new security issue. Muller concluded that there is a significant interdependent relationship between dividend and investment decisions. Thus, firms allow investment decisions and dividend policy to affect each other.

However, Higgins (1972) and McDonald et al. (1975) found results contradictory to those of Mueller (1967). Higgins (1972) tested a model of the firm dividend-saving decision by introducing lagged variables. He explained empirically that in order to raise a firm's value, the management will react by using a dividend policy that reduces the cost of excess liquidity and reduces the need for external equity financing. He examined whether a firm's management should make a dividend-saving decision even when dividends are viewed as residuals. By using a cross-section analysis, models of dividends and investment decisions were estimated in each of the years 1962-68. For the dividend model, he used profit and investment as explanatory variables, where each of these explanatory variables is defined as a weighted average of its values for the previous three years. Higgins found that the dividend payout ratio is negatively related to a firm's need for funds, which also means that dividends are affected by investment decisions. This result also shows that dividend decisions are affected positively by profit levels. On the other hand, when Higgins used the weighted average of investment as the dependent variable and the weighted averages of profit and current dividends as explanatory variables, he found a positive coefficient for the dividend variable. Higgins explained this finding by stating that the investment decision affects dividend policy but does not depend on dividends.

McDonald et al. (1975) examined empirically the dividend investment decisions of French firms. Models of dividends and of investment and external financing decisions were estimated in each of the years 1962-68 using cross-sectional data for 75 firms.

Their dividend equation included current profit, investment, outside financing, and lagged dividends as explanatory variables. The result for the dividend equation showed that profit and lagged dividend were the only statistically significant and positive factors. The investment equation used profit, dividend, external financing, liquidity, and capital position to show that current profit and financial leverage have a positive and significant influence and that liquidity is negatively related to investment decisions, showing that firms with a high level of investment have low liquidity. The dividend level also had a statistically significant positive coefficient, leading to the conclusion that there is no interdependent relation between dividend and investment decisions in the external financing model (which includes profit, dividend, investment, liquidity, and the capital position). The finding supports the idea, based on French data, that dividend and investment decisions are independent, and there is no competition between dividend and investment for the source of funds.

However, McCabe (1979) argues that there is misspecification in Higgins' model because he uses current dividend to explain a variable that is a composite of the last three years' investment. McCabe also argues that the dividend equation in the papers by McDonald et al. (1975) is mis-specified because it reflects a predictive model which is not relevant to understanding the relationship between dividend and investment. Therefore, McCabe re-examined the interdependent relationship between dividend and other financial policies by using 112 firms for the period 1966-1973. His model is based on taking a cross-section for each of the years 1966 to 1973 and then combining all the years in a combined cross-section, time-series sample. He hypothesised that firms must raise funds from profits and outside financing and then allocate these funds between investment and dividends. The test of this interdependent hypothesis was based on three equations: an investment equation, a dividend equation, and a long-term debt equation. Each equation contained the remaining two as independent variables and profit as an additional explanatory variable. The result highlighted the effects of dividend on investment and of investment on dividend, both of which affected each other negatively, presenting strong evidence of interdependence between investment and dividend policy. This result also points to a positive relationship between new debt on the one hand and dividend and investment on the other. McCabe explained this positive association by pointing out that firms use new debt to make investments that cannot be financed internally, which should allow firms to continue paying dividends. Based on this result, McCabe concluded that the dividend decisions of firms appear to be made systematically taking into consideration the competing needs for funds (investments) and sources of funds (profit and new debts).

Thus, some studies found dividend to be residual while others found that there is competition between dividend and investment decisions. It is useful to consider that several studies found that investment opportunities and external financing can be useful factors in explaining dividend – the agency explanation (e.g., Rozeff, 1982; Lloyd et al., 1985; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; and Holder et al., 1998). More such empirical studies will be discussed in section 4.3 with respect to the influence of transaction costs.

4.3.5 Agency Theory

Modern organisational theory views a firm as comprising shareholders and managers. Although Miller and Modigliani (1961) assume that managers and shareholders have the same objectives, this is not true in the real world. Managers may have different objectives to shareholders, allowing them to operate in a way which is not optimal for the shareholders, and this leads to a conflict between the two parties. Managers tend to take the entire benefit at the expense of the shareholders. Moreover the separation between mangers and shareholders may cause information asymmetry between these two parties, but without necessarily providing the motivation to disclose that information. That is, managers may need to be forced to disclose the private information which they are privy to. This explanation has been developed as part of the agency cost theory of dividend policy (Al-Malkawi, 2005).

Agency conflict can appear between managers and widely dispersed shareholders, as is the case in the U.S., the U.K., Canada and Australia, where there is a formal separation between managers and shareholders. In other countries, shareholders characteristically own a large number of shares and usually take part in controlling the firm. Therefore, the agency problem can arise between majority shareholders and minority shareholders. La Porta et al. (2000:3) argue that majority shareholders:

> "who control corporate assets can use these assets for a range of purposes that are detrimental to the interests of the outside investors. Most simply, they can divert corporate assets to themselves, through outright theft, dilution of outside investors through share issues to the insiders, excessive salaries, asset sales to themselves or other corporations they control at favorable prices, or transfer pricing with other entities they control"

The payment of dividends has been suggested as a possible solution to reduce this agency problem. For example, Easterbrook (1984) explained that dividends can be useful in reducing the agency costs of the management. He suggested that paying a large dividend would require a firm to depend in the long term on capital markets as their most important financing resource. As a result, investment professionals (e.g., bankers and financial analysts) would be able to monitor the behaviour of managers, which in turn would allow shareholders to monitor managers at lower cost. Thus, dividend payments increase management scrutiny by outsiders and hence motivate managers to disclose new information and reduce agency costs in order to secure needed funds. Therefore, increasing dividends will cause managers to act more in line with the interest of shareholders rather than their own self-interest.

Jensen (1986) makes a similar argument based on the shareholder–manager agency relationship, where managers pay dividends to reduce the firm's discretionary free cash flow that they could use to fund sub-optimal investments that would benefit themselves but diminish shareholders' wealth. That is, excessive cash balances give managers added investment flexibility, which may be harmful to shareholders. The empirical studies of agency theory explanation will be discussed in detail in section 4.3, as this thesis will give special attention to the agency explanation.

Travlos et al. (2002), explains that in a world of significant agency problems, firms must establish a good reputation for treating well minority shareholders in order to be able to raise external capital. One way to establish such a reputation is to distribute large dividends, which reduces the opportunity for expropriation of corporate resources. The need to build a good reputation is higher if the firm has high uncertainty about its future cash flows and if it has high growth prospects; it is also higher in countries with newly established stock markets.

The following section will consider the empirical studies of the agency theory explanation in detail. The agency explanation has some exceptional characteristics, as stated by Moh'd et al. (1995: 368):

> "The agency argument has some unique characteristics that make it a promising approach for explaining other aspects of dividend policy as well. Not only can agency theory offer an explanation for why firms pay dividends, but it may also define how much each firm should pay. Agency theory offers a rationale for dividend policies that are observed to vary from industry to industry and between otherwise similar firms."

4.4 Previous Studies on Dividend Policy

Various empirical studies on corporate dividend policy found in the literature are discussed in this section with special consideration given to the agency theory. These studies are divided into two parts: dividend policy studies for developed countries and dividend policy studies for less developed countries.

4.4.1 Dividend Policy Studies Undertaken in Developed Economies

In this section, dividend policy studies carried out in relation to developed economies are discussed. Of these, a large number employed the agency theory to explain firm's dividend policy.

Rozeff (1982) was one of the first studies to introduce a model to explain that dividend payment policy is affected by two types of costs: (1) agency costs and (2) transaction costs. In his model, he explained that agency costs (related to the conflict between managers and shareholders) decrease as dividend payout increases, while transaction costs (related to external financing and investment decisions) increase as dividend payout is increased. He employed a linear regression model of five variables. The model is presented as follows:

$$PAY = b_0 - b_1 INS - b_2 GROW1 - b_3 GROW2 - b_4 BETA + b_5 STOCK \qquad (4.1)$$

where,

PAY = average dividend payout ratio over a seven-year period
INS = percentage of common stock held by insiders at end of seven-year period
GROW1 = previous five years' average growth rate of revenues
GROW2 = forecasting future five years' average growth rate of revenues
BETA = estimated business risk
STOCK = natural logarithm of number of common stockholders at end of seven-year period.

Three variables were used as proxies for the transaction cost effect. These variables were the realised growth rate of the revenues of firms (GROW1), the forecast future growth rate (GROW2), and BETA which is used to account for the financial leverage and the financial leverage effect. He also used two variables as proxies for agency cost effects: the percentage of stock held by insider shareholders (INS) and the natural logarithm of the number of outsider stockholders (STOCK). The coefficients of all the variables in the equation were found to be statistically significant. The explanatory variables used in the model explained almost half of the cross-sectional variation in the mean payout ratio for one thousand firms (for the period 1974-1980). The results emphasise that a firm has a low dividend payout ratio when it has high growth projects and when the operating and finance leverage is high.

Rozeff also indicated that firms establish higher dividend payouts when insiders hold a lower fraction of the equity and/or a greater number of stockholders own the outside equity. This situation will reduce agency problems, which arise from the conflicts of interest between shareholders and managers. However, the key point of Rozeff's model (1982) is that the optimal dividend payment ratio occurs where the sum of transaction costs and agency costs are minimised.

Dempsey and Laber (1992) argue that the Rozeff's model (Rozeff, 1982) might give a different result if the economic situations were to differ over time. Therefore, they used the Rozeff model to re-examine the effect of agency and transaction costs on the dividend ratio by using a sample of 968 firms (for the period 1974-80) and 739 firms (for the period 1981-87) under different economic conditions, such as low inflation, strong economic growth, and low tax. They compared their result with Rozeff's result (1982). Their findings strongly supported Rozeff's results and showed that although there is economic change between the two periods, the model itself remains stable.

Lloyd et al. (1985) argued against Rozeff's results and questioned whether his agency variables actually are proxies for other omitted variables. They used firm size as a new agency variable and additional explanatory factor in the Rozeff model. They found that there is a positive association between dividend and firm size, thus large firms are more likely to pay higher dividends than small firms. They relied on the argument of Jensen and Meckling (1976) that large-sized companies are associated with greater agency costs. In other words, in large firms, widely spread ownership has more influential power and this influence increases agency costs. Holder et al. (1998) also found a positive relationship between dividend and firm size. However, his explanation of this positive association suggests that large firms have easier access to capital markets and are therefore less dependent on internal funds, and as a result are better able to pay high dividends. Several followed studies , such as Chang and Rhee, 1990, Jensen et al. (1992) Moh'd et al. (1995), Redding,(1997), Fama and French (2000) agree that the impact of firm size on dividend policy is positively significant suggesting that large companies are more likely to pay more dividends. However, Smith and Watts (1992) and Gaver and Gaver (1993) also examined the association between firm size and dividend payout but did not find any statistical association between them.

Based on the Rozeff's model (1982), Saxsena (1999) examined the factors for regulated and unregulated firms to see whether there is a significant different between their dividend policies. Her study used a sample of 235 unregulated firms and 98 regulated firms listed on the New York Stock Exchange (NYSE) for the period 1981-1990 and found that the main difference between regulated and unregulated firms related to the level of holdings of common stock by the firm's managers (i.e., INS in equation 1). She found that in unregulated firms, the percentage of shares held by insiders (controlling managers) has a negative impact on dividend payout ratio - this result is comparable to that of Rozeff. On the other hand, she found that this variable was not significant in the sample of regulated firms. She explained that in regulated firms, regulators act as alternatives to insiders in monitoring a firm's performance, whereas in unregulated firms, the insiders will act to "regulate" and monitor the firm's financial performance in the long run. Consequently, they do not care about receiving dividends at the present if there is a possibility of reinvesting the money in positive net value projects that will raise firm value and in turn attracting more investors.

While the above studies were based on the OLS method, Alli et al. (1993) examined a sample of firms listed in the NYSE by using a factor analysis model to determine their dividend policy. Based on the Rozeff's agency hypothesis (1982), they examined how, as the number of outside shareholders increases, the agency problem becomes more difficult and the need to observe managerial behaviour also increases. Therefore, they hypothesised that if increasing the dividend payout ratio can remove this problem, a positive relationship is expected between the number of outside shareholders and the dividend payout ratio. However, they also hypothesised that higher insider ownership could reduce agency problems, and hence the need to increase the dividend payout ratio would be less. Therefore, a negative relationship is expected between insider stockholders and the dividend payout ratio. In contrast with Rozeff's findings, the result reported a non-significant relationship between dividends and the ownership dispersion factor. On the other hand, they found that the insider ownership variable can be a significant factor in explaining dividend agency theory, which showed a statistically significant negative relationship with dividend payouts. They concluded that insider ownership can be a significant factor in explaining the dividends-agency theory association. Chen and Steiner (1999) also examine the relationship between dividend policy and agency problem based on non-linear two stage least squares simultaneous regression. They hypothesise that because dividends are part of the firm's monitoring package and serve to reduce agency cost, firms will establish higher dividend payout when managers hold a lower fraction of the firm's shares. The results support the predicted hypothesis and shows that there is a negative association between dividend and insider shareholders. That is the result support Rozeff's findings.

In addition, Jaherah et al. (1986), concentrated their test on insider ownership and its impact on dividend policy. That is based on dummies the study classifies whether the firm is controlled by managers or owners (inside shareholder control). They concluded that owner-controlled firms pay lower payout ratios than manager-controlled firms.

Jensen, Solberg, and Zorn (1992) used a three-stage least squares technique to investigate the determinant of dividend policy within a common empirical framework. They identified insider ownership as one of the most influential determinants of dividend policy. They hypothesised that if insider owners hold the major share of the company, the management naturally prefer not to declare more dividends but increase director fees and so on. Fluck (1999) provided a similar conclusion when he investigated the association between dividend policy and the distribution of equity ownership between deep-seated insider shareholders (management) and dispersed outsiders.

Eckbo and Verma (1994) stated that insider owners benefiting from free cash flows, uneven personal tax rates, and information asymmetries cause rise to shareholder conflicts while making the dividend decision. They explained that paying dividends reduce this conflict by a consensus across different shareholder groups. They developed and tested the consensus dividend hypothesis using Canadian firms, as the managers in Canadian firms mostly own a large percentage of the voting stock in the company. Eckbo and Verma (1994) found empirically that cash dividends reduce as the voting power of the insider shareholders increases, and tend to zero when the insider shareholders are in complete control of the firm.

However, Schooley and Barney (1994) used the Rozeff model to analyse dividend yield, instead of dividend payout ratio, as a dependent variable. They introduced Chief Executive Officer (CEO) ownership as a subsequent explanatory variable for insider ownership. They hypothesised that increased executive stock ownership reduces agency costs and dividend yield to the point where the CEO becomes entrenched, but after this point, the increase in executive stock would increase the dividend yield. The results from an OLS cross-sectional regression supported their hypothesis that CEO ownership is non-monotonically associated with dividend yield, as a negative sign appears until 14.9% ownership and a positive sign appears after that.

Gugler and Yurtoglu (2001), who empirically tested continental European firms, indicated that conflicts between large and small shareholders usually tend to be a lot bigger than the conflicts between the management and the shareholders. Furthermore, they found an increase in large shareholders makes the small shareholders very weak, thus they are reluctant to ask for cash dividends. This explanation is also consistent with that of Shleifer and Vishny (1986), who tested the association between large shareholders and dividend policy. They were of the view that as the large shareholders gain full control over the firm, they tend to act for their own benefit and provide private benefits to themselves, mostly at the expense of the small shareholders.

Mancinelli and Ozkan (2006) tested data from 139 Italian firms to examine the impact of large shareholders, additionally taking into account the voting rights of these large shareholders. Based on the Tobit model, they found that the higher the volume of large shareholders with greater voting rights, the higher the chance of expropriation of outside shareholders over the firm. They also showed that the managers mostly act in their own benefit, taking the cash themselves rather than distributing it amongst the shareholders. They concluded that this situation occurs where 70% of the shares of a firm are held by top managers and large shareholders.

However, several studies, such as those by Jarrell and Poulsen (1987), Brickley et al. (1988), Graves and Waddock (1990), and Han et al. (1999), stated that agency costs can be reduced if institutional owners can take charge of monitoring the management, as institutions are professional organisations who can evaluate the performance of a firm and the efficiency of managers more accurately due to their large scale of operations and expertise. This means that the existence of such professional institutions would make wrongful actions by managers very difficult, which would reduce agency problems. Therefore, it can be concluded that in the case of institutional owners, a firm may not need use dividends as a tool to reduce agency problems. Hence, institutional ownership may provide other explanations of dividend policy and agency problems.

This argument has been investigated by Han et al. (1999). They explored how institutional ownership affects dividend payout policy by examining two hypotheses to determine a relationship between dividend policy and institutional ownership. The first one, the agency cost hypothesis, predicts a negative relationship between dividend payout and institutional ownership. The second, the tax hypothesis, predicts a positive relationship between the two. The results reject the agency cost hypothesis and are in favour of the tax-based hypothesis, showing a positive relationship between institutional shareholders giving more weight to dividend payouts as compared to capital gains, the reason being the institutional tax exemption policy. This result was also favoured by Short et al. (2002). They tested a sample of 211 firms listed on the London Stock Exchange for the period 1988-1992 and found a direct relationship between institutional ownership and dividend policy. They considered the existence of tax clienteles, showing that, due to comparative tax advantages, some institutions give more dividends relative to individual investors. As institutional investors are taxed lesser amounts, the firm will tend to give greater dividends. This result was also supported by Khan (2006), who examined 330 large quoted UK firms.

Another explanation was provided by Allen et al. (2000). They based their study on the ownership clientele, stating that it will have a direct effect on dividend policy if institutional investors are not taxed as much as individual investors. They examined two explanations for the above result, namely the signalling theory model and the agency theory model. The signalling theory model is associated with asymmetric information, where managers tend to know more than the outsiders: as a result, the institutions are in a more prominent position to investigate the performance of the firm as compared to individual investors. Therefore, paying higher dividends will attract professional institutions because of the clientele effects, revealing the true value and performance of the firm, thus increasing the value of the firm. On the other hand, the agency theory model assumes that as the professional intuitions can discover the real quality and performance of the firm and the managers, they can help a great deal in reducing the agency cost conflict. The result shows that when institutional investors are relatively less taxed than are individual investors, then institutional shareholders have a preference to invest in firms that regularly pay dividends. The results also highlighted that institutions, as large shareholders, have a greater ability to monitor management performance compared to small shareholders. In addition Allen et al. (2000) explain that high dividend payout can be a tool to attract institutional investors, who thereafter provide a monitoring service.

This result supports Shleifer and Vishny (1986), who examined corporate control and dividend policy, and investigated the observation that small firms need to pay high dividends in order to attract institutional investors, as they are in need of a tool that can monitor the managers activates and thus reduce the agency cost problem, thereby increasing the firm value. A similar explanation was also provided by Moh'd et al. (1995) who investigated the relationship between agency theory and dividend policy and stated that the firms pay higher dividends as the number of professional institutions increases. They also explained that small firms tend to take advantage of economies of scale for monitoring purposes by attracting large stakeholders through a high dividend payout ratio.

However, while the studies discussed above provided explanations for a dividend-institutional ownership relationship, several argued that the classification of institutions (for example, financial and non-financial) should be taken into account in order to test the relationship between dividend and ownership structure because different institutions might have different effects on dividend policy. Amihud and Murgia (1997) indicated that bank ownership and control may lead to a low dividend payout policy in order to leave greater security for debt. On the other hand, Trojanowski (2004) reported that non-financial institutions tend to pay out high dividends due to their low cash requirements. Khan (2006) tested the impact of an insurance company as a type of institutional ownership structure. The results showed a non-homogenous behaviour of institutions, i.e., insurance companies have a different behaviour compared to financial institutions. Khan (2006) is of the view that insurance companies are not as good as financial organisations in monitoring the performance of a firm and that of managers, resulting in agency cost problems. Khan concluded by saying that dividends can act as a substitute in this case for poor monitoring of the firms performance. Dahlquist and Robertson (2001) analysed the institutional impact of foreign ownership for the Swedish market. They stressed that foreign investors are typically institutional investors who wish to invest in firms that have large cash holdings and pay low dividends, according to their preference for investing in high-growth firms.

It is notable is that while different studies have examined the dividend–agency explanation by discussing different ownership structures; very few papers have discussed the impact of government ownership in developed economies. One of those studies is the paper by Gugler (2003), who argued that besides tremendous ownership concentration, a peculiarity of the corporate governance system in Austria is that the state still holds many controlling equity blocks in non-financial companies.

To investigate in more detail, Gugler examined the relationship between dividends and the ownership and control structure based on data of Austrian firms during the period 1991-1999. One of the most important findings was that state-controlled firms may be distinguished from private firms (non-state owned) in that they have a large target payout ratio and are most reluctant to cut dividend. He explained that state-controlled firms, which can be viewed as manager-controlled, are facing a double principal–agent problem. This is because the ultimate owners of the firms are the citizens, who do not control the firms directly but require their elected representatives to take this responsibility. Their large numbers tend to cause citizens 'to shirk' on their responsibility to monitor politicians. In turn, the politicians themselves may not actively monitor the companies owned by the state. These matter lead to the expectation of larger principal–agent problems between managers and the citizen 'owners' of state-owned companies than for private corporations. Elected politicians are in charge for the activities of government. Therefore, such firms decide to distribute according to a large target payout ratio and are most reluctant to cut dividends. This is because dividends could be a significant tool to prove to citizens that the corporation is performing in a good way, despite the fact that large dividends could reduce the free cash flow available to the managers.

The fact that dividend policy affects the free cash flow in the hands of managers has been discussed by several studies as a different hypothesis for a dividend-agency explanation, namely the free cash flow hypothesis.

One of the first papers supporting the agency cost explanation and the free cash flow hypothesis was written by Jensen (1986). He put forward a different explanation regarding the relationship between dividends and agency problems. He defined overinvestment as the basis for his study, arguing that managers do not take into account the net present value rule while investing the firms money, leading them to invest the free cash flows in projects that have a negative net present value in order to benefit themselves rather that acting in the favour of the firm and the shareholders. Jensen provides an explanation regarding the behaviour of managers, stating that managers have several reasons to expand the firm beyond the optimal size and invest in negative NPV projects. One reason is that managers' dependency, which occurs due to frequent visits to the market to raise capital, is reduced by retaining cash. Another reason is that managers would benefit in several other ways, such as increased wages and better promotion prospects, if the size of the firm increased dramatically. The overinvestment by managers results in an increase in agency costs, which will decrease the value of the firm. Jensen concluded that this problem could be reduced if high dividends are paid out, making investment in negative projects difficult for the managers, resulting in a decrease in the agency problem of free cash flows.

Akhigbe and Madura (1996) explained that dividends can reduce agency cost because they reduce the free cash flow available to managers. The potential for reduced agency cost should be greater for those firms that tend to use funds inefficiently. Given that previous performance serves as a proxy for efficiency in allocating funds, the relatively poor performers have more potential to reduce agency cost following dividend initiation. On the other hand, omitting to pay a dividend can increase agency costs because they enlarge the free cash flow available to managers. However, the financial condition of firms at the time of dividend omission may limit the degree to which agency cost can increase. Since many firms only omit dividend after experiencing financial problems, the funds retained rather than distributed as dividend should be closely monitored. Agency costs are more likely to increase following dividend omission if the firm's previous performance has not triggered closer monitoring of managers: that is, relatively poor performance prior to dividend omission should automatically heighten monitoring of the firm's managers, while relatively strong performance prior to dividend omission enlarges free cash flow without necessarily triggering closer monitoring of the firm's managers.

Lang and Litzenberger (1989) extended the free cash flow hypothesis and named it the overinvestment hypothesis. They used a Tobin Q ratio to examine the relationship in 429 US firms for the period 1979-1984. Based on the Tobin Q ratio, they defines that firms with Q>1 show efficient investments on behalf of the firms, whereas firms with Q<1 were showed to be firms that have over-invested. Lang and Litzenberger used the free cash flow hypothesis to state that overinvesting firms are assumed to have a large stock return followed by an increased dividend payout because distributing a high dividend signals that the free cash flows have been decreased, letting the market predict that the overinvestment is decreasing. The opposite would hold for a decrease in dividend payout. Lang and Litzenberger's results support there hypothesis and they concluded that the market is more sensitive to dividend changes in over-investing firms as compared to others. They also showed a positive relationship between share price and dividends for firms with poor investment opportunities, a finding that was also supported by Perfect et al. (1995).

Numerous studies by Howe, He, and Kao (1992) and Denis, Denis, and Sarin (1994) contrast with that of Lang and Litzenberger (1989) and their free cash flow hypothesis. Howe et al. (1992) used a sample of one-time events (events that do not regularly recur), such as dividend announcements, and found that there is no significant difference between high-Q and low-Q firms regarding stock responses to dividend announcements. Denis, Denis, and Sarin (1994) used a sample of 6777 dividend changes over the period 1962-1988 to re-examine the findings of Lang and Litzenberger (1989) and found a negative relationship between dividend yield and Tobin's Q: they also related this inverse relationship to a decrease in the overinvestment problem. Yoon and Starks (1995) concluded with similar findings by using 3748 dividend increase and 431 dividend decrease announcements during the period 1969-1988.

Lie (2000) considered the free cash flow hypothesis by examining the relationship between excess cash and payout policy in the context of special dividends and regular dividends self-tender offers. By using a large sample, the results indicates that stock price reaction shows large increases in pay out lessen the agency problem linked with excess funds, large special dividends and self tender offers. On the other hand, there was no evidence to sugest that increases in value of regular dividends, which are typically very small, or a small special dividend, could resolve the overinvestment problem. That is to say regular dividends do not support the agency cost hypothesis of free cash flow.

Agency Explanation and Transaction Cost:

Rozeff (1982) showed that a higher dividend payout will result in a decrease in equity agency costs and an increase in transaction costs. Transactions costs are related to the firm's investment policy and its operational and financial leverage.

Rozeff (1982) indicated that firms with higher growth rates pay fewer dividends: because a firm's growth needs higher investment expenditure and at the same time the firm is unable to finance externally, as external finance is very costly, therefore a firm with a higher growth rate would stick to paying less dividend, allowing them to reduce their dependency on expensive external financing. This result is supported by Lloyd et al. (1985), Titman and Wessels (1988), Murali and Welch (1989), Jensen et al. (1992), Dempsey and Laber (1992), Alli et al. (1993), Moh'd et al. (1995), and Holder et al. (1998).

Gaver and Gaver (1993) used both growing and non-growing firms in the US for the period 1967-1993 to conduct their research. They used investment opportunity ratios to conclude that growing firms as compared to non-growing firms possess a low debt/equity ratio combined with low dividend yields. They also concluded that growing firms pay greater cash compensation to their employees and have greater stock option plans. Grullon et al. (2002) also examined US firms for the period 1967-1993 and found that as well-established firms get older, have reduced growth opportunity and capital expenditures and more accessible free cash flows, they are able to pay greater dividends. On the other hand, younger firms find it difficult to build up significant reserves due to their fast growth and financing requirements, not allowing them to pay high dividends.

Gul (1999b) analysed Japanese firms for the period 1988-1992 and provides evidence in favour of the agency theory argument in terms of the relation between growth opportunities, capital structure, and dividend policies. His study showed that there is a negative association between investment opportunities and dividend ratio, explaining that as dividend payment increases, the resources of the firm decrease, leading to reduced agency costs of free cash flows. This allows firms without investment opportunity projects to pay higher dividends in order to decrease their free cash flows. Conversely firms with higher growth opportunities have access to lower free cash flows and less flexibility in their dividend policy, which results in a low dividend payout. Paying lower dividends also helps them to reduce their dependency on costly external funds.

Lang and Litzenberger (1989) used the link between investment opportunity and free cash flow theory to show that firms tend to pay out higher dividends when they see that their internal funds have not been used up fully in making investments. Paying out higher dividends also avoids the managers overinvesting the company's resources. A similar study regarding this issue was done by Fama and French (2000), who studied the decline in dividends after 1978 in US firms. They used a logit regression to examine the characteristics possessed by dividend paying companies. The results showed that young firms will pay lower dividends as compared to mature and well-established firms that have a high profit and fewer growth opportunities. Myers (1984) also did similar research to establish a link between investment and dividend policy, showing that investment policy can act as a substitute for dividend payout as a tool for controlling the agency problem.

The above findings (positive relationship between growth rate and dividend) are in contrast with those of Abreu (2006), who used the Rozeff model (1982) to determine dividend policy using a sample of 22 Portuguese companies for the period 1999-2003. Abreu found a direct relationship between the target dividend payout ratio and the annual growth rate of sales. He related this to the explanation given by La Porta et al. (2000), that there is a possible positive relationship between dividend payouts and investment opportunities for countries with weak legal protection for minority shareholders (Portugal has been classified as a low legal protection country). However, he concluded that under the agency cost explanation of dividends, the distribution of dividends related to agency theory in Portugal appears to be an important factor to create a clientele for future issues of equity.

Business risk and capital position also seem to affect the dividend level considerably. Rozeff investigated how business risk affects dividend policy and stated that it will affect dividend policy to the point where it will increase the cost of additional external financing because greater variation in earnings and funding will require a high operating leverage. These findings are consistent with those of Higgins (1972) and McCabe (1997), who stated that dividends would be reduced in order to avoid external financing because high business risk shows that the company has high operating and financial leverage.

Similarly, Lloyd et al. (1985), Chang and Rahee (1990), Jensen et al. (1992), Dempsey and Laber (1992), and Alli et al. (1993), stated that increased volatility in a firm's cash flows makes the firm very risky, resulting in a firm's dependence on external financing. In order to avoid costly external financing, firms will therefore adopt a conservative strategy and pay out low dividends. Moh'd et al. (1995) who defined business risk as being characterised by earnings volatility, finds that increased earnings volatility in a highly leveraged firm increases the chances of the firm going bankrupt, which makes the firm pay lower dividends.

Jensen et al. (1992) stated that a high business risk is associated with increased profit uncertainty. As a result, this uncertainty implies that the business risk will negatively affect dividend. Holder et al. (1998) showed that dividend payout ratios are lower for higher risk firms by testing the volatility of the firms' returns. On the other hand, Crutchley and Hansen (1989) explained that increased earnings volatility would increase the uncertainty about income and also increase the leverage expectations which causes the firms to look for external financing in order to build up the firms image and also to ensure that these firms pay a high dividend in order to give the market a sign that the firm's performance is good.

Jensen (1986) explained the assumption that comes out of this agency cost argument, stating that whenever there are widely spread outsiders with low leverage ratio, and wherever the firm continuously requires equity capital, firms will chose to pay high dividend in order to stay in the capital market. For firms without attractive investment opportunities, leverage can put a floor to the agency costs over which managers have discretion. Similarly, Jung et al. (1996) stated that as cash flows have to be used to pay off the creditors, managers tend to have less control over the firm's cash flow. Moreover, they documented that managers are monitored very closely and regularly by the creditors who are demanding their money back. Another factor that reduces or limits agency costs is the commitment to pay out high dividends.

On the other hand, Jensen and Meckling (1976) and Myers (1977) argued that while leverage may limit agency costs, it is also considered to make its own agency cost, particularly for firms with attractive growth opportunities. They argued that when debt capital has been raised, the insider shareholders start the process of significant consumption of perquisites or they may invest in an investment project which is not profitable. The insiders can burgle the company, leaving it as a shell for the bondholders to take over. In the model by Myers (1977), the debt of the firm with significant growth opportunities puts a negative social cost on the firm's investment strategy. As part of the managers' benefits accrues to debt holders, they tend to reject some attractive positive net present value projects. The agency costs of debt as discussed above can be limit by renegotiations or by call and conversion characters (see Aivazian and Callen, 1980). Smith and Warner (1979) argue that shareholders exercising benefits at the expense of debt holders can be limited by putting restriction covenants on bonds, such as dividend constraints on the whole, and furthermore that any development in the opportunities of a firm growth will raise the marginal agency cost of debt and will reduce the marginal agency cost of managerial discretion. Thus, firms with slow growth rate will pay high dividends as compared to firms with high growth opportunities.

It is evident from this review of previous research that many inconsistencies are observed and reported. The results tend to support Black's (1976) proposal that dividend policy is a puzzle. However, it has been argued that more pieces have been added to "the dividend puzzle" by current researchers through explanation of the dividend policy behaviour of firms in emerging markets. Research into the determination of dividend policy in emerging economies is the focus of the following sections.

4.4.2 Dividend Policy Studies Undertaken in Emerging Economies

Several studies explained why more pieces have been added to the "dividend puzzle" by current researchers drawn to explaining the factors affecting the dividend policy behaviour of firms listed on emerging markets. One explanation of theses new pieces relates to the characteristics of dividends being heavily dependent of the net profit for the same year in an emerging stock market. Empirical researchers have found that in companies operating in developed countries, managers believe that it is better to pay two moderate level dividends rather than paying a higher one today followed by a dividend cut in the future. This scenario is opposite to that of firms in emerging markets where the dividend payout policy mainly depends on the earnings of the firm for that year alone.

For example, Glen et al. (1995) examined the behaviour of dividend payout in eight emerging stock markets (Chile, India, Jamaica, Mexico, the Philippines, Thailand, Turkey, and Zimbabwe). They found a significant difference in the dividend payout behaviour of firms in developed and developing countries. They claimed that the dividend payouts of firms in emerging markets depends heavily on the net profit for the current year, indicating that emerging markets are more changeable compared to developed markets.

Other evidence for the heavy dependency of dividends on the current earnings in emerging markets has been provided by Aivazian et al. (2003) who compared the dividend behaviour of firms in the US with firms in eight developing countries, namely Korea, India, Malaysia, Thailand, Zimbabwe, Jordan, Pakistan, and Turkey, for the period 1980-1991 and tested the hypothesis of whether dividend behaviour is heavily reliant on the current earnings of the firms in emerging markets. This hypothesis is based on their argument that developing countries tend to have a more uncertain financial market, which in turn makes dividend less stable, while developed countries have a more certain security and stability market behaviour. As a consequence of current dividends being based on current earnings, dividends become less important in predicting future earnings for emerging markets compared to US firms. This results in an increase in the informational gap between the managers and shareholders, resulting in an increase in the agency costs.

Glen et al. (1995) and Aivazian et al. (1999), agreed with Adaoğlu (2000), who examined dividend policy in the Istanbul Stock Exchange (ISE). The latter study focused on two time periods, 1985-1994 and 1995-1997, where prior to 1995, there was a dividend regulation that firms had to distribute at least 50% of earnings as dividend.

After 1995, the dividend regulations changed, providing flexibility in dividend policy for firms listed on the ISE. The results showed that the corporate dividend policy depended mainly on the corporate earnings for the same year for both time periods. Based on these results, Adaoğlu concluded that firms listed on the ISE exhibit volatile dividend payment.

Wang et al. (2002) adopted a dividend policy comparative approach by drawing comparisons between nine Chinese and nine UK counterpart companies, examining financial data and dividend policy throughout. The results indicated that the Chinese listed companies paid a higher ratio of dividends (70% on average) compared to their UK counterparts (44% on average). The study showed that although UK firms paid a lower dividend ratio, they exercised a stable dividend policy with a consistent increase in dividend per share, whereas none of the Chinese firms possessed a stable dividend policy. They also found a difference in the type of dividend chosen by firms in the UK and China: all nine UK firms chose to pay cash dividends, whereas only three chose to do so in China while the others decided to distribute stock dividends instead. The authors concluded that the reasons for these differences are mainly different social and economic environments (for example, taxation, government control of capital markets) and different development levels of the stock markets in the two countries.

The link between dividend payout and a firm's earnings in developing countries mostly depends on the legal protection and agency problem of the specific developing country. Several studies stated that developing countries provide poor protection for outside shareholders combined with significant agency problems due to intense information asymmetry problems. As a result, the shareholders in developing countries accept whatever dividends they can get, giving rise to uncertain future cash flows.

The paper by La Porta et al. (2000) supports empirically the agency cost theory in explaining dividend policy based on a sample of 4000 firms across 33 countries, including emerging markets, and supports the agency cost theory in explaining dividend policy. They assessed shareholders across different countries on the basis of the legal protection they possess and used this fact to compare dividend policy among various countries. Their test was based on two approaches, namely the outcome model and the substitute model. The outcome model hypothesises a positive relationship between the extent of legal protection for shareholders and the amount of dividend paid. The reason they gave is that the shareholder in the countries they tested had the right to force the companies to provide cash, leading them to pay high dividends. This hypothesis accounted for high dividends in countries. Thus, high dividends are an outcome of the legal protection of shareholders. On the other hand, the substitute model assumes that dividends are a substitute when the legal protection for the shareholders is poor. It explains that when the legal protection is poor, firms tend to establish a good reputation for themselves by treating the investors well by paying high dividends. The empirical results revealed that high dividend ratios related to common law countries that have better protection for shareholders. In contrast, they found that in countries with low legal protection, which included developing countries, dividend payout was low. Thus, the results support the outcome agency model. Extending the findings, they showed that dividend payout for fast-growth firms is lower than that of slow-growth firms, the reason being that the legally protected shareholders do not mind waiting to receive dividends during times of good investment opportunities. La Porta et al. stated that unprotected shareholders behave in the opposite manner, accepting any amount of dividend without considering the investment opportunities. La Porta et al. concluded by stating that the agency hypothesis is a significant approach in understanding dividend policy across countries.

However, the paper by Travlos et al. (2002), supported the substitute explanation after examining the dividend policy of firms listed on the Muscat Security Market in Oman as an example of a young stock market. They argued that in this type of security exchange, the information asymmetry problem is the major contributor towards agency problems. Therefore, firms work hard towards building a strong reputation and reassure minority shareholders by paying high dividends. The findings showed that the dividend payout ratio is higher for companies with controlling shareholders possessing large shareholdings. They concluded that in the absence of tax considerations and in the context of a young stock exchange, these findings provide empirical support to the agency theory in a dividend context. Al-Malkawi (2005) tested the dividend policy of firms listed on the Amman Stock Exchange (ASE) for the period 1989-2000 and also supported the agency theory explanation. He found agency costs have a big impact on dividend policy in Jordan, as it is an emerging stock exchange which has very highly concentrated capital market in terms of ownership. He assumed that agency problems are followed by the creation of large controlling shareholders, and the development of such controlling shareholders will set up an additional agency cost. This finding shows that agency costs are also an important determinant in other emerging markets.

Additional agency-dividend evidence from emerging markets has been provided by Mollah et al. (2002), who found that dividend is one of the measurements used to reduce agency costs, which is consistent with studies on dividends in developed countries (for example, Rozeff, 1982; Easterbrook, 1984; Crutchley and Hansen, 1989; Jensen et al., 1992; Alli et al., 1993; Moh'd et al., 1995). Mollah et al. (2002) tested the effect of agency costs on dividend policy in an emerging market by examining 153 non-financial companies on the Dhaka Stock Exchange for the period 1988-1997. They examined the dividends-agency explanation by investigating the relationship between shareholder-managers and shareholder-bondholders. They therefore used inside ownership and dispersion of ownership as proxies for agency cost arising between managers and shareholders. They also used collaterisable assets as proxies for agency cost arising between shareholders and bondholders. The free cash flow has been used as a proxy for agency cost arising from the free cash flow. They showed that the most significant variables are collateralisable assets, inside shareholders, and outside shareholders. The results showed a positive relationship between the dividend ratio and collateral assets, meaning that firms that have large collateralisable assets have less conflict between shareholders, which leads to greater dividend payout. The result is also consistent with the studies of Sawicki, who examined the dividend policy of firms in East Asia and stated that firms had a decrease in agency problems between bondholders and stockholders if they held greater collateralisable assets. Mollah et al. (2002) also show that firms pay higher dividends as a monitoring device when insiders hold a low proportion of shares.

Al-Malkawi (2005) also examined inside shareholders and ownership dispersion on the Amman Stock Exchange. The results showed that inside shareholders adversely affected dividends. He proposed that the use of dividends to reduce agency costs is less important when there is great deal of inside ownership. The negative impact on dividends is also consistent with the fact that insiders sometimes attempt to extract benefits for themselves from the money that should have been paid as cash to the shareholders. The study also reported that ownership dispersion did not have any affect on the dividend policy of the firms, as firms in Jordan tend to be dominated by a few inside shareholders, not allowing the minority shareholders to have significant influence on the dividend policy. As a result, the degree of outside ownership does not seem to be of great significance.

Studies by Mahadwartha (2004, 2002) and Mahadwartha and Hartono (2002) investigated the relationship between managerial ownership and dividend policy in Indonesian firms. The results explained that firms with an ownership-control programme will tend to lower their dividend payment because the aim of managerial ownership is consistent with the dividend policy aim, which is to decrease the agency costs of equity. It would therefore be ineffective to use two tools at the same time in order to solve the same problems.

Manos (2002) used 661 non-financial firms listed on the Bombay Stock Exchange to examine dividend and ownership structure: specifically, he tested the impact of the percentage of shares held by foreign investors, public-owners, insider owners and institutional owners. The result for foreign investors showed that there is a positive relationship between dividend and foreign investors, and he related this association to the increasing need to induce capital monitoring as the percentage of foreign investors increases. This follows because it may be more difficult for overseas investors to monitor, allowing an increased dividend to inspire confidence in the firm for the foreign investors the firm and its management. He used the percentage of shares held by the public as a proxy for ownership dispersion, hypothesising that the greater the spread of ownership structure, the higher the collective action problem, giving rise to greater outside monitoring and also greater dividend-induced capital market monitoring. Surprisingly, he found a positive association between dividend and inside owners, which contrasts with the findings of Mollah et al. (2002) and Al-Malkawi (2005). However, Manos (2002) stated that the findings concerning ownership by directors disagrees with the agency theory and therefore requires further investigation. Finally, the positive relation between dividend and institutional ownership was based on the fact that in India, where there are high agency conflicts, the institutional monitoring is insufficient. Consequently, an influential group of shareholders can push for a higher dividend ratio to induce capital market monitoring.

However, though Manos found a positive relationship between dividend and institutional ownership, Amidu and Abor (2006), who examined the determinants of dividend payout ratio in Ghana, showed that institutional ownership is not a significant factor. Al-Malkawi (2005) also examined the impact of institutional owners in Jordan but the results indicated no influence of institutional ownership on dividends. Gul (1999a) studied the impact of government ownership in emerging markets by examining the influence of government ownership in conjunction with investment opportunities on the financial policies of Chinese firms. His studies assumed that the corporate financial policy of firms in China as an emerging market differ from those of US and European firms. He explained that China is relatively undeveloped and is new to capital markets, with some partly state-owned companies. The results of his study showed that government shareholders have a positive influence on dividend policy, as firms with government ownership can raise external finances easily and thus pay greater dividends. On the other hand, firms with no government ownership find it difficult to raise finance and therefore rely on retained earnings. These results are in line with those of Glen et al. (1995) and Naser et al. (2004), that government plays an important role by forcing managers to pay high dividends in developing countries, which may help in building the firm's reputation and reducing agency problems. The results are supported by Al-Malkawi (2005), who tested the impact of agency theory on dividend policy for firms listed on the Amman Stock Exchange, examining the impact of foreign investors and government ownership, but he found that government is the only significant ownership factor positively affecting dividend policy. He explained that state-controlled firms are often subject to a double set of agency costs since the ultimate owners of these firms are the citizens. He attributed this positive association to the fact that government entities have tax privileges.

Sawicki's investigation (2005) is of considerable interest, as she tested the determinants of dividend policy in firms in seven countries in East Asia: Taiwan, South Korea, Thailand, Malaysia, Hong Kong, Singapore, Indonesia, and Japan. The results showed that dividends varied significantly from country to country, as the ownership structure would be different in different countries. She stated that the publicly listed companies in East Asia are family held (manager ownership) in Indonesia, with 67.3% of shares held by family and only 6.6% held generally. Indonesia also has the lowest dividend ratio among the other countries; when shareholders are made up of family members, they tend to be the managers of the companies as well. She further explains that when there is no moral hazard, the agency problem is considerably lower. The reason for the low dividend payout ratios in Indonesia is considered to be due to the existence of family-owned corporations. Her results showed that the mean dividend payout of Singapore is almost the same as other countries with the exception of Indonesia, South Korea, and Thailand. Most of the companies studied are linked to government: as a result, there are sufficient monitoring tools and legislation governing them, so the dividend payout ratio will stay in a typical range and will not be as low as in Indonesia or as high as in Thailand.

Firm size has also been examined as another explanation of the agency cost hypothesis Manos (2002), Mollah et al. (2002), Al-Malkawi (2005) and Sawick (in five countries) (2005) all found a positive association. This is explained by larger firms having easier access to capital markets and furthermore, the complexity of a large firm and their ownership dispersion tends to increase the information asymmetry problem in such firms. This means that shareholders are not able to closely monitor the large firm causing weak control of the managers' performance. Therefore, high dividend payout leads to the increased need of external financing which in turn leads to increased monitoring of these firms by both existing and potential creditors. Surprisingly Sawick (2005) indicates a negative association between dividend and firm size in Singapore, Malaysia and South Korea. She related this negative association to the fact that many of the big firms are government-linked companies that have disclosure regulations in these countries able to stop misuse of funds. Consequently, the information asymmetry problem in these large firms is not a big problem. Accordingly, the need to pay high dividend ratio may be less significant than elsewhere. Aivazian et al. (2003) examined the impact of firm size in emerging markets but they found little evidence that firm size influenced dividend policy significantly.

Several studies examine the impact of transaction cost effect. Manos (2002), Gul (1999a) and Aivazian et al. (2003) all investigate a negative relationship between dividend and growth opportunity. They explain that firms pay low dividends if they expect high growth opportunities and consequently are less dependent on the new-issues market. The later finding is consistent with the findings of Wang et al. (2002), who found that the payment of cash dividends is a popular policy used by Chinese companies that have only slow growth and large capitalisation. On the other hand, fast growing firms will choose to pay combined cash and stock dividends, rather than pure cash dividends. On the other hand Travlos et al. (2002), reported a positive relationship between dividend and transaction cost. They explain that because of greater uncertainty about the future cash flow in firms listed on emerging stock exchanges, these firms will increase their dividend when there is greater growth prospective in order to build and maintain a good reputation. However, Mollah (2001) found that investment opportunities did not affect dividend payout policy in firm listed on the Dhaka Stock Exchange.

Mollah (2001), Aivazian et al. (2003) and Al-Malkawi (2005) reported a negative relationship between dividend and leverage ratio. Mollah (2001) related this negative association to the fact that highly levered firms carry a large transaction cost, an as a result such firms will pay a lower dividend to avoid the cost of external financing. Al-Malkawi suggesting that firms with high leverage ratio will chose to pay lower dividends because their high leverage ratio can be viewed as an alternative to a dividend in reducing the agency cost of free cash flows. In contrast, Sawicki (2005) found a possibility of a positive relationship between dividend payout and leverage in emerging markets. She explained that any increase in leverage ratio in a firm will increase contacts with external financiers, resulting in closer monitoring and an increased dividend payout, since managers will be forced away from the pursuit of prerequisites and motivated to use corporate assets more efficiently.

Few studies examine the impact of the business risk on dividends. Manos (2002) found that high risk firms will chose to pay lower dividends in order to reduce their dependency on the costly external funds. Surprisingly, Mollah (2001) found that business risks may have a positive influence on dividend payout. He argued that in spite of greater uncertainty about future profitability, firms are paying more dividend, which means that managers may provide incorrect information to the Dhaka Stock Exchange. Despite this Aivazian et al. (2003) reported little evidence that business risk can affect dividend policy of emerging market firms. It should therefore be taken that evidence for the transaction cost explanation in emerging markets is very limited and existing studies have provided contradictory results.

From the above discussion of the studies of dividend policies in developed and emerging markets, the major empirical studies on agency cost theory of dividend policy are presented in Table 4.1. The table also includes their methodology, independent variables, and main findings.

Table 4.1
A Brief Summary of the Major Studies on Determinants of Dividend Payout Policy

AUTHOR(S)/ YEAR	TEST	INDEPENDENT VARIABLE	METHOD	FINDINGS REGARDING AGENCY COST THEORY
Rozeff (1982)	hypothesise that increases dividend relative to earnings, and lower agency cost but raise the transaction coast	• dispersion of ownership • inside ownership • previous growth rate of revenues • forecasting future growth rate of revenues • business risk	ordinary least square regression	support agency cost theory
Lloyd et al. (1985)	confirm and expand the work of Rozeff in introducing agency theory as an explanatory factor in dividend payout ratio	• dispersion of ownership • inside ownership • previous growth rate of revenues • forecasting future growth rate of revenues • business risk • firm size	ordinary least square regression	support agency cost theory
Crutchley and Hansen (1989)	agency theory explanation of how corporate managers determinate their common stock ownership, corporate debt levels, and corporate dividends	• earnings volatility • advertising and R&D • flotation cost • measurement of diversification loss to managers form holding the firm's common stock • firm size	ordinary least square regression	support agency cost theory
Jensen et al. (1992)	examines the relationship between insider ownership, debt, and dividend policies	• debt ratio • Insider ownership • business risk • profitability • investment opportunities	3 stages least square	support agency cost theory
Dempsey and Laber. (1992)	replicate and examine agency-transaction cost model of dividend payout previously hypothesise and support in the Rozeff study (1982)	• dispersion of ownership • inside ownership • previous growth rate of revenues • forecasting future growth rate of revenues • business risk	ordinary least square regression	support agency cost theory

AUTHOR(S)/YEAR	TEST	INDEPENDENT VARIABLE	METHOD	FINDINGS REGARDING AGENCY COST
Alli et al. (1993)	re-examine the dividend policy issued by conducting a simultaneous test of the alternative explanations of corporate pay out policy using two–step procedures that involve factor analysis and multiple regressions.	Step 1: Dependent: F1:issuance costs /F2:Pecking order/F3:ownership dispersion/F4dividend stability/F5 tax and agency cost effects/F6:financial slak/F7: cash flow quality/ F8:capital stricture flexibility step 2: • external debt financing. • business risk • standard deviation around the mean of annual capital structure changes • capital expenditures • growth rate in operating income • insiders share holders • cash flow variability • dispersion of ownership • collateraalizable assets	2 stages least square	support Agency cost theory
Moh'd et al. (1995)	rxamine the dividing-paying behaviour of firms through times and across firms.	• growth rate of revenue • forecast of future e growth rate • dispersion of ownership • inside ownership • firm size • operating leverage risk • Financial leverage risk • business risk(-)	ordinary least square regression	support Agency cost theory
Holder et al. (1998)	influence of non- stakeholders on firm dividend policy by examining the interaction between the dividend and investment policies.	• past net organisational Capital(NOC): (The level of NOC was measured by using corporate focus. This study used only one measure for corporate focus: the maximum proportion of a firm sales attributable to distinct business line) • firm size • insider ownership , • outside shareholders • free cash flow	ordinary least square regression	support Agency cost theory

AUTHOR/YEAR	TEST	INDEPENDENT VARIABLE	METHOD	FINDINGS REGARDING AGENCY COST THEORY
Chen et al. (1999)	examine the impact of dividend policy on managerial ownership and agency conflict	• ratio of officer and director ownership to total out standings. • long term debt ratio • capital expenditure • growth rate of sales • business risk • firm profitability	non-linear two stage least squares simultaneous regression	support Agency cost theory
Saxena (1999)	determinants of dividend payout policy: regulated Versus unregulated firms	• past growth rate of the firm's revenues • predicted/ growth rate of earnings • business risk. • dispersion of ownership • inside ownership	ordinary least square regression	support Agency cost theory
La Porta et al. (2000)	test the relationship between dividend and the legal protection	• independent Variables: • common law • Civil law • low protection • high protection • Industry-adjusted dividend-to- cash flow ratio for a firm. • industry-adjusted dividend-to- earnings ratio for a firm. • industry-adjusted dividend-to- sales ratio for a firm. • average annual percentage growth in real(net) sales over the period 1989-1994. • GS decile: Rank decile for GS • IA-GS Average annual Industry-adjusted growth in country the median of the GS • IA-GS-decile: rank decile of IA-GS • dividend tax advantage:	Sample statistic and ordinary least square regression	the legal protection level of shareholders is a significant factor in explaining dividend-agency association
Mollah et al. (2002)	the influence of agency cost on dividend policy in an emerging market: evidence from Dhaka stock exchange	• inside ownership • dispersion of ownership • free cash flow • collateralisable assets	ordinary least square regression	support Agency cost theory

AUTHOR/YEAR	TEST	INDEPENDENT VARIABLE	METHOD	FINDINGS REGARDING AGENCY COST THEORY
Manos (2002)	dividend policy and agency theory Evidence on Indian firms	• ownership dispersion • institutional ownership • foreign investors • inside ownership • growth in sale • business risk • liquidity	ordinary least square regression • Tobit model	support agency cost theory
Travlos et al. (2002)	dividend policy of firms listed on young stock exchanges	• large shareholders • growth rate of sale • variance of earning • total assets	Ordinary least square regression	support agency cost theory
Al-Malkawi (2005)	dividend policy of publicly quoted companies in emerging markets-the case of Jordan	• ownership dispersion • institutional ownership • inside ownership • government ownership • foreign investors • firm size • investment opportunities • financial leverage • firm profitability • taxes • assets structure • signalling	Random effects tobit model	support agency cost theory+

4.5 Summary of Empirical Results in Developed and Emerging Markets

In section 4.3 of this chapter the empirical studies of the factors affecting dividend policy have been discussed in detail. In this section, the specific results of these empirical studies will be highlighted:

a) Rozeff's study (1982) was one of the first empirical studies to examine the impact of agency theory in explaining dividend policy. His results give empirical support for the agency cost hypothesis. There are several subsequent studies that find empirical support for the agency explanation put forward in Rozeff's model.

b) A number of studies develop Rozeff's model by including firm size. Most studies in developed economies reported a positive relationship, which is in accordance with the agency cost perspective. This positive relationship relates to large firms being associated with greater agency costs: paying high cash dividends in such firms will reduce the agency cost. Another explanation is that large firms have easier access to the capital market, are therefore less dependent on internal funds and are thus more able to pay high dividends. Only a few studies have discussed firm size in emerging markets. The results of these few studies are mixed. Some studies support a positive association while others report a negative dividend-size association. In some countries, there is little reported evidence that firm size can affect dividends.

c) Several studies of the firms in developed markets examine and develop ownership structure as an important factor in explaining the dividend-agency theory. Some studies examine the relationship between outside shareholders and inside shareholders (managers who own a percentage of firm shares), others examine different type of managers, while other studies examine the impact of control by large shareholders. Most of the results indicate that as the percentage of shares held by insiders and controlling shareholders increases, the insiders will be more likely to act in their own benefit rather than distributing dividend to outside shareholders. Some studies in emerging markets support the idea that the dividend amount will be reduced as the number of insider shareholders increases and/or the number of shares held by outside shareholders increases. Some studies found that the number of inside shareholders is negatively significant while outside shareholders are not significant factors in explaining dividend policy. An explanation for this is that some firms are being controlled by a few insiders who prevent the minority shareholders from having a significant impact on dividend policy. A very limited number of studies examine the impact of large shareholders. The results indicate that large shareholders aim to build a strong reputation for their firm through high dividend distributions. However, this result contrasts with those studies related to developed market firms. One reason for the appearance of a positive association between large shareholders and dividend in emerging markets is that government ownership forms an important component of the large shareholders in firms in emerging economies.

d) In addition, several studies suggest that institutional shareholders can reduce the agency problem. However, the empirical results based on firms in developed economies were mixed. Some studies found that there is a negative association between dividend and institutional shareholders because institutional owners are professionals and they are therefore able to evaluate firm performance, which will limit the actions of managers in relation to their personal interests. Therefore, as institutional ownership may be seen as an alternative to dividends in reducing the agency problem, as institutional ownership increases, dividends will become a less important tool to reduce agency conflict. Other studies found a positive association between dividend and institutional shareholding and explain that institutions demand a high level of dividend to force firms to use the capital market for external funds in order to reduce the agency costs associated with free cash flow. Other studies related the positive association between dividend and institutional ownership to the agency explanation and to a signalling perspective, in that managers have inside information about the quality of their firm. Institutions are in a better position to discover information about firm performance than are the individual investors. Therefore, dividend payments attract institutions through clientele effects, which make it more possible that true firm quality will be shown and this in turn will raise the value of firm. On the other hand, the positive association between dividend and institutional ownership relates the positive association to a tax perspective rather than an agency perspective in that there is motivation for institutions to request a high level of dividend when there is tax exemption. In firms in developing markets, institutional ownership has presented different results. Some studies supported the positive association while others indicated that institutional ownership is not a significant explanatory variable.

e) Very few studies investigate the relationship between government ownership in developing economies, although more attention has been given to this variable in emerging economies. All the studies agree that government ownership positively affects dividends. These studies explain that firms pay higher dividends when the government ownership motivates them to pay higher cash dividends in order to reduce agency conflict between inside and outside shareholders.

f) Most of the dividend-investment opportunities studies relate to firms in developed economies. A majority of these studies support a negative association with the investment opportunities, arguing that dividend payments remove resources from the firm and so help to reduce agency costs associated with free cash flow. In this case, firms without investment opportunity projects will pay higher dividends to reduce free cash flow. On the other hand, firms with high growth opportunities are likely to pay lower dividends since they have a lower free cash flow and less flexibility in their dividend policy. A very few studies have found a positive association, in particular those which have low legal protection for outside shareholders. The results for firms in emerging markets were mixed. Some of the studies agreed that firms pay lower dividend if there are high growth opportunities, while some reported a positive association. The latter studies argue that in emerging markets in particular, where the legal protection for outside shareholders is poor, and where agency problems are expected to be high due to more severe asymmetric information problems, the shareholders would take whatever dividends they can get, regardless of investment opportunities. Therefore, dividend smoothness over time is less important to these shareholders. As a result, high uncertainty is associated with future cash flow and there being great growth prospects. Other studies found that investment opportunity is not a significant variable in explaining dividend policy.

g) Most of the results of studies in developed markets indicate a negative relationship between dividend payment policy and business risk. Once again, few studies examine such an association in firms in emerging markets: moreover, their results are mixed, where some support a negative association while others found a positive association. Some studies found that business risk does not significantly affect dividends.

4.6 Limitations of Existing Studies

The literature review presented in this chapter suggests that many existing studies employed a linear regression model estimated by an ordinary least squares (OLS) to investigate the determinants of dividend policies of firms based on the agency theory. Many of the studies used a cross-sectional data to develop a dividend policy model and hence employed a linear regression model. The main problem of employing an OLS to develop a dividend policy model is that this method is unable to take into account the firm-specific unobserved effects that have a significant impact on the firm's dividend policies. This suggests that cross-sectional data alone may not be sufficient to investigate the factors affecting the dividend policies.

Surprisingly, a number of studies (Moh'd et al., 1995, Sexsena, 1999; Mollah, 2002, Amidu and Abour, 2006) also employed an OLS technique while developing dividend policy models using a cross-sectional time-series data. The use of OLS in the case of panel data violates a number of underlying assumptions of OLS technique. Therefore, the dividend policy models may provide biased, inefficient and inconsistent estimates. The more appropriate model in the case of panel data would be the random effects and fixed effects models which have the potential to take into account the firm-specific unobserved effects. Interestingly, none of the studies (to the author's knowledge) used this panel data methodology to develop dividend policy models.

From the literature review, it is noticeable that the dependent variable of a dividend policy model is the annual dividend payout ratio. Since there are no regulations on dividends in some countries, some of the firms decide not to pay any dividends to their shareholders. This suggests that there is limited information about the dependent variable as this variable is not observed for the entire sample, although the characteristic of the firms (the explanatory variables) are observed for all firms, at all times. This leads to the concept of censoring and such a sample is known as a censored sample. In this case, the dependent variable is assumed to be zero (0). Most of the existing studies did not consider that their sample is a censored sample although there are a number of firms in their samples who did not pay dividend consistently. However, some of the recent studies used a Tobit model that is appropriate for a censored sample. In a Tobit model, the dependent variable can be treated as latent (unobserved), censored (observed) and truncated (observed values are greater than 0). This leads to three different conditional means in the Tobit model. The interpretation of the model parameters depends on whether one is concerned with the marginal effect (and also elasticities) of the explanatory variables on a particular category of dependent variable. Interestingly, none of the existing studies (to the author's knowledge) on dividend policies developed models based on these three interpretations. This is important because one may be interested to see how the factors affect the dividend policies of the firms who always paid dividend.

Based on the agency theory, there were only two studies (Travlos, 2002; Naser et al., 2004) on dividend policies of the firms listed on the GCC stock exchanges. Travlos et al. (2002) used a cross-sectional dataset to develop a dividend policy model for the firms listed on the MSE using a linear regression model estimated by OLS. Naser et al. (2004) used a panel dataset to develop a dividend policy model for the financial firms (in the banking section) using a pooled regression model estimated by an OLS. As discussed, the parameters estimated by an OLS may provide biased estimates and hence their results may be misleading. There is a lack of studies within GCC states on the development of determinants affecting the dividend policies.

4.7 Summary of Motivation of the Research

It has been shown that most existing studies have limitations either in terms of the data used, or the econometric models used to investigate the determinants of dividend policies of firms. It has also been noticed that there are very few studies on the development of dividend policy models associate with the GCC states stock exchanges. Therefore the objective of this study is to determine factors that influence dividend policy in the agency theory, specifically, this thesis focuses on an explanation of agency theory and transaction cost theory in the context of the GCC states.

Dividend policy models can be developed for the case of GCC states stock exchanges to overcome most of the limitations presented in the previous section. Therefore, this research will develop a number of dividend policy models based on the following criteria:

- This study will use a cross-sectional time-series dataset (panel data) to investigate the determinants of dividend policy of the firms listed on the GCC states stock exchanges.

- The most important variable, the dependent variable of the dividend policy models will be treated as a continuous variable and a censored variable (where the firms who do not pay dividend may still be modelled appropriately). This is to see whether the same sort of results will be obtained by treating this dependent variable into these two categories.

- This study will employ a linear panel data methodology to develop the dividend policy models. The fixed effects and random effects linear regression models will be utilised which will be able to take into account firm-specific unobserved effects. This model becomes particularly important in testing the dividend policy of firms listed on the GCC States stock exchanges. As discussed in Chapter three (section 3.3), company laws of the GCC states do not contain any article or item that obliges firms to pay a certain percentage of their income as a cash dividend, but leaves it to each firm to make a decision whether to pay. This is additional to the dividend payout percentage decision. Because the dividend decision is based on a manager decision rather than regulation, the possibility of the appearance of unobserved variables is increased. FE and RE models will be suitable in such a case as these models control for the unobserved variables and hence provide less biased results.

- The dividend policy models will also be developed based on the Tobit model. To take into account for firm-specific effects, the random effect Tobit model will be used while the dependent variable, the annual dividend ratio, will be treated as latent, censored and truncated. The results will be interpreted based on these three variables.

- It is essential to see how the factors affecting the dividend policies differ from one state to another. To examine this, a number of models will be used for the aggregated group of GCC states and then the same set of models will be used for each individual country. This will allow the differences and similarities among the factors affecting the dividend policies of the firms to be seen more clearly.

4.8 Summary

This chapter began by introducing the idea of the dividend irrelevance theory which was proposed Miller and Modigliani (1961). This was followed by a discussion of the different explanations in which dividends do matter (section 4.3), namely; the bird in hand explanation, tax effects hypothesis and clintele effects explanation, signalling effects and information asymmetric explanation, transaction cost and residual theory explanation. Finally, the agency theory explanation is discussed in detail. Section 4.4 discussed the previous empirical studies of dividend policy based agency theory. This dissection gave particular attention to those studies based on developed markets as well as emerging markets. Section 4.5 then provided a summary of the main findings of those empirical results in developed and emerging markets. Section 4.5 explained the limitations of these existing studies and finally section 4.6 presented a summary of motivation of this research. The next chapter provides a discussion of the study's research hypothesis and methodology.

CHAPTER FIVE

Research Hypotheses and Methodology

5.1 Introduction

The previous chapters presented the objectives of this research and the economic background of the GCC states. The characteristics of their capital market, stock exchanges, and firm ownership structure were then considered along with a general presentation of dividend characteristics in these counties. It also established the framework of dividend policy in developed and emerging economies. This chapter will specify the research hypotheses and the methodology that was used to determine dividend policy characteristics of the GCC states' stock exchanges as emerging stock exchanges.

Section 5.2 discusses the research hypotheses in the context of agency theory and transaction costs by examining the dividend payment characteristics that have been discussed, namely: ownership structure, free cash flow, growth opportunities, financial leverage, firm size, and firm profitability. Sections 5.3 and 5.4 discuss the research model and data collection. Finally, section 5.5 presents the estimation methods, that is, the fixed effects and random effects model as well as the random-effects Tobit model.

5.2 Testable Hypotheses

This section describes in detail the nine hypotheses that will be tested in this research.

5.2.1 Ownership Structure

In a modern corporate environment, where there is a large separation between ownership and management, conflicts of interest can arise between the two main parties: the first party includes managers and inside owners (controlling shareholders), and the second party includes outside shareholders, such as minority shareholders. Referring to this problem, Jensen and Meckling (1976) describe the firm as a nexus of a set of contracting relationships among individuals. However, when the manager makes a certain decision, it mostly tends to be in favour of the agent rather that the firm. La Porta et al. (2000) showed that managers may take advantage of their authority to benefit themselves by diverting firm assets to themselves through outright theft, excessive salaries or sales of assets at favourable prices to themselves. Accordingly, the ownership structure in large firms may influence dividend and other financial policies. The issues of ownership structure and its associated conflicts have been discussed in a number of studies (for example, Desmetz, 1983; Desmetz and Lehn, 1985; Shleifer and Vishny, 1986; Morck et al, 1988; Schooley and Barney ,1994; Fluck ,1999; La Porta 2000; Gugler and Yurtoglu, 2003).

Gugler and Yurtoglu (2001) report how in Anglo-Saxon countries like the US and the UK, stock ownership is widely spread among individuals, so each individual shareholder has only a limited ability to monitor the managers. As a result, the major conflicts of interest mainly occur between the powerful management and shareholders. Gugler and Yurtoglu (2001) also describe concentrated ownership, a distinguishing feature in Continental Europe. In this region, large shareholders can be large enough to monitor the management: consequently, manager-shareholder conflict does not appear, but instead conflict of interest problems arise between majority and minority shareholders.

Gugler and Yurtoglu's finding (2001) supports that of La Porta et al. (1999), who examined the ownership structure of 27 economically wealthy countries and found that in common-law countries (the United States, the United Kingdom, Canada, and Australia), where ownership of large corporations is dispersed, large corporations are mostly controlled by managers. In other countries where they have poor legal protection, there are shareholders that own a significant amount of equity in large firms, where these large shareholders are mostly the firms' founding families. As a result, such controlling shareholders can influence the decisions of managers. In fact, managers typically come from the controlling family owning a significant proportion of equity. Therefore, conflict of interest problems will arise between majority and minority shareholders.

Gugler and Yurtoglu (2001) further report that in Japan and South-East Asian Countries, where the legal obligation for monitoring managers is weak, business groups with pyramid and cross-ownership structures are familiar governing tools.

As regards Arab countries, Naser et al. (2004), Al-Malkawi (2005) report that the main corporate feature in Arab countries is that organisations are run and controlled by controlling shareholders. They highlight the feature of families as controlling shareholders exercising a degree of influence on management activities. These activities are based on recommendations from influential family members, which may cause problems between the interests of minority and majority shareholders.

Redding (1997) points out that large shareholders may take the role of effectively monitoring the activities of the firms' managers and inside shareholders. Gugler and Yurtoglu (2001) state that although large shareholders can monitor the managers' performance, they also have the power to expropriate the small outside shareholders.

Several studies have suggested that dividend payouts can play a useful role in reducing conflict between inside and outside owners. When insider owners pay cash dividends, they return corporate earnings to investors and are no longer using these earnings to benefit themselves (La Porta et al., 2000). Nevertheless, the percentage of earnings that can be used as dividend depends on the ownership structure.

Glen et al. (1995), Gul (1999a), and Naser et al. (2004) specify that in emerging markets, government ownership is a major determinant of the dividend decision-making process. Gul (1999a) suggests a positive association between government ownership and dividend, arguing that firms with high government ownership find it comparatively less difficult to finance investment projects and hence can afford to distribute more dividends. On the other hand, firms with lower (or zero) government ownership face difficulties in raising finance, and consequently rely instead on retained earnings for investments, thereby paying less dividend. Glen et al. (1995) contend that investors need to be protected in countries with poor legal systems, and because governments are powerful investors, they should act as a safeguard for the minority shareholders by monitoring the insider shareholders and forcing them to disgorge cash.

Naser et al. (2004) suggest that in the GCC countries, where legal protection is limited, governments have a strong desire to build the reputations of firms and to avoid the exploitation of minority shareholders by paying them high dividends. They further assert that the need for such a reputation has significant effects in young stock exchanges where there is no history of the good treatment of minority outside shareholders. In addition, this need is greater when there is high uncertainty about the future cash flows of firms.

Al-Malkawi (2005) found that among large shareholders, the government is one of the most influential in affecting the dividend policy of firms listed on the Amman Stock Exchange. He explains that the government acts on behalf of the citizens who do not control the firm directly. Therefore, in such firms "a double principal-agent" conflict will exist because an agency conflict may occur between citizens and government representatives, as they might not act in the citizens' best interests, and on the other hand between government representatives and other managers. The solution to this problem is higher payment of dividends, which may reduce the cash flow available to managers, thus reducing the agency problems in the firm. This explanation consists with the findings of Gugler (2003) who examined dividend policies of Australian firms.

By using percentage of shares held by the government as an indicator of firm ownership structure, this study therefore hypothesises that:

H1: The dividend payout is positively associated with government investment.

Institutional ownership is also considered to be a significant determinant of dividend policy. Shleifer and Vishny (1986), Jarrell and Poulsen (1987), Brickley et al. (1988), Carleton et al. (1998) and Gillan and Starks (2000) suggest that institutional owners are powerful because they help to monitor the management and thereby reduce the agency conflict. Han et al. (1999) additionally state that institutions are professional organisations that are skilled in decision making and know how to monitor the managers and evaluate the performance of the firm. As a result, the degree of institutional ownership will affect agency costs and dividend policy.

A number of studies found a positive relationship between dividends and institutional ownership: for example, Allen et al. (2000) found that the attendance of institutional investors encouraged firms to increase dividends, since institutions have the professional skills to monitor the performance of managers. Accordingly, the attendance of institutions reduces the agency problem between inside and outside shareholders. Shleifer and Vishny (1986) and Moh'd et al. (1995) among others suggest that firms, especially small ones, pay higher dividends as institutional ownership increases in order to attract large shareholders.

On the other hand, McConnell and Servaes (1990) state that institutions employ teams of share analysts, allowing them to draw on complicated computer-generated information networks when evaluating the effectiveness of the decisions of managers, making the institutions powerful investors. They suggest that with the existence of institutional owners, manager entrenchment becomes difficult and therefore the need for dividends as a tool to reduce agency costs will be less important.

By using the percentage of shares held by institutions as a further indicator of firm structure, this study hypothesises that:

H2: The dividend payout is positively/negatively associated with the percentage of shares owned by large institutions.

Several studies have found that large shareholders may also affect dividend policy, but they provide conflicting explanations. Shleifer and Vishny (1986) and Gugler and Yurtoglu (2003) explain that as large shareholders' control of the firm increases, they perform in their own interests at the expense of small shareholders. This explanation is consistent with the findings of Mancinelli and Ozkan (2006), who found that the higher the level of large shareholder ownership, the greater the tendency they will act in favour of their personal benefit rather than in the interest of the firm.

On the other hand, when Travlos et al. (2002) tested the firms listed on young stock exchanges, where ownership concentration lies mainly in the hands of majority shareholders, they found a positive association between large shareholders and dividend payment. They suggested that firms in emerging markets pay higher dividends in order to develop a strong reputation and avoid exploiting the minority shareholders. Such a reputation is considered useful for emerging markets where no history exists regarding the treatment of minority shareholders.

H3: Dividend payout is positively/ negatively associated with the percentage of shares owned by large shareholders.

Assessment of shareholders who own above 10% or more of firm equities may be taken as a proxy for large shareholders.

Hypothesis 2 will be tested only for firms listed on the Kuwait and Muscat stock exchanges, and Hypothesis 3 will be tested only for firms listed on the Muscat stock exchange (by using two additional models), since these were the only GCC countries disclosing institutional ownership and majority shareholder ownership information during the period 1999 to 2003. Hypotheses 2 and 3 will therefore be evaluated to examine whether this additional data can provide additional explanations for the association between ownership and dividend policy in such countries.

5.2.2 Free Cash Flow

The percentage of shares owned by different types of shareholders may not be the sole determinant of the dividend-agency relationship; free cash flow may also be significant. Jensen (1986) defined free cash flow as cash flow in excess of the funds required for all projects with a positive NPV. He demonstrated that as the free cash flow increases, it raises the agency conflict between the interests of managerial and outside shareholders, leading to a decrease in the performance of the company. While shareholders want managers to maximise the value of their shares, managers may have a different interest and derive benefits for themselves. Jensen's free cash flow hypothesis is supported by subsequent studies by Jensen et al. (1992) and Smith and Watts (1992). La Porta et al. (2000) add that when a firm has free cash flow, this will result in its managers engaging in wasteful practices, even when the protection for inventors improves.

Jensen (1986), Holder et al. (1998), La Porta et al. (2000) and Mollah et al. (2002) suggest that firms with a greater "free cash flow" need to pay more dividends in order to reduce the agency costs of the free cash flow. However, based on the findings of most studies, that as the payment of dividends reduces, the agency costs of free cash will also be reduced, it is hypothesised that:

H4: The dividend payout is positively associated with free cash flow

Where the free cash flow to total assets ratio has been used as a proxy for the free cash flow variable. This hypothesis will be tested for all of the firms included in this study.

5.2.3 Firm Size

Eddy and Seifert (1988), Jensen et al. (1992), Redding (1997), and Fama and French (2000) indicate that large firms distribute a higher amount of their net profit as cash dividends compared with small firms.

Several research studies have tested the impact of the size of a firm on the dividend-agency relationship. Lloyd et al. (1985) were among the first to modify Rozeff's model by adding an additional variable called "firm size". They considered it an important explanatory variable, as large companies are more likely to increase their dividend payouts in order to decrease the agency costs. Their finding supports Jensen and Meckling's (1976) argument that agency costs are associated with firm size. They were of the view that for large firms, widely spread ownership has greater bargaining control and this increases agency costs.

Further, Sawicki (2005) showed that dividend payout can help to monitor indirectly the performance of managers in large firms: that is, in large firms, information asymmetry increases due to ownership dispersion, decreasing the shareholders' ability to monitor the internal and external activities of the firm, resulting in inefficient control of the management. Paying high dividend amounts can be a solution for such a problem because high dividends lead to an increase in the need for external financing, and the need for external financing leads to increased monitoring of large firms because of the existence of creditors.

Other studies related the positive association between dividends and firm size to transaction cost. For example, Holder et al. (1998) showed that larger firms have better access to capital markets and find it easier to raise funds at lower costs, allowing them to pay higher dividends to shareholders, thus demonstrating a positive association between dividend payout and firm size.

The positive relationship between dividend payout policy and firm size is supported by a large number of other studies (for example, Eddy and Seifert, 1988; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000; Manos, 2002; Mollah 2002; Travlos et al., 2002; Al-Malkawi, 2005).

It is important to stress here that although many studies have proposed that firm size explains corporate dividend policy, different variables have been chosen as proxies for "firm size". For example, while Moh'd et al. (1995), Chen and Steiner (1999), and Holder et al. (1998) used sales, Lloyd et al. (1985) used sales as well as the 'number of shares per shareholder'. Further, Titman and Wessels (1988) and Jensen et al. (1992) used assets and Ghosh and Woolridge (1988), Eddy and Seifert (1988), and Redding (1997) used market capitalisation. In the present study, market capitalisation will be used as a proxy for 'firm size'. It is expected that a positive relationship will be found between firm size and dividend payout ratio, hence:

H5: Dividend payout is positively associated with firm size

This hypothesis will be tested for all firms included in the study sample.

5.2.4 Growth Opportunities

One factor that is seen to affect the dividend payout ratio is a firm's funding requirements for growth purposes. Several studies (for example, Higgins, 1972; McCabe, 1979; Rozeff, 1982) have used 'firm growth' as a proxy for transaction costs.

A review of the literature revealed a large number of explanations for the relationship between growth opportunities and dividend policy. One explanation is that a firm will tend to use internal funding sources to finance investment projects if it currently has high growth opportunities and investment projects in which to invest. Such firms will choose to cut or pay fewer dividends to reduce their dependence on costly external financing. On the other hand, firms with slow growth and fewer investment opportunities will pay higher dividends to prevent managers from over-investing the company's cash. Thus, dividend here plays an incentive role by removing resources from the firm and decreasing the agency costs of free cash flows (e.g. Jensen, 1986; Lang and Litzenberger, 1989; Al-

Malkawi, 2005). Hence, dividends are higher in firms with fewer growth opportunities, while firms with high-growth opportunities pay lower dividends, since they have lower free cash flows (Rozeff, 1982; Lloyd et al., 1985; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998).

The studies by Murrali and Welch (1989), Titman and Wessels (1988), Gavers and Gavers (1993) and Moh'd et al. (1995) compared investment opportunity ratios to distinguish between growth and non-growth firms. They reveal that growth firms, as compared to non-growth firms, exhibit lower debt to reduce their dependence on external financing, which is costly. This explanation is consistent with the findings of Myers (1984), who states that investment policy can act as a substitute for dividend payout and reduce the agency problem because it reduces the free cash flow.

La Porta et al. (2000) tested countries with high legal protection and showed that fast-growth firms pay lower dividends, as the shareholders are legally protected, allowing them to wait to receive their dividend when the investment opportunities are good. On the other hand, in countries with low legal protection for shareholders, firms keep the dividend payout high in order to develop and maintain a strong reputation, even when they have better investment opportunities.

The sales/revenues growth rate is a commonly used proxy variable for growth opportunities in previous studies, such as Rozeff (1982), Lloyd et al (1985), Jensen et al (1992), Alli et al (1993), Moh’d et al (1995), Holder et al (1998), Chen et al (1999), Sexsena (1999), Manos (2002), Travlos (2002). To retain comparability, this study will also use this proxy for growth opportunities and will test the hypothesis that:

H6: Dividend payout is positively/negatively associated with growth opportunities

5.2.5 Financial Leverage

Jensen et al. (1992), Agrawal and Jayaraman (1994), Crutchley and Hansen. (1989), Faccio et al. (2001), Gugler and Yurtoglu (2003), and Al-Malkawi (2005) found the level of financial leverage negatively affects dividend policy. Their studies infer that highly levered firms look forward to maintain their internal cash flow to fulfil duties instead of distributing available cash to shareholders and also to protect the creditors.

Mollah et al (2001) indicate a direct relationship between financial leverage and debt-burden level that increases transaction costs. Thus, firms with high leverage ratios possess high transaction costs and are in a weak position to pay higher dividends to avoid the cost of external financing.

Naser et al. (2004) similarly identify a negative relationship between dividend and financial leverage ratio in banks listed on the stock exchanges of GCC states. They indicate that dividend payouts are viewed as substitutes for interest payments, thereby avoiding external costs from borrowing from external sources.

Al-Malkawi (2005) also found a significant and negative relationship between dividend and leverage ratio when he examined the dividend policy of all firms listed on the Amman Stock Exchange, although Jordanian firms were characterised as low-geared. However, he relates this result to the study sample including financial firms that are highly levered.

To look at the extent to which debt can affect dividend payouts, this study employed the financial leverage ratio defined as the ratio of liabilities (total short-term and long-term debt) to total shareholders' equity. Based on the above, the following hypothesis is formulated:

H7: The dividend payout is negatively associated with financial leverage

5.2.6 Business Risk

Several studies have been used to measure the beta value as a proxy for systematic risk (for example, Rozeff, 1982; Lloyd et al., 1985; Alli et al., 1993; Moh'd et al., 1995; Casey and

Dickens, 2000), where beta is used as a measurement of a stock's volatility in relation to the market.

It has been argued that high-risk firms tend to have higher volatility in their cash flows. Consequently, the external financing requirement of such firms will increase, driving them to reduce the dividend payout to avoid costly external financing (for example, Higgins, 1972; McCabe, 1979; Rozeff, 1982; Chang and Rahee, 1990; Chen and Steiner, 1999).

Jensen et al. (1992) contend that greater systematic risk increases the uncertainty of the direct relationship between current and expected future profit. Hence, firms avoid commitment to pay high dividends as the uncertainty about earnings increases.

Moh'd et al. (1995) also reports an inverse relationship between dividend ratio and intrinsic business risk, proxied by beta. They indicate that firms with unstable earnings pay lower dividends in an attempt to keep the dividend payout stable as well as to avoid the high cost of external financing.

In contrast, Mollah (2002) found firms listed on the Dhaka Stock Exchange pay a high dividend although the beta for their stock is high. He argues that in an emerging stock exchange, dividend might not be an appropriate tool to convey correct information to the market regarding transaction costs.

This study will use beta as it is a common proxy for the firm's business risk, which represents firm operating and financial risk (e.g. Rozeff ,1982; Loyed et al.,1985; Jensen et al ,1992; Alli et al ,1993; Moh'd et al ,1995; Holder et al ,1998; Chen et al ,1999; Sexsena ,1999; Manos ,2002).

Based on the above, the following hypothesis is formulated:

H8: dividend payout is negatively associated with systematic risk

5.2.7 Profitability

The financial literature documents that a firm's profitability is a significant and positive explanatory variable of dividend policy (Jensen et al., 1992; Han et al., 1999; Fama and French, 2000). However, it is important to mention that a significant difference between dividend policies in developed and developing countries has been reported by Glen et al. (1995): dividend payout rates in developing countries are approximately two-thirds of those of developed countries. Moreover, emerging market corporations do not follow a stable dividend policy; dividend payment for a given year is based on firm profitability for the same year. La Porta et al. (2000) compare countries that have strong legal protection for shareholders with those that have poor shareholder legal protection, and relate that to countries with inferior quality shareholder legal protection. Their outcome is that shareholders will take whatever cash dividend they can get from firm profits where dividend is unstable.

The study of Wang et al. (2002) compared the dividend policy of Chinese and UK listed companies, and found that Chinese listed companies tend to vote for a higher dividend payout ratio than UK companies. Moreover, UK companies have a clear dividend policy in that dividend increases year by year and all companies pay a cash dividend. By contrast, Chinese companies have unstable dividend payments and dividend ratios based heavily on firm earnings for the same year rather than any other factor.

The latter finding is consistent with that of Adaoğlu (2000), who states that the main factor that determines the amount of cash dividend in the Istanbul Stock Exchange is earnings for the same year. Any variability in the earnings of corporations is directly reflected in the cash dividend level. A similar result has been reported by Pandy (2001) for Malaysian firms. Al-Malkawi (2005) identifies profitability ratio as the key determinant of corporate dividend policy in Jordan.

As a proxy, this study will measure the firm profitability by the return on equity (ROE) (e.g.. Aivazian et al., 2003, ap Gwilym et al., 2004) and it hypothesises that:

H9: dividend payout is positively associated with current firm profitability

5.3 Formal Model and Variables Employed

To test the aforementioned nine hypotheses and investigate the impact of agency costs and transaction costs on dividend payment ratios in GCC listed companies, the study undertook empirical testing of the following variables:

DIV = f (GOV, INST, LSH, FCF, SIZE, GROW, LEV, BETA, PROF)

Where the dividend payout ratio (DIV) is the dependent variable that is defined as:

DIV = cash dividends/net profits*100

The dividend payout ratio indicates the percentage of profits distributed by the company among shareholders out of the net profits, where net profits is what remains after subtracting all the costs (namely, depreciation, interest, and taxes) from a company's revenues. Most of the previous studies that investigated the impact of agency theory and transaction cost theory employed dividend payout ratios as a determinant of dividend in lieu of dividend per share and dividend yield (see for example Rozeff, 1982; Lloyd,1985; Jensen et al, 1992; Dempsey and Laber, 1992; Alli et al, 1993; Moh'd et al, 1995; Holder et all, 1998; Chen et al, 1999; Saxena, 1999; Mollah et all, 2002; Manos, 2002; Travlos ,2002.

Dividend payout ratio is also used in this research rather than dividend per share and dividend yield for two reasons. Firstly, dividend payout ratio takes consideration of dividend payout as well as dividend retention. Such a consideration is essential because the hypotheses to be examined in this research are concerned with the relationship between the dividend payout and the amount of cash retained in business, and how this may reduce agency costs and encourage future investment. Secondly, dividend per share and dividend yield were considered unsuitable because neither of them takes into account the dividend paid in relation to income level. This may also be true that the dividend yield model is considered as a measure of firm value and a return to shareholders and therefore, it may not necessarily be related to agency theory.

Moreover, the dividend per share and dividend yield were considered unsuitable because nether measure takes into consideration the dividend paid in relation to income level. It may also be considered that the dividend yield model is a measure of firm value and return to share holders and therefore not necessarily related agency theory.

To investigate whether the dividend payout ratio is affected by ownership structure, the model uses the percentage of shares owned by the government (GOV), as has been used in several studies (e.g. Gul, 1999a; Gugler, 2003)). It also uses the percentage of shares owned by institutions (INST), and large shareholders who owned more than 10 per cent as agency costs and ownership proxies.

Free cash flow (FCF) is a measure of how much cash a company has for ongoing activities and growth after paying its bills. FCF is calculated as:

FCF = (net profit – changes in fixed assets- changes in net working capital)/total assets

SIZE is measured as a natural logarithm of market capitalisation, according to the assumption that large firms will pay high dividends to reduce agency costs (e.g. Ghosh and Woolridge, 1988; Eddy and Seifert, 1988; and Redding, 1997).

GROW is measured as the growth rate of sales (e.g. Rozeff, 1982; Lloyd et al, 1985; Jensen et al, 1992; Alli et al, 1993; Moh'd et al., 1995; Holder et al., 1998; Chen et al., 1999; Sexsena, 1999; Manos, 2002; and Travlos, 2002).

LEV is the leverage ratio is measured as debt to equity ratio:

LEV = total debt/ shareholders' equity

Debt to equity ratio also has been used as a proxy by Jensen et al., (1992); Mollah 2001, and Al-Malkawi, 2005.

BETA, which is a mathematical measure of the sensitivity of the rates of return on a given stock compared with the rates of return on the market as a whole, is used as a proxy for business risk (e.g. Rozeff, 1982; Lloyd et al., 1985; Jensen et al, 1992; Alli et al, 1993; Moh'd et al, 1995; Holder et al, 1998; Chen et al, 1999; Sexsena, 1999; and Manos, 2002).

PROF is the ratio of net profit to the amount of money that shareholders have put into the company. Return on equity has been used in several studies as a proxy for firm profitability (e.g. Aivazian et al., 2003, ap Gwilym et al., 2004.) and it is calculated as follows:

(Net profit/ shareholder's equity)*100

This makes the assumption that the dividend ratio per year is based on firm earnings for the same year.

Table 5.1 therefore summarises the basic variables employed and the predicted signs for the corresponding regression coefficients.

Table 5.1
Basic variables employed and hypothesis signs corresponding regression coefficients

Variables	Description	Hypothesis
DIV	Dividend payout ratio proxied by cash dividend to net profit	
GOV	Percentage of shares owned by government	(+)
INST	Percentage of shares owned by institutions	(+)or(-)
LSH	Percentage of shares owned by large shareholders	(+)or(-)
FCF	Free cash flow proxied by (net profit – changes in fixed assets - changes in net working capital)/total assets)	(+)
SIZE	Log of market capitalisation	(+)
GROW	Firm growth rate of sales	(+)or(-)
LEV	Leverage ratio proxied by(firm leverage /shareholder's equity)	(-)
BETA	Business risk proxied by beta	(-)
PROF	Firm profitability proxied by return on equity	(+)

According to the previous explanation, the General Model (Model 1) is

$$DIV = f\,(GOV, FCF, SIZE, GROW, LEV, BETA, PROF) \qquad \text{(Model 1)}$$

DIV = payout ratio; cash dividend/net income,
GOV = the percentage of shares owned by the government,
FCF = free cash flow; (net profit – changes in fixed assets - changes in net working capital)/total assets)
SIZE = natural logarithm of market capitalisation,
GROW = firm growth rate of sales,
LEV = leverage ratio (firm leverage /shareholders' equity)
BETA = systematic risk
PROF = firm profitability; net income/ shareholders' equity

An additional equation is used to investigate Oman and Kuwait since their stock exchanges require disclosure about institutional ownership (Model 2):

$$DIV = f\,(GOV, INST, FCF, SIZE, GROW, LEV, BETA, PROF) \qquad \text{(Model 2)}$$

where

INST = the percentage of shares owned by institutions

In addition, because the Muscat Stock Exchanges disclose information about large shareholders who own more than 10 per cent of firm shares (whether government, institutions, or individuals), another model is used:

$$DIV = f\,(LSH, FCF, SIZE, GROW, LEV, BETA, PROF) \qquad \text{(Model 3)}$$

where

LSH = the percentage of shares owned by large shareholders

Table 5.2 summarises the variables that will be used in the GCC states' sample.

Table 5.2
Model variables for each country

variables	All GCC states	Kuwait	Saudi Arabia	Oman	Qatar	Bahrain
Government ownership	*	*	*	*	*	*
Institutional ownership		*		*		
Large shareholders				*		
Free cash flow	*	*	*	*	*	*
Growth opportunities	*	*	*	*	*	*
Leverage ratio	*	*	*	*	*	*
Business risk	*	*	*	*	*	*
Firm profitability	*	*	*	*	*	*

5.4 Data Collection

The hypotheses of this study are presented in section 5.2. This section will describe the data required to test those hypotheses and the associated data sources. In order to test the hypotheses related to dividend policies of the firms listed on the GCC stock exchange and individual states' stock exchanges, a number of factors representing the characteristics of the firms needs to be collected. The required factors have been derived in section 5.3. The dependent variable of the proposed dividend policy models is the annual dividend ratio paid by a firm and the explanatory variables are percentages of shares of the firm held by the government, institutions and large shareholders, free cash flow, firm size (i.e. market capitalisation), firm growth rate, leverage ratio, business risk and firm profitability.

The primary idea was to test the dividend policies of the firms listed on the GCC stock exchanges. The intention was to assemble a large sample (cross-sectional and time-series data) in order to obtain a good result, collecting data of the above factors for both financial and non-financial firms, for as many years as possible. At the same time, it is essential that the time period on which the factors are observed be the same for all firms. Due to limited information on financial firms and the problem of missing data, it was not possible to collect the required data related to financial firms for the same time period. For similar reasons, the required data for non-financial firms were only available for a period of five years from 1999 to 2003. Although there are a total of 245 non-financial firms listed on the stock exchanges of GCC countries, the required data were available for 191 non-financial firms from 1999 to 2003.

Table 5.3 reveals that the total number of non-financial firms listed on each stock exchange of GCC states. This table also shows the number of firms for which the required data were available. It can be seen that the Muscat Stock Exchange (MSE) has the highest number of non-financial firms (75) while the Doha Stock Exchange (DSE) has the lowest number of non-financial firms for which the required data were available. It is also noted from Table 5.3 that the percentage of the total number of firms on the DSE for which the data were available is just 53%. This is because 9 out of 19 firms did not publish the required data before 2003 and therefore these firms are excluded from the sample.

Table 5.3
Non-financial firms within GCC states' stock exchanges

Market name	Total number of Listed firms	Total number of firms for which required data werer available	% of available firms
Kuwait Stock Exchange (Kuwait)	59	37	36%
Saudi Arabia Stock Exchange (Saudi Arabia)	62	57	92%
Muscat Stock Exchange (Oman)	92	75	82%
Doha Stock Exchange (Qatar)	19	10	53%
Bahrain Stock Exchange (Bahrain)	13	12	92%
Total	**245**	**191**	**78%**

Both the dividend payout ratio and the factors affecting the dividends for 191 non-financial firms for the period 1999 to 2003 were collected from a number of sources. The primary source of these data was the Gulf Investment Guide (GIG) of 2004, which was used to obtain the majority of the data. In addition to this source, the directories of the national stock exchanges for each state were obtained to help provide data that is not available in the Gulf Investment Guide (GIG) (see Table 5.4).

It should be noted that these sources did not have all required data to test the hypotheses of this study. In particular, problems were encountered in obtaining data on ownership structure and business risk (BETA). For instance, the information on government ownership of the firms listed on the DSE was not available at all in the above sources and such information of the firms listed on the other stock exchanges was only available for 2003. Business risk data for all firms listed on the GCC stock exchanges were not available at all in the above sources.

There was no information about the changes in the government ownership of a firm over time in Saudi Arabia, Kuwait, and Qatar in any of the above sources. An alternative method was therefore devised to collect such data. A financial consultant, Zughaibi & Kabbani, based in Saudi Arabia holds such data. To obtain government ownership data for Kuwait, the KSE suggested that the national newspapers of Kuwait normally published such data. Therefore, government ownership data for Kuwait were obtained from the Al-Qabas newspaper on the 31st December of each year between 1999 to 2003. Government ownership data for Qatar were obtained from an unpublished report supplied by the Doha Stock Exchange. From these, it was found that the government ownership of the firms listed on the SSE and DSE has not been changed.

The data on business risk of all firms listed on the GCC stock exchanges were bought from the consultant company "Zughaibi & Kabbani Financial Consultants".

The data on institutional ownership that is a part of government ownership structure of a firm were available for the firms listed on the KSE and MSE. These data were obtained from the national newspapers for the firms listed on the KSE and the directory of Muscat Stock exchange for MSE.

The data on large shareholders who own more than 10% of the firm's shares (whether government, institutions and/or individuals) was available for the firms listed on the MSE. These data were obtained from the directory of Muscat Stock Exchange.

Table 5.4
Summary of data source(s)

Variables	Kuwait	Saudi Arabia	Oman	Qatar	Bahrain
Government ownership	-News paper	-GIG	- MSE investment Guide	Unpublished data from DSE investment Guide	-BSE investment Guide
Institutional ownership	-News paper	N/A	-MSE investment Guide	N/A	N/A
Large shareholders	N/A	N/A	-MSE investment Guide	N/A	N/A
Free cash flow	-GIG -KSE investment Guide	-GIG SSE investment Guide	-GIG -MSE investment Guide	-GIG -DSE investment Guide	-GIG -BSE investment Guide
Growth opportunities	-GIG -KSE investment Guide	-GIG -SSE investment Guide	-GIG -MSE investment Guide	-GIG -DSE investment Guide	-GIG -BSE investment Guide
Leverage ratio	-GIG -KSE investment Guide	-GIG -SSE investment Guide	-GIG -MSE investment Guide	-GIG -DSE investment Guide	-GIG -BSE investment Guide
Business risk	-Z&Q	-Z&Q	-Z&Q	-Z&Q	-Z&Q
Firm profitability	-GIG -KSE investment Guide	-GIG -SSE investment Guide	-GIG -MSE investment Guide	-GIG -DSE investment Guide	-GIG -BSE investment Guide

Key:
GIG = Gulf Investment Guide
KSE =Kuwait Stock Exchange
SSE =Saudi Stock Exchange
MSE =Muscat Stock Exchange
DSE =Doha Stock Exchange
BSE =Bahrain audi Stock Exchange
Z&Q =Zughaibi and Kabbani Consultants
N/A =not available

5.5 Research Methodology

As discussed in Chapter 4, a review of literature suggests that a variety of modelling techniques have been used to identify the factors affecting the amount of dividend paid by firms. One of the most commonly used methods is to employ a pooled OLS regression that ignores the firm-specific effects in the model. However, since our data are panel data, the unobserved heterogeneity needs to be taken into account when estimating the model for dividend policy. Therefore, panel data models such as fixed effects and random effects are more appropriate. If the sample data contain information from a large number of firms who normally do not pay dividend to their shareholders (that is, dividend payout ratio=0), then the linear panel data model may no longer be suitable. In this case, the use of a Tobit model may be appropriate (Manos, 2002; Baltagi, 2002; Al-Malkawi, 2005). This section discusses the definitions, specifications, estimations, statistical tests, and interpretations of linear panel data models and Tobit models.

5.5.1 Definition of Panel Data

There are primarily three types of econometric data available in finance-related studies: (1) cross sectional data, (2) time series data, and (3) panel data.

A cross-sectional data set is a set of observations on the values that a variable takes for several sample units (for example, states, countries, firms, individuals, and so on) at the same point in time. Cross-sectional data have only a spatial dimension, for example, the amount of dividend paid by the different non-financial firms of GCC stock exchanges for a particular year.

A time series data set is a set of observations on the values that a variable associated with a particular entity (for example, a firm, individual, a country and so on) takes at different times. Time-series data may be collected at regular time intervals, such as daily, monthly, quarterly, or annually. Time-series data have only a temporal dimension, for example, the amount of dividend paid by a firm over each of the last ten years.

These two definitions allow us to define panel data that represent both time series data and cross sectional data. Panel data, also called longitudinal data, are the values that a variable takes for multiple entities in which each entity is observed at a number of different time periods thus containing both cross sectional data and time series data. Baltagi (2002) defines "panel data" as the pooling of observations on a cross section (for example, firms, households or individuals) and following them over the years (Baltagi, 2002). Panel data have both spatial and temporal dimensions. For instance, the amount of dividend paid by the different non-financial firms of GCC stock exchange over the last ten years.

There are two types of panel data: (1) balanced panel data, and (2) unbalanced panel data. If each cross-sectional unit has the same number of time-series observations, then the panel data is known as a balanced panel. If the number of time-series observations differs among cross-section units, then the panel data is known as an unbalanced panel.

5.5.1.1 Characteristics of Panel Data

A panel dataset has the following features when compared to either a cross-sectional or time-series data set (Gujarati, 2003, Baltagi, 2002, and Woolbridge, 2002):

1. By combining the time-series of cross-section observations, panel data potentially provide a larger number of data points, additional sample variability, less co-linearity among variables, more degrees of freedom and hence improve the efficiency of econometric estimates.
2. Since panel data combine data from different cross-sectional units (for example, firms, countries, states and so on), the panel techniques can take into account such heterogeneity explicitly by allowing specific effects for each individual entity.
3. By studying repeated cross-section observations, panel data are better suited to study the dynamics of change.
4. Panel data are able to detect and measure effects that are difficult to observe in pure cross-section or time-series data. It is therefore possible to construct and test more extensive behavioural hypotheses by analysing panel data.

5. Although panel data have become widely available in both developed and developing countries, the collection of panel data is obviously much more costly than the collection of cross-section or time-series data.
6. Since panel data has cross-section and time dimensions, its analysis is demanding in terms of theory and computing resource. For example, the unobserved heteroscedasticity needs to be taken into account by employing panel data methodology techniques discussed later in this chapter.
7. In using panel data, it becomes inappropriate to assume that the observations are independent from each other as data is obtained from the same entity over the years.

The panel data may suffer from missing observations, which is usually referred to as an unbalanced panel. However, this is not a theoretical problem, but using an incomplete panel (or unbalanced) panel, may result in computational problems. Thus to make the data computationally attractive we can solve the problem by removing all the observations for the firm for which the data is incomplete. However, this would be inefficient as some valid data are not taken into account. A number of statistical packages (such as STATA, LIMDEP, SAS) are available that can effectively estimate models from an unbalanced panel.

5.5.2. Statistical Tests

A regression analysis examines the relationship between a quantitative dependent variable and one or more quantitative or qualitative explanatory variables. For example, if y represents a dependent variable and $\boldsymbol{x}$ represents a vector of independent variables, then the regression model can be represented as:

$$y_{it} = \alpha + \boldsymbol{\beta x}_{it} + u_{it} \qquad i = 1, 2, ..., N \text{ and } t = 1, 2, ..., T \qquad (5.1)$$

where N is the total number of cross-sections, and T is the total number of time periods per cross-section, α and $\boldsymbol{\beta}$ are parameters to be estimated and u_{it} is the error term.

The expected value of y is expressed as

$$E(y \mid x) = \alpha + \beta x$$

The parameters of the above regression model are normally estimated using an ordinary least squares (OLS) estimation technique. However, a number of assumptions need to be made while using this method to estimate the parameters of this regression model. Some of the important assumptions taken from Fox (1997) and Gujarati (2003) are presented below:

Linearity: the regression model as shown in (5.1) is linear in parameters meaning that the conditional expectation of the expectation of y, $E(y \mid x)$, is a linear function of the parameters, the $\beta's$.

Error term: the mean or expected value of the disturbance (or error) term is zero given the value of x i.e.,

$$E(u_{it} \mid x) = 0$$

Constant variance or homoscedasticity: the variance of the errors is the same regardless of the value of x i.e.,

$$Var(u_{it} \mid x) = \sigma^2.$$

Normality: the error is normally distributed i.e., $u_{it} \approx N(0, \sigma^2)$. This is known as the normality assumption, which is used primarily to obtain tests and confidence statements about the estimated regression parameters.

Serial correlation: no autocorrelation between the disturbances or error terms i.e.,

$$\operatorname{cov}(u_{it}, u_{i(t-1)}) = 0 \text{ or } \operatorname{cov}(u_{it}, u_{jt}) = 0 \quad i \neq j$$

Independence: the observations are sampled independently.

Zero covariance: zero covariance between u_{it} and x_{it} i.e.

$$\operatorname{cov}(u_{it}, x_{it}) = 0$$

Degrees of freedom: the total number of observations must be greater than the number of parameters to be estimated.

Multicollinearity: there is no perfect linear relationship among the explanatory variables.

If these assumptions hold, the OLS is the BLUE (Best Linear Unbiased Estimator). In practice, the problems of heteroscedasticity (in place of homescedasticity) and multicollinearity among the explanatory variables exist. In addition to that, the errors may not be independent of each other leading to a problem of serial correlation. However, if the time series dimension of the data is relatively short, then the problem of serial correlation may not be significant (Gujrati, 2003). Therefore, while establishing such a relationship between y and x as shown in (1), a number of statistical tests need to be performed to detect the presence of heteroscedasticity, multicolliearity, outliers and serial correlation. Since the data period used in this study is too short, the effect of any serial correlation or other dynamic problems is not taken into account.

Another major problem with Ordinary Least Squares (OLS) occurs when there are one or more observations differ substantially from the other observations in a sample from a population. The slope and intercept obtained by OLS from such a sample is very sensitive to data points which lie far from the true regression line (Rousseeuw and Leroy, 1987). These points are called outliers. This section presents the definition, method of detection, and treatment of outliers found in a sample data.

The statistical tests for the detection of multicollinearity, heteroscedasticity and outliers are given below.

5.5.2.1 Detection of Multicollinearity

One of the assumptions of the classical linear regression model is that there is no multicollinearity among the explanatory variables included in the regression model. Multicollinearity means the existence of a linear relationship among some or all explanatory variables of a regression model. In the case of near or high multicollinearity, one is likely to encounter the following (Fox, 1997; Gujrati, 2003):

- Although Best Linear Unbiased Estimator (BLUE), the Ordinary Least Square (OLS) estimators have large variances and covariances, making precise estimation difficult.
- The confidence intervals tend to be much wider, leading to the acceptance of the null hypothesis more readily.
- The t-statistic of one or more coefficients tends to be statistically insignificant.
- Although the t-statistic of one or more coefficients is statistically insignificant, R^2, the overall goodness-of-fit, can be very high.
- The OLS estimators and their standard errors can be sensitive to small changes in the data.
- The OLS estimators may have illogical signs.

Some rules of thumb are used in the literature to detect the presence of multicollinearity (Gujrati, 2003):

- The overall goodness-of-fit, R^2, is very high but only few explanatory variables are significantly different from zero.
- There are high pair-wise correlations among the regressors. However, this will not provide a reliable guide to the presence of multicollinearity if the regression models involve more than two explanatory variables.

Variance inflation factor (VIF) and tolerance (Chatterjee et al., 2000) are normally used to detect the presence of multicollinearity, where VIF for x_j is defined as

$$VIF(x_j) = \frac{1}{1 - R_j^2} \qquad (5.2)$$

where R_i^2 is the coefficient of determination that results when x_j is regressed against all other explanatory variables. A high value of VIF indicates that the variable x_j is collinear with the other explanatory variables. As a rule of thumb, if the VIF of a variable exceeds 10, then that variable is said to be highly collinear (some authors use a more conservative threshold value of 30).

The measure of tolerance is given by

$$TOL(x_j) = \frac{1}{VIF(x_j)} \tag{5.3}$$

If $TOL(x_j) = 1$, then x_j is not correlated with the other explanatory variables. If $TOL(x_j) = 0$, then x_j is said to be perfectly correlated with the other explanatory variables.

5.5.2.2 Detection of Heteroscedasticity

As discussed, an important assumption of the classical linear regression model is that the disturbances (the residuals) u_i appearing in the regression function are homoscedastic (have the same variances). Symbolically,

$$Var(u_i) = \sigma^2 \tag{5.4}$$

The problem of heteroscedasticity (the absence of homoscedasticity) is likely to be more common in cross-sectional data than in time series data (Gujrati, 2003). Cross-sectional data usually involves observations from heterogeneous units, and therefore heteroscedasticity may be the rule rather than the exception. Heterogeneity would be expected if data from small, medium and large firms were sampled together. In time series data, on the other hand, the variables tend to be of similar orders of magnitude because one generally collects the data for the same entity over a period of time.

5.5.2.3 Outliers

In simple terms, outliers are the extreme values of observed variables that can distort estimates of regression coefficients. In a sense, this definition leaves to the researcher to decide what will be considered as an 'extreme value'. Given a mean and standard deviation of a sample, a statistical distribution expects data points to fall within a specific range. Those that do not may be considered as outliers and should be investigated.

5.5.2.3.1 Reasons for Outliers

Some possible causes of outliers are given below:

- Keypunch errors (i.e., incorrect data entry)
- Misplaced decimal points
- Observations not from an intended sample population
- Actual distribution of the population has more extreme cases than a normal distribution

5.5.2.3.2 Treatment of Outliers

Outliers occur very frequently in real data, and they often go unnoticed as now-a-days much data is processed by computers, without careful inspection or screening. In a regression model, not only the dependent variable can be outlying, but also the explanatory variables can also be outlying. Either type of outliers may undermine an Ordinary Least Squares analysis. It is then essential to reduce the influence of outliers before a model can be developed from the sample data. There are a number of common ways to reduce the influence of outliers in a regression analysis. These are:

- To check the reliability of the data (data sources and ensure proper data entry)
- To check whether one variable is responsible for most of the outliers in a sample, if this is the case, then it may be necessary to omit the variable from the analysis. If the omitted variable is the main interest of the analysis, then it is important to transform the variable to reduce the influence of the outliers.
- To delete the observation if it is not part of the population

5.5.2.3.3 Methods of Detecting Outliers

It is extremely important to detect outliers and to understand how they impact data analysis, especially when statistical techniques are applied to the data. For instance, in the presence of outliers, any statistical test based on sample means and variances can be distorted. Estimated intercept and slope coefficients that minimize the sum of squares for error (SSE) are very sensitive to outliers.

It is also true that outliers should be investigated carefully as they may contain valuable information about the process under investigation. Before considering the possible elimination of these outliers from the data, it is essential to understand why they appeared in the dataset and whether it is likely similar values will continue to appear.

In the literature, there are two groups of methods to detect or identify outliers in the data: (1) Graphical Methods and (2) Analytical Methods.

(1) Graphical Methods:

Two graphical techniques for identifying outliers are: (i) the scatter plot and (ii) the box plot. These are based on visual inspection of the data graphed in a suitable manner to as to expose outliers.

A scatter plot reveals the basic relationship between the dependent variable (along the Y-axis) and the explanatory variable of interest (along the X-axis). An extreme observation which is far away from the rest of the data points in a sample can be easily identified by observation of the scatter plot.

The box plot is a useful graphical display for describing the behaviour of the data in the middle as well as at the ends of the distributions. A box plot may also be used as another graphical technique of identifying outliers. The procedure of forming a box plot is as follows:

- Y-axis should denote the response variable and X-axis should denote the factor of interest.

- Compute the median and the quartiles (the 25th percentile and the 75th percentile)
- Draw a line (and plot a symbol) at the median and draw a box between the lower and upper quartiles (the 25th and 75th percentiles). This box represents the middle 50% of the data
- Draw a line from the lower quartile to the smallest point and one more line from the upper quartile to the highest point. Usually a symbol is drawn at these minimum and maximum points.
- If the lower quartile is denoted as Q1 and the upper quartile as Q3, then the difference (Q3 - Q1) is named the interquartile range or IQR. The length of the box is the IQR.

Cases or observations with values between 1.5 and 3 IQRs (box lengths) from the upper or lower edge of the box are known as outliers and cases or observations with values more than 3 IQRs (box lengths) from the upper or lower edge of the box are known as extreme outliers.

(2) Analytical Methods:
In the literature, two analytical methods are normally used to identify outliers. These are: (i) Use of Interquartile Range (IQR) and (ii) Grubbs' Test

IQR: As discussed, the IQR is the difference between the lower and upper quartiles. The following quantities (also known as fences) are used to identify extreme values in the tails of the distribution.

- lower inner fence: Q1 - 1.5*IQ
- upper inner fence: Q2 + 1.5*IQ
- lower outer fence: Q1 - 3*IQ
- upper outer fence: Q2 + 3*IQ

A case or observation beyond an inner fence on either side is normally considered a **mild outlier**. A case or observation beyond an outer fence is normally considered an **extreme outlier.** This process is the direct analytical equivalent of the graphical box plot method.

Grubbs' Test: Grubbs' test is used to detect outliers in a dataset (Grubbs 1969 and Stefansky 1972). It is based on the assumption of normality. Consequently, before applying the Grubbs' test, it is essential to check that the data can be reasonably approximated by a normal distribution. The Grubbs' test is also known as the maximum norm-ed residual test. This test detects one outlier at each iteration. This outlier is expunged from the dataset and the test is iterated until no outliers are detected.

The null and alternative hypotheses for the Grubbs' test are given below:

The Null Hypothesis:

H_0: There are no outliers in the data set

The Alternative Hypothesis:

H_1: There is at least one outlier in the data set

The Grubbs' test statistic is defined as:

$$G = \frac{\max|Y_i - \bar{Y}|}{s} \tag{5.5}$$

where $\bar{Y}$ is the sample mean and s is the sample standard deviation. Therefore, this statistic is the largest absolute deviation from the sample mean in units of the sample standard deviation. The critical value of the statistic is defined as:

$$G_c = \frac{(n-1)}{\sqrt{n}}\sqrt{\frac{t^2_{\alpha,n-2}}{n-2+t^2_{\alpha,n-2}}} \tag{5.6}$$

where $t^2_{\alpha/2n,n-2}$ denotes the critical value of the t-distribution with (n-2) degrees of freedom and a significance level of α. The null hypothesis can not be rejected if the Grubbs' statistic is less than the critical value i.e., $G < G_c$.

5.5.3 Linear Panel Data Models

The **linear model** for a cross-section data can be written as

$$y_i = \alpha + \boldsymbol{\beta} \mathbf{x}_i + u_i \qquad (5.7)$$

where y_i is the value of a variable for cross-section i (say, a firm) for a specific period, $\mathbf{x}_i$ is a k or K×1 be consistent throughout vector of continuous explanatory variables, and u_i is white noise.

The **linear model** for a time-series data can be written as

$$y_t = \alpha + \boldsymbol{\beta} \mathbf{x}_t + u_t \qquad (5.8)$$

where y_t is the value of a variable for period t (say, year t) for a specific cross-section unit, $\mathbf{x}_t$ is a k×1 vector of continuous explanatory variables, and u_t is white noise.

The linear regression models presented in equations (5.7) and (5.8) are based on the assumption that the impact of x on y is characterised by fixed parameters α and β. However, typical panel data focus on individual outcomes and factors affecting such outcomes are numerous.

If we assume that intercepts and slope coefficients vary over individual cross-sectional units, i and over t then the model takes the following form:

$$y_{it} = \alpha_{it} + \boldsymbol{\beta}_{it} x_{it} + u_{it} \qquad (5.9)$$

$$i = 1, \ldots\ldots., N$$
$$t = 1, \ldots\ldots.., T$$

However, this model has only descriptive value as it can neither be estimated nor be used to generate predictions. This is because the available degree of freedom, NT, is less than the number of parameters to be estimated, which is NT(K+1). Therefore, a structure has to be imposed on (5.9).

As suggested by Hsiao (2002), one way to impose additional structure on (5.9) is to consider β as being the same across i and over t (referred to as structural parameters) and to introduce a new term (say γ_{it}), as a set of incidental parameters. These incidental parameters represent the heterogeneity across i and over t that are not captured by the observed x. This may be composed of the effects of the omitted variable that does not vary over time (say ϕ_i), the period individual-invariant variable (say λ_t), and the individual time-varying variable (say δ_{it}).

The individual time-invariant variables (ϕ_i) are variables that are the same for a given cross-sectional unit through time but that vary across cross-sectional units such as individual person characteristics, individual firm management, and socio-economic background variables, and so on. The period individual-invariant variables (λ_t) are variables that are the same for all cross-sectional units at a given time but that vary through time such as interest rates, prices and so on. The individual time-varying variables (δ_{it}) are the variables that vary across cross-sectional units at a given point in time and also exhibit variations through time such as profits, sales, and so on. The effects of such unobserved heterogeneity (γ_{it}) can either be assumed to be random variables, referred to as the random effects model, or fixed parameters, referred to as the fixed effects model, or a mixture of both, referred to as the mixed effects model.

The challenge facing a panel methodology is to control the impact of unobserved heterogeneity (γ_{it}) to obtain valid interference on the structural parameters, β. One way to control γ_{it} is to assume that there are no time-specific effects (that is, λ_t=0), especially when T is relatively short and the individual time-varying effects (δ_{it}) can be represented by a random variable, u_{it} , that is treated as the error of the model. Therefore, the remaining effects are only the individual-specific effects (ϕ_i), which can be either assumed as random or fixed. Thus, equation (5.9) can then be re-written as:

$$y_{it} = \phi_i + \boldsymbol{\beta x}_{it} + u_{it} \qquad (5.10)$$

As discussed, the unobserved heterogeneity (ϕ_i) of this regression model can be modelled as a random variable leading to the random effects model or a fixed variable leading to a fixed effects model. The properties of these models are discussed in more detail below.

5.5.3.1 The Random Effect (RE) Model

The standard assumption for random effects specification is that the unobserved heterogeneity (ϕ_i) is randomly distributed with a common mean and is not correlated with the observed, $\boldsymbol{x}$ (Woolbridge, 2002; Baltagi, 2002). The random effects model can then be represented as:

$$y_{it} = \alpha + \boldsymbol{\beta x}_{it} + \mu_i + u_{it} \qquad (5.11)$$

In which $\phi_i = \alpha + \mu_i$ where α is the common mean value of all cross-sectional intercepts (known as the constant of a regression model) and μ_i represents the random deviation of an individual intercept from this mean value (known as individual-specific random effect), and u_{it} is the combined time-series and cross-section error component. Note that μ_i is not directly observable and is therefore an unobservable or latent variable. The standard assumptions related to model (5.11) are as follows:

$$\mu_i \sim N(0, \sigma_\mu^2)$$

$$u_{it} \sim N(0, \sigma_u^2)$$

$$E(\mu_i u_{it}) = 0 \quad \text{for all i and t}$$

$$E(\mu_i \mu_j) = 0 \qquad (i \neq j)$$

$$E(u_{it} u_{is}) = E(u_{it} u_{jt}) = E(u_{it} u_{js}) = 0 \qquad (i \neq j; j \neq s)$$

This suggests that the individual error components are not correlated with each other and are not correlated across both cross-section and time-series units. The random effects model can be estimated by using generalised least squares (GLS).

Testing for Random Effects:

Breusch and Pagan (1979) developed the Lagrange Multiplier (LM) test, which can be used to test whether there are random effects in the panel data. The null hypothesis (H0) is:

H0: Cross-sectional variance components are zero i.e., variances osf groups are zero

The LM statistic is:

$$LM = \frac{NT}{2(T-1)}\left[\frac{\sum\left(\sum e_{it}\right)^2}{\sum\sum e_{it}^2} - 1\right]^2 \sim \chi^2(1) \qquad (5.12)$$

where e_{it} is the pooled OLS residuals.

Under H0, LM is asymptotically distributed as χ^2 with one degree of freedom. If the null hypothesis is rejected, then the random effects are present.

Advantages and Disadvantages of the RE model:

According to Baltagi (2002), the random effects model is suitable when the individuals are drawn randomly from a large population. However, the sample should be representative if reliable estimates are to be expected.

Advantages:

1. The number of parameters to be estimated remains the same when sample size increases.
2. It allows the derivation of an efficient estimator (generalised least squares, GLS) that makes use of both within and between (group) variations.
3. It allows the estimation of the impact of a variable that does not change over time for a specific cross-sectional unit.

Disadvantage:

1. There is a very strong assumption that the unobserved heterogeneity (ϕ_i) is independent of the regressors, $\boldsymbol{x}$.

5.5.3.2 The Fixed Effects (FE) Model

The fixed effects model can be represented as:

$$y_{it} = \alpha + \boldsymbol{\beta x}_{it} + \mu_i + u_{it} \qquad (5.13)$$

In which the unobserved heterogeneity, ϕ_i, has two components: α and μ_i. α is the common-fixed effect across i (the mean of ϕ_i) and μ_i is the deviation from the common effect, which is fixed for each individual (known an individual-specific fixed effect). The assumptions of the model are:

$$u_{it} \sim N(0, \sigma_u^2)$$
$$E(u_{it}u_{is}) = E(u_{it}u_{jt}) = E(u_{it}u_{js}) = 0 \qquad (i \neq j; j \neq s)$$

Estimation of the Fixed Effects (FE) Model:

There are three general ways to estimate the fixed effects models: (1) the Least Square Dummy Variable (LSDV) regression model, (2) the Within Group Effect model, and (3) the Between Group Effect model (Group Mean Regression).

The LSDV regression model

This model uses dummy variables to take into account the individual-specific effects (Woolbridge, 2002). For example, if a panel dataset contains N individuals (or groups or firms), the LSDV regression model uses N dummy variables (one for each individual in the case of no intercept) as the explanatory variables in the model. The estimates of the coefficients of those variables represent the fixed individual-specific effects. The model can be shown as:

$$y_{it} = \phi_1 D_1 + \phi_2 D_2 + \ldots\ldots\ldots + \phi_n D_N + \beta x_{it} + u_{it} \qquad (5.14)$$

The OLS method can be used to estimate the model parameters, however, this type of model becomes problematic when there are many individuals (or groups or firms) in the panel data. For instance, if a panel dataset contains observations from 200 firms ($N = 200$) over a three-year period, then this model needs to use 200 dummy variables in order to take into account firm specific effects in the model and thus, the degrees of freedom are reduced significantly. If T is fixed and N goes to infinity, only the estimates of the regressors are consistent and the estimates of the dummies are not consistent since the number of these parameters increases as N increases. This is the so-called incidental parameter problem (Hsiao, 2002). Under this circumstance, the LSDV regression model does not reliably estimate the fixed effects and the other modelling techniques should be used.

The Within Group Effect model

The Within Group Effects model, on the other hand, does not use dummy variables but uses modified variables calculated from the deviation from group means (Woolbridge, 2002; Baltagi, 2002). The model then uses OLS of

$$y_{it} - \bar{y}_i = \beta(x_{it} - \bar{x}_i) + (u_{it} - \bar{u}_i) \qquad (5.15)$$

where $\bar{y}_i$ is the mean of the dependent variable for group i, $\bar{x}_i$ are the means of independent variables for group i.

It is noticeable that the model does not feature an intercept and there are no incidental parameter problems, but this is only because we are not interested in the fixed effects. The parameter estimates of the coefficients of the regressors are identical to those of LSDV. Since the model does not report dummy coefficients representing the individual specific effects, one can compute them using the following equation:

$$\hat{\phi}_i = \bar{y}_i - \beta\,\bar{x}_i \quad ....(5.16)$$

The Between Effect model

This model is also known as the group mean regression model as this model uses means of the dependent and independent variables of groups (Baltagi, 2002). This can be shown as:

$$\bar{y}_i = \alpha + \beta\bar{x}_i + \bar{u}_i \qquad (5.17)$$

Then the OLS estimation method is used to estimate the model parameter. The number of observations decreases to N (number of groups or individuals). This model uses aggregated data to test effects between groups assuming no group and time effects.

Testing for Fixed Effects:

An F-test can be conducted to see whether the panel data support the fixed effects model. The hypotheses of the test are given as:

Null Hypothesis (H0): all individual-specific fixed effects except one are zero

$$(\mu_1 = \mu_2 = ... = \mu_{N-1} = 0)$$

This test is based on an F-statistic, which is computed from the loss of goodness-of-fit between the pooled OLS model and the fixed effects model (Baltagi, 2002). The statistic is:

$$\frac{\dfrac{R_{FEM}^2 - R_{pooled}^2}{N-1}}{\dfrac{1-R_{FEM}^2}{NT-N-k}} \approx F(N-1, NT-N-k) \qquad (5.18)$$

where R_{pooled}^2 is the R-squared value of the pooled OLS regression, R_{FEM}^2 is the R-squared value of the fixed effects model (EFM),

Advantages and disadvantages of Fixed Effects (FE) model:

This section draws on the findings of (Baltagi, 2002; Woolbridge, 2002).

Advantage:

- It can allow the individual and/ or time specific effects to be correlated with explanatory variables.

Disadvantages:

- The number of unknown parameters to be estimated increases with the number of sample observations.
- The FE estimator does not allow the estimation of the coefficients that are time-invariant.

5.5.3.3 Random vs. Fixed Effects Models

As discussed, a panel dataset can be modelled using either a random effects (RE) model or a fixed effects (FE) model. Now the most important question is which one to choose? Traditionally, the emphasis has been on whether one should think of individual specific effect (μ_i) as a parameter to be estimated as a "fixed" variable or a "random" variable that is drawn from a distribution. If a panel dataset represents countries or states, it is natural to think of μ_i as a fixed parameter to be estimated, and not the outcome of a random draw from the population. If the panel dataset, on the other hand, can be considered to be drawn from a population such as firms or individuals, it is natural to think of μ_i as random error component. However, the choice of fixed and random effects models issue has generated an intense debate in the field of biometrics and statistics, which has spilled over into the panel data econometrics literature (Baltagi, 2002). Mundlak (1978) points out that the above way of thinking about the choice of model is not a very fruitful. The key issue is whether there is correlation between some of the observed variables (x) and μ_i.

If there is likely to be correlation between x and μ_i, then the fixed effects estimator is consistent. If one is sure of no correlation between them, then the random effects model is consistent. According to modern econometrics, "fixed" simply means allowing for x and μ_i to be correlated and "random" means that x and μ_i are uncorrelated. There is a big gain from RE if **x** and μ_i are uncorrelated because the fixed effects method is not the BLUE when x and μ are uncorrelated.

Hausman's (1978) test statistic can be used to examine whether x and μ_i are uncorrelated based on the difference between the fixed effects and random effects estimates. If x and μ_i are uncorrelated, both estimates are consistent and one would expect the difference to be relatively small. If x and μ_i are correlated, the random effects model (RE) will be biased, and one would expect the difference to be large.

It is worth noting that since time-invariant variables cannot be included in the FE model, the test is based only on coefficients for time-varying variables. However, the challenge is to design a test statistic that makes it possible to determine whether the difference is significant. Therefore, it is necessary to know the distribution of the test statistic under the null hypothesis, which is:

H_0 = The FE estimators and the RE estimators do not differ substantially i.e., x and μ_i are not correlated

The Hausman test statistic (Hausman, 1978) is iven by:

$$H = \left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)' \left[Cov(\hat{\beta}_{FE}) - Cov(\hat{\beta}_{RE})\right]^{-1} (\hat{\beta}_{FE} - \hat{\beta}_{RE}) \qquad (5.19)$$

where $\hat{\beta}_{FE}$ and $\hat{\beta}_{RE}$ are vectors of coefficients estimates from the FE and RE models respectively, excluding coefficients on time-invariant variables and time dummies.

This statistic (H) is distributed asymptotically as χ^2 with degrees of freedom equal to the number of coefficients in $\hat{\beta}_{FE}$ and $\hat{\beta}_{RE}$.

5.5.4 Panel Data Tobit Model

The values of all dependent and explanatory variables are treated as being known for the entire sample in a linear regression model. However, there are some cases in real life where the sample is limited by truncation or censoring. Censoring of a sample occurs when only the explanatory variables are observed for the entire sample, but there is limited information about the response variable for a portion of the sample (Long, 1997). In other words, in a censored sample, the response variable is not observed for its entire range. For example, some of the firms within the non-financial firms of GCC stock exchanges do not pay dividend (the response variable of the dividend policy model) to their shareholders. Therefore, the dividend payout ratios by these firms are not observed although the characteristics of the firms (the explanatory variables of the model) are observed for all firms. Truncation limits the sample more severely than censoring by excluding the observations based on a threshold of the dependent variable. An example of a truncation sample in our case would be one that excluded from the sample those firms that do not pay dividends. It is worth noting that censoring does not change the sample while truncation does.

The firms of our sample are divided into two categories: (1) firms about whom the information on the explanatory variables (that is, a firms' characteristics such as government ownership, free cash flow and so on) as well as the response variable (the amount of dividend payout ratio) is available, (2) firms about whom only the information on the explanatory variables is available. Therefore, our sample is a censored sample. The appropriate model for such a censored sample is known as the Tobit model (see Tobin, 1958).

5.5.4.1 Mathematical Representation of the Tobit Model

Assume that y^* is a response variable that is not censored. If it is not possible to know the value of y^* when $y^* \leq 0$, then this variable becomes a latent variable as it cannot be observed over its entire range. The structural equation of the standard Tobit model is:

$$y_i^* = \boldsymbol{x}_i \boldsymbol{\beta} + \varepsilon_i \qquad (5.20)$$

where y_i^* is the latent dependent variable which is observed for values greater than 0 and is censored for values less than or equal to 0, $\boldsymbol{x}_i$ is the vector of the explanatory variables which are observed for all cases, $\boldsymbol{\beta}$ is the vector of coefficients to be estimated, and ε_i is the error term which is assumed to be independently normally distributed, that is, $\varepsilon_i \sim N(0,\sigma^2)$.The censored variable, which is observed over the entire range, is defined by the following measurement equation:

$$y_i = \begin{cases} y_i^* & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \qquad (5.21)$$

Estimation of the structural equation by OLS is done with the censored sample by taking $y = 0$ when $y^* \leq 0$ or the truncated sample (that is, the sample with only $y > 0$) gives inconsistent estimates, that is, it underestimates the intercept and overestimates the slope or vice versa (see for example, Long, 1997; Gujarati, 2003; Woolbridge, 2002; Hsiao, 2002). These studies suggest the use of the Tobit model presented below:

Substituting equation (20) in (21) results:

$$y_i = \begin{cases} x_i\beta + \varepsilon_i & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \qquad (5.22)$$

Notice that observed 0s on the dependent variable can mean either a "true" 0 or censored data (that is, cannot be observed). At least some of the observations in a sample must be censored data, otherwise y_i would always equal y_i^* and the true model would be a linear model rather than a Tobit model.

5.5.4.2 Tobit Model Estimation

As discussed, the use of OLS estimation in the presence of censoring results in inconsistent estimates. The suitable estimation method is the Maximum Likelihood (ML) estimator as such estimates are consistent and asymptotically normal (Greene, 2003, Long 1997). In this case, the observations are divided into two groups: (1) uncensored observations in which ML behaves the same way as the linear regression model, (2) censored observations where the specific value of y_i^* is not known but the probability of being censored is used. According to Long (1997), the log-likelihood function for both censored and uncensored observations is given by:

$$\ln L(\beta \mid y, x) = \sum_{y_i > 0} (-\ln\sigma + \ln\phi(\frac{y_i - x_i\beta}{\sigma}) + \sum_{y=0} \ln(1 - \Phi(\frac{x_i\beta}{\sigma})) \qquad (5.23)$$

where $\phi(.)$ and $\Phi(.)$ represent the probability density function (pdf) and cumulative density function (cdf) of the standard normal distribution, all other terms are previously defined.

5.5.4.3 Unobserved Effects Tobit Model

The standard Tobit model may not be appropriate for the modelling of censored panel data due to the presence of unobserved heterogeneity as discussed in the panel data modelling section 5.5.2.2. Therefore, the unobserved effects (fixed and random) need to be taken into account. This result in two types of unobserved effects Tobit models: (1) fixed effects Tobit model, and (2) random effects Tobit model. The literature suggests that the estimation of a fixed effects Tobit model is complex. This is because at present there is no feasible estimator for a fixed effects Tobit model (STATA 2000). Therefore, the fixed effects Tobit model is not considered further in this study. The random effects Tobit model is given below (Long, 1997):

$$y_{it} = \begin{cases} \boldsymbol{x}_{it}\boldsymbol{\beta} + \alpha_i + \varepsilon_{it} & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \qquad (5.24)$$

where α_i is the unobserved individual-specific effect that is assumed to be uncorrelated with $\boldsymbol{x}_{it}$ and independently and identically distributed with zero mean and constant variance, that is, $\alpha_i \sim N(0, \sigma_u^2)$. Once again, the ML estimator is used to estimate the model parameters.

5.5.4.4 Expectations and Probabilities of the Tobit Model

As discussed, there are three different variables in the Tobit model: (1) the latent variable, y^*, (2) the censored or observed dependent variable, y, and (3) the truncated or uncensored observed dependent variable, $y \mid y > 0$. This leads to three different conditional means in the Tobit model (Long, 1997). Consequently, the interpretation of the model parameters depends on whether one is concerned with the marginal effect of the explanatory variables on y^*, y, or $y \mid y > 0$. For example, in analyzing data on dividend payout policy, one would be interested in y^* if the aim were to understand the underlying intention to pay dividend, y to understand the actual amount of dividend payout ratio by firms that paid dividend and firms that did not pay dividend, and $y \mid y > 0$ to understand the amount of dividend payout ratio by firms who paid dividend. The conditional expectations can then be mathematically represented by $E(y^* \mid x)$, $E(y \mid x)$, and $E(y \mid y > 0)$ respectively. It is envisaged that the following condition is true on the conditional means:

$$E(y^* \mid x) < E(y \mid x) < E(y \mid y > 0)$$

The equations of estimating these conditional expectations are given below (Long, 1997):

$$E(y^* \mid x) = \boldsymbol{x\beta} \quad (5.25)$$

$$E(y \mid x) = \Phi(\boldsymbol{x\beta}/\sigma)\boldsymbol{x\beta} + \sigma\phi(\boldsymbol{x\beta}/\sigma) \qquad (5.26)$$

$$E(y \mid y > 0, x) = \boldsymbol{x\beta} + \sigma\left[\frac{\phi(\boldsymbol{x\beta}/\sigma)}{\Phi(\boldsymbol{x\beta}/\sigma)}\right] \quad (5.27)$$

The relationship between $E(y \mid x)$, and $E(y \mid y > 0)$ is as follows (Long, 1997):

$$E(y \mid x) = \Pr(y > 0 \mid x).E(y \mid y > 0, x) \qquad (5.\ 28)$$

where $\Pr(y > 0 \mid x)$ is the probability of a case being uncensored for a given $\boldsymbol{x}$.

Once one determines the marginal effect in which one is interested, one simply examines the marginal effects of $\boldsymbol{x}$ on the appropriate conditional expectations. For instance, the marginal effect of x_j on the latent variable, y^*, can be obtained by taking the derivative of equation (5.25 with respect to x_j i.e.,

$$\frac{\partial E(y^* \mid x)}{\partial x_j} = \beta_j \qquad (5.\ 29)$$

The marginal effect of x_j on the observed dependent variable, y, can be obtained by taking the derivative of equation (5.26) with respect to x_j i.e.,

$$\begin{aligned}\frac{\partial E(y \mid x)}{\partial x_j} &= \Phi(\boldsymbol{x\beta}/\sigma)\beta_j \\ &= \Pr(y > 0 \mid x).\beta_j\end{aligned} \qquad (5.30)$$

The marginal effect of x_j on the observed dependent variable, can also be obtained by taking the derivative of equation (5.28) with respect to x_j, that is,

$$\frac{\partial E(y \mid x)}{\partial x_j} = \frac{\partial \Pr(y > 0 \mid x)}{\partial x_j} E(y \mid y > 0, x) + \Pr(y > 0 \mid x) \frac{\partial E(y \mid y > 0, x)}{\partial x_j} \quad (5.31)$$

The marginal effect of x_j on the uncensored observed dependent variable, $y \mid y > 0$, can also be obtained by taking the derivative of equation (5.27) with respect to x_j i.e.,

$$\frac{\partial E(y \mid y > 0, x)}{\partial x_j} = \theta(\boldsymbol{x\beta} / \sigma)\beta_j \quad (5.32)$$

where $\theta(\boldsymbol{x\beta} / \sigma)$ is a factor strictly between zero and one and therefore, the sign of marginal effect is the same sign of β_j.

All of the economic quantities such as elasticities can be computed from the equations of the marginal effects. For instance, the elasticity of y^* with respect to x_j is:

$$e_{y^*} = \frac{\partial E(y^* \mid x)}{\partial x_j} \frac{x_j}{E(y^* \mid x)} = \beta_j \frac{\bar{x}_j}{\boldsymbol{x\beta}} \quad (5.33)$$

The elasticity of y with respect to x_j is:

$$e_y = \frac{\partial E(y \mid x)}{\partial x_j} \frac{x_j}{E(y \mid x)} = \Pr(y > 0 \mid x).\beta_j.\frac{\bar{x}_j}{E(y \mid x)} \quad (5.34)$$

The elasticity of y with respect to x_j, conditional on $y > 0$, is:

$$e_{y|y>0} = \frac{\partial E(y \mid y > 0, x)}{\partial x_j} \frac{x_j}{E(y \mid y > 0, x)} \quad (5.35)$$

Other functional forms of the independent variable are easy to handle. For instance, suppose that $x_j = \ln(z_1)$, then the marginal effect and elasticity of y with respect to z_j can be derived from equations (5.30) and (5.34) respectively as follows:

$$\frac{\partial E(y \mid x)}{\partial z_j} = \Pr(y > 0 \mid x).\frac{\beta_j}{\bar{z}_j} \tag{5.36}$$

$$\frac{\partial E(y \mid x)}{\partial z_j}\frac{z_j}{E(y \mid x)} = \Pr(y > 0 \mid x).\frac{\beta_j}{E(y \mid x)} \tag{5.37}$$

Similarly, the marginal effect and elasticity of y^* and $y \mid y > 0$ with respect to z_j can easily be derived.

5.6 Summary

This chapter has discussed and developed the research hypotheses by investigating the relationship between dividends as the dependent variable, and ownership structure, free cash flow, growth opportunities, financial leverage, firm size and firm profitability as independent variables. Based on the nine stated hypotheses, the research model has been discussed, followed by an explanation of data sources. Finally, the chapter explained the research methods and the estimated models, namely (1) the fixed effects and random effect models, and (2) the random effects Tobit model. The use and interpretation of these models will be discussed in the following chapters.

CHAPTER SIX

Dividend Payout Ratio of Companies Listed on GCC Stock Exchanges: Estimation Results

6.1 Introduction

The previous chapter discussed the research hypotheses and explained the methodology that was used to investigate the dividend payment behaviour of firms. The primary aim of this chapter is to investigate the factors affecting the dividend policy of the non-financial firms listed on the Kuwait, Saudi Arabia, Muscat, Doha, and Bahrain stock exchanges. As discussed in Chapter 5, the factors under investigation are government ownership, free cash flow, firm size, firm's growth rate, leverage ratio, business risk, and firm profitability. Since the amount of dividend paid by a firm is associated with such factors, it is necessary to explore the statistical association between the amount of dividend payout ratio and those factors. This also allows testing the hypotheses that are presented in Chapter 5 concerning the association of the dividend policy with these factors.

This chapter presents the results obtained from the dividend policy models described in Chapter 5 as applied to data describing firms from the five GCC states. Two primary models are considered in this study: (1) the fixed and random effects panel data regression models as discussed in sections 5.5.3.1 and 5.5.3.2, and (2) the random effects Tobit model as discussed in section 5.5.4. In simple terms, these models will hopefully identify and quantify the factors that influence the amount of dividend paid by the firms and test the hypotheses described in Chapter 5 at the same time.

This chapter is organised as follows. First, a brief discussion of the descriptive statistics of the sample is provided. This is followed by a discussion of multi-collinearity among the explanatory variables. The next section describes a presentation of results obtained from the fixed effects and random effects regression models. The results of the Hausman test are then discussed to determine the appropriate model (fixed or random). This chapter then presents the results from the random effects Tobit model. A general discussion on the differences among the results from these models is then presented.

6.2 Preliminary Description of Firms

According to the Gulf Investment Guide (2004), there are a total of 358 firms (of which 245 are non-financial firms and 113 are financial firms) listed on stock exchanges in GCC states. As discussed, this study examines the dividend payout ratio of non-financial firms and therefore, the financial firms will not be considered any further. The data on the dividend payout ratio and other firms' characteristics are only available for 191 non-financial firms for the study period from 1999 to 2003 as mentioned in Chapter 5 (section 5.4).

Based on the 191 non-financial firms for which the data are available, it can be seen that the average cash dividend ratio paid by the firms for the period 1999-2003 was 43%. It is interesting to note that the firms who paid dividend to their shareholders used a variable rate over the years. However, no increasing or decreasing trends in the dividend payout ratio of a particular firm over the study period were found. The highest average dividend, of about 49%, was paid in 2000 and the lowest average dividend, of about 37%, was paid in 2003 (see Table 6.1). The detailed description of firms' characteristics is presented in the next section.

Table 6.1
Average dividend ratio by years paid by 191 non-financial firms

Years	Observations	Average dividend Ratio (%)
1999	184	40.80
2000	187	49.12
2001	189	39.79
2002	188	47.30
2003	181	37.01

The government owned a proportion of shares for 102 (52%) of the 191 firms. However, the average proportion of government ownership was found to be 10.1 % of firms' shares. It is important to note that the dividend payment ratio paid by the firms where the government owned a proportion of their shares is different compared to the firms completely owned by the private sector in the five GCC states. This is shown in Table 6.2. It is noticeable from this table that firms partly owned by the government normally paid a higher dividend ratio (about 49% on average) whereas firms completely owned by the private sector paid a low dividend (about 36% on average) during the study period. Similarly, the dividend ratio was observed to be higher for each individual year when the government owned a proportion of the shares.

Table 6.2
Comparison of the dividend payout ratio between the firms in which the government owned a proportion of their shares and the firms completely owned the public sector during the study period 1999-2003

years	firms which the government owns a proportion of their shares	firms owned completely by the private sector
1999	45.0	35.4
2000	54.3	41.9
2001	43.4	35.1
2002	52.8	40.7
2003	46.6	27.7
Average	**48.5**	**36.1**

A t-test was carried out to see whether the means of dividend ratios paid by the firms where the government owned a proportion of the shares (μ_{gov}) and the firms completely owned by the private sector ($\mu_{private}$) are statistically different. The null hypotheses associated with the test are:

H0: Means are equal (i.e., $\mu_{gov} = \mu_{private}$)

H1: Means are not equal (i.e., $\mu_{gov} \neq \mu_{private}$)

The results are shown in Table 6.3. It can be seen that the means are statistically different at the 99.93% confidence interval.

Table 6.3
Two sample t-test to test the differences in means

Groups	Observations	Mean	Standard errors
Firms owned completely by the private sector	418	35.9	2.94
Firms where government owns a proportion of their shares	511	48.5	2.61
t-statistic	-3.2		
p-value	0.0007		
Decision	Means are different		

6.3 Descriptive Statistics of the Variables

Table 6.4 presents descriptive statistics for the variables (related to firms' characteristics) included in the models to examine the dividend policy of non-financial firms listed on the stock exchanges of GCC states for the period 1999 to 2003.

The mean of the dividend payout ratio of the 191 non-financial firms indicates that the firms distributed an average of about 43% of their net profit as dividend. The standard deviation (a measure of dispersion) of the dividend payout ratio is 59.8 suggesting that the dividend payout ratio is highly dispersed. Although the mean of the dividend payout ratio is 43%, the second quartile, Q2, (i.e., 50^{th} percentile) of this variable is only 7%. This is largely due to the fact that a large proportion of firms did not pay dividend either consistently or for some of the years. For instance, it is found that 30% of the firms (i.e., 57 firms) did not pay a dividend during the study period and 37% of the firms (i.e., 71 firms) paid a dividend for some years but did not pay a dividend for some other years. This is further discussed in section 6.5.2. The third quartile, Q3, (i.e., 75^{th} percentile) of the dividend payout ratio is 77.6 meaning that there are 25% firms who paid dividend above 77.6%. It is noticeable that the Q2 of the dividend payout ratio paid by the firms where the government owned a proportion of the shares is relatively high (i.e., 45%) compared to that of all firms (7%).

Table 6.4 also indicates that the government owned, on average, 10.1% of the equity of the firms. However, this is also varies greatly. The second quartile, Q2, of government ownership is only 1 indicating that there are 50% firms in which the proportion of the shares owned the government is below 1%. The corresponding values third quartile, Q3, is 10, suggesting that in 25% of the firms the government owns more than 10% of the equity.

As discussed in Chapter 5 (section 5.2.2), the free cash flow (FCF) represents how much cash is left after all expenditure has been paid. This is required to maintain or expand the firms' business. The mean FCF for all 191 non-financial firms is found to be only 0.003 of total assets showing that a large number of non-financial firms listed on the stock exchanges of GCC states had little spare cash after investment. The mean FCF for those firms where the government owned a proportion of the shares is about 0.02 of total assets, which is relatively high. This might be because firms where the government owned a proportion of their shares have greater opportunity to raise external capital, and hence there is less pressure on internally generated funds for investment.

The mean value of a firm's market capitalisation (MC) is US$629 million for the whole sample. However, the third quartile, Q3, of MC is only $211 million. This is due to the fact that there are a few very large firms in which MC values are very high, which causes a large mean for the sample. This is also true for the firms in which the government owned a proportion of the shares. The mean value of market capitalisation (MC) of firms in which the government owned a proportion of the shares is US$981 million, indicating that firms with government involvement tend to be among the largest in the whole sample.

According to Table 6.4, the mean growth rate for all firms is about 43%. The 50th percentile (i.e., the second quartile, Q2) of this variable is 5% suggesting that the half of the firms have a relatively slow growth rate. The 75th percentile of growth rate is around 20% meaning that there are 75% firms that have a growth rate of less than 20%. Firms where the government owned a proportion of the shares had a relatively higher mean growth rate (52%) than that of the combined sample. However, the 50th and 75th percentiles of firm where the governments owned a proportion of their shares are quite similar to the whole sample, suggesting that the mean is distorted by a few firms with very high growth rates.

Table 6.4
Descriptive statistics of the variables used in the study for non-financial firms listed on GCC states' stock exchanges for the period 1999-2003

Variables	Mean		Std. Dev.		Quartiles					
					Q1		Q2		Q3	
	ALL	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS
Dividend ratio (DIV)	**42.858**	48.526	**59.811**	59.019	**0.00**	0.00	**7.00**	45.00	**77.60**	79.20
Government ownership (GOV)	**10.098**	18.358	**17.512**	20.152	**0.00**	3.00	**1.00**	8.00	**10.22**	30.00
Free cash flow (FCF)	**0.003**	0.019	**0.261**	0.247	**-0.10**	-0.09	**0.02**	0.03	**0.12**	0.14
Market Capitalisation (MC) $000	**629179**	981619	**3810788**	5102016	**9984**	6669	**53269**	26975	**210600**	210956
Growth rate (GROW)	**0.428**	0.515	**2.722**	3.027	**-0.02**	-0.01	**0.05**	0.05	**0.20**	0.19
Firm leverage (LEV)	**204.875**	108.420	**2714.892**	171.528	**17.30**	15.10	**49.90**	45.20	**129.00**	133.00
Business risk (BETA)	**0.394**	0.333	**0.474**	0.475	**0.01**	0.01	**0.28**	17.00	**0.72**	0.57
Firm profitability (PROF)	**8.649**	9.744	**12.558**	11.068	**0.00**	0.00	**5.50**	7.30	**13.80**	15.00

key:
ALL= Data for all firms
GS =Data from the firms where the government owned a proportion of shares

The leverage ratio data indicate that 205% (on average) of firms' funds came from external lending. The 50th percentile of this variable is around 50% suggesting that there are 50% firms which finance less than 50% of their projects from external recourses. However, compared with the whole sample, the mean leverage ratio for those firms where the government owned a proportion of the shares was lower (only 108 %).

The mean value of systemic risk (known as beta) of the firms is found to be 0.39 (see Table 6.4) meaning that non-financial firms listed on the stock exchanges of GCC states were 61% (on average) less risky than those of the markets as a whole (General index, a-value is 1). In other words, non-financial firms listed on the stock exchanges of GCC states, on average, had a lower beta than the markets. This means that if the market return increases, then the return for the sample stock also increases, but less than the market overall. If the market return fell, sample stocks also fell, but less than the overall market. However, stock with beta less than 1 were either more stable than average, had a low correlation with the market or both (defensive securities). Those firms where a proportion of the shares were government owned had a smaller beta compared with the whole sample (a mean of 33% compared to 39% for the whole sample). The 75th percentile of beta for those firms where the governments owned a proportion of their shares is less than that of the whole sample.

The firm profitability ratio (PROF) which denotes the amount of profit that a firm generates with the money shareholders have invested in the firm. The percentage return on equities companies listed on the stock exchanges of GCC countries was found to be 8.65% for the whole sample and 9.7% for the firms where the government owned a proportion of their shares. The quartiles (Q1, Q2, and Q3) are 0%, 5.5%, and 13.8% respectively for the whole sample and 0%, 7.3%, and 15% respectively for the firms where the government owned a proportion of their shares.

6.4 Multicollinearity and Heteroscedasticity Tests

Multicollinearity between explanatory variables may result in the wrong signs or implausible magnitudes in the estimated model coefficients, and the bias of the standard errors of the coefficients. To avoid this problem the Variance Inflation Factor

(VIF) test as discussed in Chapter 5 was used. The result is presented in Table 6.5. As can be seen, the mean VIF is 1.06, which is very low compared with the threshold value (10). The VIF for individual variables is also very low. This indicates that the explanatory variables included in the model are not substantially correlated with each other.

Table 6.5
Variance Inflation Function (VIF) for the explanatory variables

Variables	VIF	Tolerance
Firm Size (MC)	1.09	0.9186
Government ownership (GOV)	1.09	0.9196
Firm profitability (PROF)	1.08	0.9271
Free cash flow (FCF)	1.08	0.9302
Business risk (BETA)	1.05	0.9519
Growth rate (GROW)	1.01	0.9949
Firm leverage (LEV)	1.00	0.9976
Mean VIF	1.06	

In order to test further whether the explanatory variables are correlated, a pair-wise correlation matrix among the explanatory variables was estimated. The results are shown in Table 6.6. It can be seen that the correlation coefficients are low (all < 0.300) suggesting that there is no problem of multicollinearity among these variables.

Table 6.6
Correlation coefficients among the explanatory variables

Variables	GOV	FCF	MC	GROW	LEV	BETA	PROF
Government ownership (GOV)	1						
Free cash flow (FCF)	0.1006	1					
Firm size (MC)	0.2516	0.0229	1				
Growth rate (GROW)	-0.0112	-0.0346	-0.0204	1			
Firm leverage (LEV)	-0.0308	-0.0355	-0.0071	0.0084	1		
Business risk (BETA)	0.0785	0.1135	0.1511	-0.0616	-0.0091	1	
Firm profitability (PROF)	0.1089	0.2367	0.0202	0.0046	-0.0297	0.1239	1

An important assumption of the classical linear regression model is that the disturbances (the residuals) u_{it} appearing in the regression function are homoscedastic (i.e. have the same variances), symbolically,

$$Var(u_{it}) = \sigma^2 \qquad (6.1)$$

The problem of heteroscedasticity (the absence of homoscedasticity) is likely to be more common in cross-sectional data than in time series data (Gujarati, 2003). Cross-sectional data usually involves observations from heterogeneous units, and therefore heteroscedasticity may be the rule rather than the exception. Heteroscedasticity would be expected if data from small, medium, and large firms were sampled together. In time series data, on the other hand, the variables tend to be of similar orders of magnitude because one generally collects the data for the same entity over a period of time. If there is no a priori information available about the nature of heteroscedasticity, one can plot the residual squared $Var(u_{it})$ from the linear regression model estimated by an Ordinary Least Squares (OLS) against the predicted dependent variable ($\hat{y}$) to see whether there is any systematic relationship between them (Gujarati, 2003). Figure 6.1 shows the relationship in the case of pooled OLS regression of the dependent variable on the independent variables. There appears to be a systematic pattern between the residuals and the estimated dependent variable suggesting that heteroscedasticity may be present in the sample data.

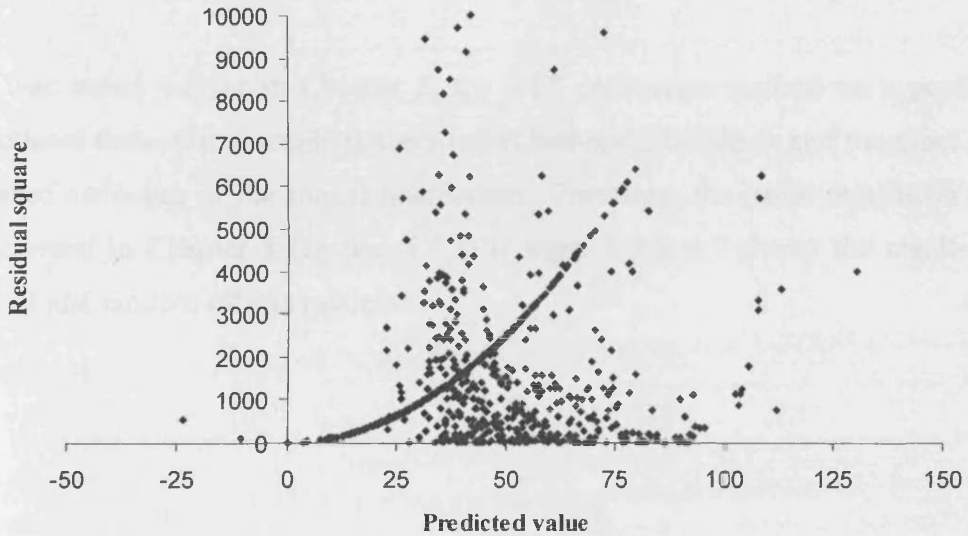

Figure 6.1: The pattern of estimated residual squared in the case of pooled OLS regression

A heteroscedasticity test proposed by Breusch-Pagan (Breusch and Pagan, 1979; see section 5.5.2.2) was also carried out, which has the null hypothesis of constant variance across observations. The test statistic is 8.22, which has a chi-square distribution with a degree of freedom equal to 1. This result rejects the null hypothesis at the 100% confidence level (that is, p-value=0.00) suggesting that heteroscedasticity is present in the sample data. The use of a log-transformation of the variables included in the model could reduce heteroscedasticity. Moreover, the application of panel data methodologies can take into account the effect of heteroscedasticity found in a sample dataset. Both of these techniques are investigated in this study.

6.5 Estimation Results

This section presents the results on the dividend policy of non-financial firms listed on the stock exchanges of GCC states using the two primary models that are able to take into account the individual-firm specific effects: (1) the fixed and random effects panel data regression models and (2) the random effects Tobit model.

6.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects Models (the General Model)

It was stated earlyer in Chapter 5, the OLS estimation method on a pooled cross-sectional time series sample ignores individual-specific effects and therefore results in biased estimates of the model coefficients. Therefore, the panel regression approach presented in Chapter 5 (section 5.5.3) is used. Table 6.7 shows the results for both fixed and random effects models.

Table 6.7
Panel data estimation results

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
Government ownership	0.43800	0.93	**0.5835**	**3.21**
Free cash flow (FCF)	-8.4801	-1.00	-2.5617	-0.35
Firm size (SIZE)	**3.3770**	**1.90**	**5.2991**	**4.69**
Growth rate (GROW)	0.1805	0.44	-0.2140	-0.47
Firm leverage (LEV)	0.0001	1.36	-0.0001	-0.97
Business risk (BETA)	-1.2278	-0.26	-3.1258	-0.74
Firm profitability (PROF)	-0.0303	-0.25	**0.1933**	**1.78**
Constant	2.5675	0.13	-20.5267	-1.99
Descriptive Statistics				
F test for Model Significant				
F-statistic (7, 731) for Fixed effects and Wald Statistic for randon effects	0.8300		111.1100	
p-value>F	0.5621		0.0000	
Obervations	929		929	
Groups	191		191	
Overvations per group				
Minimum	3		3	
Maximum	5		5	
Average	4.9		4.9	
Model goodness-of-fit				
R-squared				
Within	0.0056		0.0028	
Between	0.1508		0.1907	
Overall	0.0860		0.0960	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	3.0400		140.9000	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	13.5500			
p-value>Test statistic	0.0350			
Decision	**Fixed effects model**			

The F-statistic for the test of model significance suggests that the fixed effects model is not significant at all, meaning that it cannot be rejected that all model parameters are equal to zero. None of the variables (except the log of market capitalisation) is found to be statistically significant. On the other hand, the random effects model is significant. However, the Hausman test suggests that the data used in this study support the fixed effects model at the 95% confidence level. The above models are also re-estimated without taking the natural log of market capitalisation (MC) and the results remain the same. Both models were also estimated without outliers[3]. The results (i.e., F-statistic) also suggest that the fixed effects model is statistically insignificant and the Hausman test is inconclusive. Therefore, it is uncertain which model is more appropriate.

There are, however, two possibilities: (1) taking the random effects model as an appropriate model and interpreting the results or (2) transforming all the variables, re-estimating the models, and performing the Hausman test.

Since the Hausman test rejects the random effects model in the case for the data that includes the outliers and the Hausman test is inconclusive in the case for the data with outliers excluded, it is reasonable to take the second option; log transformation of the variables is a good choice and is frequently used in the literature. The log transformation reduces the variances among the variables (within and between) and minimises the heteroscedasticity among the variables (Gujarati, 2003). Another advantage of using the log transformation is the easy interpretation of a model coefficient, which is equal to a constant elasticity rather than a slope coefficient. The natural log transformation takes the following form:

$$\ln X = \ln(X) \tag{6.2}$$

where $\ln X$ is the new, transformed variable and X is the original variable, which has to be transformed.

[3] The outlier detection methodology described in Chapter 5 (section 5.5.2.3) suggests that there are a total of only 9 outliers out of 929 observations in this sample data.

As can be seen in Table 6.4, all variables except market capitalisation (MC) contain either zero (0) and/or negative values. Therefore, the natural log transformation of these variables produces a large number of missing values in the dataset. Subsequent estimation of dividend policy models using this dataset can result in incorrect values of the parameters due to sample selectivity bias (Hsiao, 2002). For example, in our case, taking the natural log transformation of the dividend payout ratio will exclude all the firms who do not pay dividend. Likewise, estimating the dividend policy models using the firms who only pay dividend would be incorrect. One way to overcome this problem is to use the zero skewness log transformation method (Stata Press., 2005). In this method, the transformed variable takes the following form:

$$\ln X = \ln(X - K) \qquad (6.3)$$

where $\ln X$ is the new transformed variable, X is the original variable that needs to be transformed, and K is a variable-specific zero skewness constant. The sign of X and the value of K are chosen in such a way that the skewness of the transformed variable ($\ln X$) becomes zero (0) meaning that the new variable, $\ln X$, has an approximately normal distribution. It is interesting to note that there is only a very small difference between the natural log transformation and the zero skewness log transformation for the case of positive values of a variable. Figure 6.2 shows the plot of one log variable against the other in the case for the variable, market capitalisation (MC). It can be seen that the correlation coefficient between them is very high (i.e., $R^2 = 0.99$) suggesting that there is no significant difference between these two transformed variables.

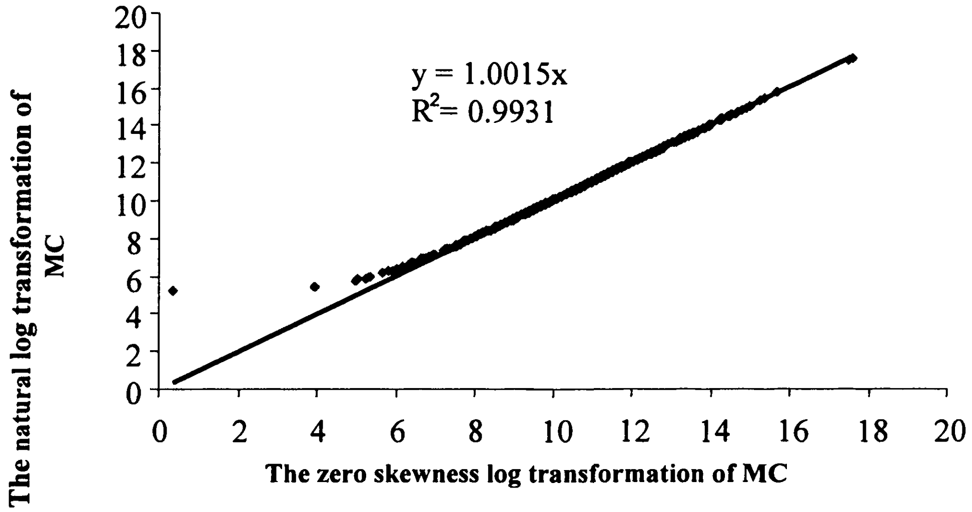

Figure 6.2: Log transformations of market capitalisation

Although both transformations provide identical results, the key advantage of the zero skewness log transformation is that it can transform a variable that contains zero and/or negative values. Therefore, all the variables are log transformed using the zero skewness transformation method for consistency. The values of K for the variables are shown in Table 6.8. These were calculated using the statistical package, STATA .

Table 6.8
Zero skewness log transformation of the variables

Variable	K	Expression	Skewness
Dividend Payout Ratio (DIV)	-0.001939	ln(DIV - Kdiv)	0
Government ownership (GOV)	-0.004577	ln(GOV - Kgov)	0
Free cash flow (FCF)	-10.867000	ln(- FCF - Kfcf)	0
Firm size (MC)	175.376700	ln(MC - Kmc)	0
Growth rate (GROW)	-2.713200	ln(GROW - Kgrow)	0
Firm leverage (LEV)	-4.242300	ln(LEV - Klev)	0
Business risk (BETA)	-3.888500	ln(BETA - Kbeta)	0
Firm profitability (PROF)	-172.610400	ln(prof - Kprof)	0

The estimated parameter of a log (natural) transformed variable ($\ln x$) represents the elasticity of the dependent variable (y) with respect to the variable (x), that is, for the case of the regression equation, $\ln y = \alpha + \beta \ln x + \varepsilon$, the parameter β is the elasticity:

$$\beta = \frac{dy}{dx}\frac{x}{y} \tag{6.4}$$

And the slope coefficient of the variable, x, is given by:

$$\frac{dy}{dx} = \beta\left(\frac{y}{x}\right) \tag{6.5}$$

A question now remains as to whether the elasticity and the slope coefficient of a zero skewness log transformed variable remain the same as equations (6.4) and (6.5) respectively. This is discussed below.

Assuming that y is a dependent variable that takes the form $\ln(y - K_{dep})$ at the zero skewness log transformation where K_{dep} is the zero skewness constant for the variable y, and x is an independent variable that takes the form $\ln(x - K_{ind})$ at the zero skewness log transformation where K_{ind} is the zero skewness constant for the variable x, the regression equation can then be shown as:

$$\ln(y - K_{dep}) = \alpha + \beta' \ln(x - K_{ind}) + \varepsilon \tag{6.6}$$

The slope coefficient of x can be derived from equation (6.6) as:

$$\frac{dy}{dx} = \frac{\beta'(y - K_{dep})}{x - K_{ind}} \tag{6.7}$$

The slope coefficient in (6.7) can be calculated at the means of y and x. Equation (6.7) can then be re-written as:

$$\frac{dy}{dx} = \frac{\beta'(\bar{y} - K_{dep})}{(\bar{x} - K_{ind})} \tag{6.8}$$

The elasticity of y with respect to x can be derived from equation (6.6) as:

$$\frac{dy}{dx}\frac{x}{y} = \frac{\beta'(y - K_{dep})}{(x - K_{ind})}\left(\frac{x}{y}\right) \tag{6.9}$$

The elasticity in (6.9) can be calculated at the means of y and x. Equation (6.9) can then be re-written as:

$$\frac{dy}{dx}\frac{x}{y} = \frac{\beta'(\bar{y} - K_{dep})}{(\bar{x} - K_{ind})}\left(\frac{\bar{x}}{\bar{y}}\right) \tag{6.10}$$

It is then obvious that the slope coefficient and the elasticity after zero skewness log transformation are different from those of natural log transformation. Therefore, equations (6.8) and (6.10) need to be used to calculate the slope coefficient and the elasticity of a variable in which the zero skewness log transformation is applied.

Table 6.9
Panel data estimation results with the zero skewness log transformation

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	**0.2546**	**2.15**	**0.2934**	**5.34**
ln (-Free cash flow - Kfcf)	-1.6884	-0.32	-5.3629	-0.96
ln(Firm size - Kmc)	**0.2966**	**2.01**	**0.5379**	**5.75**
ln(Growth rate - Kgrow)	-0.3173	-0.80	-0.4842	-1.06
ln(Firm leverage - Klev)	0.0341	0.36	-0.1470	-1.50
ln(Business risk - Kbeta)	1.9748	1.31	0.6731	0.50
ln(Firm profitability - KPprof)	**12.2106**	**3.57**	**16.0884**	**4.16**
Constant	-65.9137	-2.68	-77.0622	-2.73
Descriptive Statistics				
F test for Model Significant				
F-statistic (7, 731) for Fixed effects and Wald Statistic for randon effects	4.2900		148.8300	
p-value>F	0.0001		0.0000	
Obervations	929		929	
Groups	191		191	
Overvations per group				
Minimum	3		3	
Maximum	5		5	
Average	4.9		4.9	
Model goodness-of-fit				
R-squared	0.0678		0.0646	
Within	0.3626		0.3954	
Between	0.2656		0.2861	
Overall				
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	5.8800		374.6600	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	22.9300			
p-value>Test statistic	0.0017			
Decision	**Fixed effects model**			

Table 6.9 shows the results of the fixed effects and random effects models for the whole sample without removing the outliers when the zero skewness log transformation is used. The results remain the same in terms of the significance of variables and the values of the coefficients if the models are estimated without

outliers. These models have a larger number of degrees of freedom (df = 731) compared with the models for the data without outliers (df =722). Therefore, the remainder of this discussion will focus on the models presented in Table 6.9 for the whole sample without removing the outliers.

In both models, robust standard errors, which reduce the effect of the serial correlation in the data, are used to calculate the t-statistic. Both the fixed and random effects models are significant. The coefficients of the random effects model are generally higher than are those of the fixed effects models although the significant variables in the models are the same. Although the overall goodness-of-fit (R-squared) is better in the random effects model, the Hausman test rejects this model at the 95% confidence level meaning that the observed variables (X) and the unobserved heterogeneity (μ_i) are correlated. Therefore, the fixed effects model estimated using the within estimator technique is more appropriate for this sample data. The overall goodness-of-fit (R-squared) is 0.27. The correlation between the observed and unobserved variables is found to be 0.28. As discussed in Chapter 5 (section 5.5.3.2), the F statistic for testing the fixed effects against the pooled OLS is found to be 5.88 and the corresponding p-value is 0.00 suggesting that the null hypothesis of selecting the pooled OLS against the fixed effects model can be rejected at the 100% confidence level. The individual, firm-specific, unobserved effects are then estimated from the fixed effects model. This is shown in Figure 6.3.

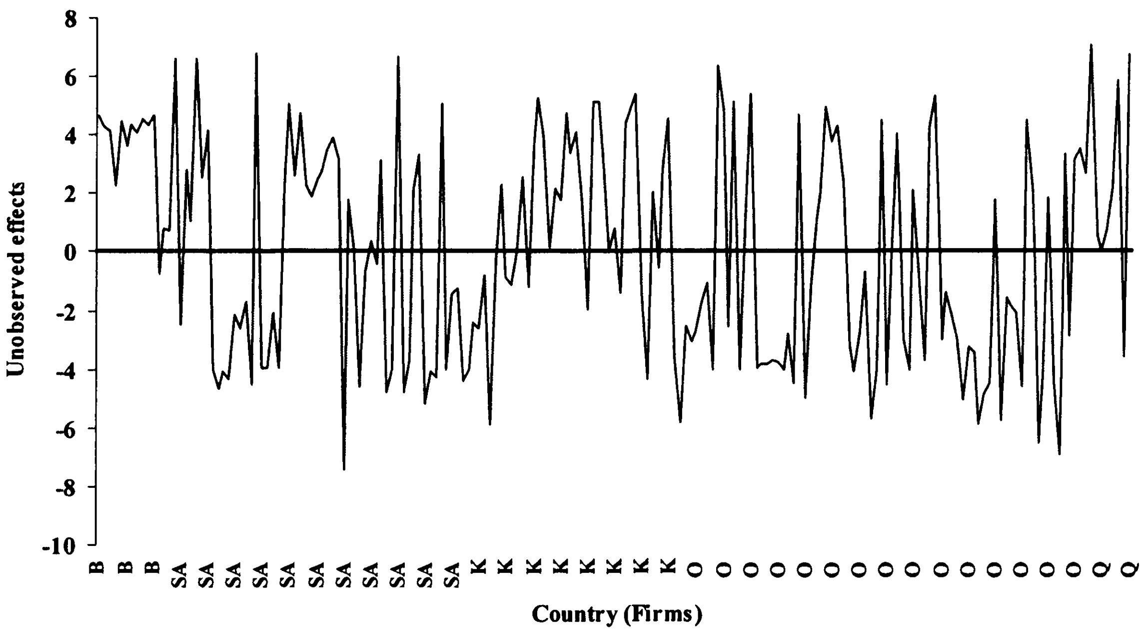

Figure 6.3: Estimated individual-firm specific effects from the fixed effects model

The unobserved, individual-firm, specific effects range from 7.1 to -7.4 units meaning that these effects are positive in some firms and are negative in other firms. It can be seen that most of the firms from Bahrain, Kuwait, and Qatar have positive unobserved effects and hence positively affect the dividend payout ratio. As discussed in Chapter 5, the country specific effects using dummies for each country cannot be estimated from the fixed effects model as this model is estimated using the within effects estimator. However, the country specific effects may be estimated from the individual firm-specific effects obtained from the fixed effects model using the following equation:

$$\mu^j = \frac{\sum_{i=1}^{N^j} \mu_i^j}{N^j} \qquad i = 1, 2, ...929 \text{ and } j = 1, 2, ..., 5 \qquad (6.11)$$

Where

μ^j is the country specific unobserved effects for county j

μ_i^j is the individual firm-specific unobserved effects belonging to country j

N^j is the number of observations in country j (for example, N^1=56, $N^2 = 280$ etc.)

Table 6.10 shows the country specific unobserved effects estimated using equation (6.11). It can be seen that the country specific effect varies from -1.321 units to 3.729 units suggesting that the country specific unobserved effects can affect the dividend ratio both positively and negatively.

Table 6.10
Specific unobserved effects of each states' listed firms

Stock Exchange	Specific Unobserved Effects
Kuwait Stock Exchange	1.327
Saudi Arabia Stock Exchange	-0.249
Muscat Stock Exchange	-1.321
Doha Stock Exchange	2.652
Bahrain Stock Exchange	3.729

Equations (6.8) and (6.10) are then used to estimate the slope coefficients and elasticities of the variables. These are shown in Table 6.11.

Table 6.11
Slope coefficients and elasticities

Explanatory Variables	Slop	Elasticity
Government ownership (GOV)	**1.0801**	**0.2545**
Free cash flow (FCF)	-6.6577	-0.0004
Firm size (MC) in 000US$	**2.02E-05**	**0.2967**
Growth rate (GROW)	-4.3294	-0.0432
Firm leverage (LEV)	0.0070	0.0334
Business risk (BETA)	19.7641	0.1817
Firm profitability (PROF)	**2.8873**	**0.5827**

The statistically significant variables at the 95% confidence level are government ownership, firm size, and firm profitability. The insignificant variables are free cash flow, growth rate, leverage ratio and business risk. Since the variables free cash flow, growth rate, leverage ratio and business risk are not significant, the hypotheses H4, H6, H7 and H8 as discussed in Chapter 5 could not be supported by the data from the

191 non-financial firms considered in this study. The significant variables are discussed in more detail below.

Government Ownership

Government ownership appears to be a statistically significant determinant of dividend policy in companies listed on the stock exchanges of GCC states. This result supports the hypothesis (H1), which suggests that government ownership and dividend ratio should have a positive relationship. The slope coefficient of this variable is 1.08 suggesting that 1 unit increases in government ownership would increase in 1.08 units in dividend ratio (ceteris paribus). Furthermore, the elasticity of the dividend payout ratio with respect to government ownership is found to be 0.25 suggesting that a 10% increase in government ownership would increase dividend ratio by 2.5%.

One explanation for the positive association between the dividend payout ratio and government ownership is that firms where the governments own a percentage of their shares, are able to pay higher dividends because government ownership itself can attract external funds more easily. Consequently they have, relatively speaking, less difficulty raising external funds to finance investments. On the other hand, firms with low or no government ownership are more likely to experience difficulty raising funds and are therefore likely to depend on retained earnings for investment purposes, thus reducing dividend payout (Gul, 1999a).

Another possible reason for this positive relationship is that in GCC states where the legal protection for outside shareholders is poor, investors need to be protected. Because the government, who may be seen as acting on behalf of minority shareholders, is a powerful investor, this may force the controlling shareholders to pay a high dividend in order to avoid exploiting minority shareholders and thereby reducing the agency conflict (Glen et al., 1995; Naser, 2004).

An alternative hypothesis suggests that the government involvement may increase the agency problem, and yet also promote a positive association between their ownership and dividend payout. In this case, agency problems may occur between citizens (who are not directly in control) and government representatives, since they might not act in the best interests of citizens, as well as between the state-owner and other managers, because managers often look to benefit themselves in the expense of outside shareholders. Therefore, governments may solve this problem by paying encouraging the company to pay high dividends, which would reduce free cash flow in the hands of managers and at the same time would be in line with the preference of outside shareholders (Gugler , 2003 and Al-Malkawi, 2005).

In addition, as mentioned in Chapter 3, the governments of GCC states are looking to diversify their economic resources because of ongoing deficits in state budgets and the negative impact on the economies of GCC states of fluctuations in the price of, or decreased demand for, crude oil. One way to diversify their economic resources and reduce the dependency on oil revenue and the government sector would be to develop and encourage investment in the private sector. Therefore, governments may force firms to pay high dividends so that these high dividends can be a useful means to enhance the reputation of the private sector by suggesting that the exploitation of minority shareholders is avoided. This good reputation may then attract small or minority shareholder to invest in such companies.

In summary, government ownership was found to have a significant effect in promoting dividend payouts. This might be related to several reasons: (i) government ownership itself attract external funds more easily, (ii) a government shareholder, in countries where the legal protection is weak, becomes a powerful investor able to force the firm to disgorge cash in order to avoid exploiting minority shareholders, (iii) to reduce the doubled agency conflict, and (iv) to attract investment in the private sector.

Firm Size

Firm size is also found to be a statistically significant determinant of dividend policy. This result supports the hypothesis (H4) that predicts that firm size and dividend ratio should have a positive association. The slope coefficient of this variable is 2.02E-05. It is noticeable that value of this coefficient is relatively low. This is because the units of firm size variable is large, being in US$(1000). Nevertheless, this result suggests that the dividend ratio increases as the firm size increases. In addition, the elasticity of the dividend payout ratio with respect to firm size is found to be approximately 0.3 suggesting that a 10% increase in firm size, if all else were equal, would lead to an increase of about 3% in the dividend ratio.

This result is in line with the finding of previous studies, namely, that larger firms are capable of paying larger dividends (for example, Eddy and Seifert, 1988; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000; Manos 2002; Mollah 2002; Travlos et al., 2002; Al-Malkawi 2005). Recalling Chapter 5 (section 5.2.3), larger firms pay a higher cash dividend for a number of reasons. First, large firms face high agency costs as a result of ownership dispersion, increased complexity and the inability of shareholders to closely monitor firm activity. Hence, such firms pay a larger dividend in order to reduce agency costs (Jensen and Meckling, 1976; Lloyd et al., 1985). Second, as a result of the weak control in monitoring management in large firms, a high dividend payout increases the need for external financing, which, in turn, leads to increase monitoring of large firms by creditors and this may be attractive to the shareholders (Sawicki, 2005).

Other explanation for this positive association might be related to large firms having easier access to capital markets than small firms, and finding it easier to raise funds with lower issuance costs for external financing. Consequently, large firms are better able to afford to distribute higher dividends to shareholders (Holder et al., 1998).

Firm Profitability

The firm profitability ratio appears to be a very strongly statistically significant determinant of the dividend payout ratio. This result supports the hypothesis H9, which predicts that firm profitability and dividend ratio should have a positive association. The slope coefficient of this variable is 2.89 suggesting that a 1 unit increase in firm profitability would increase 2.89 units in dividend payout ratio (ceteris paribus). In addition, the elasticity of the dividend payout ratio with respect to firm profitability is found to be 0.58 suggesting that, if all else were equal, a 10% increase in firm profitability would lead to an increase of about 5.8% in dividend payout ratio. This is also consistent with the observation that firms normally pay a higher dividend ratio when there is a rise in firm profitability.

The observed positive association between dividend payout and current firm profitability is in line with the results of Jensen et al. (1992), Han et al. (1999) and Fama and French (2000). The appearance of profitability as an important factor influencing dividend ratio is supported by Adaoğlu (2000), Pandy (2001), Wang et al. (2002), and Al-Malkawi (2005), who indicate that the dividend decision of firms listed on emerging stock exchanges is based heavily on their realised earnings for the same year, which might show that for these firms dividend smoothness/stability is less important. This finding might be related to the fact that in GCC states, as in other developing countries, there is inferior shareholder legal protection; consequently, shareholders will take whatever cash dividend they can get from firm profits (La Porta et al., 2000).

Statistically insignificant variables

The appearance of government ownership, firm size, and firm profitability as the significant explanatory variables support the idea that the main aim of non-financial firms listed on the GCC states is to reduce agency conflict and maintain firm reputation.

However, there are a number of variables that appeared to be statistically insignificant. These are: free cash flow, growth rate, leverage ratio, and business risk. What might be notable here is that free cash flow was the only agency theory explanatory variable that was found to have no influence on dividend policy and therefore, the hypothesis H4 of positive association between the amount of dividend payment and free cash flow cannot be supported. This might be due to the fact that the variable - government ownership actually forced firms with high free cash flow to pay dividend. La Porta et al (2000) support this view and propose the outcome model in which firms in countries with high legal protection pay higher dividends than firms in countries that have poor legal protection.

The common transaction cost variables such as growth rate, leverage ratio and business risk also appeared as insignificant variables. This perhaps suggests that transaction costs do not have a direct influence on the dividend payout policy. In other words, the firms listed on the GCC states stock exchanges take into account agency conflict and firm reputation more than transaction costs when they are making the decision to pay dividends. The variables such as growth opportunities, leverage ratio and business risk are found to be insignificant which also suggests that the dividend policy of the firms listed on the GCC states' stock exchanges is not affected by transaction cost. In other words, the non-financial firms listed on the GCC stock exchanges are primarily motivated to pay a dividend in order to reduce agency costs and to maintain firm reputation.

6.5.2 Estimation Results for Random Effects Tobit Model

An important point to be noted during the investigation of the dividend policy of firms listed in the GCC states' stock exchanges is that a large number of these firms (about 33%) chose not to pay a cash dividend in any year of the study period. Moreover, 37% of firms chose to distribute a dividend for only some years of the study period meaning that such firms do not pay a cash dividend consistently. Table 6.12 shows the details of the number of firms by countries and the amount of dividend paid by the firms.

Table 6.12
Listed non-financial firms and their dividend policies

Country	Total number of firms	Number of firms never paid dividend	Number of firms who did not pay dividend consistently	Number of firms always paid dividend
Bahrain	12	0	1	11
Saudi arabia	57	18	20	19
Kuwait	37	2	24	11
Muscat	75	36	24	15
Doha	10	1	2	7
Total	**191**	**57**	**71**	**63**
Percentage	**100%**	**30%**	**37%**	**33%**

It is apparent that about 67% of the firms either did not pay dividend, or paid dividend but not regularly. The distribution of dividend payout ratio of the firms is shown Figure 6.4. It is not surprising that the distribution is right- (or positively) skewed (mean and median are to the right of the mode). As can be seen, out of 929 observations in the data, 460 have a zero value for the dividend payout ratio. The zero values do not represent the true dividend payout ratio by the firms as the zero values are due to the non-observability of dividend payout ratio of the firms that decided not to pay a dividend. Therefore, the data are left censored at zero suggesting that the suitable model for the dividend policy in this case is the Tobit model as discussed in Chapter 5.

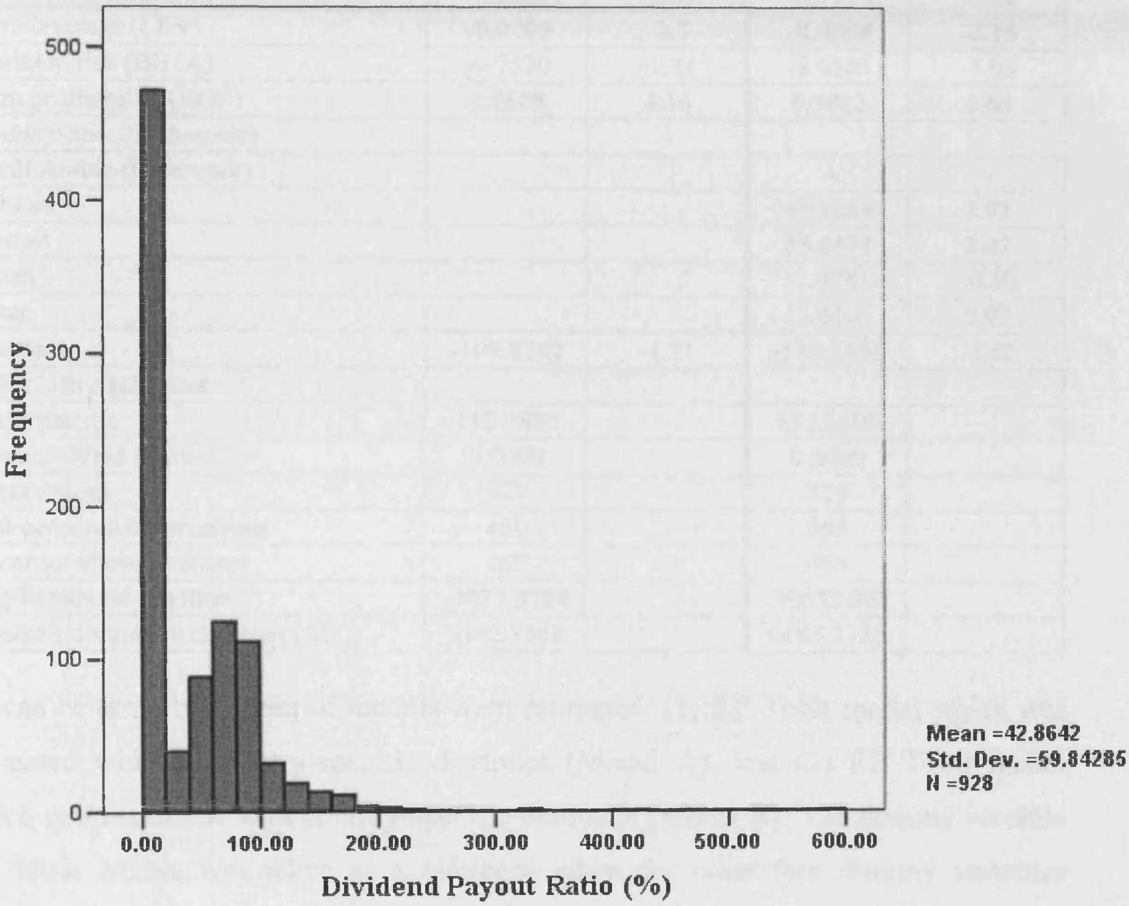

Figure 6.4: The frequency of dividend payout ratio

Since panel data is being used, the random effects (RE) Tobit model is used rather than the standard Tobit model. The fixed effects Tobit model could not be estimated due to the complexity associated with the estimation method and to the author's knowledge no statistical software has a routine to estimate the fixed effects Tobit model. The estimation results for the random effect Tobit model are shown in Table 6.13. The model parameters were estimated using the maximum likelihood estimation (MLE) method.

Table 6.13
Estimation results for random effects Tobit model

	Model A		Model B	
Explanatory Variables	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.9071**	**4.96**	**0.7853**	**4.00**
Free cash flow (FCF)	-1.1757	-0.09	1.3283	0.11
ln(Firm size (MC) in US$)	**10.5845**	**4.96**	**11.3535**	**3.79**
Growth rate (GROW)	-0.8066	-0.65	-0.7939	-0.62
Firm leverage (LEV)	**-0.0705**	**-2.7**	**-0.0568**	**-2.15**
Business risk (BETA)	-9.7570	-1.21	-8.6363	-1.03
Firm profitability (ROE)	**1.0668**	**4.16**	**0.9813**	**3.68**
Country-specific dummies				
Saudi Arabia (Reference)			-	-
Bahrain			**45.1264**	**2.92**
Kuwait			**28.6671**	**2.47**
Oman			-1.4781	-0.10
Qatar			15.6187	0.97
Constant	-109.8740	-4.71	-130.5485	-3.42
Descriptive statistics				
Wald statistic	110.7800		131.6200	
P-value>Wald statistic	0.0000		0.0000	
Observations	929		929	
Left-censored observations	460		460	
Uncensored observations	469		469	
Log-likelihood function	-3073.3784		-3063.6868	
Akaike Information criterion (AIC)	6162.7568		6143.3736	

As can be seen, two types of models were estimated: (1) RE Tobit model which was estimated without country-specific dummies (Model A), and (2) RE Tobit model which was estimated with country-specific dummies (Model B). The dummy variable for Saudi Arabia was taken as a reference when the other four dummy variables (Bahrain, Kuwait, Oman, and Qatar) were estimated.

Although both models provided similar results in terms of significant variables, the value of the log likelihood function was higher in Model B compared to Model A suggesting that Model B was superior to Model A. However, the number of parameters is different in these two models. Therefore, the AIC (Akaike Information Criterion) statistic is used to control for parameters while comparing the goodness-of-fits of these models. The smaller the value of AIC the better the result. AIC for model A is 6162.76 and for model B is 6143.37 meaning that model B is superior to model A. It was also noticed that the values of the coefficients in Model B were smaller than those of Model A for some variables. This is not surprising as the country specific dummies in Model B will tend to offset some of the effects of explanatory variables.

The RE Tobit model with country-specific dummies are also estimated after removing the outliers found in the sample data associated with the GCC stock exchanges. Although the sets of significant and insignificant variables of this model are the same as the model with the outliers included, the values of the parameters are different (see Table 6.14). Moreover, the log likelihood value of the RE Tobit model after removing the outliers is higher than that of the model before removing the outliers. However, the number of observations between these models is different. The BIC (Bayesian Information Criterion) statistic is used to control for the number of observations while comparing the goodness-of-fit between these models. The smaller the value of the BIC the better the goodness-of-fit. The BIC for RE Tobit after removing outliers is 6048 and for RE Tobit model before removing the outliers is 6202.56 suggesting that excluding the outliers offers an improvement. Therefore, the rest of the interpretation of the results will be based on the RE Tobit model with the outliers excluded.

Table 6.14
Estimation results for random effects Tobit model: the results before removing outliers and after removing outliers

	RE Tbit model (before removing outlieres)		**RE Tbit model (after removing outlieres)**	
Explanatory Variables	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.7853**	**4.00**	**0.7150**	**4.05**
Free cash flow (FCF)	1.3283	0.11	4.0360	0.36
ln(Firm size (MC) in US$)	**11.3535**	**3.79**	**9.0409**	**3.29**
Growth rate (GROW)	-0.7939	-0.62	-2.4158	-1.06
Firm leverage (LEV)	**-0.0568**	**-2.15**	**-0.0495**	**-2.09**
Business risk (BETA)	-8.6363	-1.03	-6.1822	-0.81
Firm profitability (ROE)	**0.9813**	**3.68**	**1.1923**	**4.17**
Constant	-130.5485	-3.42	-102.2439	-2.93
Descriptive statistics				
Wald statistic	131.6200		135.4500	
P-value>Wald statistic	0.0000		0.0000	
Observations	929		920	
Left-censored observations	460		455	
Uncensored observations	469		456	
Log-likelihood function	-3063.6868		-2986.5688	
Bayesian Information Criterion(BIC)	6202.5600		6048.0000	

In order to see the difference in results between the linear FE model with the zero-skewness-log transformation, the linear RE model with the zero-skewness log transformation, and the RE Tobit models, the results of these three models are presented in Table 6.15. The findings of this RE Tobit model with country-specific dummies after removing the outliers are consistent with the results of the fixed effects model presented in Table 6.9 except for one variable: leverage ratio. This variable is now statistically significant.

As discussed in Chapter 5, the coefficients of the RE Tobit model represent the underlying propensity to pay dividend, that is, the impact of a change in an explanatory variable on the unconditional expectation of the unobserved or latent variable, $y*$. Figure 6.5 shows the comparison between the model predicted dividend ratio value at the expected $E(y^* \mid x)$ as shown in equation (5.25) and the observed dividend ratio. As can be seen, there is a very good agreement between them suggesting that the model fits the data quite well.

Table 6.15
Estimation results for random effects Tobit model

Explanatory Variables	**Linear FE (without Log Skewness Transformation)**		**Linear RE (with Log Skewness Transformation)**		**RE Tobit**	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.25**	**2.15**	**0.29**	**5.34**	**0.71**	**4.05**
Free cash flow (FCF)	-1.69	-0.32	-5.36	-0.96	4.04	0.36
Firm size(Size)	**0.30**	**2.01**	**0.54**	**5.75**	**9.04**	**3.29**
Growth rate (GROW)	-0.32	-0.80	-0.48	-1.06	-2.42	-1.06
Firm leverage (LEV)	0.03	0.36	-0.15	-1.50	**-0.05**	**-2.09**
Business risk (BETA)	1.97	1.31	0.67	0.50	-6.18	-0.81
Firm profitability (PROF)	**12.21**	**3.57**	**16.09**	**4.16**	**1.19**	**4.17**
Constant	-65.91	-2.68	-77.06	-2.73	-102.24	-2.93
Descriptive statistics						
F statistic(FE) and Wald statistic	4.29		148.83		135.45	
P-value>Test Statistics	0.0001		0.0000		0.00	
Observations	929		929		920	
Left-censored observations					455	
Uncensored observations					456	
Log-likelihood function					-2986.57	

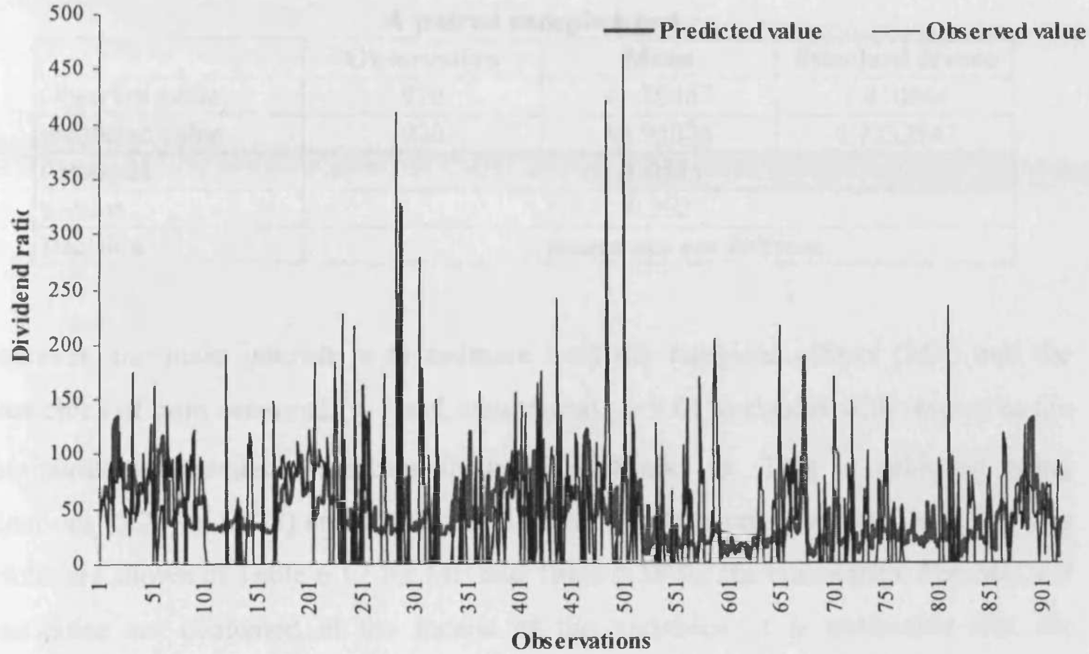

Figure 6.5: Observed and predicted values of dividend ratio

It can be seen from Figure 6.5 that the random effect Tobit model with country dummies marginally, on average, over-predicts the dividend ratio. One measure of accuracy is the model prediction error (MPE). This is given by:

$$MPE = \frac{\sum_{i=1}^{920}(y_i) - \sum_{i=1}^{920}(\hat{y}_i)}{\sum_{i=1}^{920}(y_i)} * 100 \qquad (6.12)$$

Where all symbols are as previously defined. The results suggest that the MPE is only -1.36%.

In addition to this, a paired sample t-test is conducted to see whether the means of the observed value and the model predicted value are the same. The results are presented in Table 6.16. It can be found that the p-value associated with the test is 0.29 meaning that the means are not significantly different.

Table 6.16
A paired sample t-test

	Observation	Mean	Standard errore
Observed value	920	41.89467	1.810964
predected value	920	43.95026	0.7232347
t-statestic	-1.0541		
p-value	0.292		
Decision	**means are not diffrent**		

However, the main interest is to estimate both the marginal effects (ME) and the elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in Model B. This is achieved using equations (5.26) to (5.28) and equations (5.30) to (5.37) as presented in Chapter 5. The results are shown in Table 6.17 for ME and Table 6.18 for the elasticities. The ME and elasticities are evaluated at the means of the variables. It is noticeable that the marginal effects of market capitalisation (MC) are relatively low. This is because the units of MC are in thousand US$ (i.e., 1000 US$).

Table 6.17
Marginal effects (ME) on both censored and uncensored variables (ME) with respect to the continuous explanatory variables

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	**0.3934**	**0.2801**
Free cash flow (FCF)	2.2206	1.5813
Firm size (MC) in 000 US$	**8E-06**	**5.6E-06**
Growth rate (GROW)	-1.3292	-0.9465
Firm leverage (LEV)	**-0.0272**	**-0.0194**
Business risk (BETA)	-3.4015	-2.4222
Firm profitability (PROF)	**0.6560**	**0.4671**

The sign of the marginal effect of a variable is the same as the sign of corresponding coefficient from the RE Tobit model (Table 6.15). As can be seen, the marginal effects of the independent variables on the censored (y) and uncensored ($y > 0$) variables are lower than the marginal effects of the variables on y^*. One explanation for this would be the relative expected values of latent, censored, and uncensored variables as shown in Chapter 5. These values are found to be $E(y^* \mid x) = 13.79$, $E(y \mid x) = 43.95$, and $E(y \mid y > 0, x) = 74.37$.

If one unit is being changed in an explanatory variable, then the amount of dividend ratio paid by the firms that always paid dividend (i.e., $y > 0$) would be less affected than the amount of dividend ratio by all firms included in the sample. This is also true for the case of elasticities shown in Table 6.18. For instance, if all else were equal, a 10% increase in government ownership would lead to an increase of 1% in the dividend payout ratio for all firms included in the sample and only 0.4% for the firms who always paid dividend.

Table 6.18
Elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous explanatory variables

Explanatory Variables	Elasticities	
	Censored variable	**Uncensored variable**
Government ownership (GOV)	**0.0937**	**0.0391**
Free cash flow (FCF)	0.0002	0.0001
Firm size (MC) in 000 US$	**0.1171**	**0.0488**
Growth rate (GROW)	-0.0094	-0.0039
Firm leverage (LEV)	**-0.0682**	**-0.0284**
Business risk (BETA)	-0.0313	-0.0130
Firm profitability (PROF)	**0.1314**	**0.0548**

Since the signs of the statistically significant variables such as government ownership, firm size, and firm profitability are the same in both the Tobit model and the fixed effects model, the interpretations of these variables are not repeated in this section. However, the interpretation of the new significant variable is given below.

Leverage Ratio

The leverage ratio is found to be strongly statistically significant and negatively associated with the dividend payout ratio. This means that if the leverage ratio of a firm increases, the dividend payout ratio paid by the firm decreases. This is consistent with the hypothesis H6 presented in Chapter 5. The marginal effects of this variable on y and $y > 0$ are found to be -0.03 and -0.02 respectively suggesting that a unit increase in the leverage ratio would lead to a decrease in 0.03 units in the dividend payout ratio for all firms and 0.02 units for the firms who always paid dividend if all other factors remain constant. The corresponding elasticities of the dividend payout ratio with respect to the leverage ratio are -0.07 and -0.03 respectively meaning that a 10% increase in the leverage ratio would lead to a decrease of about 0.7% in the dividend payout ratio for all firms and 0.3% for the firms who always pay dividend if all other factors were to remain the same.

The reason for this negative association is that highly levered firms carry a large burden of transaction costs from external financing. In this case, firms need to maintain their internal source of funds to meet duties instead of distributing the available cash to shareholders as dividend (e.g. Crutchley Hansen 1989; Mollah, 2001; Faccio et al., 2001; Aivazian et al., 2004; Naser et al., 2004; and Al-Malkawi, 2005 etc). Furthermore, Jensen et al. (1992) and Agrawal and Jayaraman (1994) indicate that because levered firms have more commitment to creditors, the discretionary funds available to managers will be reduced, which means agency costs will also be reduced. They conclude that debt can be a substitution for dividend.

Similar to the fixed effects model presented in the previous section, a number of variable such as free cash flow, growth rate and business risk was found to be statistically insignificant in the RE Tobit model. It is important to note that the results for the different specifications of the models support each other. In terms of testing the underlying hypothesis about the effect of different variables in the models, the specification is not important as far as all the variables except leverage ratio are concerned. The same set of independent variables (such as government ownership, firm size, and firm profitability) is found to be statistically significant across all model specifications. Equally, the same set of explanatory variables (such as free cash flow, growth rate and business risk) is also found to be statistically insignificant across all models tested in this study. This is a robust result that does not appear to be sensitive to the endogeneity of the regressors (FE same as RE) or to the non-payment of dividends (linear vs Tobit). However, one ambiguous result is for leverage ratio which is only found to the statistically significant in the random effects Tobit model which explicitly takes into account the firms who do not pay dividends.

6.6 Summary

The main purpose of this chapter was to determine the dividend policies of the non-financial firms listed on the GCC states stock exchanges (Kuwait, Saudi Arabia, Muscat, Doha, Bahrain, stock exchanges) for the period 1999-2003 and to explain their dividend payment behaviour. The chapter started with a presentation of the descriptive statistics of the sample, the results of multicollinearity and heteroscedasticity tests. Following that, dividend policies were tested by using the two primary models: (i) fixed effects and random effects linear model with zero skewness log transformation and (ii) random effects Tobit model.

The Hausman test suggested that the fixed effects model was more appropriate than the random effects model in the case for the linear panel data regression model. The statistically significant variables were government ownership, firm size, and firm profitability. The results indicated that the firms where the government owned a proportion of the shares paid higher dividends compared to the firms owned completely by the private sector. Furthermore, the results showed that the firms chose to pay more dividends when firm size and profitability were high.

Since a significant number of listed firms chose not to distribute cash dividends in some or all of the years within the study period, the random effects Tobit model was an appropriate model for testing dividend policy. This model showed that the leverage ratio was an additional variable that affected the dividend payout ratio of a firm.

The following few chapters will investigate the dividend policy models of individual stock exchanges. This is deemed necessary because the characteristics of the firms among the GCC countries are different and it will be interesting to see how their dividend payment behaviours differ from each other and also from the whole GCC states stock exchanges.

CHAPTER SEVEN

Dividend Payout Ratio of Companies Listed on the Kuwait Stock Exchange (KSE): Estimation Results

7.1 Introduction

The previous chapter presented the dividend policy models of non-financial firms listed in the stock exchanges of GCC states for the period 1999 to 2003. This chapter will describe such models in the case for the firms listed in the Kuwait Stock Exchange (KSE) to see whether the factors affecting the dividend payout policy of the firms listed in the stock exchanges of GCC states are the same as those of the firms listed in the KSE. Two primary models are: (1) fixed and random effects panel data regression models discussed in Chapter 5 (section 5.5.3.1 and 5.5.3.2), and (2) random effects Tobit model discussed in Chapter 5 (section 5.5.4). However, one additional variable is available for the KSE compared to the variables used in Chapter 6. This is institutional ownership defining the percentage of a firm owned by different institutions. Therefore, one additional model for each of the above models is also estimated in this chapter by including this extra independent variable.

This chapter is structured as follows. First, a discussion of the descriptive statistics of the variables included in the models is presented. This is followed by a description of multicollinearity and heteroscedasticity among the variables. The next section describes the presentation of results obtained from the fixed effects and random effects regression models. The results of the Hausman test are then discussed demonstrating the choice of the appropriate model (fixed vs. random). This is followed by a presentation of the results obtained from the random effects Tobit model.

7.2 Preliminary Description of Firms

Although there were 59 non-financial firms listed on the Kuwait Stock Exchange (KSE) at the end of 2003 (Gulf Investment Guide, 2004), the data on the dividend payout ratio and the characteristics of firms were available for only 37 firms.

Based on the 37 non-financial firms for which the data were available, it can be seen that the average cash dividend ratio paid by the firms for the period 1999-2003 was 55%. However, it is important to note here that the firms where the government owned a percentage of the shares paid almost 90% of their net profit, on average, while the firms that were owned completely by the private sector paid around 43%. It is also found that most of the firms where the government owned a proportion of the shares normally paid a dividend. This is because 16% of the observations from the firms partly owned by the government had zero dividend, relative to 44% of the observations from the firms completely owned by the private sector having zero dividend.

However, the mean of government ownership for all firms was 8%. There was a large difference in the values of market capitalisation (MC) and net profit between the firms where the government had a proportion of shares and the firms owned completely by the private sector. The average of market capitalisation of the partly government owned firms was $552 million during the study period 1999 to 2003. This is almost three times higher than that of the firms owned completely by the private sector ($178 million). Similarly, the average net profit of the firms where the government owned a proportion of their equity was $46 million which is about four times higher than that of the private-sector-owned firms ($11 million).

7.3 Descriptive Statistics

Table 7.1 shows the descriptive statistics for the variables used in the study to examine the dividend policy of non-financial firms listed on the KSE for the period 1999 to 2003.

Table 7.1
Descriptive statistics of the variables used in the study for non-financial firms listed on the Kuwait Stock Exchange for the period 1999-2003

Variables	Mean		Std. Dev.		Quartiles					
					Q1		Q2		Q3	
	ALL	GS	ALL	GS	ALL	GS	ALL	GS	ALL	GS
Dividend ratio (DIV)	**55.594**	89.200	**74.469**	109.892	**0.000**	47.700	**48.300**	70.900	**80.600**	92.200
Government ownership (GOV)	**7.808**	28.323	**16.028**	18.780	**0.000**	12.900	**0.000**	20.220	**9.700**	44.000
institutional ownership (INST)	**29.082**	20.858	**21.025**	19.285	9.460	0.000	26.000	19.490	47.330	34.130
Free cash flow (FCF)	**-0.002**	-0.014	**0.297**	0.216	**-0.120**	-0.090	**0.020**	0.020	**0.120**	0.110
Market Capitalisation (MC)000 US $	**281243.5**	551967	**705311**	1109486	**44354**	82466	**102231**	200323	**229020**	469080
Growth rate (GROW)	**0.489**	1.352	**3.753**	7.086	**0.0000**	-0.040	**0.070**	0.040	**0.260**	0.250
Firm leverage (LEV)	**67.382**	42.057	**77.489**	42.534	**13.200**	11.300	**45.800**	22.200	**89.600**	66.200
Business risk (BETA)	**0.661**	0.743	**0.469**	0.402	**0.280**	0.440	**0.690**	0.840	**1.000**	1.010
Firm profitability (PROF)	**12.095**	12.186	**19.061**	8.459	**4.000**	6.500	**10.500**	10.800	**18.000**	14.600

Key:
ALL = Data for all firms
GS = Data from the firms where the government owned a proportion of the shares

The mean of the dividend payout ratio of the 37 non-financial firms indicates that the firms paid out almost 56% of their profit in cash. The standard deviation of the dividend payout ratio is 74.47%, which is high. This suggests that the data are widely dispersed. The second quartile, Q2 (50^{th} percentile), of this variable is 48% which is slightly less than the mean. This is due to the fact that some firms paid dividend inconsistently or did not pay dividend at all. This issue is further discussed in section 7.5.2. The 75^{th} percentile (Q3) of dividend payout ratio is around 81% meaning that 75% of firms paid dividend below 81%. It is useful to mention here that the dividend payout ratio should ideally be between 0% (where a firm does not pay any dividend) and 100% (where a firm pays all net profit). However, this was not the case for the KSE. It was found - from the data- that 46% of the firms paid a dividend above 100% of the realised net profit in some years.

The descriptive statistics also indicate that those firms where the government owned a proportion of the shares paid a very high dividend ratio where the average payout ratio was 89%. It is noteworthy to state here that the 25^{th} percentile (i.e., the first quartile, Q1) of dividend payout ratio for those firms is 48%, which is much higher than the 25^{th} percentile of the whole sample (0%). The second percentile (Q2) shows that 50% of firms where the government owned a proportion of their shares paid 71% as cash dividend, which is higher than the 50^{th} percentile of the whole sample (48%). This indicates that firms where the government owned a proportion of their shares chose to pay higher dividends compared with other firms.

The average government ownership (GOV) for all firms is 8%. The second quartile (Q2) of this variable is 0% indicating that government ownership in 50% of the observations had zero (0) value. The third quartile (Q3) is 9.7% indicating that 75% of the observations had the value of government ownership 9.7% or less.

The average institutional ownership (INST) - the additional ownership information related firms listed on the KSE - was higher than the average of government ownership. The average of institutional ownership is 29%. The 50^{th} percentile of this variable is 26% suggesting that 50% of the observations have the value of institutional ownership 26% or less.

The mean free cash flow (FCF) for all non-financial firms belonging to the KSE is -0.002 of total assets. The negative sign indicates that most of the firms were growing by putting their cash into investment projects, thus making their free cash flow negative. The descriptive statistics also show that the firms where the government owned a proportion of the shares have a negative free cash flow (-0.014). The 50th percentile of this variable is 0.02 both for all firms and for the firms where the government owned part of their shares, indicating that at least 50% of the observations have a free cash flow above 0.02.

The mean market capitalisation (MC) is \$281 million. The market capitalisation for those firms where the government owned a proportion of the shares is \$552 million. However, the first, second and third quartile (Q1, Q2, Q3) of MC of the firms where the government owned a percentage of their shares is 2 times higher than those of the whole sample.

The mean sales growth rate (GROW) for all firms is about 49%. The firms where the government owned a proportion of the shares have a higher growth rate (135%). The 50th percentile (Q2) of this variable is 0.07 meaning that 50% of the observations have a growth rate less than 7%. However, 50th and 75th percentiles of the observations from the firms where the government owned a proportion of their shares are close to those for the observations from the whole sample.

The mean leverage ratio (LEV) for the whole sample is 67% implying that two-thirds of the funds to run the firms came from the external sources. The second quartile of this variable (Q2) is around 46% suggesting that 50% of the firms fund less than 46% of their projects by using outside resources. However, compared with the whole sample, the average leverage ratio for those firms where the government owned a proportion of the shares is low (only 42%). The second quartile is 22%. This finding indicates that around 50% of the firms where the government owned a proportion of their shares is generally less dependent on external resources to finance their projects.

The mean systemic risk (BETA) is 0.66 meaning that the non-financial firms listed on the KSE were 33% (on average) less risky than those of the market as a whole (General index, the value is 1). In other words, the non-financial firms listed on the KSE, on average, have a lower BETA than the markets. If the market went up, BETA stocks went up, but less than the market overall. If the market fell, BETA stocks fell less than the overall market.

However, a stock with a beta less than 1 being more stable than the average, had a low correlation with the market, or both (defensive securities). The 50th percentile (Q2) is close to the mean (0.69). Those firms where the government owned a proportion of the shares had a higher BETA compared with the whole sample (0.74).

Finally, the descriptive statistics for the profitability ratio (PROF) indicate that the firms listed on the KSE earned 12.1% more than the money that shareholders might have invested in them. Firms where the government owned a proportion of the shares obtained a similar profitability ratio (12.2%). The second quartile (i.e. 50th percentile) for both the whole sample and the firms where the government owned a proportion of their shares are about 11% indicating that more than 50% of companies earned above 11% in comparison to the whole amount of shareholder equity.

Table 7.2
Two samples t-test to test the differences in means

Groups	Observations	Mean	Standard errors
Firms owned completely by the private sector	134	42.8	4.3489
Firms where government owns a proportion of their shares	51	89.2	15.388
t-statistic	-3.7586		
p-value	0.0052		
Decision	Means are different		

In order to see whether the means of dividend ratios paid by the firms where the government owned a proportion of the shares ($\mu_{gov} = 89\%$) and the firms completely owned by the private sector ($\mu_{private} = 43\%$) are statistically different, a t-test was carried out. The null hypotheses associated with the test are presented in Chapter 6 (section. 6.3). The results are shown in Table 7.2. It can be seen that the means are statically different at the 99.5% confidence level.

7.4 Multicollinearity and Heteroscedasticity Test

As discussed in Chapters 5 and 6, multicollinearity between explanatory variables may result in incorrect signs or implausible magnitudes being estimated for the model coefficients and bias in the standard errors of the coefficients. To avoid this problem, the

VIF test was employed to detect the correlated variables. The results are presented in Table 7.3. As can be seen, the mean VIF is 1.09 which is very low compared to the threshold value (10). The VIF for individual variables is also very low indicating that the explanatory variables included in the model are not substantially correlated with each other.

Table 7.3
Variance Inflation Function (VIF) for the explanatory variables

Variable	VIF	1/VIF
Firm leverage (LEV)	1.18	0.84745
Business risk (BETA)	1.12	0.89288
Government ownership (GOV)	1.11	0.89907
Market Capitalisation (MC) $000	1.09	0.9182
Firm profitability (PROF)	1.08	0.92419
Free cash flow (FCF)	1.04	0.96257
Growth rate (GROW)	1.01	0.99162
Mean VIF	1.09	

To test further whether the explanatory variables are correlated, a pair-wise correlation matrix among the explanatory variables was also estimated. The results are shown in Table 7.4. It can be seen that the correlation coefficients are very low suggesting that there is no problem of multicollinearity among these variables.

Table 7.4
Correlation coefficients among the explanatory variables

	GOV	FCF	MC	GROW	LEV	BETA	PROF
Government ownership (GOV)	1.0000						
Free cash flow (FCF)	0.0879	1.0000					
Firm size (MC)	0.4320	-0.0024	1.0000				
Growth rate (GROW)	-0.0581	0.0472	-0.0340	1.0000			
Firm leverage (LEV)	0.0450	-0.1429	0.2100	0.0321	1.0000		
Business risk (BETA)	0.1764	0.0842	0.1623	-0.0389	0.0552	1.0000	
Firm profitability (PROF)	0.1856	0.2349	0.0499	0.0540	-0.0309	0.0983	1.0000

In order to see whether there is any problem of heteroscedasticity, a graph of the residual squared against the predicted dependent variable ($\hat{y}$) was drawn. This graph as shown in Figure 7.1 suggests a systematic pattern between the two variables indicating that heteroscedasticity may be present in the sample data.

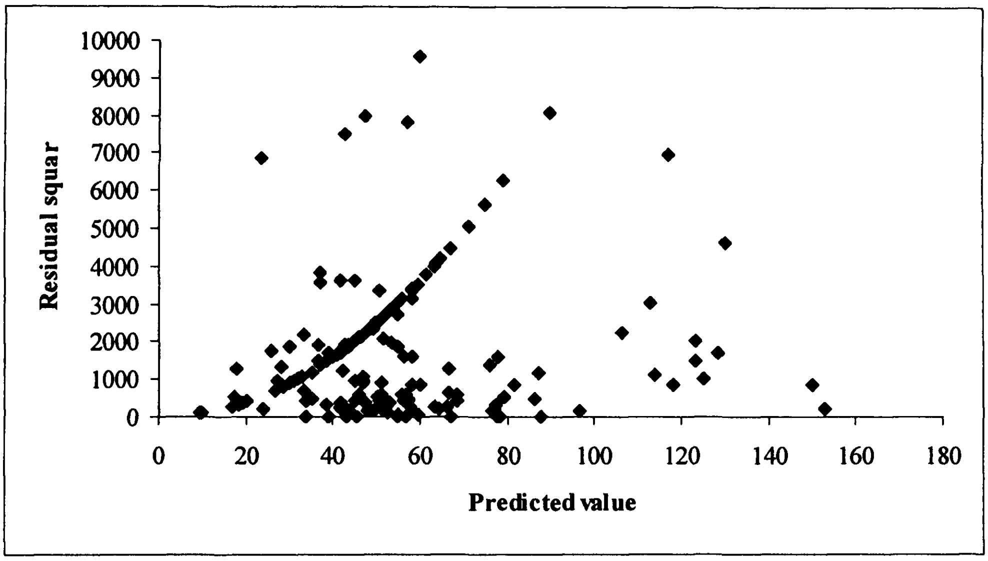

Figure 7.1: The pattern of estimated residual squared in the case of pooled OLS regression

The formal heteroscedasticity test as discussed in Chapter 5 was also carried out. The test statistic was found to be 94.27 with a p-value 0.000. This result rejects the null hypothesis at the 100% confidence level suggesting that heteroscedasticity is present in the sample data. The log transformation of the variables included in the model may decrease heteroscedasticity. In addition, the use of panel data models may also reduce the impact of heteroscedasticity.

7.5 Estimation Results

This section presents the results of an analysis of the dividend policy of non-financial firms listed in the KSE. The results are based on the use of two different model forms: the fixed and random effects regression models and random effects Tobit model.

7.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects models

Two types of models are estimated using linear panel data regression. The first model known as the general model in which the dependent variable and the explanatory variables are the same as the dividend policy models presented in Chapter 6 (see Table 6.9). The second model which is specific to Kuwait Stock Exchange is the model in which one additional variable (institutional ownership) is included as an explanatory variable.

7.5.1.1 The General Model (Model 1)

The results for the general model using fixed effects and random effects regressions after the zero-skewness log transformation of the variables without removing the outliers are presented in Table 7.5. Both models are also estimated after removing the outliers. It should be noted that there are a total of seven outliers in the sample data associated with the sample of firms listed on the KSE. The results in terms of significant and insignificant variables are the same as Table 7.5 and the values of the coefficients associated with the explanatory variables are also very close (i.e., the difference in results is less than 1%) to the values of the coefficients presented in Table 7.5. Therefore, the rest of the discussion is based on the results presented in Table 7.5.

Table 7.5
Panel data estimation results with the zero-skewness log transformation

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	0.2708	1.05	**0.3119**	**2.93**
ln (-Free cash flow - Kfcf)	**-18.8909**	**-1.67**	-14.4296	-1.45
ln(Firm size - Kmc)	-0.2149	-0.46	0.0948	0.29
ln(Growth rate - Kgrow)	-1.5435	-0.94	-0.6963	-0.49
ln(Firm leverage - Klev)	**1.5255**	**1.93**	-0.5082	-1.15
ln(Business risk - Kbeta)	**8.3387**	**2.12**	3.9955	1.1
ln(Firm profitability - Kroe)	**7.1458**	**2.39**	**10.4966**	**3.03**
Constant	-4.9891	-0.15	-23.3785	-0.73
Descriptive Statistics				
F test for Model Significant				
F-statistic (7, 141) for Fixed effects and Wald Statistic for randon effects	3.54		45.82	
p-value>F	0.0016		0.0000	
Obervations	185		185	
Groups	37		37	
Overvations per group				
Minimum	5		5	
Maximum	5		5	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.1289		0.0637	
Between	0.0144		0.3776	
Overall	0.0064		0.1921	
Fixed and Random effects vs OLS B				
and Pagan Lagrangian multiplier test for random effects	2.7000		9.4400	
p-value>F	0.0000		0.0021	
Hausman Test	Fixed vs Random effects			
Test statistic	11.81			
p-value>Test statistic	0.107			
Decision	**Random effects model**			

In both the fixed effects and random effects models, robust standard errors that reduce the effect of the serial correlation in the data are used to obtain t-statistics associated with the estimated parameters. The F-statistic for the fixed effects and the Wald statistic for the random effects models suggest that both models are significant at the 100% confidence level. The coefficients of the random effects model are generally higher than are those of the fixed effects model. The set of significant variables are different in these two models compared with the model for the stock exchanges of GCC states presented in Chapter 6. In the fixed effects model, the significant variables are free cash flow, firm leverage, business risk, and firm profitability. On the other hand, the significant variables in the random effects model are government ownership and firm profitability. The overall goodness-of-fit (R-squared) is much higher in the random effects model than in the fixed effects model. Both the F-test and the LM test suggest that the unobserved effects within the sample data are significant.

In order to see whether the unobserved effects are fixed (i.e., allowing correlation between the observed explanatory variables and the unobserved effects) or random (i.e., the assumption of no correlation between the observed and unobserved variables), the Hausman test was carried out. The test statistic associated with the test was found to be 11.81 with the p-value of 0.11 suggesting that the null hypothesis of random effects cannot be rejected at the 95% confidence level. It can be said that the random effects model is more appropriate than the fixed effects model in explaining the dividend policies of non-financial firms listed on the KSE. Therefore, the rest of the results are interpreted using the results from the random effects model.

The individual-firm-specific unobserved effects are estimated from the random effects model: the results are shown in Figure 7.2, indicating that such effects range from 1.97 to -3.3 units, meaning that these effects are higher in some firms and lower in other firms. As the unobserved effects are randomly distributed across firms, the sum of unobserved effects from all firms is zero.

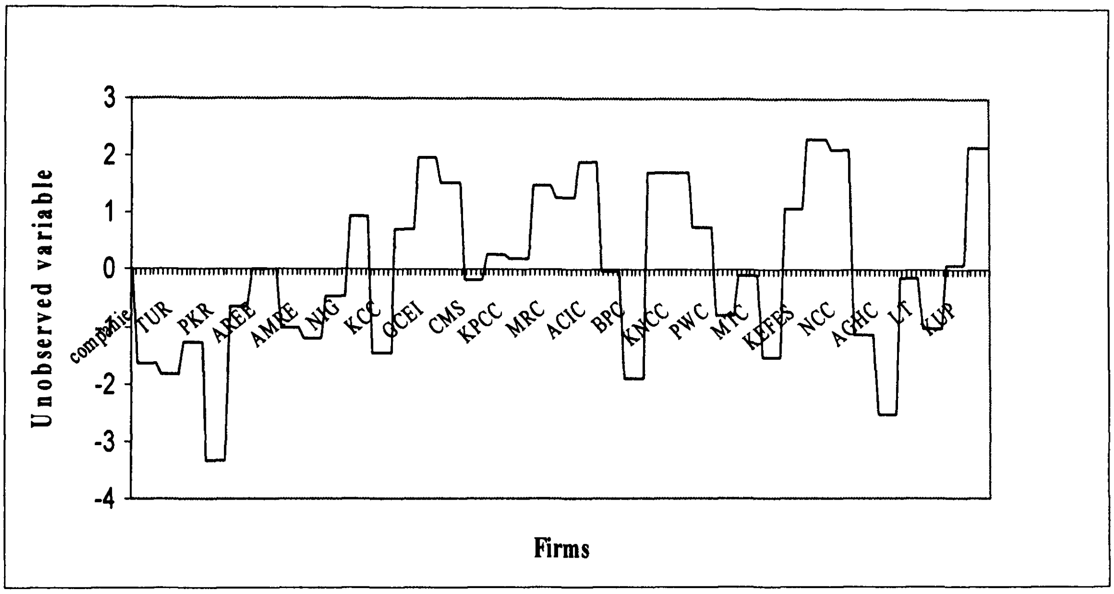

Figure 7.2: Estimated individual-firm-specific effects from the random effects model

The statistically significant variables of the random effects model at the 95% confidence level are government ownership and firm profitability and the insignificant variables are free cash flow, growth rate, leverage ratio and business risk. Since the variables free cash flow, market capitalisation, growth rate, leverage ratio and business risk are not significant, the hypotheses associated with these variables (that is, H4, H5, H6, H7, and H8, as discussed in Chapter 5) could not be supported by the data from the 37 non-financial firms listed on the KSE.

Due to the zero-skewness log transformation of the variables, the coefficients presented in Table 7.5 are neither slopes nor elasticities. Therefore, the slopes and elasticities associated with the explanatory variables are estimated using equations 6.8 and 6.10. The results are shown in Table 7.6. It is interesting to note that both the marginal effect and the elasticity of the dividend ratio with respect to government ownership are higher in the model associated with the firms listed on the KSE than those of the stock exchanges of GCC states. In other words, this finding suggests that a unit change in the government ownership influences the firms listed on the KSE to distribute more dividends to their shareholders compared to the whole sample firms listed on the stock exchanges of GCC states. Similarly, the slope and elasticity of the dividend ratio with respect to firm profitability are higher in the model associated with the KSE than those of the stock exchanges of GCC states. The interpretations of the significant variables are discussed below.

Table 7.6
Slope coefficients and elasticities

Explanatory Variables	Slope	Elasticity
Government ownership (GOV)	**2.2195**	**0.3117**
Free cash flow (FCF)	-73.8322	0.0021
ln(Firm size (MC) in 000US$	0.0000	0.0949
Growth rate (GROW)	-12.0909	-0.1063
Firm leverage (LEV)	-0.3945	-0.4781
Business risk (BETA)	48.8314	0.5801
Firm profitability (PROF)	**3.1594**	**0.6874**

Government Ownership

The aforementioned results indicate that government ownership is an influential factor to decide the amount of dividend to be paid by firms listed on the KSE. This finding is consistent with the hypothesis that dividend ratio increases as the proportion of shares owned by government increases (H1). The slope coefficient of this variable is 2.2 with a t-statistic of 2.93. The elasticity of the dividend payout ratio with respect to government ownership is 0.3 suggesting that, if all else were equal, a 10% increase in government ownership would lead to an increase of about 3% in the dividend ratio. This finding explains why firms normally pay a higher dividend ratio when the government owned a proportion of the shares compared to those firms owned totally by the private sector.

The positive association between these two variables might be related to the government motivating and developing the private sector in Kuwait. One way to motivate the private sector is to pay a dividend since there is no tax on dividends. Furthermore, in the KSE, as in other emerging stock exchanges, there is a high degree of information asymmetry: therefore, any increase in dividend is a signal to investors that firms forecast good future earnings. Moreover, listed firms in an emerging market are characterised by high growth coupled with a high degree of uncertainty surrounding cash flows. For these reasons, the government might force managers and controlling shareholders to distribute a cash dividend in order to build a firm's reputation and avoid the exploitation of the interests of minority shareholders, which, in turn, might motivate investment in the private sector (Glen et al., 1995; La Porta et al., 2000; Naser, 2004).

Another plausible explanation is that the government ownership may face a double agency problem. In this case there may be a clash of interest between citizens and the government representative while simultaneously appearing between the government ownership and other managers who may give their attention to their personal interest at the expense of shareholders interest. Therefore government ownership may employ a high dividend payout policy in order to reduce the available cash in the hand of managers and hence reduce the agency cost (Gugler, 2003 and Al-Malkawi, 2005).

A further explanation suggests that when government owns shares in a firm, then the firm will be more able to pay higher dividend ratio compared with firms owned completely by the private sector. This is because government ownership can catch the attention of external funds, consequently they have easier access to external finance . Therefore as the government ownership percentage increases in a firm, the firm would become more capable of paying a higher dividend (Gul, 1999a).

Firm Profitability

The other most statistically significant factor influencing dividend payout decisions is firm profitability. This factor is positively associated with the dividend payout ratio. This result supports hypothesis H9 that there is a positive association between them. The slope coefficient of this variable is 3.16 with a t-statistic of 3.03 suggesting that one unit increases in profitability would lead to an increase of 3.16 units in the amount of dividend payout ratio if all other factors are to remain constant. The elasticity of the dividend payout ratio with respect to firm profitability is found to be 0.69 suggesting that, if all else were equal, a 10% increase in firm profitability would lead to an increase of about 6.9% in the dividend ratio. This finding is also consistent with the fact that firms normally pay a higher dividend ratio when there is a rise in firm profitability.

This result is in line with those of Jensen et al. (1992), Han et al. (1999), Fama and French (2000), Adaoğlu (2000), and Wang et al. (2002), that firms distribute a high dividend as firm profitability increases. La Porta et al. (2000) explain that in developing countries, where shareholder legal protection is of inferior quality, shareholders will take whatever cash dividend they can get from firm profits regardless of dividend stability.

Statistically insignificant variables

The only significant variables of the preferred random effects model presented in Table 7.5 are only government ownership and firm profitability. This implies that the firms listed on the KSE pay dividend mainly to reduce agency problem and maintain firm reputation.

However, most of variables are found to be statistically insignificant in the random effects model. These are: free cash flow, firm size, growth rate, leverage ratio, and business risk. As in the combined sample for the case of the GCC states (see Chapter Six), free cash flow was the only agency theory factor that has no influence on dividend policy and hence, the hypothesis H4 of positive association between the dividend payment ratio and free cash flow cannot be supported.

Surprisingly, the size of the firm in the sample of KSE has no influence on its dividend payout ratio, despite being found to be significant in the combined sample of the GCC states. This might suggest that large firms pay a dividend when the government owns a proportion of there shares while large firms owned completely by the private sector do not give attention to the dividend payment.

Once again, the common transaction cost variables such as growth rate, leverage ratio and business risk are found to have an insignificant influence on dividend policy. This possibly shows that the KSE firms consider agency conflict and firm reputation over transaction costs when they are making the decision to pay dividends.

7.5.1.2 Model Specific to Kuwait (Model 2)

As discussed previously, the KSE discloses additional details about the ownership structure such as information on the institutional ownership. It was found that around 29% of shares of non-financial firms listed on the KSE are held by the institutions. As discussed in Chapter 4 and Chapter 5, several studies indicated that the fraction of ownership held by institutional investors is a significant factor influencing dividend policy. Shleifer and Vishny (1986), Jarrell and Poulsen (1987), Brickley, Lease, and Smith (1988), Graves and Waddock (1990) and Han et al. (1999) contended that institutional owners help resolve agency problems by monitoring management. They described institutional owners as professional decision-makers who know how to assess a firm's performance and to monitor its management. Consequently, the percentage of shares owned by institutional owners provides additional evidence about the dividend policy of companies listed on the KSE.

A new model is then estimated for the firms listed on the KSE by including one more variable (percentage of institutional ownership) into the general model presented in the previous section. The test for multicollinearity suggests that there is no problem of correlation among the explanatory variables after including this new variable. However, the test for heteroscedasticity again confirms that the firms are heterogeneous. The results of the fixed and random effects models are presented in Table 7.7 without removing the outliers. Both models are also estimated after removing the outliers. The results are similar to the results presented in Table 7.7.

Table 7.7
Panel data estimation results with the zero-skewness log transformation after the addition of institutional ownership

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	0.2714	1.06	**0.2961**	**2.73**
ln(Institutional ownership - Kinst)	0.5488	0.05	-3.7300	-0.57
ln (-Free cash flow - Kfcf)	**-18.9563**	**-1.67**	-14.2364	-1.43
ln(Firm size - Kmc)	-0.2182	-0.46	0.0893	0.27
ln(Growth rate - Kgrow)	-1.5456	-0.94	-0.7109	-0.5
ln(Firm leverage - Klev)	**1.5272**	**1.94**	-0.5268	-1.16
ln(Business risk - Kbeta)	**8.3078**	**2.06**	4.1630	1.14
ln(Firm profitability - Kroe)	**7.1453**	**2.38**	**10.2479**	**2.94**
Descriptive Statistics				
F test for Model Significant				
F-statistic (7, 141) for Fixed effects and Wald Statistic for randon effects	3.2700		44.4900	
p-value>F	0.0019		0.0000	
Obervations	185		185	
Groups	37		37	
Overvations per group				
Minimum	5		5	
Maximum	5		5	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.1289		0.0631	
Between	0.0156		0.3781	
Overall	0.0061		0.1943	
Fixed and Random effects vs OLS				
F-statistic (36, 140) for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	2.6500		8.9500	
p-value>F	0.0000		0.0028	
Hausman Test	Fixed vs Random effects			
Test statistic	11.82			
p-value>Test statistic	0.1593			
Decision	**Random effects model**			

Once again, both the fixed and random effects models are significant and the Hausman test supports the random effects model. However, the new variable, institutional ownership is not statistically significant in both models. Therefore, hypothesis H2 cannot be supported by the sample data used in this study. The inclusion of this variable does not significantly improve the goodness-of-fit of the model. Moreover, the set of significant and non-significant variables remains the same in both models and the magnitudes of the estimated parameters also remain almost the same.

7.5.2 Estimation Results for Random Effects Tobit Model:

Similar to the whole sample comprising data from all GCC countries, the majority of the firms listed on the KSE decided not to pay dividends for some years. It was found that about 55% of the observations on the dividend payout ratio have zero (0) values. As discussed in Chapter 6, the data are left censored at zero suggesting that the suitable model for the dividend policy in this case is the random effects Tobit model.

7.5.2.1 The General Model (Model 1)

Two general models using the random effects Tobit model are estimated: (1) Model A without removing the outliers and (2) Model B after removing the outliers. The estimation results are shown in Table 7.8. The model parameters were estimated using the maximum likelihood estimation (MLE) method. As can be seen, the results of Model A and Model B are the same in terms of sets of significant and insignificant variables. However, the values of the coefficients are different between these two models. The log likelihood function of Model B (-712. 33) is higher than that of Model A (-769.38). However, because the number of observations between these models is different, the best way to choose the appropriate model (A or B) is the use of the Bayesian Information Criterion (BIC) which can control for the number of observations while comparing the goodness-of-fits between these models. The BIC for RE Tobit after removing outliers is 1466 and for RE Tobit model before removing the outliers is 1580 meaning that the model after removing the outliers is better since the smaller the value of the BIC the better the goodness-of-fit. Therefore, the rest of the analysis of the results will be based on the RE Tobit model after removing the outliers.

Table 7.8
Estimation results for random effects Tobit model: the results before removing outliers and after removing outliers

Explanatory Variables	Model A: RE Tobit model before removing outliers		Model B: RE Tobit model after removing outliers	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**1.7965**	**3.73**	**1.2614**	**3.16**
Free cash flow (FCF)	-15.6931	-0.61	-0.8549	-0.04
Firm size(Size)	-6.4904	-1.00	-1.2120	-0.22
Growth rate (GROW)	-0.0327	-0.02	-1.9710	-0.14
Firm leverage (LEV)	**-0.3193**	**-2.47**	**-0.2759**	**-2.58**
Business risk (BETA)	23.9696	1.35	12.9276	0.90
Firm profitability (PROF)	**0.8236**	**1.85**	**0.6365**	**1.80**
Constant	84.6373	1.15	35.59677	0.57
Descriptive statistics				
Wald statistic	27.82		25.48	
P-value>Wald statistic	0.0002		0.0000	
Observations				
Left-censored observations	66		65	
Uncensored observations	119		113	
Log-likelihood function	-769.3782		-712.3386	
Bayesian Information Criteria(BIC)	1580.2106		1466.1314	

The statistically significant variables of Model B are government ownership, firm leverage, and firm profitability. Firm size, which was significant in the case for the firms of all GCC countries, becomes insignificant in the case for the firms listed on the KSE. For comparison purposes, the results of the normal random effects model without zero-skewness log transformation, random effects model with zero-skewness log-transformation and the random effects Tobit model after removing the outlier are presented in Table 7.9.

Table 7.9
Estimation results for random effects Tobit model

Explanatory Variables	**Linear FE (without Log Skewness Transformation)**		**Linear RE (with Log Skewness Transformation)**		**RE Tobit**	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**1.35**	**2.17**	**0.31**	**2.93**	**1.26**	**3.16**
Free cash flow (FCF)	-22.16	-1.22	-14.43	-1.45	-0.85	-0.04
Firm size(Size)	-6.70	-1.52	0.09	0.29	-1.21	-0.22
Growth rate (GROW)	-0.36	-0.68	-0.70	-0.49	-1.97	-0.14
Firm leverage (LEV)	**-0.11**	**-2.20**	-0.51	-1.15	**-0.28**	**-2.58**
Business risk (BETA)	12.51	1.22	4.00	1.10	12.93	0.90
Firm profitability (PROF)	0.16	1.01	**10.50**	**3.03**	**0.64**	**1.80**
Constant	120.33	2.42	-23.38	-0.73	35.60	0.57
Descriptive statistics						
F statistic (FE)and Wald statistic	145.11		45.82		25.48	
P-value>Test Statistics	0.0000		0.0000		0.0000	
Observations	185		185		178	
Left-censored observations					65	
Uncensored observations					113	
Log-likelihood function					-712.34	

The coefficients in the normal random effects model without zero-skewness log transformation represent marginal effects (slopes) of the variables. However, the coefficients in the normal random effects model with zero-skewness log transformation and the random effects Tobit model (after removing the outliers) do not represent either slopes or elasticities. Therefore, one should not compare the magnitudes of the estimated parameters across Table 7.9. However, a comparison can be made in terms of significant and insignificant variables. The only common significant variable across the three models is government ownership. The common insignificant variables are free cash flow, firm size, growth rate, and business risk. The variable, firm leverage, is significant in linear RE model without the zero-skewness log transformation and RE tobit models but is not significant in linear RE model with the zero-skewness log transformation. Firm profitability is significant in linear RE model with the zero-skewness log transformation and RE Tobit model but is not significant in linear RE model without the zero-skewness log transformation.

The findings of this random effects Tobit model (for the case of the KSE) are consistent with the results of the random effects model presented in Chapter 6 (for the case of the GCC countries).

As discussed in Chapter 5, the coefficients of RE Tobit model represent the underlying propensity to pay dividend, that is, the impact of a change in an explanatory variable on the unconditional expectation of the unobserved or latent variable y^*. Figure 7.3 shows the comparison between the model-predicted dividend ratio value at the expected $E(y \mid x)$ and the observed dividend ratio. As can be seen, there is very good agreement between them suggesting that the model fits the data quite well. It has been estimated that the random effects Tobit model marginally over-predicts the dividend ratio with a model prediction error of 2.4%, which is very good.

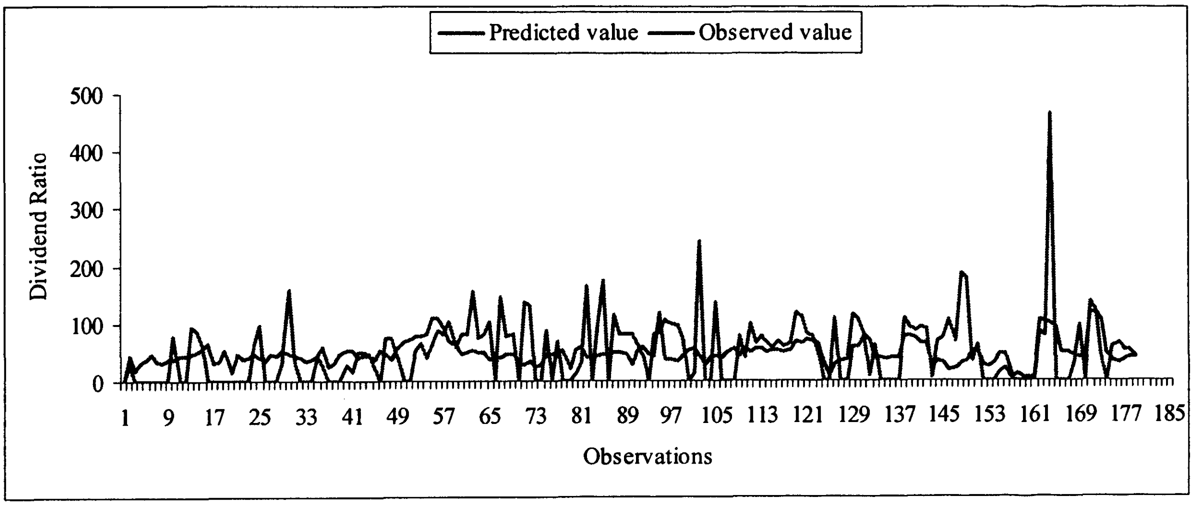

Figure 7.3: Observed and predicted values of dividend ratio

In addition to this, a paired sample t-test was carried out to examine whether the means of the observed value and the predicted value are different. The results are reported in Table 7.10. It can be found that the p-value associated with the test is 0.69 meaning that the means are not significantly different.

Table 7.10
A paired sample t-test

	Observation	Mean	Standard error
Observed value	178	50.6197	4.3577
Predected value	178	48.7362	1.6461
t-statestic	0.4043		
p-value	0.6864		
Decision	**means are not deffrint**		

As discussed in Chapter 6, the main interest is to estimate both marginal effects (ME) and elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in RE Tobit Model. The results are shown in Table 7.11 for ME and Table 7.12 for elasticities.

Table 7.11
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	**0.8126**	**0.5697**
Free cash flow (FCF)	-0.5503	-0.3858
Firm size (MC) in 000US$	-3E-06	-2E-06
Growth rate (GROW)	-1.2697	-0.8902
Firm leverage (LEV)	**-0.1777**	**-0.1246**
Business risk (BETA)	8.3286	5.8393
Firm profitability (ROE)	**0.4100**	**0.2875**

The sign of the marginal effect of a specific variable is the same as the sign of the corresponding coefficient from RE Tobit Model (Table 7.8). The marginal effects of the independent variables on the censored (y) and uncensored ($y > 0$) variables are lower compared with the marginal effects of the variables on y^*. One explanation for this finding would be the relative expected values of latent, censored, and uncensored variables, as shown in Chapter 5. These values are found to be $E(y^* \mid x) = 27.87$, $E(y \mid x) = 48.74$, and $E(y \mid y > 0, x) = 73.43$.

Table 7.12
Elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous explanatory variables

	Elasticities	
Explanatory Variables	**Censored variable**	**Uncensored variable**
Government ownership (GOV)	**0.1200**	**0.0559**
Free cash flow (FCF)	3E-05	1E-05
Firm size (MC) in 000 US$	-0.0160	-0.0075
Growth rate (GROW)	-0.0040	-0.0018
Firm leverage (LEV)	**-0.2474**	**-0.1152**
Business risk (BETA)	0.1133	0.0528
Firm profitability (ROE)	**0.1012**	**0.0471**

The leverage ratio is statistically significant and negatively associated with the dividend payout ratio meaning that when the leverage ratio of a firm increases, the firm chooses to reduce the dividend payout ratio. This finding is consistent with hypothesis H7 presented in Chapter 5. The marginal effects of this variable on y and $y > 0$ are found to be -0.18 and -0.12 respectively suggesting that a unit increases in the leverage ratio would lead to a decrease in 0.18 units in the dividend payout ratio for all firms and 0.12 units for the firms who always paid dividends if all other factors remain constant. The elasticity of the dividend payout ratio with respect to the leverage ratio is -0.25 and -0.12 meaning that a 10% increases in the leverage ratio would lead to a decrease in about 2.5% in the dividend payout ratio for all firms and 1.2% for the firms who always paid dividends if all other factors were to remain the same.

This negative association is consistent with the results of Jensen et al. (1992), Agrawal and Jayaraman (1994), Crutchley and Hansen (1989), Mollah (2001), Aivazian et al. (2004), and Al-Malkawi (2005). These studies suggest that high degrees of debt may result in low dividend payments because firms need to use their internal cash flow to fulfil their obligations rather than distribute cash to shareholders. In addition, some debt covenants have restrictions on dividend payments because creditors want to secure their debt and avoid it being expropriated by shareholders.

In common with the random effects model discussed in the previous section, free cash flow, growth rate and business risk were all found to be statistically insignificant in the RE Tobit model.

7.5.2.2 Model Specific to Kuwait (Model 2)

The estimation results for the random effects Tobit model after the addition of institutional ownership to the general model (Model 1) and before removing the outliers are presented in Table 7.13. The same model is also estimated after removing the outliers and the results are also shown in Table 7.13. As can be seen, the results between these two models are different and the BIC statistic suggests that the RE Tobit model after removing the outliers is superior to the RE Tobit model before removing the outliers. Therefore, the discussion that follows will be based on the RE Tobit model after removing the outliers.

Table 7.13
Estimation results for random effects Tobit model after the addition of institutional ownership : the results before removing outliers and after removing outliers

Explanatory Variables	Model A: Random effects Tobit model before removing outliers		Model B: Random effects Tobit model after removing outliers	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**1.6463**	**3.16**	**1.1204**	**2.59**
Institutional ownership (INST)	-0.3138	-0.75	-0.2812	-0.83
Free cash flow (FCF)	-15.1150		-0.0760	0
Firm size(Size)	-7.1891	-1.09	-1.8176	-0.33
Growth rate (GROW)	-0.1043	-0.05	-2.4149	-0.17
Firm leverage (LEV)	**-0.3527**	**-2.56**	**-0.3055**	**-2.72**
Business risk (BETA)	24.3872	1.37	13.1073	0.91
Firm profitability (PROF)	**0.7609**	**1.68**	**0.5920**	**1.65**
Constant	105.6661	1.34	54.3051	0.82
Descriptive statistics				
Wald statistic	27.82		26.34	
P-value>Wald statistic	0.0002		0.0009	
Observations				
Left-censored observations	66		65	
Uncensored observations	119		113	
Log-likelihood function	-768.91315		-711.4846	
Bayesian Information Criteria(BIC)	1584.4624		1469.6053	

In order to see the difference in results between the linear RE model (with the additional institutional ownership variable and without the zero-skewness log-transformation), the linear RE model (with the additional institutional ownership variable and the zero-skewness log transformation) and the RE Tobit model (with the additional institutional ownership variable and after removing the outliers), the results from these three models are presented in Table 7.14.

Table 7.14
Estimation results for random effects Tobit model after the addition of institutional ownership

Explanatory Variables	Linear FE (without LogSkewness Transformation)		Linear RE (with Log Skewness Transformation)		RE Tobit	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**1.36**	**1.87**	**0.30**	**2.73**	**1.12**	**2.59**
Institutional ownership (INST)	0.02	0.05	-3.73	-0.57	-0.28	-0.83
Free cash flow (FCF)	-22.42	-1.23	-14.24	-1.43	-0.08	0.00
Firm size(Size)	-6.52	-1.45	0.09	0.27	-1.82	-0.33
Growth rate (GROW)	-0.36	-0.67	-0.71	-0.50	-2.41	-0.17
Firm leverage (LEV)	**-0.11**	**-2.23**	-0.53	-1.16	**-0.31**	**-2.72**
Business risk (BETA)	12.61	1.24	4.16	1.14	13.11	0.91
Firm profitability (PROF)	0.15	0.90	**10.25**	**2.94**	**0.59**	**1.65**
Constant	117.42	2.12	-1.14	-0.02	54.31	0.82
Descriptive statistics						
Wald statistic	140.35		44.49		26.34	
P-value>Wald statistic	0.0000		0.0000		0.0009	
Observations	185		185		178	
Left-censored observations					65	
Uncensored observations					113	
Log-likelihood function					-711.48	

As can be seen, adding the new variable, institutional ownership, does not change the results of the general model presented in Table 7.8 (Model B) meaning that government ownership, leverage ratio and firm profitability remain the only significant explanatory variables.

Similarly, the result does not change for the marginal effects of the independent variables on the censored (y) and uncensored ($y > 0$) variables as well. Consequently, it can be concluded that institutional ownership has no influence on dividend policy (Tables 7.15 and 7.16).

Table 7.15
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	**0.7206**	**0.5052**
Institutional ownership (INST)	-0.1809	-0.1268
Free cash flow (FCF)	-0.0489	-0.0343
Firm size (MC) in 000US$	-5E-06	-4E-06
Growth rate (GROW)	-1.5532	-1.0890
Firm leverage (LEV)	**-0.1965**	**-0.1378**
Business risk (BETA)	8.4304	5.9107
Firm profitability (PROF)	**0.3808**	**0.2670**

Table 7.16
Elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous explanatory variables

	Elasticities	
Explanatory Variables	**Censored variable**	**Uncensored variable**
Government ownership (GOV)	**0.4380**	**0.2038**
Institutional ownership (INST)	-0.0267	-0.0124
Free cash flow (FCF)	3E-06	1E-06
Firm size (MC) in million US$	-0.0240	-0.0112
Growth rate (GROW)	-0.0048	-0.0022
Firm leverage (LEV)	**-0.2734**	**-0.1272**
Business risk (BETA)	0.1147	0.0533
Firm profitability (ROE)	**0.0940**	**0.0437**

From the above discussion on the normal fixed effects and random effects models and random effect Tobit model, it can be concluded that similar to the case for the firms listed in the GCC stock exchange, the results for the different specifications of the models for the firms listed in the KSE also support each other. This suggests that the different specifications of the model are not important as far as the variables are concerned.

7.6 Summary

The aim of this chapter was to determine the dividend policy of non-financial firms listed on the KSE and to explain their dividend payment behaviour by the use of various econometric models.

The chapter began with the descriptive statistics of the sample, followed by several tests to detect multicollinearity and heteroscedasticity. Thereafter, the dividend policy was tested using the fixed effects and random effects models as well as the random effects Tobit model.

The results for the general model (Model 1) based on the random effects model suggested that government ownership and firm profitability are the significant factors that affected dividend policy. These results are consistent with the results of the whole sample except firm size which was found to be statistically significant in explaining dividend policy for the whole sample.

Based on additional information relating to the ownership structure of non-financial firms listed on the KSE, further models were established to examine the influence of institutional ownership (Model 2). The result indicated that institutional ownership was not a significant factor in explaining the dividend payment policy of the firms listed on the Kuwait Stock Exchange. This is inconsistent with some other studies such as Shleifer and Vishn (1986), Jarrell and Poulsen (1987), Brickley et al. (1988), Carlton et al. (1998), and Gillan and Starks (2000) which have found that institutional ownership was a significant factor influencing dividend policy.

It is interesting to note that the overall results suggest that government ownership affects dividend payout policy, although the government owned only a small proportion of shares in non-financial firms listed on the KSE.

Although there were no significant differences in the results from the three models used, the random effects Tobit model is the most appropriate as there are a lot of firms which did not pay any dividends to the shareholders. In this model, the leverage ratio variable also becomes significant. Finally, the results for the case of the firms listed on the KSE are the same for the case of the firms listed on the GCC stock exchanges except for one variable, market capitalisation.

The next chapter will discuss the dividend policy models of the firms listed on the Saudi Arabia Stock Exchange (SSE).

CHAPTER EIGHT

Dividend Payout Ratio of Companies Listed on the Saudi Stock Exchange (SSE): Estimation Results

8.1 Introduction

This chapter presents the dividend policy models of non-financial firms listed on the Saudi Arabia Stock Exchange (SSE) and compares the results with the dividend policy models of the firms listed on the stock exchanges of the GCC states presented in Chapter 6. This analysis facilitates the identification of the similarities and differences of factors affecting dividend policy between the firms listed in these stock exchanges. The variables to be used in the dividend policy models of the firms within the SSE are the same as the variables used in the models of the firms within the stock exchanges of the GCC states. Two types of statistical models are used: (1) fixed and random effects models and (2) random effects Tobit model. Both of the models are discussed in Chapter 5.

This chapter is structured as follows. First, a discussion of the descriptive statistics of the sample data related to the firms within the SSE is presented. This is followed by a brief description of the testing of the variables for multicollinearity and heteroscedasticity. The next section presents the results obtained from the fixed effects and random effects regression models. The results of the Hausman test are then discussed showing how the appropriate model (fixed vs. random) is chosen. This chapter then presents the results from the random effects Tobit model.

8.2 Preliminary Description of Firms

In Saudi Arabia, there were 61 non-financial firms listed on the SSE during the period 1999-2003. In terms of market capitalisation, Saudi Arabia is the largest stock exchange not only among the GCC states but among all Arab countries.

Although there were 61 non-financial firms listed on the SSE, the data on the dividend payout ratio and other firms' characteristics were only available for 57 firms. Based on the 57 non-financial firms for which data were available, the non-financial firms listed on the SSE can be divided into two groups, the first consisting of the firms where the government owned a proportion of the shares and the second group consisting of the firms owned completely by the private sector. The firm size, net profits and dividend payout ratio were relatively higher for the firms belonging to the first group compared with the firms belonging to the second group. Between 1999 and 2003, there were 21 firms in the first group and 35 firms in the second group. On average, for the period 1999-2003, the market capitalisation of the first group was $4.2 billion, $265 million was realised as net profit and 68% of net profit was paid as dividend. In contrast, the average of market capitalisation for the second group was $324 million of which $26 million was realised as net profit and 39% was distributed as dividend. Another important point that should be noted here is that some firms did not pay dividend for some or all of the study years. In terms of the numbers of observations, it was found that 28% of the observations from the first group of firms had zero (0) dividend ratio and 56% of the observations from the second group had zero (0) dividend ratio.

8.3 Descriptive Statistics Analysis

Table 8.1 presents the descriptive statistics for the variables used in the study to examine the dividend policy of non-financial firms listed on the SSE.

Table 8.1
Descriptive statistics of the variables used in the study for non-financial firms listed on the Saudi Stock Exchange for the period 1999-2003

Variables	Mean		Std. Dev.		Quartiles					
					Q1		Q2		Q3	
	ALL	GS	ALL	GS	ALL	GS	ALL	GS	ALL	GS
Dividend ratio (DIV)	**50.333**	68.482	**69.440**	53.25562	**0.00**	0.00	**0.00**	79.20	**89.60**	95.40
Government ownership (GOV)	**9.744**	25.985	**17.641**	20.21815	**0.00**	8.18	**0.00**	21.10	**13.25**	40.00
Free cash flow (FCF)	**0.030**	0.071	**0.255**	0.277485	**-0.04**	-0.02	**0.03**	0.06	**0.13**	0.15
Market Capitalisation (MC)$000	**1769398**	4178319	**6775124**	1.070E+07	**105300**	390150	**255150**	1064340	**884520**	2248857
Growth rate (GROW)	**0.099**	0.027	**0.704**	0.2127662	**-0.04**	-0.02	**0.02**	0.0000	**0.16**	0.11
Firm leverage (LEV)	**51.682**	46.990	**53.043**	45.34158	**17.30**	17.90	**31.65**	30.40	**59.75**	46.40
Business risk (BETA)	**0.600**	0.620	**0.402**	0.3862766	**0.30**	0.34	**0.60**	0.63	**0.89**	0.86
Firm profitability (PROF)	**6.379**	9.123	**7.777**	9.003923	**0.00**	2.50	**3.75**	5.90	**9.20**	13.80

Key:
ALL = Data for all firms
GS = Data from the firms where the government owned a proportion of the shares

The mean dividend payout ratio of all firms was 50%, meaning that firms, on average, distributed half of their net profit as cash dividends. The standard deviation of the dividend payout ratio was 69.43 which is relatively high suggesting that the dividend payout ratio paid by the firms are highly dispersed. Although the mean of the dividend payout ratio was 50%, the second quartile, Q2 (i.e., 50th percentile), of this variable was 0%. This finding indicates that there are a large number of firms who did not pay dividend either consistently or for some of the years. More specifically, 32% of the firms (i.e. 18 firms) never paid dividend during the study period and 35% of the firms (i.e. 20 firms) chose to pay dividend for some years but did not pay dividend for others. This issue is further discussed in section 8.5.2. However, while the Q2 of all firms listed on the SSE was 0%, the Q2 for firms where the governments owned a proportion of shares reached 79% meaning that 50% of firms owned partly by the government paid a dividend ratio of 79% or more.

Table 8.1 also shows that around 10% (on average) of the shares of companies were owned by the government. The second quartile, Q2, of this variable was 0%, explaining that around 50% of firms were owned completely by the private sector. The Q3 suggests that in 75 % of the firms the government held less than 13% of their shares.

The free cash flow, on average, was 0.03, indicating that the free cash flow was 3% in excess of the funds required for all projects that had a positive net-present value after they had been discounted at the cost of capital. The free cash flow in those firms where the government owned some of the shares was higher than the whole sample, which might give managers an opportunity to engage in more distorted and wasteful diversionary practices, and consequently increase the agency costs if they do not distribute this free cash flow as dividend. The Q2 of this variable for the all listed firms sample and for those firms where the government owned a proportion of the shares were both close to the mean.

The mean market capitalisation (MC) was almost \$1.8 billion while MC for the firms where the government owned some of their shares was \$4.2 billion. The second and third quartiles of this variable also highlighted the fact that firms where the government owned a proportion of their shares were large-sized firms. For instance, the Q2 of MC for those firms where the government owned a proportion of their shares was $1.1 billion, while the Q2 for the all firms sample was $255 million. Similarly, the MC of firms where the government owned a percentage of the shares was $2.2 billion but no more than $885 million for the combined sample of all firms.

The companies reported that their growth rate was around 0.1. The firms where the government owned a proportion of the shares had a lower average growth rate (0.03). The third quartile was slightly higher than the mean for the combined sample of all firms (where Q3 is 0.16) but Q3 for those firms where the government owned a percentage of their shares is 0.1, that is to say, 3 times higher than their mean (0.03).

The leverage ratio infers that 52% of the firms had funds that came from external sources. The 50^{th} percentile of this variable was around 32% suggesting that less than 50% of the firms financed 32% of their projects from external resources. The 50^{th} percentile of leverage ratio for those firms where the government owned a proportion of the shares was similar (only 30%).

BETA, the business risk, appears as 0.60 on average, indicating that non-financial firms listed on the SSE were, on average, 40% less risky than those of the market as a whole (the general index value is 1). In other words, non-financial firms listed on the SSE, on average, had a lower BETA than the markets. If the market went up, BETA stocks went up, but less than the market overall. If the market fell, BETA stocks fell less than the overall market. However, stock with a BETA less than 1 were more stable than the average, had a low correlation with the market, or both (defensive securities). Those firms where the government owned a proportion of the shares had a similar BETA to the all-firms sample (0.62).

Finally, the average of firm profitability ratio (PROF) is 6% suggesting that firms earned 6% above the money shareholders might have invested in them, which in turn might motivate these firms to pay high dividends. The firms where the government owned a proportion of the shares obtained a slightly higher profitability ratio (9%).

In summary, it can be said that the firms where the government owned a proportion of the shares would pay higher dividends, and such firms had higher free cash flow and profitability ratios, and lower growth and leverage ratios compared with the all-firms sample of the SSE.

In order to see whether the means of dividend ratios paid by the firms where the government owned a proportion of the shares (μ_{gov}) and the firms completely owned by the private sector ($\mu_{private}$) are statistically different, a two sample t-test was carried out. The results presented in Table 8.2 suggesting that the means are statistically different at the 99.98% confidence level. This tends to confirm that the fact of government ownership has significant influence on a firm's financial performance.

Table 8.2
Two sample t-test to test the differences in means of dividend ratios

Groups	**Observations**	**Mean**	**Standard errors**
Firms owned completely by the private sector	175	39.444	5.716383
Firms where government owns a proportion of their shares	105	68.4819	5.197217
t-statistic	-3.7586		
p-value	0.0002		
Decision	Means are different		

8.4 Multicollinearity and Heteroscedasticity Test

As discussed in Chapter 5, correlation between independent variables results in inefficient estimates and incorrect standard errors. Therefore, the VIF test discussed in Chapter 5 is used to test the multicollinearity among the explanatory variables related to the firms listed on the SSE. A low mean value of VIF (i.e., 1.13), together with low VIF values for individual variables, as shown in Table 8.3 (compared to a threshold of 10) suggests that these variables are free from multicollinearity.

Table 8.3
Variance Inflation Function (VIF) for the explanatory variables

Variables	VIF	Tolerance
Firm Size(MC)	1.30	0.7697
Government ownership (GOV)	1.30	0.7719
Firm profitability (PROF)	1.10	0.9108
Free cash flow (FCF)	1.09	0.9176
Firm leverage (LEV)	1.07	0.9307
Business risk (BETA)	1.05	0.9485
Growth rate (GROW)	1.01	0.9873
Mean VIF	1.13	

In addition to the VIF test, a pair-wise correlation matrix was also used to test the correlation level among the independent variables. The results are shown in Table 8.4. Low correlations between the explanatory variables further strengthen the argument that there is no multicollinearity among the variables.

Table 8.4
Correlation coefficients among the explanatory variables

	GOV	FCF	MC	GROW	LEV	BETA	PROF
Government ownership (GOV)	1.0000						
Free cash flow (FCF)	0.0879	1.0000					
Firm size (MC)	0.4320	-0.0024	1.0000				
Growth rate (GROW)	-0.0581	0.0472	-0.0340	1.0000			
Firm leverage (LEV)	0.0450	-0.1429	0.2100	0.0321	1.0000		
Business risk (BETA)	0.1764	0.0842	0.1623	-0.0389	0.0552	1.0000	
Firm profitability (PROF)	0.1856	0.2349	0.0499	0.0540	-0.0309	0.0983	1.0000

In order to test for heteroscedasticity, the residual squared is plotted against the predicted dependent variable ($\hat{y}$) to look for a systematic relationship between them. Figure 8.1 shows the relationship in the case of pooled OLS regression of the dependent variable on the independent variables. The systematic pattern between the two variables shows that heteroscedasticity may be present in the sample data.

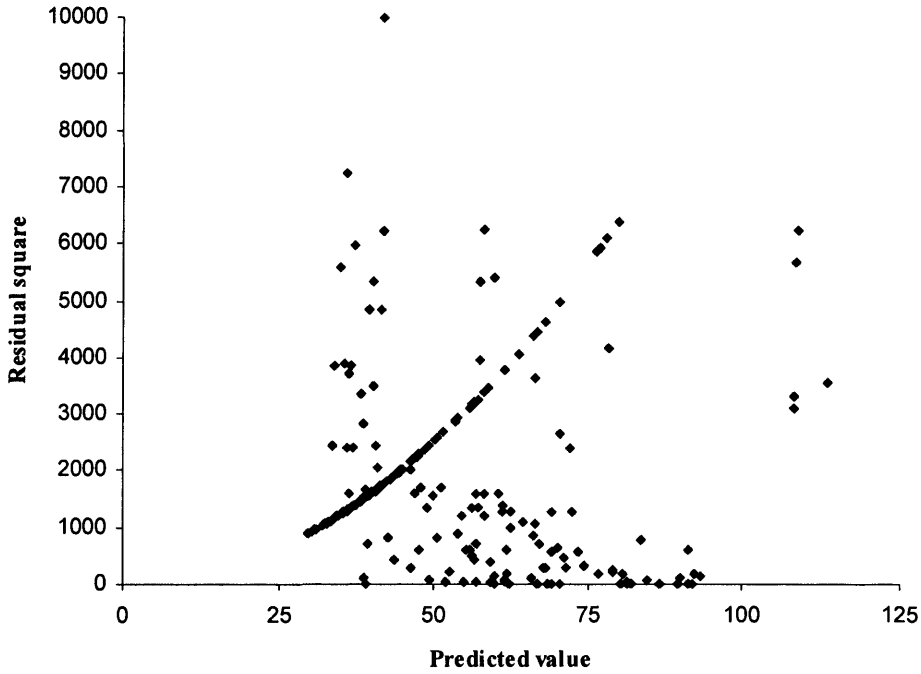

Figure 8.1: The pattern of estimated residual squared in the case of pooled OLS

The formal heteroscedasticity test discussed in Chapter 5 was also carried out to check for any signs of heteroscedasticity. The test statistic was found to be 17.19 with a p-value of 0.00 suggesting that heteroscedasticity is present in the sample data.

8.5 Estimation Results

The following section will discuss the results of an investigation into the dividend policy of non-financial firms listed on the SSE that uses two primary models; firstly panel data regression models were estimated with both fixed and random effects, followed by estimation of a random effects Tobit model. Each of these models is able to take into account the individual-firm-specific effects.

8.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects models (the General Model)

Table 8.5 shows the results of the fixed effects and random effects models without removing the outliers and based on the zero-skewness log transformation of the variables. Both models are also estimated after removing the outliers. It is worthwhile to note that there is only one outlier found in the sample data associated with SSE and consequently these results are almost identical to the results presented in Table 8.5. Therefore, the rest of the interpretation of the results is based on the models presented in Table 8.5.

Table 8.5
Panel Data Estimation Results with the zero-skewness log transformation for the SSE

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	(dropped)		**0.3026**	**2.14**
ln (-Free cash flow - Kfcf)	2.7501	0.3600	2.6287	0.34
ln(Firm size - Kmc)	0.7861	1.2300	0.3995	1.03
ln(Growth rate - Kgrow)	0.1482	0.6000	0.2564	0.91
ln(Firm leverage - Klev)	0.3482	1.0500	0.0516	0.17
ln(Business risk - Kbeta)	-2.7849	-0.8200	-2.5008	-0.87
ln(Firm profitability - Kprof)	**38.9228**	**3.0700**	**48.3873**	**5.1**
Constant	-216.6147	-3.2200	-259.2300	-4.98
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	2.0700		75.4800	
p-value>F	0.0574		0.0000	
Obervations	280		280	
Groups	57		57	
Overvations per group				
Minimum	5		5	
Maximum	3		3	
Average	4.9		4.9	
Model goodness-of-fit				
R-squared				
Within	0.0672		0.0625	
Between	0.3919		0.4808	
Overall	0.3031		0.3668	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	5.2700		108.3900	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	3.43			
p-value>Test statistic	0.7537			
Decision	**Random effects model**			

To calculate t-statistics, robust standard errors are used to reduce the effect of serial correlation in the data. The F-test for the fixed effects model and the Wald test for the random effects model both show that both models are statistically significant. The only statistically significant variable in the fixed effects model is firm profitability whereas in the random effects model, government ownership and firm profitability appear to be statistically significant. However, one should note that government ownership has been dropped from the fixed effects model because it does not change during the study period.

The overall goodness-of-fit (R-squared) of the random effects model (0.37) is higher than that of the fixed effects model (0.30). Both the incremental F-test and the LM test suggest that the unobserved effects within the sample data are significant. In order to choose the better of these two models, the Hausman test was employed. The computed test statistic was found to be 3.43 with a p-value of 0.754 suggesting that the null hypothesis of preference for the random effects model cannot be rejected at the 95% confidence level. This leads to the conclusion that the random effects model is more appropriate than the fixed effects model in this case for explaining the dividend policies of the firms. Therefore, the rest of the results are interpreted using the random effects model.

Since a panel dataset is a better (compared to time-series or cross-sectional datasets) type of data for explaining the dividend policy of the firms listed on the SSE, the individual-firm-specific unobserved effects are computed from the random effects model. This is shown in Figure 8.2. The figure explains that unobserved individual-firm-specific effects range from 6.3 to -5.5 units showing that these effects are higher in some firms and lower in others.

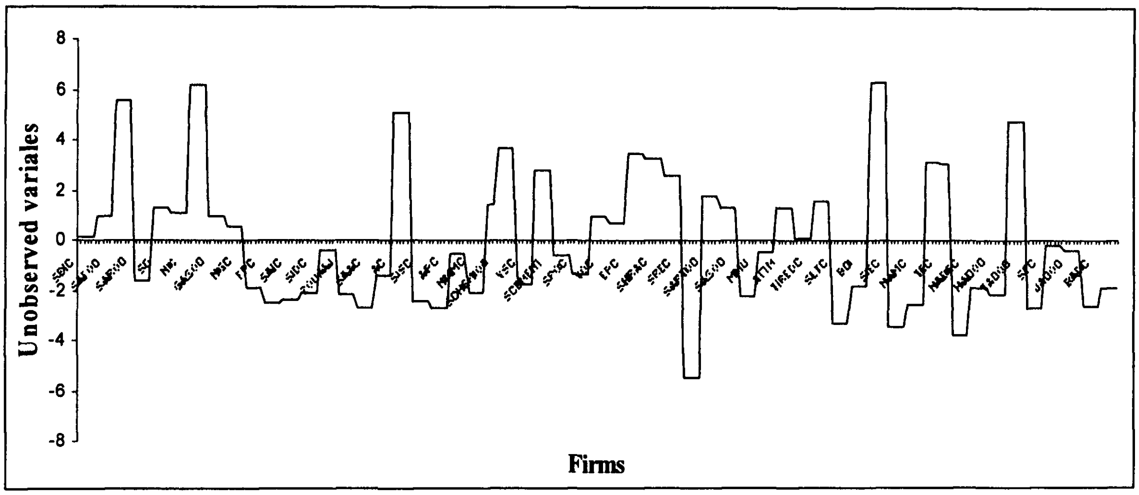

Figure 8.2: Estimated individual-firm-specific effects from the random effects model

The statistically significant variables at the 95% confidence level are government ownership and firm profitability and the non-significant variables are free cash flow, firm size, growth rate, leverage ratio and business risk. This finding means that the hypotheses H4, H5, H6, H7 and H8 as discussed in Chapter 5 could not be supported by the data from the 57 non-financial firms of the SSE.

Equations 6.8 and 6.10 are used to estimate the slopes and elasticities associated with each of the explanatory variables. The results are shown in Table 8.6. The above equations are used because the coefficients in Table 8.5 can be regarded neither as slopes nor as elasticities due to the zero-skewness log transformation of the variables.

The results show that both the slope coefficients of government ownership and firm profitability, and the elasticity of the dividend ratio with respect to these two explanatory variables, are higher in the model associated with the firms listed on the SSE than those listed on the stock exchanges of GCC states presented in Chapter 6 (see Table 6.11). This finding suggests that a 1% increase in government ownership would influence the SSE firms to increase their dividend payment ratio by 0.30%, while in the whole sample from stock exchanges in GCC states, the dividend ratio would increase by a lesser amount (0.25%). Similarly, a 1% increase in the firm profitability would increase the dividend ratio of the firms listed on the SSE firms by 1.7%. For comparison, the result for the aggregated sample of all firms listed on the GCC stock exchanges was found to be just 0.6%.

Table 8.6
Slope coefficients and elasticities

Explanatory Variables	**Slop**	**Elasticity**
Government ownership (GOV)	**1.5626**	**0.3025**
Free cash flow (FCF)	12.1431	0.0071
Firm size (MC) in 000US$	0.0000	0.3996
Growth rate (GROW)	4.5886	0.0090
Firm leverage (LEV)	0.0464	0.0477
Business risk (BETA)	-28.0467	-0.3342
Firm profitability (PROF)	**13.6074**	**1.7247**

The significant variables government ownership and firm profitability (both are significant at the 95% confidence level) are described below.

Government Ownership

Government ownership appears as a statistically significant variable in explaining the dividend payout policy of the firms listed on the SSE. This result supports the hypothesis H1 which suggests that there should be a positive association between government ownership and dividend ratio. The slope coefficient of this variable is 1.56 with a t-statistic of 2.14. Furthermore, the elasticity of the dividend payout ratio with respect to government ownership is found to be 0.30 suggesting that, if all else were equal, a 10% increase in government ownership would lead to an increase of about 3% in dividend ratio. This positive association indicates that when the government ownership for a particular firm increases than the dividend payment ratio paid by the firm would also increase.

This positive relationship between dividends and government ownership might be related to the fact that governments usually have less difficulty raising funds to finance investment activities and therefore as government ownership percentage increases in a firm, the firm would become more capable of paying a higher dividend (Gul, 1999a). A further reason is that Saudi Arabia, like other GCC states, is developing the private sector, and a higher proportion of profits is therefore distributed as cash dividends to maintain firm reputation for avoiding exploiting minority (Glen et al., 1995; La Porta et al., 2000; Naser, 2004), this in turn motivates and attracts investment in the private sector.

The positive association can also be related to that the tendency of government ownership may duplicate agency cost, because the conflict of interest will arise between citizens and government representative on one side, and between the government ownership and other managers in the other side, since managers may look to their personal interest, rather than shareholders interest. Therefore in such firms, government ownership might deal with this double confliction pay paying a high dividend in order to limit the available cash in the hand of managers and hence reduce the agency cost (Gugler, 2003 and Al-Malkawi, 2005).

Firm Profitability

The firm profitability ratio appears to be highly significant at the 95% confidence level. This result is in line with the hypothesis H9 which predicts that firm profitability and dividend ratio should have a positive relationship. The slope coefficient of this variable is 13.61 with a t-statistic of 5.1. This finding suggests that a unit increase in firm profitability would lead to an increase of 13.6 units in the dividend payout ratio if the other factors included in the model remain constant. In addition, the elasticity of the dividend payout ratio with respect to firm profitability is found to be 1.7 suggesting that, if all else were equal, a 10% increase in firm profitability would lead to an increase of about 17% in the dividend ratio. This result is also consistent with the fact that firms normally pay a higher dividend ratio when there is a rise in firm profitability.

This result is in line with the studies conducted by of Jensen et al. (1992), Han et al. (1999), and Fama and French (2000) suggesting that profit positively affects dividend payout policy. The appearance of profitability as the important factor influencing dividend ratio is supported by Adaoğlu (2000), Pandy (2001), Wang et al. (2002), and Al-Malkawi (2005). These studies indicate that the dividend payment decision of the firms listed on emerging stock exchanges is heavily based on their realised earnings. This finding might be related to the fact that there is inferior shareholder legal protection in GCC states and other developing countries. Consequently, shareholders will take whatever cash dividend they can get from firm profits (La Porta et al., 2000).

Statistically insignificant variables

In the preferred random effects model presented in Table 8.5, there are only two significant variables: government ownership and firm profitability. This indicates that the main reason of paying dividend in the SSE's listed firms may be to reduce agency costs and enhance firm reputation.

On the other hand, many of variables appeared to be insignificant. Free cash flow was the only agency theory variable that has no influence on dividend policy, as in the sample for the case of the GCC states (see Chapter Six) and the sample for the case of the KSE (see Chapter Seven). While firm size was a significant variable in the sample for the case of the GCC states, it was statistically insignificant in firms listed on the SSE. This case is similar to the KSE results.

The common transaction cost variables: growth rate, leverage ratio and business risk also were found to have an insignificant effect on dividend policy. This is similar to the combined sample of the GCC states and KSE sample. This probably demonstrate that the SSE firms take into account agency conflict and firm reputation more than transaction costs when they are making the decision to pay dividends.

8.5.2 Estimation Results for Random Effects Tobit Model

Similar to the firms listed on the GCC stock exchanges, many firms listed on the SSE chose not to pay dividends in some years. It is found that 33% of the firms listed on the SSE did not pay cash dividends in any year of the study period and 35% of the firms chose to pay dividends in just some years of the study period. Thus, only one-third of the firms always distributed cash dividends. Therefore, the distribution is left censored suggesting that the use of Tobit model is more suitable for determining the dividend policy of the firms listed on the SSE.

Table 8.7 presents the estimation results for the random effects Tobit model before removing the outliers and after removing the outliers. The results suggest that the sets of significant and insignificant variables of these two models are the same but the values of the coefficients are different. The log likelihood value of the model after excluding the outliers is higher than that of the base model. The statistic, BIC (Bayesian Information Criterion) is employed to identify more parsimonious model. As can be seen in Table 8.7, the model after removing the outliers is better than the model before removing the outliers. Therefore, the rest of the discussion will be based on the RE Tobit model after removing the outliers.

Table 8.7
Estimation Results for Random Effects Tobit Model: the results before removing outliers and after removing outliers

Explanatory Variables	Model A: Random effects tobit model before removing outliers		Model B: Random effects tobit model after removing outliers	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.7992**	**1.87**	**0.8008**	**1.87**
Free cash flow (FCF)	2.5938	0.09	2.5860	0.09
Firm size(Size)	**12.6998**	**1.78**	**12.7324**	**1.77**
Growth rate (GROW)	5.5783	0.68	5.6576	0.33
Firm leverage (LEV)	-0.2291	-1.34	-0.2301	-1.33
Business risk (BETA)	**-33.2852**	**-1.76**	**-33.3987**	**-1.75**
Firm profitability (PROF)	**3.1408**	**3.03**	**3.1644**	**3.01**
Constant	-148.7539	-1.79	-149.4227	-1.79
Descriptive statistics				
Wald statistic	32.45		31.72	
P-value>Wald statistic	0.00		0.00	
Observations	280		279	
Left-censored observations	143		143	
Uncensored observations	137		136	
Log-likelihood function	-934.7984		-929.4896	
Bayesian Information Criteria(BIC	1911.0511		1900.4335	

Based on the RE Tobit model after removing the outliers, the statistically significant variables of this model are government ownership, firm size, business risk, and firm profitability. Compared with the set of significant variables found in the RE Tobit model for the case of the firms listed on the GCC stock exchanges in Chapter 6, there is an additional significant variable (business risk) for the case of the firms listed on the SSE. On the other hand, leverage ratio, which is a significant variable in the RE Tobit model of whole sample of GCC states' listed firms is an insignificant variable in the sample of the SSE's listed firms.

In order to see the difference in results between the normal random effects model and the random effects Tobit model, the results are presented side-by-side in Table 8.8.

Table 8.8
Estimation Results for the Two Linear Random Effects model and the Random Effects Tobit Model

Explanatory Variables	Linear FE (without Log Skewness		Linear RE (with Log Skewness		RE Tobit	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	0.37	0.17	**0.30**	**2.14**	**0.80**	**1.87**
Free cash flow (FCF)	6.63	0.61	2.63	0.34	2.59	0.09
Firm size(Size)	4.23	0.34	0.40	1.03	**12.73**	**1.77**
Growth rate (GROW)	0.19	0.96	0.26	0.91	5.66	0.33
Firm leverage (LEV)	-0.09	0.21	0.05	0.17	-0.23	-1.33
Business risk (BETA)	-14.50	0.18	-2.50	-0.87	**-33.40**	**-1.75**
Firm profitability (PROF)	0.89	0.12	**48.39**	**5.10**	**3.16**	**3.01**
Constant	1.30	0.98	-259.23	-4.98	-149.42	-1.79
Descriptive statistics						
Wald statistic		16.24		75.48	31.72	
P-value>Wald statistic		0.0230		0.0000	0.0000	
Observations		280		280	279	
Left-censored observations					143	
Uncensored observations					136	
Log-likelihood function					-929.49	

As can be seen, the result of the normal random effects model is significant at the 95% confidence level (F-statistic = 16.24 with p-value = 0.023) but none of the variables was found to be statistically significant. This table also shows that the results of the normal random effects model improved after the zero-skewness log transformation was used and government ownership and firm profitability appear as statistically significant explanatory variables (as discussed in the previous sections). However, it can be seen from the above table that the results of the random effects Tobit model are consistent with the results of the zero-skewness random effects model except for two additional variables – firm size and business risk. Thus, based on the random effects Tobit model, the dividend policy of the firms listed on the SSE is affected by government ownership, firm size, business risk, and firm profitability.

The coefficients in the RE Tobit model show the impact of a change in an explanatory variable on the unconditional expectation of the latent variable y^* (defined as the propensity of dividend payout ratio). In order to show a graphical representation of the comparison between the observed and predicated value of the dividend payout ratio, Figure 8.3 has been drawn. It can be noted that the predicted and observed values are quite similar at many levels suggesting that the model fits the data quite well. There is a model prediction error of -5.8%.

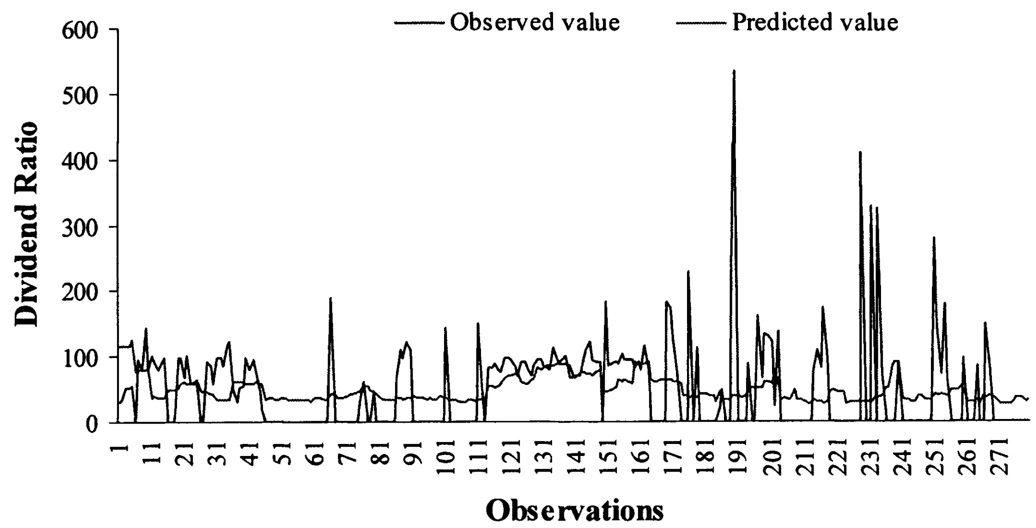

Figure 8.3: Observed and predicted values of dividend ratio

In addition to this, a paired sample t-test is conducted to investigate whether the means of the observed value and the predicted value are significantly different. The results are presented in Table 8.9. It can be found that the p-value associated with the test is 0.48 meaning that the means are not significantly different.

Table 8.9
A paired sample t-test

	Observation	**Mean**	**Standard errore**
Observed value	279	50.1624	4.1612
predected value	279	53.2976	1.5661
t-statestic	-0.7051		
p-value	0.4812		
Decision	**means are not diffrent**		

As mentioned earlier, the main interest is to estimate both the marginal effects (ME) and elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in the RE Tobit model.. The results are shown in Table 8.10 for ME and Table 8.11 for elasticities.

Table 8.10
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables

Explanatory Variables	ME of E(y|x)	ME for E(y|y>0,x)
Government ownership (GOV)	**0.4255**	**0.3050**
Free cash flow (FCF)	1.3742	0.9850
Firm size (MC) in000 US$	**3.8E-06**	**2.7E-06**
Growth rate (GROW)	3.0064	2.1550
Firm leverage (LEV)	-0.1223	-0.0876
Business risk (BETA)	**-17.7479**	**-12.7219**
Firm profitability (ROE)	**1.6815**	**1.2053**

It can be noted that the marginal effects of the variables for the case of the censored variable, y_{it}, are considerably higher than those of variables for the case of the truncated variable, $y_{it} > 0$. In addition, it can be seen that the marginal effects of the variables for the case of both censored and uncensored variables are higher than those of latent variable, y^*. This finding might be related to the relative expected values of latent, censored and uncensored variables which are found to be $E(y^* \mid x) = 8.9$, $E(y \mid x) = 53.4$, and $E(y \mid y > 0, x) = 96.1$ respectively.

Table 8.11
Elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous explanatory variables

	Elasticities	
Explanatory Variables	**Censored variable**	**Uncensored variable**
Government ownership (GOV)	**0.0781**	**0.0310**
Free cash flow (FCF)	0.0008	0.0003
Firm size (MC) in 000 US$	**0.1269**	**0.0504**
Growth rate (GROW)	0.0037	0.0015
Firm leverage (LEV)	-0.1187	-0.0472
Business risk (BETA)	**-0.2005**	**-0.0797**
Firm profitability (ROE)	**0.2010**	**0.0799**

Since the government ownership and firm profitability variables remain significant with the same signs, the following interpretations will be only for the two new variables (firm size and business risk) that appear to be statistically significant in the random effects Tobit model.

Firm Size

The firm size is found to be statistically significant and is consistent with the hypothesis (H5) that there is a positive relationship between the dividend payout ratio and firm size. Thus, as firm size increases, the dividend payout ratio paid by the firm also increases. The marginal effects of this variable on y and $y > 0$ are found to be 3.8E-06 and 2.7E-06 respectively showing that a unit increase in the market capitalisation would lead to an increase of about 0.000004 units in the dividend payout ratio for all firms and about 0.000003 units for the firms who always pay dividends, if all other factors remain constant. The elasticity of the dividend payout ratio with respect to firm size is 0.13 and 0.05 for the case of censored and uncensored variables respectively. This suggests that that a 1% increase in firm size would lead to an increase of about 1.3% in the dividend payout ratio for all firms included in the sample and 0.5% for the firms who always pay dividends, if all other factors remain constant.

This result is consistent with a number of previous studies that indicate that large firms usually choose to pay a higher dividend ratio to reduce agency costs. Large companies are associated with high agency costs since widely spread ownership has more bargaining power and the influence of widespread ownership increases agency costs. Other explanation is that bigger firms face less issuance cost for external financing and hence are advantageously positioned in the capital market to raise external funds at low cost (Jensen and Meckling, 1976; Smith, 1977; Lloyd et al., 1985; Eddy and Seifert, 1988; Alli et al., 1993; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000).

Business Risk

A negative association between dividend ratio and business risk is found. This result is consistent with the hypothesis H8 presented in Chapter 5 that the firms would choose to pay lower dividends when there is a high business risk. The marginal effects of this variable on y were found to be -17.75 and the marginal effects of the same variable on $y > 0$ were found to be lower (-12.72). These results suggest that a unit increases in the business risk would lead to a decrease of 17.75 units in the dividend payout ratio for all firms and 12.72 units for the firms that always pay dividends if all other factors remain constant. The elasticity of the dividend payout ratio with respect to the business risk was -0.201 and -0.080 meaning that a 1% increase in the business risk would lead to a reduction of about 2% in the dividend payout ratio for all firms and 0.8% for the firms that always pay dividends, if all other factors remain the same. The explanation for high-risk firms being more likely to pay fewer dividends might be related to high-risk firms tending to have higher volatility in their cash flows: consequently, the external financing requirement of such firms would increase, driving them to reduce the dividend payout to avoid costly external financing. Another reason is that greater systematic risk makes the expected direct relationship between current and expected future profit less certain. Hence, firms avoid commitment to paying dividends when uncertainty about earnings increases (Higgins, 1972; McCabe, 1979; Rozeff, 1982; Chang and Rahee, 1990; Jensen et al., 1992; Moh'd et al., 1995; Chen and Steiner, 1999).

It appears that the specification of the models is important to analyse dividend policies for the case of SSE. This is because the set of significant variables in the linear RE regression model includes just government ownership and firm profitability. However, the set of significant variables in the RE Tobit model includes government ownership, firm size, business risk and firm profitability. Since more than 50% of the firms listed on the SSE chose not to pay a dividend, it is likely that the RE Tobit specification is better than that of linear RE specification. It is worthwhile to note that the variable, business risk, which is statistically insignificant for the case of the firms listed on the GCC stock exchange, is found to be significant for the case of the firms listed on the SSE.

There were fewer insignificant variables in the RE tobit model than in the RE panel model. In the Tobit model free cash flow appears as the only agency variable to have an insignificant influence. Leverage ratio and growth rate remain the only insignificant transaction cost variables.

8.6 Summary

The purpose of this chapter was to determine the dividend policies of non-financial firms listed on the SSE for the period 1999-2003 and explain their dividend payment behaviour. The chapter started with a presentation of the descriptive statistics of the sample, followed by several tests for multicollinearity among the explanatory variables and heteroscedasticity. The dividend policy was then tested by the fixed effects, random effects and random effects Tobit model.

Findings derived from the random effects model suggests that two factors significantly affected the dividend policy of non-financial firms listed on the Saudi Stock Exchange, namely firm profitability and government ownership. The results indicate that the firms choose to pay a higher dividend ratio as the firm profitability increases. Moreover, the firms where the government owned a proportion of the shares pay higher dividends than those owned completely by the private sector. These two significant variables are consistent with the result for the whole sample which is discussed in Chapter 6. Firm size, which was found to be a significant variable in explaining dividend policy for the whole sample was not a significant variable in the SSE sample.

However, since a large number of listed firms on the SSE chose not to pay dividends in some or all of the years of the study period, the random effects Tobit model was an appropriate model for testing dividend policy for the SSE sample. This model showed that additional variables can affect dividend payout ratio. The results confirm that firm size and business risk together with government ownership and firm profitability are statistically significant factors. The significance of government ownership, firm size, and firm profitability are in line with the combined sample results. However, the leverage ratio, which was significant in the combined sample, was not significant in the SSE sample.

The next chapter will describe the results of the dividend policy models of the firms listed on the Muscat Stock Exchange.

CHAPTER NINE

Dividend Payout Ratio of Companies Listed on the Muscat Stock Exchange (MSE): Estimation Results

9.1 Introduction

This chapter presents the estimation results of the dividend policy models for non-financial firms listed on the Muscat Stock Exchange (MSE). The period of analysis is 1999 to 2003. The aim is to identify the factors affecting the dividend policies of the firms listed on the MSE and compare the results with the group of all firms listed on the GCC states' stock exchanges. This MSE analysis includes two additional factors compared to the factors associated with the stock exchanges of GCC states. These are: (1) institutional ownership, and (2) large shareholders. Therefore, a further aim is to investigate whether these two variables affect dividend payout policy of firms listed on the MSE. It is expected that this additional information on ownership structure disclosed by the MSE may help to identify more clearly the impact of ownership structure on the dividend policy of the firms. The fixed and random effects linear models and the random effects Tobit model are used to identify and quantify the factors that affect the amount of dividend payment made by the firms listed on the MSE.

This chapter is organised as follows. First, a discussion of the descriptive statistics of the sample is given. This is followed by an examination of multicollinearity among the explanatory variables as well as testing for heteroscedasticity. The next section describes the presentation of results obtained from the fixed effects and random effects regression models. The results of the Hausman test are then discussed showing how the appropriate model (fixed vs. random) was chosen. Because the MSE discloses more information about ownership structure, two additional models are estimated and presented. After that, the results from the random effects Tobit model are presented.

9.2 Preliminary Description of Firms

In terms of the number of listed non-financial firms (92 firms), the MSE is the largest stock exchange among the GCC countries. The MSE is different from the stock exchanges of other GCC states in that it discloses the detailed ownership structure of each listed company in the annual shareholding guide. Such information reveals that more than 52% of shares in companies were owned by non-individual shareholders (government and institutions) during the period 1999-2003.

Institutional shareholders were a major group holding about 46% of the equity of all non-financial firms listed on the MSE. Government ownership accounted for no more than 7% of shares in companies, but this ownership was appeared in around 80% of the firms during the period 1999 to 2003.

9.3 Descriptive Statistical Analysis

Table 9.1 presents descriptive statistics for the variables used in the models to examine the dividend policy of non-financial firms listed on the MSE for the period 1999 to 2003.

Table 9.1
Descriptive statistics of the variables used in the study for non-financial firms listed on the Muscat Stock Exchange for the period 1999-2003

Variables	Mean		Std. Dev.		Quartiles					
					Q1		Q2		Q3	
	ALL	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS
Dividend ratio (DIV)	**26.174**	30.170	**43.253**	45.941	**0.000**	0.000	**0.000**	0.000	**53.100**	64.000
Government ownership (GOV)	**7.507**	9.982	**14.385**	15.830	**1.000**	2.000	**2.000**	4.000	**6.000**	8.000
Institutional ownership(INST)	**45.573**	44.223	**23.013**	22.289	**29.000**	28.000	**46.000**	42.000	**65.000**	62.000
Large shareholders(LSH)	**63.994**	61.436	**19.891**	19.989	**53.000**	49.500	**67.000**	65.000	**78.000**	78.600
Free cash flow (FCF)	**-0.023**	-0.008	**0.252**	0.251	**-0.120**	-0.120	**0.000**	0.020	**0.110**	0.120
Market Capitalisation (MC) $000	**19707**	24043	**37134**	41831	**3120**	3614	**6880**	7800	**17929**	22620
Growth rate (GROW)	**0.636**	0.519	**3.118**	2.368	**-0.020**	0.000	**0.060**	0.060	**0.250**	0.240
Firm leverage (LEV)	**430.420**	166.010	**4334.875**	214.561	**42.200**	33.800	**112.100**	106.300	**235.100**	201.100
Business risk (BETA)	**0.140**	0.171	**0.384**	0.428	**0.000**	0.000	**0.030**	0.050	**0.250**	0.300
Firm profitability (PROF)	**7.745**	8.545	**11.742**	12.438	**0.000**	0.000	**3.100**	4.200	**13.800**	14.700

key:
ALL= Data for all firms
GS =Data from the firms where the government owned a proportion of shares

The mean dividend payout ratio of the 75 non-financial firms (the sample size) indicates that the firms paid out almost 26% of their net profits as cash dividends. The standard deviation, which measures the dispersion of the dividend payout ratio, was 43% suggesting that the data are quite dispersed. What might be useful to note here is that the second quartile, Q2 (i.e., 50^{th} percentile), of this variable is 0% indicating that half of the firms did not pay dividend either consistently or for some of the years. More specifically, 48% of the firms never paid dividend during the study period while 32% of the firms chose to distribute dividend for some years but did not pay dividend for some other years. This will issue be discussed further in 9.5.2. The third quartile, Q3 (i.e., 75^{th} percentile), of dividend payout ratio was 53% showing that 75% of firms paid a dividend ratio of less than 53%. It is noticeable that the Q2 of the dividend payout ratio paid by the firms where the government owned a percentage of the shares was also 0% while the Q3 was comparatively high (i.e., 64%) compared to that of all firms (53%).

Table 9.1 also shows that the mean of government ownership of the firms listed on the MSE is 7.5%. This is low compared to the mean of government ownership of the firms (10.1%) listed on the GCC states stock exchanges as a whole. The 50^{th} percentiles (i.e. Q2) of this variable is only 2% demonstrating that the government owned less than 2% of shares in 50% of the firms. The 75^{th} percentile (i.e. Q3) reports that government owned less than 6% of shares in 75% of the firms listed on the MSE.

The average free cash flow was around -0.02 suggesting that most firms were engaged in investment projects. Table 9.1 also indicates that the free cash flow in those firms where the government owned some of their shares is also negative (-0.01).

The mean market capitalisation (MC) of the firms is \$19.7 million. Interestingly, the second quartile, Q2, of MC which should be close to the mean is only \$7 million. Moreover, it is found that about two-thirds of the firms (67%) have an MC value less than the mean (\$19.7 million). This suggests that there are a few large firms which have very high market capitalisation values that produce a higher mean for the sample. The mean of MC for those firms where the government owned a proportion of their shares is \$24 million with the Q2 is only \$7.8 million.

The mean growth rate is 64% for the firms listed on the MSE. The 50^{th} percentile (Q2) of this variable is 6% suggesting that half of the firms have a relatively slower growth rate. The 75^{th} percentile (Q3) of growth rate is about 20% indicating that 75% of the firms have a growth rate lower than 20%. The firms where the government owned a proportion of the shares have a relatively lower growth rate (52%) than that of the all firms sample. However, the 50^{th} and 75^{th} percentiles of the firms where the government owned a proportion of their shares are close to those for the whole sample.

The mean leverage ratio is 430% which is very high, while the leverage ratio for those firms where the government owned some of their shares was just 166%. However, the 50^{th} percentile (Q2) for the whole sample was about 112% suggesting that 50% of the firms are dependent on external resources by less than 112%. The Q2 for the firms where government owned a proportion of the shares is slightly lower (106 %).

The average BETA value is only 0.14 indicating that the stocks of non-financial firms listed on the MSE are 86% less risky than the General Index of the market. In other words, this mean indicates that the non-financial firms, on average, have low BETA stock. Such stock is in general less risky and moves less than other stock in the stock market. If the market goes up, low BETA stocks go up less than the overall market. If the market falls, this stock falls less than the overall market. The firms where the government owned a percentage of their shares have a higher BETA (0.17) compared to the whole sample.

The average firm profitability value indicates that there is a return of 8% above the money that the shareholders invest in the firm. The firms where the government owned a proportion of the shares have a similar, albeit slightly higher, firm profitability ratio (8.5%).

From the above descriptive statistics, it can be noted that the means of most variables for those firms where the government owned a proportion of their equity did not differ much from those firms for the whole sample.

However, in order to investigate whether there was a significant difference between dividend policy in firms where the government owned a proportion of their shares (μ_{gov}) and the firms completely owned by the private sector ($\mu_{private}$), a t-test was carried out. The results are shown in Table 9.2. It can be seen that the means are statistically different at the 99.98 % confidence level.

Table 9.2
Two sample t-test to test the differences in means

Groups	Observations	Mean	Standard errors
Firms owned completely by the private sector	90	14.0500	3.2684
Firms where government owns a proportion of their shares	273	30.1703	2.7805
t-statistic	-3.7567		
p-value	0.0002		
Decision	Means are different		

9.4 Multicollinearity and Heteroscedasticity Test

As discussed in Chapter 5, multicollinearity among explanatory variables may result in wrong signs or implausible magnitudes in the coefficients and bias in the standard errors of the coefficients. To reveal the extent of this problem, a VIF test was conducted, as discussed in Chapter 5. The result is presented in Table 9.3. As can be seen, the mean VIF is 1.36, which is very low compared with the threshold value (10). The VIF for individual variables is also very low. This suggests that there is no problem of multicollinearity.

Table 9.3
Variance Inflation Function (VIF) for the explanatory variables

Variables	VIF	Tolerance
Institutional ownership(INST)	2.01	0.4987
Large shareholders(LSH)	1.66	0.6034
Government ownership (GOV)	1.59	0.6292
Firm size (MC)	1.46	0.6863
Firm profitability (PROF)	1.28	0.7791
Free cash flow (FCF)	1.13	0.8864
Business risk (BETA)	1.10	0.9101
Growth rate (GROW)	1.04	0.9643
Firm leverage (LEV)	1.01	0.9876
Mean of VIF	1.36	

A pair-wise correlation matrix among explanatory variables is used to check further for multicollinearity. The results are shown in Table 9.4. As expected, it can be seen that the majority of the correlation coefficients are relatively low suggesting that there is no sign of multicollinearity among these variables. Larger coefficients are seen amongst the variables describing ownership structure, which may be expected due the finite proportion of shares (100%) that may be owned by any single entity. However, the maximum correlation coefficient of 0.597 (between INST and LSH) remains sufficiently low that no substantial adverse effects on the models are anticipated.

Table 9.4
Correlation coefficients among the explanatory variables

Variables	GOV	INST	LSH	FCF	MC	GROW	LEV	BETA
Government ownership (GOV)	1.0000							
Institutional ownership(INST)	-0.4379	1.0000						
Large shareholders(LSH)	0.1157	0.5966	1.0000					
Free cash flow (FCF)	0.0411	-0.0168	0.0611	1.0000				
Market Capitalisation (MC)	0.3458	-0.0506	0.0309	0.1866	1.0000			
Growth rate (GROW)	-0.0723	0.1301	0.0514	-0.1732	-0.0868	1.0000		
Firm leverage (LEV)	-0.1804	0.1590	-0.0191	-0.0994	-0.1718	0.0743	1.0000	
Business risk (BETA)	0.0978	0.0641	0.0350	0.1272	0.2141	-0.0725	-0.1241	1.0000
Firm profitability (PROF)	0.0657	-0.0515	-0.0079	0.2996	0.4044	-0.1135	-0.1388	0.1512

The level of heteroscedasticity can be tested by plotting the residual squared against the predicted dependent variable ($\hat{y}$) to observe any systematic relationship between them. Figure 9.1 shows the relationship in the case of a pooled OLS regression of the dependent variable on the independent variables. This figure shows a systematic pattern between these two variables allowing us to conclude that heteroscedasticity is present in the data.

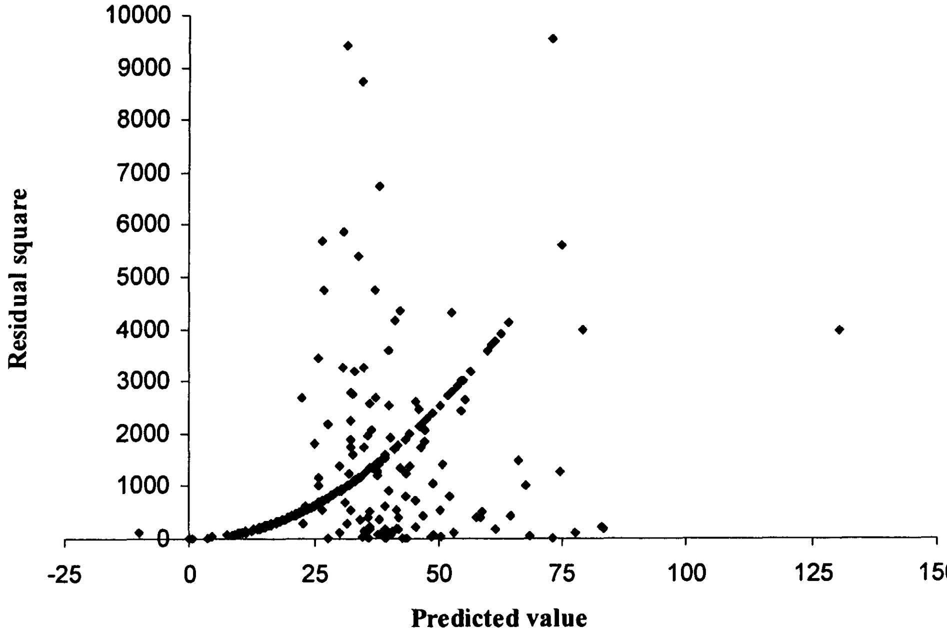

Figure 9.1: The pattern of estimated residual squared in the case of pooled OLS regression

The formal statistical test for heteroscedasticity (as discussed in Chapter 5) with the null hypothesis of constant variance across observations is also carried out. The test statistic is 71.07 with a p-value of 0. This result suggests the rejection of the null hypothesis at the 100% confidence level suggesting that the variance is not constant across all observations. Therefore, heteroscedasticity is present in the data and should b accounted for in the analysis. The application of panel data models together with the log transformation of the variables may reduce the impact of heteroscedasticity.

9.5 Estimation Results

As in the previous chapters, the fixed and random effects panel data regression models and the random effects Tobit model have been used to examine dividend policy of firms listed on the MSE. The results are discussed below.

9.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects models

This section presents the estimation results derived from three models: (1) the general model (Model 1) in which the explanatory variables are government ownership, free cash flow, firm size, growth rate, leverage ratio, business risk, and firm profitability, (2) Model 2 in which an additional variable, institutional ownership, is included along with the variables used in the general model, and (3) Model 3 in which government and institutional ownership are removed and replaced with a new variable, large shareholders (which includes any investors owned shares above 5% , whether they are government, institutions, and individual investors). Testing this type of ownership will facilitate investigation of whether the size of a shareholding is more significant that the fact of this being a government of an institutional owner and can therefore provide an additional explanation of the dividend policy.

9.5.1.1 The General Model (Model 1)

The results of the general model using the fixed effects and random effects models (without removing the outliers) based on the zero-skewness log transformation are shown in Table 9.5. Both models are also estimated after removing the outliers and the results are found to be similar, as shown in Table 9.5. Therefore, the rest of the interpretation of models will be based on results presented in Table 9.5.

Table 9.5
Panel Data Estimation Results with the zero-skewness log transformation for the MSE

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	**0.2364**	**1.90**	**0.2352**	**2.77**
ln (Free cash flow - Kfcf)	8.4804	0.90	2.5743	0.30
ln(Market caputalisation - Kmc)	**0.4166**	**2.40**	**0.5900**	**3.88**
ln(Growth rate - Kgrow)	**-0.5033**	**-1.55**	**-0.8845**	**-3.36**
ln(Firm leverage - Klev)	-0.0750	-0.75	-0.0271	-0.29
ln(Business risk - Kbeta)	0.9386	0.51	0.3148	0.18
ln(Firm profitability - Kroe)	**18.9245**	**2.68**	**22.8619**	**3.37**
Constant	-125.2963	-2.78	-132.1029	-2.95
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	3.1800		59.1300	
p-value>F	0.0030		0.0000	
Obervations				
Groups				
Overvations per group				
Minimum	3		3	
Maximum	5		5	
Average	4.8		4.8	
Model goodness-of-fit				
R-squared				
Within	0.1435		0.1399	
Between	0.3969		0.4300	
Overall	0.3070		0.3279	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	6.5300		173.4200	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	7.81			
p-value>Test statistic	0.3499			
Decision	**Random effects model**			

In the fixed and random effects models, robust standard errors were used to compute the t statistics. The F test (fixed effects model) and the Wald test (random effects model) were significant at the 95% level. The table shows that government ownership, firm size, growth rate, and firm profitability are the statistically significant variables in both regression models. Although the fixed effects and random effects models have the same set of statistically significant variables, the Hausman specification test indicates that the test statistic is 7.81 with a p-value of 0.35 indicating that the null hypothesis of the appropriateness of the random effects model over the fixed effects model cannot be rejected at the 95% confidence level. Hence, the random effects model is taken to be superior to the fixed effects model. Therefore, the remainder of the results are interpreted using the random effects model.

Furthermore, the Breusch-Pagan Lagrange multiplier test for testing random effects vs. OLS indicates that the random effects model is more appropriate for explaining panel data than the OLS regression model. The LM test statistic is 173.42 (p-value = 0.00), showing that the null hypothesis of accepting OLS over the random effects model can be rejected at the 100% confidence level. Therefore, the random effects model may be considered the appropriate model which takes into account individual-firm-specific unobserved effects as a random variable. The estimated unobserved individual-firm-specific effects range from 5.86 to -5.5 units leading to the conclusion that some firms have positive unobserved characteristics that affect dividend policy while other firms have negative specific effects.

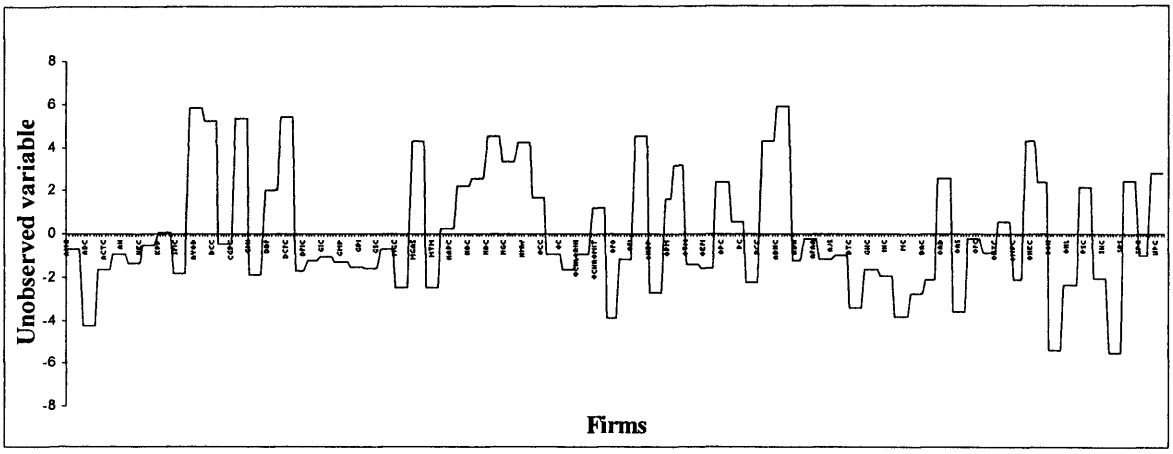

Figure 9.2: Estimated individual-firm-specific effects from the random effects model

The statistically significant variables at the 95% confidence level are government ownership, firm size, growth rate, and firm profitability and the insignificant variables are free cash flow, leverage ratio and business risk. Since the variables free cash flow, growth rate, leverage ratio and business risk are not statistically significant, the hypotheses associated with these variables (that is, H4, H7 and H8 as discussed in Chapter 5) could not be supported by the data from the 75 non-financial firms of the MSE.

Since the estimation of the coefficients shown in Table 9.5 is based on the zero-skewness log transformation of the variables, the coefficients are neither slopes nor elasticities, as discussed in Chapter 6. Therefore, the slopes and elasticities associated with the explanatory variables are estimated using equations 6.8 and 6.10 presented in Chapter 6. The results are shown in Table 9.6. It is observed that both the marginal effect and the elasticity of the dividend ratio with respect to government ownership are lower than the whole sample. On the other hand, firm size and profitability are higher in the MSE firms than those of the GCC firms with the exception of firm profitability which is lower.

Table 9.6
Slope coefficients and elasticities

Explanatory Variables	**Slop**	**Elasticity**
Government ownership (GOV)	**0.8195**	**0.2350**
Free cash flow (FCF)	6.2140	-0.0055
Firm size (MC) in 000US$	**0.0008**	**0.5953**
Growth rate (GROW)	**-6.9129**	**-0.1679**
Firm leverage (LEV)	-0.0016	-0.0268
Business risk (BETA)	2.0457	0.0109
Firm profitability (PROF)	**3.3180**	**0.9819**

The significant variables are described individually below.

Government Ownership

Government ownership is one of the explanatory variables that is statistically significant in explaining dividend payout ratio. This result supports the hypothesis (H1) that there is a positive relationship between dividend ratio and government ownership. The slope coefficient of this variable is 0.819 with a t-statistic of 2.77. In addition, the elasticity of the dividend payout ratio with respect to government ownership is 0.24 suggesting that, if all else were equal, a 10% increase in government ownership would lead to an increase of 2.4% in dividend payout ratio.

As described in the discussion of the KSE and the SSE, there are several explanations for the positive relationship between government ownership and dividend payout. One of them is that, because legal protection for shareholders is poor in Oman, as in other GCC countries, the agency cost is expected to be high. Therefore, the government, as a powerful investor, might act to protect the minority shareholders by influencing controlling shareholders to distribute higher dividends. This in turn builds the firm's reputation for not exploiting minority shareholders and helps to reduce agency problems (Glen et al., 1995; La Porta et al., 2000; Naser, 2004).

In addition, ongoing oil price fluctuations have driven the Oman government to develop the private sector to obviate heavy dependency on the public sector. Because investors prefer a cash dividend rather than capital gain, the government consequently uses the dividend as a tool to enhance firm reputation and attract small investors to investment in the private sector.

Gugler (2003) and Al-Malkawi (2005) argues that when government owns a proportion of firm shares they may face two types of conflicts. The first one is with citizens, since government representative may not act in the best interests of the citizen. The second one is with other managers who are interested in their own personal benefit. Paying a high dividend would tend to reassure citizens since a cash dividend is often preferable to reinvestment and this will also reduce the free cash in the hands of managers.

Glen et al., 1995; La Porta et al., 2000; Naser, 2004, add that firms with government ownership are also able to pay higher dividends because they have comparatively less difficulty raising funds to finance investment projects. In contrast, firms with no government ownership are more likely to experience difficulty raising funds and therefore are likely to depend on retained earnings for investment purposes.

Firm Size

The other statistically significant factor in explaining dividend payout policy is firm size. This result supports hypothesis (H5) which states that firm size and dividend ratio have a positive relationship. The slope coefficient of this variable is 0.0008 with a t-statistic of 3.88. This finding suggests that the dividend ratio increases as the firm size increases. The slope coefficient has a low value because the currency of the market capitalisation that is used as a measurement of firm size is US$ (thousands). The elasticity of the dividend payout ratio with respect to firm size was found to be 0.595 suggesting that, if all else are equal, a 1% increase in firm size would lead to an increase of about 0.6% in the dividend ratio. This is also consistent with the fact that larger firms normally pay a higher dividend ratio compared to smaller firms.

The reason for this positive association might be related to the fact that large firms will choose to pay a higher dividend ratio than small firms to reduce agency costs. Large companies are associated with high agency costs since widely spread ownership has more bargaining power and the influence of widespread ownership increases agency costs. Other explanation for this positive association is that bigger firms face less issuance cost for external financing and hence are advantageously positioned in the capital market to raise external funds at low cost (Jensen and Meckling, 1976; Smith, 1977; Lloyd et al., 1985; Eddy and Seifert, 1988; Alli et al, 1993; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000).

Growth Opportunities

Firm growth rate appears as a statistically significant variable in explaining dividend payout policy. The result suggests that there is a negative relationship between dividend ratio and growth rate which supports hypothesis (H6) presented in Chapter 5. The slope coefficient of this variable was -6.91 with a t-statistic of 3.36. Furthermore, the elasticity of the dividend payout ratio with respect to government ownership was found to be 0.168 suggesting that, if all else were equal, a 10% increase in a firm's growth rate would lead to an increase of about 1.7% in the dividend ratio. This negative association explains why firms will choose to pay a lower dividend when there is a high growth rate.

In Chapter 5 (section 5.2.4), it was argued that dividends play an incentive role. Dividend payments remove resources from the firm and so help to mitigate the agency costs of free cash flows. Therefore, firms with high growth opportunities are likely to pay lower dividends since they have lower free cash flows. This negative association also suggests that fast-growth firms listed on the MSE might choose to pay a lower dividend since growth requires higher expenditure and external sources of funding are costly (see among others , Rozeff, 1982; Lloyd et al., 1985; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998).

Firm Profitability

Firm profitability was also found to be statistically significant in explaining the dividend payout ratio of the firms listed on the MSE. The result supports the hypothesis (H9) which states that firm profitability and dividend ratio should have a positive relationship. The slope coefficient of this variable was 3.32 with a t-statistic of 3.37. Furthermore, the elasticity of the dividend payout ratio with respect to government ownership was found to be 0.98 suggesting that, if all else were equal, a 10% increase in firm profitability would lead to an increase of about 9.8% in the dividend ratio. This is the highest increase among the statistically significant variables.

This result is in line with the findings of Jensen et al. (1992), Han et al. (1999), and Fama and French (2000). Furthermore, the appearance of firm profitability as the most influential variable supports the argument of Adaoğlu (2000), Pandy (2001), Wang et al. (2002), and Al-Malkawi (2005). These studies identified earnings for the same year as the main factor in determining the cash dividend amount for a given year in emerging stock exchanges.

Statistically insignificant variables

The number of statistically insignificant variables in the random effects model for the case of the MSE sample is found to be fewer than the equivalent models estimated for the combined sample, the KSE and the SSE samples. The insignificant variables are free cash flow, leverage ratio, and business risk.

The variable - free cash flow - is the solitary agency theory variable that does not appear to affect dividend policy. This result is similar to that found for the combined sampl, the KSE and the SSE.

Furthermore, the variables such as leverage ratio and business risk also appear once again as insignificant in explaining dividend policy. This indicates that the firms listed on the MSE do not tend to look to its capital position and the riskiness of their business when making the dividend decision.

9.5.1.2 Models Specific to the Muscat Stock Exchange

9.5.1.2.1 Models with Institutional Ownership (Model 2)

As discussed previously, the MSE discloses additional details about ownership structure, such as information confirming the importance of institutional ownership. It was found that more than 45% of the shares of non-financial firms listed on the MSE are held by institutions. Chapters 4 and 5 reported several studies indicating that the fraction of ownership held by institutional investors is a significant factor influencing dividend policy (for example, Shleifer and Vishny, 1986; Jarrell and Poulsen, 1987; Brickley, Lease, and Smith, 1988; Graves and Waddock, 1990; Han et al., 1999). Consequently, the percentage of shares owned by institutional owners provides additional evidence about the dividend policy of companies listed on the MSE.

This section will now test the dividend payout policy of firms listed on the MSE after adding institutional ownership to the explanatory variables used in the general model presented above. The results of the fixed effects and random effects models are shown in Table 9.7 without removing the outliers. Both models are also estimated after removing the outliers. The results remain the similar to those shown in Table 9.7.

Table 9.7
Panel Data Estimation Results with the zero-skewness log transformation after the addition of institutional ownership (Model 2)

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	**0.2384**	**1.92**	**0.2326**	**2.75**
ln(Institutional ownership - Kinst)	1.9425	0.39	-1.0892	-0.28
ln (-Free cash flow - Kfcf)	8.8446	0.92	2.4230	0.28
ln(Firm size - Kmc)	**0.4195**	**2.42**	**0.5891**	**3.88**
ln(Growth rate - Kgrow)	**-0.5139**	**-1.58**	**-0.8696**	**-3.24**
ln(Firm leverage - Klev)	-0.0760	-0.76	-0.0228	-0.24
ln(Business risk - Kbeta)	0.8940	0.48	0.3505	0.20
ln(Firm profitability - Kprof)	**18.9559**	**2.69**	**22.8293**	**3.36**
Constant	-137.5969	-2.60	-125.3037	-2.66
Descriptive Statistics				
F test for Model Significant				
Statistic for randon effects	2.8800		59.8400	
p-value>F	0.0043		0.0000	
Obervations	363		363	
Groups	75		75	
Overvations per group				
Minimum	3		3	
Maximum	4.8		4.8	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.1439		0.1394	
Between	0.3898		0.4326	
Overall	0.3027		0.3294	
Fixed and Random effects vs OLS				
Pagan Lagrangian multiplier test for	6.5300		173.4200	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	3.43			
p-value>Test statistic	0.7537			
Decision	**Random effects model**			

Table 9.7 shows that the overall R-squared value of the fixed effects model decreased slightly from 0.31 (the general model - Model 1) to 0.30 after the inclusion of the additional variable (Model 2). On the other hand, the overall R-squared value of the random effects model remained the same. Therefore, it is not surprising that the new variable, institutional ownership, was not statistically significant in any of the models. The set of statistically significant variables in the general model and Model 2 are almost the same and the magnitudes of their slope coefficients are also very similar.

Similar to the results found for the case of the KSE presented in Chapter 7, the institutional ownership appears to be insignificant variable in explaining dividend policy although the institutions are major investors in non-financial firms listed on the MSE.

9.5.1.2.2 Model with Large Shareholders (Model 3)

As indicated in Chapter 5, Travlos et al. (2002) reported that large shareholders have a positive or negative effect on the dividend policy of firms listed on the emerging stock exchanges. The supporters of positive association argue that the firms with ownership concentrated in the hands of majority shareholders pay a large dividend. Firms also recognise the need to establish a strong reputation for avoiding the exploitation of minority shareholders. On the other hand the supporter of the negative association argue that when the proportion of large shareholders of the firm increases, they may act in their personal interests without regard for small shareholders (Shleifer and Vishny,1986; and Gugler and Yurtoglu, 2003; Mancinelli and Ozkan,2006). Model 3 will therefore examine the impact of large shareholders, whether government, institutions, or individuals.

The earlier statistical summary presented in section 9.3 indicated that large shareholders owned around 64% of the total shares of non-financial firms listed on the MSE for the period 1999-2003 (see also Table 9.4). The following models will examine how this high ownership percentage affected the dividend payment policy of non-financial firms listed on the MSE. The results of the fixed effects and random effects models without removing the outliers are presented in Table 9.8. Both models are also estimated after removing the outliers. The results are found to be similar as shown in Table 9.8. Therefore, the rest of the interpretation of the results will be based on the models presented in Table 9.8.

Table 9.8
Panel Data Estimation Results with the zero-skewness log transformation (Model 3)

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Large shareholders- lsh)	-0.0064	-0.64	-0.0090	-0.88
ln (-Free cash flow - Kfcf)	10.2768	1.12	3.1183	0.36
ln(Firm size - Kmc)	**0.4266**	**2.45**	**0.6405**	**4.12**
ln(Growth rate - Kgrow)	**-0.3876**	**-1.2**	**-0.8217**	**-2.98**
ln(Firm leverage - Klev)	-0.0485	-0.52	-0.0381	-0.41
ln(Business risk - Kbeta)	1.0408	0.56	0.5808	0.35
ln(Firm profitability - Kprof)	**19.2672**	**2.67**	**23.2885**	**3.43**
Constant	-131.4874	-2.93	-135.9320	-3.05
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	2.4300		44.4700	
p-value>F	0.0196		0.0000	
Obervations	363		363	
Groups	75		75	
Overvations per group				
Minimum	3		3	
Maximum	4.8		4.8	
Average	5		5	
Model goodness-of-fit				
R-squared	0.1309		0.1272	
Within	0.4474		0.4549	
Between	0.3095		0.3247	
Overall				
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	90.2600		173.4200	
p-value>F	0.0000		0.0000	
Hausman Test	Fixed vs Random effects			
Test statistic	10.25			
p-value>Test statistic	0.1748			
Decision	**Random effects model**			

Table 9.8 shows the normal panel data estimation results for the fixed effects and random effects models after removing the government ownership and institutional ownership variables and introducing large shareholders as a new variable.

The overall R-squared values of the fixed effects and random effects models were similar to those of the general model presented in Table 9.5. It is important to note here that firm size, growth rate, and firm profitability remained the significant explanatory variables in both the fixed effects and random effects models. The result regarding large shareholders in the fixed effects and random effects models shows that large shareholders - whether government, institutions, or individuals - negatively affected dividend policy, but this impact was not statistically significant. It might be important to note here that the influence of government ownership has effectively disappeared because the government owned only a small percentage of shares relative to the percentage held by other large shareholders.

9.5.2 Estimation Results for Random Effects Tobit Model

During the study period (1999-2003), and similar to the whole sample data related to all stock exchanges in GCC states, almost half of the firms listed on the MSE never paid dividend (36 firms out of 75); 24 firms paid dividend in some years but avoided paying dividend in other years. This means that 80% of the firms did not pay dividend consistently for the whole study period and only 20% of the firms paid dividend regularly.

9.5.2.1 The General Model (Model 1)

The distribution of the dividend payout ratio of the firms is shown in Figure 9.3. It is not surprising that the dividend ratio is right-skewed. As can be seen, 241 out of 363 observations have a zero value for the dividend payout ratio where zero values are due to the non-observability of the dividend payout ratio of the firms that decided not to distribute cash dividends. Therefore, the data are left censored at zero suggesting that the suitable model for the dividend policy in this case is the Tobit model as discussed in Chapter 5.

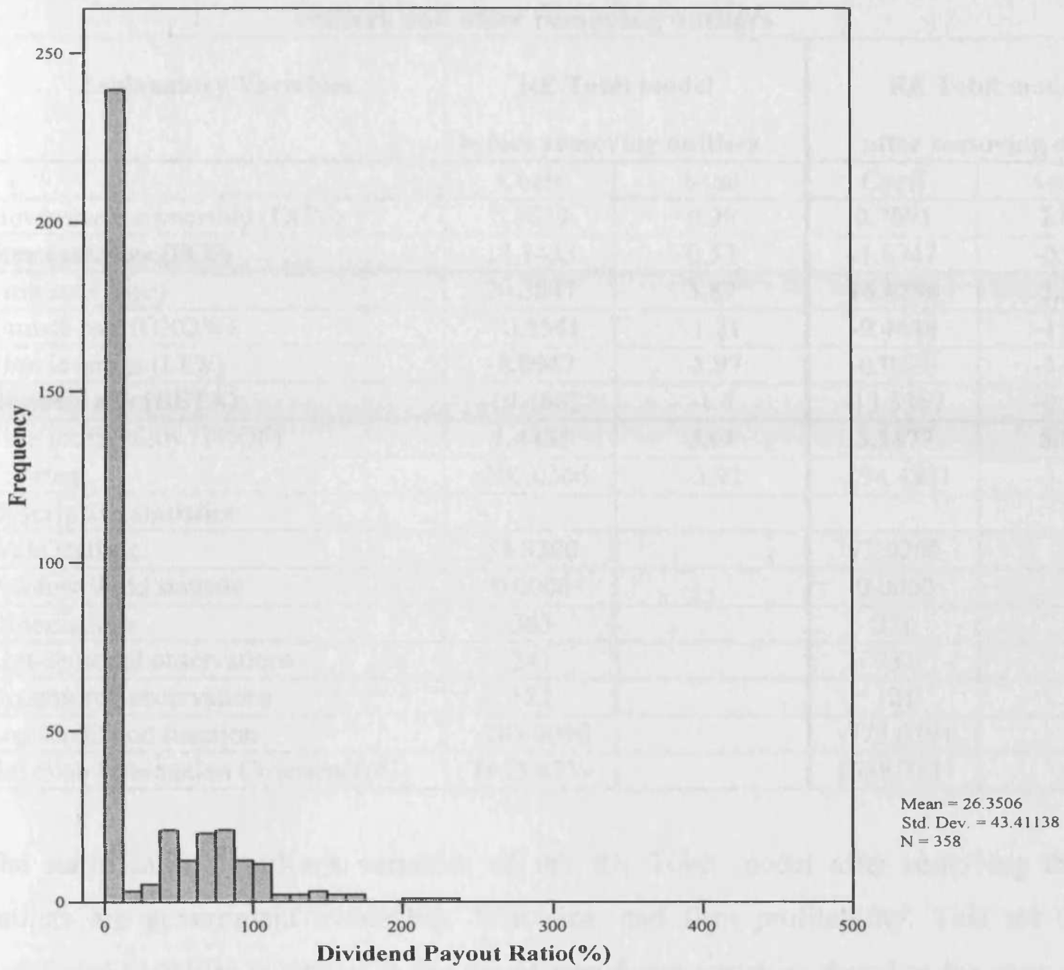

Figure 9.3: The frequency of dividend payout ratio

The RE Tobit model is estimated before removing the outliers and the results in presented in Table 9.9. The same model is also estimated after removing the outliers (see Table 9.9). It is noticeable that the sets of significant and insignificant variables are different in these two models and the values of the coefficients are also different. The log likelihood function for the second model is higher than that of the first model suggesting that the second model is superior to the first model. However, the number of observations is different in these two models and the direct comparison of log likelihood functions does not make sense. In order to resolve this, the statistic – BIC (Bayesian Information Criterion) is computed for both models. The results suggest that the second model is better than the first model as it has smaller BIC value (i.e., 1589 for the second model and 1615 for the first model). Therefore, the rest of the discussion will be based on the RE Tobit model after removing the outliers.

Table 9.9
Estimation Results for Random Effects Tobit Model: the results before removing outliers and after removing outliers

Explanatory Variables	**RE Tobit model before removing outliers**		**RE Tobit model after removing outliers**	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	0.3633	0.98	**0.7891**	**2.04**
Free cash flow (FCF)	13.1433	0.53	-1.6747	-0.07
Firm size(Size)	**20.3847**	**3.87**	**16.8296**	**3.33**
Growth rate (GROW)	-10.8541	-1.21	-9.4448	-1.04
Firm leverage (LEV)	**-0.0947**	**-1.97**	-0.0679	-1.45
Business risk (BETA)	-19.4662	-1.3	-13.5367	-0.87
Firm profitability (PROF)	**1.4438**	**3.61**	**3.1877**	**5.59**
Constant	-200.0306	-3.92	-194.4801	-3.93
Descriptive statistics				
Wald statistic	58.3300		73.9200	
P-value>Wald statistic	0.0000		0.0000	
Observations	363		358	
Left-censored observations	241		237	
Uncensored observations	122		121	
Log-likelihood function	-787.0098		-773.6394	
Bayesian Information Criterion(BIC)	1615.4739		1588.7331	

The statistically significant variables of the RE Tobit model after removing the outliers are government ownership, firm size, and firm profitability. This set of significant variables is similar to the set of significant variables found in the case of all stock exchanges of GCC states presented in Chapter 6 with the exception of leverage ratio; Leverage ratio was significant for the GCC states but was not significant for the MSE.

In order to facilitate the comparison of results between the normal random effects model without zero-skewness log transformation, the random effects model with zero-skewness log-transformation and the random effects Tobit model after removing the outlier, these are presented side-by-side in Table 9.10.

Table 9.10
Estimation Results for Random Effects Tobit Model

Explanatory Variables	**Linear FE (without Log Skewness Transformation)**		**Linear RE (with Log Skewness Transformation)**		**RE Tobit**	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.41**	**1.96**	**0.24**	**2.77**	**0.79**	**2.04**
Free cash flow (FCF)	1.07	0.19	2.57	0.30	-1.67	-0.07
Firm size(Size)	**6.79**	**4.12**	**0.59**	**3.88**	**16.83**	**3.33**
Growth rate (GROW)	**-0.46**	**-3.60**	**-0.88**	**-3.36**	-9.44	-1.04
Firm leverage (LEV)	0.00	0.89	-0.03	-0.29	-0.07	-1.45
Business risk (BETA)	-3.96	-1.10	0.31	0.18	-13.54	-0.87
Firm profitability (PROF)	**0.48**	**2.10**	**22.86**	**3.37**	**3.19**	**5.59**
Constant	-40.45	-3.09	-132.10	-2.95	-194.48	-3.93
Descriptive statistics						
Wald statistic	41.49		95.13		73.92	
P-value>Wald statistic	0.0000		0.0000		0.0000	
Observations	363		363		358	
Left-censored observations					237	
Uncensored observations					121	
Log-likelihood function					-787.01	

The coefficients in the normal random effects model with a zero-skewness log transformation and those in the random effects Tobit model do not represent the slope or the elasticity. Therefore, it would not be relevant to compare the magnitudes of the estimated parameters between the normal random effects model and the random effects Tobit model using the above table. It can be seen that the common significant variables among normal random effects model without zero-skewness log transformation, normal random effects model with zero-skewness log transformation, and random effects Tobit model are government ownership, firm size and firm profitability. The influence of growth rate was significant in the normal random effects model (with and without zero-skewness log) but insignificant in the random effects Tobit model. Thus the significant explanatory variables are less in the random effects Tobit model.

As discussed in Chapter 5, the coefficients of the random effects Tobit model represent the underlying propensity to pay dividend, that is, the impact of a change in an explanatory variable on the unconditional expectation of the unobserved or latent variable y^*. Figure 9.4 shows the comparison between the model predicted dividend ratio value at the expected $E(y \mid x)$ and the observed dividend ratio. As can be seen, there is very good agreement between them suggesting that the model fits the data quite well. The model estimated that the random effects Tobit model marginally over-predicts the dividend ratio and the model prediction error is only 5.8%.

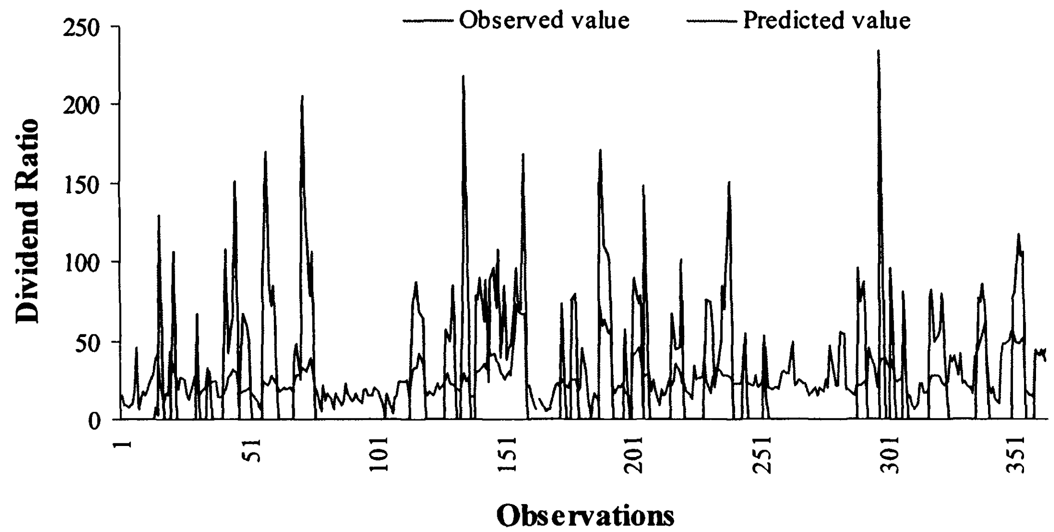

Figure 9.4: Observed and predicted values of dividend ratio

In addition to this, a paired sample t-test is conducted to investigate whether the means of the observed value and the predicted value are the same. The results are presented in Table 9.11. It can be found that the p-value associated with the test is 0.56 meaning that the means are not significantly different.

Table 9.11
A paired sample t-test

	Observation	**Mean**	**Standard errore**
Observed value	358	26.3506	2.2944
predected value	358	24.8209	1.2434
t-statestic	0.5862		
p-value	0.558		
Decision	**means are not diffrent**		

However, as mentioned in Chapter 6, the main interest is to estimate both marginal effects (ME) and elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in random effects Tobit model. This is achieved using equations 5.12 to 5.19 presented in Chapter 5. The results are shown in Table 9.12 for ME and Table 9.13 for elasticities.

Table 9.12
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables from

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	**0.2619**	**0.2204**
Free cash flow (FCF)	-0.5558	-0.4678
Firm size (MC) in 000 US$	**0.0004**	**0.0003**
Growth rate (GROW)	-3.1343	-2.6380
Firm leverage (LEV)	-0.0225	-0.0190
Business risk (BETA)	-4.4922	-3.7809
Firm profitability (PROF)	**1.0579**	**0.8903**

The values under the column headed marginal effects and the coefficients in random effects Tobit model (see Table 9.10) share the same signs. Furthermore, the censored (y) and truncated (y>0) variables have lower marginal effects compared to the marginal effects of the variables on the latent variable. One explanation for this finding would be the relative expected values of latent, censored, and uncensored variables as shown in Chapter 5, with values of $E(y^* \mid x) =$ -34.53, $E(y \mid x) =$ 24.82, and $E(y \mid y > 0, x) =$ 56.83.

Table 9.13
Elasticities of both censored and uncensored variables with respect to the continuous explanatory variables

	Elasticities	
Explanatory Variables	**Censored variable**	**Uncensored variable**
Government ownership (GOV)	**0.0784**	**0.0290**
Free cash flow (FCF)	0.0005	0.0002
Firm size (MC) in 000 US$	**0.2250**	**0.0833**
Growth rate (GROW)	-0.0563	-0.0209
Firm leverage (LEV)	-0.1861	-0.0689
Business risk (BETA)	-0.0231	-0.0086
Firm profitability (ROE)	**0.3168**	**0.1173**

Since the signs of the statistically significant variables, namely government ownership, firm size and firm profitability, remained the same in both the Tobit model and the random effects model presented in the previous section, the interpretations of these variables are not discussed in this section. However, here the growth rate appears as insignificant factor in explaining dividend policy. This supports the idea that firms may pay dividend without giving attention to their transaction costs.

9.5.2.2 Model Specific to the Muscat Stock Exchange

9.5.2.2.1 Model with Institutional Ownership (Model 2)

The estimation results for the random effects Tobit model after including institutional ownership to the general model (Model 1) and before removing the outliers are presented in Table 9.14. The same model is also estimated after removing the outliers and the results are also shown in Table 9.14. As can be seen, the results between these two models are different and the BIC statistic suggests that the RE Tobit model after removing the outliers is superior to the RE Tobit model before removing the outliers. Therefore, the discussion that follows will be based on the RE Tobit model after removing the outliers.

Table 9.14
Estimation Results for Random Effects Tobit Model: the results before removing outliers and after removing outliers (Model 2)

Explanatory Variables	RE Tobit model before removing outliers		RE Tobit model after removing outliers	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	0.2528	0.62	0.6045	1.39
Institutional ownership(INST)	-0.2153	-0.73	-0.3062	-1.02
Free cash flow (FCF)	13.9986	0.56	0.1443	0.01
Firm size(Size)	**20.6327**	**3.93**	**18.2278**	**3.48**
Growth rate (GROW)	-10.3201	-1.16	-8.9801	-0.99
Firm leverage (LEV)	**-0.0939**	**-1.95**	-0.0667	-1.43
Business risk (BETA)	-19.1703	-1.28	-14.4861	-0.93
Firm profitability (PROF)	**1.4303**	**3.59**	**3.2209**	**5.68**
Constant	-192.1163	-3.70	-191.4789	-3.67
Descriptive statistics				
Wald statistic	59.8000		72.7000	
P-value>Wald statistic	0.0000		0.0000	
Observations	363		358	
Left-censored observations	241		237	
Uncensored observations	122		121	
Log-likelihood function	-786.7762		-773.0901	
Bayesian Information Criteria(BIC)	1620.1884		1592.8162	

In order to see the difference in results between the linear RE model (with the additional institutional ownership variable and without the zero-skewness log-transformation), the linear RE model (with the additional institutional ownership variable and the zero-skewness log transformation) and the RE Tobit model (with the additional institutional ownership variable and after removing the outliers), the results from these three models are presented in Table 9.15.

Table 9.15
Estimation Results for Random Effects Tobit Models

Explanatory Variables	Linear FE (without Log Skewness Transformation)		Linear RE (with Log Skewness Transformation)		RE Tobit	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.37**	**1.79**	**0.23**	**2.75**	0.60	1.39
Institutional ownership(INST	-0.10	-0.92	-1.09	-0.28	-0.31	-1.02
Free cash flow (FCF)	1.60	0.29	2.42	0.28	0.14	0.01
Firm size(Size)	**6.74**	**4.10**	**0.59**	**3.88**	**18.23**	**3.48**
Growth rate (GROW)	-0.43	-3.45	-0.87	-3.24	-8.98	-0.99
Firm leverage (LEV)	**0.00**	**0.64**	**-0.02**	**-0.24**	-0.07	-1.43
Business risk (BETA)	-3.58	-0.97	0.35	0.20	-14.49	-0.93
Firm profitability (PROF)	**0.48**	**2.04**	**22.83**	**3.36**	**3.22**	**5.68**
Constant	-35.17	-2.60	-125.30	-2.66	-191.48	-3.67
Descriptive statistics						
Wald statistic	42.41		59.84		72.70	
P-value>Wald statistic	0.0000		0.0000		0.0000	
Observations	363		363		358	
Left-censored observations					237	
Uncensored observations					121	
Log-likelihood function					-773.09	

In common with the linear RE model (with and without the zero-skewness log transformation), the new variable, institutional ownership, is not statistically significant in the RE Tobit model after removing the outliers. The set of significant variables in the RE Tobit after removing the outliers shows some changes when compared with the set of significant variables in the general model (the model without the additional institutional ownership variable). In particular, the government ownership, which was significant in the general model for the MSE sample, becomes insignificant after adding the institutional ownership variable.

Marginal effects and elasticities of the dividend payout ratio with respect to the explanatory variables were estimated from the coefficients of Table 9.15 (RE Tobit Model) and shown in Tables 9.16 and 9.17 respectively.

Table 9.16
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit Model (Model 2)

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	0.2016	0.1693
Institutional ownership (INST)	-0.1021	-0.0858
Free cash flow (FCF)	0.0481	0.0404
Firm size (MC) in 000 US$	**0.0004**	**0.0003**
Growth rate (GROW)	-2.9953	-2.5153
Firm leverage (LEV)	-0.0222	-0.0187
Business risk (BETA)	-4.8317	-4.0574
Firm profitability (PROF)	**1.0743**	**0.9022**

Table 9.17
Elasticities of both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit Model

	Elasticities	
Explanatory Variables	**Censored variable**	**Uncensored variable**
Government ownership (GOV)	0.0593	0.0224
Institutional ownership (INST)	-0.1842	-0.0694
Free cash flow (FCF)	-5E-05	-2E-05
Firm size (MC) in 000 US$	**0.2407**	**0.0907**
Growth rate (GROW)	-0.0529	-0.0199
Firm leverage (LEV)	-0.1805	-0.0680
Business risk (BETA)	-0.0244	-0.0092
Firm profitability (PROF)	**0.3161**	**0.1191**

9.5.2.2.2 Model with Large Shareholders (Model 3)

Table 9.18 presents the estimation results for the RE Tobit model after excluding the government ownership and institutional ownership variables as independent variables and replacing them with the variable, large shareholders. The same model is estimated after removing the outliers. The results are also presented in Table 9.18. Although the set of significant variables between these two models are the same, the values of the coefficients, specifically for the variable, firm profitability are different.

The BIC statistic suggests that the second model is superior to the first model. Therefore, the second model is taken for being the more parsimonious model.

Table 9.18
Estimation Results for Random Effects Tobit Model: the results before removing outliers and after removing outliers (Model 3)

Explanatory Variables	**RE Tobit model before removing outliers**		**RE Tobit model after removing outliers**	
Explanatory Variables	Coeff	t-stat	Coeff	t-stat
Large Shareholders (LSH)	-0.3255	-1.29	-0.2793	-1.05
Free cash flow (FCF)	12.4701	0.51	-5.7071	-0.22
Firm size(Size)	**20.5568**	**4.05**	**20.4799**	**3.92**
Growth rate (GROW)	-10.4707	-1.18	-9.4051	-1.05
Firm leverage (LEV)	**-0.1037**	**-2.16**	**-0.0851**	**-1.76**
Business risk (BETA)	-18.8351	-1.27	-11.3127	-0.72
Firm profitability (PROF)	**1.3857**	**3.66**	**3.0306**	**5.38**
Constant	-176.7254	-3.22	-199.1137	-3.44
Descriptive statistics				
Wald statistic	59.6400		73.9200	
P-value>Wald statistic	0.0000		0.0000	
Observations	363		358	
Left-censored observations	241		237	
Uncensored observations	122		121	
Log-likelihood function	-787.2056		-774.5614	
Bayesian Information Criteria(BIC)	1615.8655		1590.5770	

In order to see whether there is any difference in results among results from the linear RE model (with the variable, large shareholder and without the zero-skewness log transformation), the linear RE model (with the variable, large shareholder and the zero-skewness log transformation), and the RE Tobit model (with the variable, large shareholder and after removing the outliers), the results from these three models are presented in Table 9.19.

Table 9.19
Estimation Results for Random Effects Tobit Model (Model 3)

Explanatory Variables	Linear FE (without Log Skewness Transformation)		Linear RE (with Log Skewness Transformation)		RE Tobit	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Large Shareholders (LSH)	-0.11	-0.98	-0.01	-0.88	-0.28	-1.05
Free cash flow (FCF)	0.92	0.17	3.12	0.36	-5.71	-0.22
Firm size(Size)	**7.14**	**4.29**	**0.64**	**4.12**	**20.48**	**3.92**
Growth rate (GROW)	**-0.46**	**-3.73**	**-0.82**	**-2.98**	-9.41	-1.05
Firm leverage (LEV)	0.00	0.20	-0.04	-0.41	**-0.09**	**-1.76**
Business risk (BETA)	-3.35	-0.92	0.58	0.35	-11.31	-0.72
Firm profitability (PROF)	**0.47**	**2.18**	**23.29**	**3.43**	**3.03**	**5.38**
Constant	-33.21	-2.29	-135.93	-3.05	-199.11	-3.44
Descriptive statistics						
Wald statistic	39.19		95.13		73.92	
P-value>Wald statistic	0.0000		0.0000		0.0000	
Observations	363		363		358	
Left-censored observations					237	
Uncensored observations					121	
Log-likelihood function					-774.56	

It can be seen that the new variable, large shareholder, is found to be statistically insignificant across all models presented in Table 9.19. All other results of the models presented in Table 9.19 remain the same as the results found in the general model (Table 9.9) and Model 2 (Table 9.15). The sets of significant and insignificant variables for all the models estimated for the firms listed on the MSE are presented in Table 9.20 and 9.21. It can be seen that the variables, firm size and firm profitability are statistically significant in all models estimated for the MSE.

Table 9.20
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit Model (Model 3)

Explanatory Variables	ME of E(y|x)	ME for E(y|y>0,x)
Large Shareholders (LSH)	-0.0938	-0.0786
Free cash flow (FCF)	-1.9172	-1.6049
Firm size (MC) in 000 US$	**0.0004**	**0.0004**
Growth rate (GROW)	-3.1594	-2.6448
Firm leverage (LEV)	-0.0286	-0.0239
Business risk (BETA)	-3.8002	-3.1812
Firm profitability (PROF)	**1.0181**	**0.8522**

Table 9.21
Elasticities of both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit Model (Model 3)

	Elasticities	
Explanatory Variables	Censored variable	Uncensored variable
Large Shareholders (LSH)	-0.2317	-0.0861
Free cash flow (FCF)	0.0018	0.0007
Firm size (MC) in 000 US$	**0.2653**	**0.0986**
Growth rate (GROW)	-0.0544	-0.0202
Firm leverage (LEV)	-0.2259	-0.0840
Business risk (BETA)	-0.0187	-0.0069
Firm profitability (PROF)	**0.2918**	**0.1085**

What is notable in model 3 is that leverage ratio appears as a new significant variables after it was insignificant in model 1 and 2 of the RE Tobit model. The leverage ratio is found to be statistically significant at 10% level, and negatively associated with the dividend payout ratio. This suggests that when there is an increase in leverage ratio than firms will chose to pay a lower dividend ratio. This is in line with hypothesis H6 presented in Chapter 5 (section 5.2.5). The marginal effects of this variable on y and $y > 0$ are found to be -0.03 and -0.02 respectively. This result suggests that a one unit increase in the leverage ratio would be followed by a decrease in 0.03 units in the dividend payout ratio for the complete sample, and 0.02 units for the firms who paid dividend throughout the study period, if all other factors remain constant. The elasticities of the dividend payout ratio with respect to the leverage ratio are -0.22 and -0.08 respectively, suggesting that when 10% increase in the leverage ratio, the dividend pay out ratio would decrease by about 2.2% for all firms and 0.8% for the firms who always pay dividend, if all other factors were to remain the same.

One explanation for this negative association is that highly-levered firms usually have a large duty towards transaction costs from external financing. Therefore, firms are required to hold their internal funds to meet their repayment obligations. This explanation is in line with Crutchley and Hansen, 1989; Mollah, 2001; Aivazian et al., 2004; Naser et al., 2004; and Al-Malkawi, (2005) among others. Furthermore, Jensen et al. (1992) and Agrawal and Jayaraman (1994) argue that high leveraged companies are obliged to creditors, which in turn might lead managers to reduce the available discretionary funds. As a result agency costs will also decrease. This argument supports the hypothesis that debt can be a substitution for dividend in controlling agency costs.

It is essential to clarify that the results for the different specifications of the general model (Model 1) support each other. In terms of testing the underlying hypotheses about the effect of different variables in the model, the specification is not important as far as all the variables except growth rate are concerned. The same set of independent variables (government ownership, firm size, and firm profitability) is found to be statistically significant across all random effect model specifications. Equally, the same set of explanatory variables (free cash flow, leverage ratio and business risk) is also found to be statistically insignificant across all models tested in this study. This may therefore be taken as a robust result that does not appear to be sensitive to the endogeneity of the regressors (shown by the fixed effects vs random effects comparison) nor to the non-payment of dividends (shown by the linear vs Tobit comparison). However, one ambiguous result is the effect of the firm's growth rate which is found to the statistically significant in the random effects Tobit model only.

9.6 Summary

The aim of this chapter was to investigate the dividend policy of non-financial firms listed on the Muscat Stock Exchange and to explain their dividend payment behaviour.

The chapter started by discussing the descriptive statistics of the sample, followed by testing for multicollinearity among the explanatory variables and heteroscedasticity in the sample data. After that, dividend policy was tested using the fixed effects and random effects models as well as the random effects Tobit model.

The findings of general model (in which the set of explanatory variables are the same as set of variables in the dividend policy model of the firms listed on the GCC states stock exchanges) based on the linear random effects specification revealed that an increase in government ownership and firm size would motivate firms to pay higher dividends in order to reduce agency cost conflict. On the other hand, the results show that firms pay lower dividends when firm growth rate is high to avoid the costly external sources of funds. Finally, the results found that firms choose to pay a higher dividend ratio as firm profitability increases. The findings of the RE Tobit model is similar to the linear random effect model except the growth rate which was insignificant in the RE Tobit model.

Since the MSE discloses additional details related to ownership structure, two additional models (Model 2 and Model 3) for each of the main models (fixed/random effects linear models and random effects Tobit model) were estimated to examine the impact of institutional shareholders (Model 2) and large shareholders (Model 3) on dividend payout policy. The results suggest that neither institutional ownership nor large shareholders affect dividend policy. However, while Government ownership remain significant in the normal random effects model for Model2 and Model3, it became insignificant in the random effects Tobit model. The next chapter discusses the findings regarding the dividend policy of firms listed on the Doha Stock Exchange in Qatar.

CHAPTER TEN

Dividend Payout Ratio of Companies Listed on the Doha Stock Exchange (DSE): Estimation Result

10.1 Introduction

The aim of this chapter is to employ fixed effects and random effects regression models and the random effects Tobit model to investigate the dividend policy of the non-financial firms listed on the Doha Stock Exchange (DSE). This chapter will also compare the factors affecting the dividend policy of the DSE with the factors affecting the dividend policy of the stock exchanges of GCC states presented in Chapter 6.

This chapter is organised as follows. First, the descriptive statistics of the sample data are provided. This is followed by a discussion of multicollinearity among the explanatory variables as well as testing heteroscedasticity. The next section describes the results obtained from the fixed effects and random effects regression models. The results of the Hausman test are then discussed leading to the choice of the appropriate model (fixed vs. random). This chapter then presents the results from the random effects Tobit model.

10.2 Preliminary Description of Firms

In Qatar, there were 19 non-financial firms listed on the Doha Stock Exchange (DSE) at the end of 2003. However, because around half of these non-financial firms were established recently, the study sample was based on only 10 firms for which data about dividend ratios and the characteristics of firms were available for the duration of the entire study period (1999-2003).

The ten firms can be classified into two groups: firms where the government owned a proportion of their shares and firms owned completely by the private sector. There was a huge difference between these groups in terms of firm size (based on market capitalisation) and realised net profits. The average firm size of the firms where the government owned a portion of their shares were US$ 784 million which is about nine times larger than the average firm size of the firms owned completely by the private sector (US$ 91 million). Similarly, the mean profit of the firms where the government owned a proportion of the shares was US$10.2 million about seven times higher than that of the firms owned completely by the private sector. One of the unique characteristics of the firms listed on the DSE is that although the firms where the government owned a proportion of their shares had higher net profits, they distributed lower dividends (47%) compared to the firms owned completely by the private sector, which distributed 59% of their profits as dividend.

10.3 Descriptive Statistics

Table 10.1 presents the descriptive statistics for the variables used in the dividend policy models of the DSE.

Table 10.1
Descriptive statistics of the variables used in the study for non-financial firms listed on the Doha Stock Exchange for the period 1999 – 2003

Variables	Mean		Std. Dev.		Quartiles					
					Q1		Q2		Q3	
	ALL	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS	**ALL**	GS
Dividend ratio (DIV)	**52.236**	47.492	**30.610**	22.024	**36.000**	36.000	**56.000**	46.200	**70.600**	69.000
Government ownership (GOV)	**20.390**	35.291	**20.622**	14.197	**0.000**	20.000	**18.700**	43.100	**43.100**	43.300
Free cash flow (FCF)	**0.039**	0.158	**0.287**	0.173	**-0.070**	0.020	**0.070**	0.150	**0.200**	0.330
Market Capitalisation (MC)$000	**491131**	783785	**867872**	1041533	**41850**	141516	**113400**	315900	**486000**	1244700
Growth rate (GROW)	**0.587**	1.072	**2.757**	3.573	**-0.010**	0.090	**0.100**	0.160	**0.180**	0.370
Firm leverage (LEV)	**134.813**	73.846	**335.160**	72.386	**16.100**	18.800	**43.800**	45.250	**100.300**	104.700
Business risk (BETA)	**0.452**	0.610	**0.520**	0.570	**0.010**	0.030	**0.270**	0.545	**0.860**	1.250
Firm profitability (PROF)	**13.836**	18.838	**10.850**	11.379	**8.300**	12.500	**12.400**	15.050	**15.700**	18.900

Key:
ALL = Data for all firms
GS = Data from the firms where the government owned a proportion of the shares

The descriptive statistics show that the average dividend ratio paid by the firms is 52% and the average dividend ratio paid by the firms in which the government owned a proportion of their shares is 47%. It is interesting to note that the firms in which the government owned a proportion of their shares normally paid higher cash dividends (see Tables 6.4, 7.1, 8.1, and 9.1). This is not true for the case of the firms listed on the DSE suggesting that there are not any firms that pay very high dividend ratio. The second quartile, Q2, of dividend payout ratio is 56% which is close to the mean. The third quartile, Q3, of dividend payout ratio is 70.6% indicating that 75% of the firms paid dividend ratio less than 70.6%. It is noticeable that the Q2 of the dividend payout ratio paid by the firms where the government owned a proportion of the shares is lower (i.e., 46%) than that of all firms (56%). The Q3 (69%) of dividend ratio paid by the firms where the government owned a proportion of their shares is very close to the overall Q3 (70.6%).

Table 10.1 also shows that the average government ownership is about 20% with a standard deviation of 20.6%. The second quartile, Q2, of this variable is 18.7% implying that 50% of the firms have government ownership of less than 18.7% of their shares.

The average free cash flow (FCF) is 0.039, meaning that the firms have around 4% of their total assets in excess of funds required for investment projects. However, the firms where the government owned a proportion of the shares have a higher free cash flow compared with firms as a whole (15% of total assets). The Q1, Q2 and Q3 of FCF also show that the firms in which where the government owned a proportion of their shares have higher free cash flow than the whole sample. Therefore, one can expect that the firms in which the government owned a percentage of their equity might pay higher dividend ratio. This is because high free cash flow might provide inside shareholders with an opportunity to engage in more distorted and wasteful diversionary practices and consequently increase the agency costs if this free cash flow is not distributed as dividend.

The mean value of market capitalisation (MC) is $491 million for the whole sample and US$ 784 million if the government owned a proportion of their shares. The second and third quartiles (i.e., Q2 and Q3 respectively) of this variable also illustrated that the firms in which the government owned a proportion of their shares are large-sized firms. For instance, the Q2 of MC for those firms where the government owned a proportion of the shares is US$ 316 million, while the Q2 for the all-firm sample is $113 million. The Q3 of MC is US$1.2 billion for the firms in which the government owned a percentage of the shares and $486 million for all firms.

The mean growth rate for all firms is 0.59 and for the firms in which the government owned a proportion of their shares is 1.07. This finding implies that the firms where the government owned a proportion of the shares have larger and faster growth projects. The 50^{th} and 75^{th} percentiles (Q2 and Q3 respectively) also suggest that the firms owned partly by the government have a relatively faster growth rate than that of all firms. What might be notable here is that the 75^{th} percentile of the growth ratio is lower than the mean suggesting that there are a small number of firms whose growth rate ratios are extremely high, thus producing a higher mean for the sample.

The average leverage ratio suggests that around 135% of the firms' funds came from external resources. The average leverage ratio of the firms where the government owned a proportion of the shares is only 74% suggesting that they are less dependent on external resources. However, it is noticeable from the table that the Q2 for all firms is 44% indicating that around 50% of the firms are funded for less than 44% of their financial requirements by external resources. The Q2 for those firms where the government owned a percentage of the shares (45%) is very close to that of all firms.

The average systemic risk (BETA) is found to be 0.45 , meaning that the non-financial firms listed on the stock exchanges of the DSE are 55% (on average) less risky than those of the markets as a whole (General index, the value is 1). The BETA for those firms where the government owned some of their shares is 0.61 which is also lower than the market, but it is higher than the BETA than all firms listed on the DSE. However, while the 75^{th} percentile of this variable for the case of all firms is less than the BETA of the market and the 75^{th} percentile of the firms partly owned by the government is 25% which is above the market BETA.

Finally, the average value of firm profitability ratio is 14% suggesting that the firms listed on the DSE earn 14% above the money shareholders might have invested in them, which in turn might be the reason motivating firms to pay high dividends. The firms where the government owned a proportion of the shares have a higher profitability ratio (18.8%) compared with al firms.

In order to investigate whether there is a significant difference in the dividend payout ratio between the firms partly owned by the government (μ_{gov}) and the firms that are privately owned ($\mu_{private}$), a t test was carried out. The results suggest that these two means are not statistically different at the 95% confidence level.

Table 10.2
Two sample t-test to test for the differences in means

Groups	Observations	Mean	Standard errors
Firms owned completely by			
the private sector	19	58.72632	9.0022
Firms where government owns	26	47.49231	4.319341
a proportion of their shares	45	30.17033	2.7805
t-statistic	1.1251		
p-value	0.2707		
Decision	Means are not different		

10.4 Multicollinearity and Heteroscedasticity Tests

Multicollinearity between independent variables can be a major problem for analysis, as it leads to bias in the standard errors, and results in incorrect estimates and wrong conclusions. Therefore, a VIF test was carried out to see whether the explanatory variables are correlated. As can be seen, the mean VIF was 2.58, which is low compared with its threshold value (10). The VIF for individual variables was also considerably less than 10, making it clear that the explanatory variables are not substantially correlated with each other.

Table 10.3
Variance Inflation Function (VIF) for the explanatory variables

Variables	VIF	Tolerance
Firm size (size)	4.87	0.2053
Government ownership (GOV)	4.11	0.2433
Firm profitability (PROF)	3.22	0.3105
Business risk (BETA)	1.86	0.5372
Free cash flow (FCF)	1.74	0.5759
Firm leverage (LEV)	1.14	0.8793
Growth rate (GROW)	1.13	0.8837
Mean VIF	2.58	

A pair-wise correlation matrix was also estimated as an additional test to investigate whether the explanatory variables are correlated. The results are shown in Table 10.4. It can be seen that most of the correlation coefficients were extremely low. However, the correlation coefficient between market capitalisation and firm profitability is 0.83 and government ownership and firm profitability is 0.79 which are high. However, a transformation (such as zero-skewness log transformation) of these variables reduces the observed correlations (to 0.7 and 0.59 respectively).

Table 10.4

Correlation coefficients among the explanatory variables

Variables	GOV	FCF	MC	GROW	LEV	BETA	PROF
Government ownership (GOV)	1						
Free cash flow (FCF)	0.5876	1					
Market Capitalisation (MC)	0.6389	0.3513	1				
Growth rate (GROW)	0.2372	0.1084	0.1325	1			
Firm leverage (LEV)	-0.1745	0.0058	-0.1281	0.035	1		
Business risk (BETA)	0.2642	-0.0255	0.4058	0.2575	-0.0921	1	
Firm profitability (PROF)	0.7879	0.5579	0.8347	0.1342	-0.0472	0.2265	1

In order to check for heteroscedasticity, a graph of the residual squared against the predicted dependent variable ($\hat{y}$) was drawn. This graph, as shown in Figure 10.1, shows a non-systematic pattern between the two variables indicating that heteroscedasticity may not be present in the sample data.

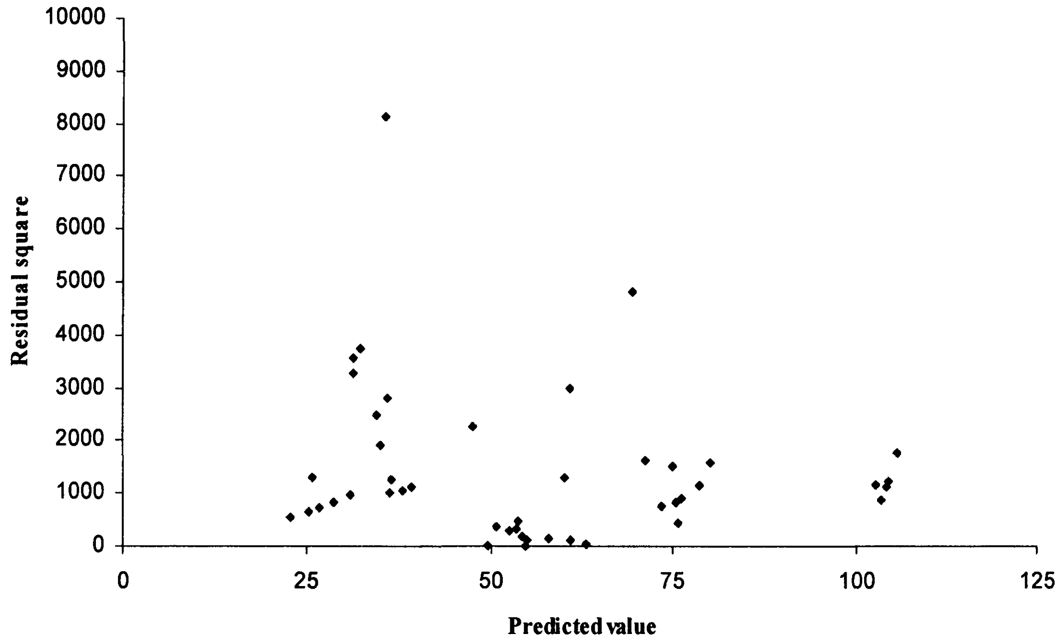

Figure 10.1: The pattern of estimated residual squared in the case of pooled OLS regression

This result may be due to the fact that there are only 45 observations in the data which may not be sufficient to provide a systematic pattern between the predicted value of the dependent variable and the squared residuals. However, the Breusch-Pagan heteroscedasticity test was carried out to see whether heteroscedasticity is present in the data. The associated test statistic was found to be 0.51 with a p-value of 0.473 suggesting that the null hypothesis of homoscedasticity cannot be rejected. However, the small sample size of the DSE sample may not guarantee that this is the case. In order to be consistent with the other samples and to further investigate whether the observations are homoscedasticity, both the fixed effects and random effects panel data models will be investigated with the log-transformation of the variables.

10.5 Estimation Results

This section introduces the results on the dividend policy models of the non-financial firms listed on the DSE using the two model forms described in Chapter Five. As for the other case studies, these are the normal fixed and random effects panel data regression models and the random effects Tobit model.

10.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects models (the General Model)

The results for the fixed effects and random effects models using the zero-skewness log transformation of the variables are presented in Table 10.5. This shows the results of the fixed effects and random effects models for the firms listed on the DSE without removing the outliers when the zero-skewness log transformation is used. These models also estimated after removing the outliers. However, the F-test and Wald test are not significant and the sample does not produce the Hausman test statistics. This may be due to the fact that there are only 43 observations and the removal the outliers makes the sample even smaller and causes difficulty in estimating statistics. Therefore, the rest of the discussion will be based on the models presented in Table 10.5 without removing the outliers.

In these two models, robust standard errors which reduce the serial correlation in the data are used to compute t-statistics. The F-statistic and the Wald statistic suggest that both the fixed and random effects models are significant at the 95% confidence level. The same set of variables such as growth rate and firm profitability appears to be statistically significant in both models. The results differ considerably from the GCC models presented in Chapter 6 where the significant variables are government ownership, firm size, and profitability The overall goodness-of-fit (R-squared) of the fixed effects model is very close to the R-squared of the random effects model (0.23). Both the incremental F-test and the LM test suggest that the unobserved effects within the sample data are significant.

Table 10.5
Panel Data Estimation Results with the zero-skewness log transformation for the DSE

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	(dropped)		-0.1587	-0.44
ln (Free cash flow - Kfcf)	2.0804	0.19	-7.5905	-0.54
ln(Market caputalisation - Kmc)	0.3892	1.24	0.2190	0.89
ln(Growth rate - Kgrow)	**-4.8378**	**-3.71**	**-4.5752**	**-3.7**
ln(Firm leverage - Klev)	-0.0089	-0.06	-0.0508	-0.28
ln(Business risk - Kbeta)	-2.1974	-0.66	-1.1490	-0.38
ln(Firm profitability - Kprof)	**65.4949**	**1.72**	**49.2731**	**1.64**
Constant	-340.8898	-1.65	-232.5814	-1.4
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	2.6400		26.9600	
p-value>F	0.0365		0.0003	
Obervations				
Groups				
Overvations per group				
Minimum	3		3	
Maximum	4.5		4.5	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.5789		0.5665	
Between	0.1421		0.1481	
Overall	0.2083		0.2323	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	12.9100		16.1300	
p-value>F	0.0000		0.0001	
Hausman Test	Fixed vs Random effects			
Test statistic		1.94		
p-value>Test statistic		0.9251		
Decision	**Random effects model**			

In order to see whether the unobserved effects are fixed (allowing correlation between the observed explanatory variables and the unobserved effects) or random (the effects are randomly distributed across firms), the Hausman test was carried out. The test statistic was found to be 1.94 with the p-value of 0.93 suggesting that the null hypothesis of "appropriateness of the random effects" cannot be rejected at the 95% confidence level. Therefore, the rest of the results are interpreted using the random effects models to reveal the dividend policies of firms.

Based on the random effects model, the individual-firm-specific unobserved effects were estimated. The results are shown in Figure 10.2. This figure suggests that such effects range from 3.2 to -6.4 units, indicating that all firms except Q-Tel and Al-Ahli have positive unobserved effects on dividend policy.

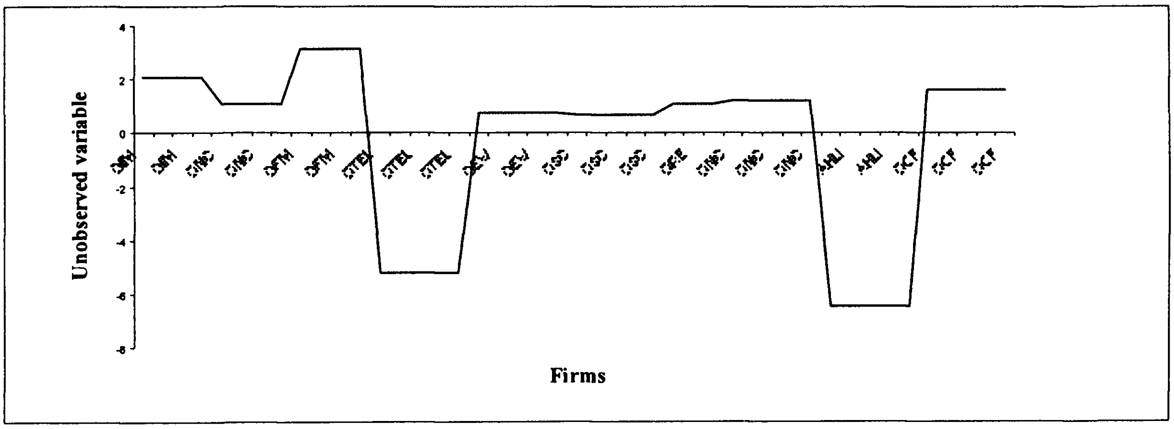

Figure 10.2: Estimated individual-firm-specific effects from the random effects model

The statistically significant variables at the 90% confidence level are growth rate and firm profitability and the insignificant variables are government ownership, firm size, free cash flow, leverage ratio, and business risk. Because government ownership, firm size, free cash flow, leverage ratio and business risk are not significant, the hypotheses associated with these variables (that is, H1, H4, H7 and H8, as discussed in Chapter 5) could not be supported by the data from the 10 non-financial firms listed on the DSE.

As discussed, the coefficients presented in Table 10.5 are neither slopes nor elasticities due to the zero-skewness log transformation of the variables. Therefore, the slopes and elasticities related with the explanatory variables were estimated using equations 6.8 and 6.10 presented in Chapter 6. The results are shown in Table 10.6. It is useful to note that 'firm profitability' is the only common variable that was significant in both the DSE and the stock exchanges of GCC states. Furthermore, the firms listed on the DSE had a higher marginal effects and elasticities of dividend payout ratio with respect to profitability than those of the firms listed on the stock exchanges of GCC states. This finding suggests that a 1% increase in firm profitability would increase dividend payout ratio by 3.7%.

Table 10.6
Slope coefficients and elasticities

Explanatory Variables	**Slop**	**Elasticity**
Government ownership (GOV)	-0.4065	-0.1587
Free cash flow (FCF)	-36.3566	-0.0272
Firm size (MC) in US$ 000	2E-05	0.2191
Growth rate (GROW)	**-72.4118**	**-0.8142**
Firm leverage (LEV)	-0.0191	-0.0492
Business risk (BETA)	-13.8284	-0.1197
Firm profitability (PROF)	**13.8051**	**3.6565**

Growth Opportunities

One of the two statistically significant factors influencing dividend payout decisions was the growth rate which was negatively associated with the dividend payout ratio. This result supports hypothesis H6 that there is a positive association between these two factors. The slope coefficient of this variable was -72.41 with a t-statistic of -3.7 suggesting that a one unit increase in the growth rate would lead to a decrease of about 72 units in the dividend payout ratio if all other factors were to remain constant. The elasticity of the dividend payout ratio with respect to the firm growth rate was found to be 0.81 suggesting that, if all else were equal, a 10% increase in firm profitability would lead to an increase of about 8.1% in the dividend payout ratio.

This negative association implies that the fast-growth firms listed on the Doha Stock Exchange might choose to pay a lower dividend since growth requires higher expenditure and external sources of funding are costly. In other words, the result indicates that firms with a high growth rate pay a lower dividend because such firms have a lower free cash flow and because external funding is costly, they therefore use internal funds for growth projects and hence pay a lower dividend (Rozeff, 1982; Lloyd et al., 1985; Titman and Wessels, 1988; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998).

Firm Profitability

The results show that firm profitability is also an influential factor (at the 90% confidence level) and affects the decision to distribute dividend. This finding is consistent with the hypothesis that the dividend ratio increases as firm profitability increases (H9). The slope coefficient of this variable was 13.81 with a t-statistic of 1.64. The elasticity of the dividend payout ratio with respect to firm profitability was 3.65 suggesting that, if all else were equal, a 1% increase in firm profitability would lead to an increase of about 3.65% in the dividend ratio. This finding explains why firms normally pay a higher dividend ratio when they realise a higher profit.

These results are in line with those of Adaoğlu (2000), Pandy (2001), Wang et al. (2002), and Al-Malkawi (2005) that explain the profitability of firms listed on emerging stock exchanges as a critical determinant of the dividend level they pay. The results also suggest that in developing countries where legal protection is limited, shareholders might take whatever they can get from the profit of firms regardless of dividend stability (La Porta et al., 2000).

Statistically insignificant variables

What important to note here is that the hypothesis of positive association between government ownership and dividend payout (H1) cannot be supported in this case. This is contrary to the findings of the KSE and SSE analyses. Thus the variable government ownership does not appear to play a role in protecting outside shareholders or in reducing agency conflict for the DSE.

It is worthwhile to mention here that among the GCC states, shareholders of the non-financial firms listed on the DSE are the shareholders most in need of protection. This need for protection exists because in Qatar there is an absence of statutory regulations for accounting and auditing standards. This absence will open the door to flexibility in accounting choices, which in turn provides an opportunity for inside owners and controlling shareholders to control a firm's assets and profits according to their personal interests, for example, by diverting corporate assets to themselves through outright theft, dilution of share issues to outside owners to the benefit of insiders, and executive salaries (La Porta et al., 2000).

Firm size also appears as insignificant explanatory variable in the DSE sample. This might be related to the fact that most of the large firms are owned partly by the government as there is a strong correlation between government ownership and firm size (See Table 10.4).

In common with the combined sample of the GCC states' listed firms, the free cash flow, leverage ratio, and business risk were also insignificant explanatory variables in the DSE sample.

10.5.2 Estimation Results for Random Effects Tobit Model (the General Model)

In contrast to the whole sample comprising data from all GCC countries, the majority of the firms listed on the DSE paid dividend for most years. It was found that about 82% of the observations had a positive dividend payout ratio in the sample data. Only 7 observations had a zero (0) dividend ratio out of 45 observations. This finding may suggest that the application of the Tobit model may not be appropriate to estimate the dividend ratio policy of the firms listed on the DSE. In this case, the pooled OLS and the Tobit model should provide similar results (Woolbridge, 2002). However, the results obtained from the OLS are significantly different from those of the Tobit model suggesting that the Tobit model remains appropriate.

The estimation results for the random effects Tobit model are presented in Table 10.7 (Model A). The random effects Tobit model is also estimated after removing the outliers. The results are also shown in Table 10.7 (Model B). Both the set of significant and insignificant variables and the values of the coefficient are different and according to their log-likelihood function, Model B is superior to Model A. This suggestion also supported by application of the BIC (Bayesian Information Criterion) test.

Table 10.7
Estimation Results for Random Effects Tobit Model: the results before and after removal of outliers

Explanatory Variables	Model A: Random effects tobit model before removing outliers		Model B: Random effects tobit model aftere removing outliers	
	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**-0.8747**	**-3.23**	**-0.9365**	**-3.42**
Free cash flow (FCF)	24.8380	1.18	26.3688	1.22
Firm size(Size)	**5.6103**	**1.69**	**5.5791**	**1.7**
Growth rate (GROW)	**-3.7318**	**-2.84**	1.1256	0.32
Firm leverage (LEV)	-0.0023	-0.31	-0.0038	-0.22
Business risk (BETA)	-1.3986	-0.21	0.9381	0.14
Firm profitability (PROF)	**0.7702**	**1.79**	**0.8050**	**1.86**
Constant	-17.4870	-0.49	-18.9430	-0.54
Descriptive statistics				
Wald statistic	25.0600		15.6100	
P-value>Wald statistic	0.0007		0.0290	
Observations	45		43	
Left-censored observations	7		37	
Uncensored observations	38		6	
Log-likelihood function	-173.4349		-168.5808	
Bayesian Information Criteria(BIC)	388.3241		378.6159	

Based on Model B, the statistically significant variables of this model are government ownership, firm size, and firm profitability. The firm leverage ratio, which was significant in the case of the model including all GCC stock exchanges, became insignificant in the case of the DSE model. In order to see the difference in results between the normal random effects model and the random effects Tobit model, two normal random effects models are also presented in Table 10.8. One of them represents the normal random effects model when the variables have not been transformed and the other represents the normal random effects model when the zero-skewness log transformation of the variables has been used.

The statistically significant variables of the RE Tobit model after removing the outliers are government ownership, firm size, and firm profitability. This set of significant variables is similar to the set of significant variables found in the case of all stock exchanges of GCC states presented in Chapter 6 except leverage ratio. Leverage ratio was significant for the GCC states but was not significant for the DSE.

In order to compare the results between the normal random effects model without zero-skewness log transformation, random effects model with zero-skewness log-transformation and the random effects Tobit model after removing the outlier are presented in Table 10.8.

Table 10.8
Estimation Results for Random Effects Tobit Model

Explanatory Variables	Linear FE (without Log Skewness Transformation)		Linear RE (with Log Skewness Transformation)		RE Tobit	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**-1.20**	**-3.68**	-0.16	-0.44	**-0.94**	**-3.42**
Free cash flow (FCF)	**46.95**	**3.14**	-7.59	-0.54	26.37	1.22
Firm size(Size)	2.08	0.58	0.22	0.89	**5.58**	**1.70**
Growth rate (GROW)	**-2.15**	**-4.29**	**-4.58**	**-3.70**	1.13	0.32
Firm leverage (LEV)	0.00	-0.11	-0.05	-0.28	0.00	-0.22
Business risk (BETA)	-6.21	-0.68	-1.15	-0.38	0.94	0.14
Firm profitability (PROF)	**1.54**	**2.33**	**49.27**	**1.64**	**0.80**	**1.86**
Constant	33.56	1.02	-232.58	-1.40	-18.94	-0.54
Descriptive statistics						
Wald statistic	166.54		26.96		15.61	
P-value>Wald statistic	0.00		0.00		0.03	
Observations	45		45		43	
Left-censored observations					37	
Uncensored observations					6	
Log-likelihood function					-168.58	

It might be worthwhile to mention that the coefficients in the normal random effects model without a zero-skewness log transformation represent the marginal effects of the variables while in the normal random effects model with zero-skewness log transformation and the random effects Tobit model (after removing the outliers) the coefficients do not represent either slopes or elasticities. Therefore, it is not meaningful to compare the magnitudes of the estimated parameters between the normal random effects models and the random effects Tobit model using Table 10.9. However, a comparison can be made in terms of significant and insignificant variables. The only common significant variables across the models were growth rate and firm profitability. The common insignificant variables were leverage ratio and business risk. The variable government ownership was significant in normal random effects model without zero-skewness log transformation and in the random effects

Tobit model (after removing the outliers) but was not significant in Model B. Free cash flow was significant only in normal random effects model without zero-skewness log transformation, while firm size was significant only in random effects Tobit model (after removing the outliers).

The set of significant variables in this random effects Tobit model related to the firms listed on the DSE was different from that of the random effects Tobit model presented in Chapter 6 (that is, for the case of the GCC). While the results for the whole sample indicate that government ownership, firm size, leverage ratio and profitability affected dividend payout ratio, the DSE sample results show that government ownership, firm size, and firm profitability were the influencing factors in explaining dividend payment policy. The common significant factors between these two models were government ownership, firm size, and profitability. It is interesting to note that government ownership affected the dividend ratio positively in the GCC sample but negatively in the DSE sample.

As discussed in Chapter 5, the coefficients of RE Tobit model represent the underlying propensity to pay dividend, that is, the impact of a change in an explanatory variable on the unconditional expectation of the unobserved or latent variable y^*. Figure 10.3 shows the comparison between the dividend ratio predicted by the model and the observed dividend ratio. It was found that the random effects Tobit model marginally over-predicted the dividend ratio with a model prediction error of 18.7%. This is quite high compared with the prediction errors of other countries and may be associated with the comparatively small sample size used here.

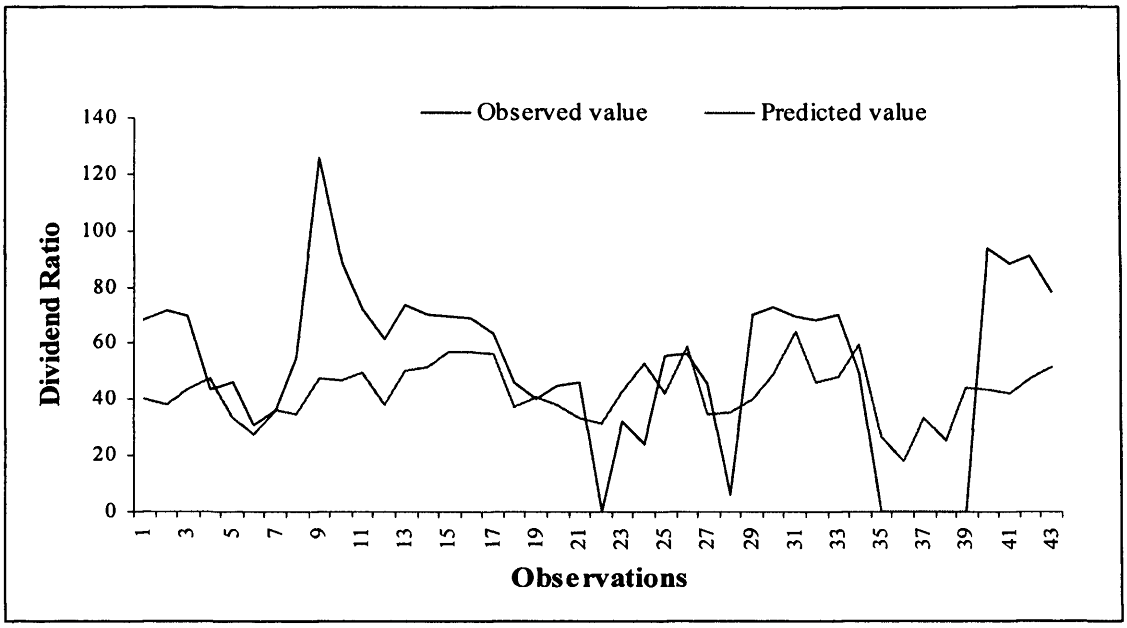

Figure 10.3: Observed and predicted values of dividend ratio

A t-test is conducted to see whether the means of the observed value and the model predicted value are the same. The results are presented in Table 10.9. It can be seen that the p-value associated with the test is 0.05 meaning that the means are significantly different. This different may be due to there being only 43 observations in the model: the degrees of freedom were also low, as it was necessary to estimate eight parameters.

Table 10.9
A paired sample t-test

	Observation	**Mean**	**Standard errore**
Observed value	43	52.7047	4.5544
predected value	43	42.8914	1.5328
t-statestic	2.0421		
p-value	0.0463		
Decision	**means are diffrent**		

As discussed in Chapter 6, the main focus of this study is to estimate both the marginal effects (ME) and elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in the RE Tobit Model which was attained using equations (5.26) to (5.28) and equations (5.30) to (5.37) presented in Chapter 5. The results are shown in Tables 10.10 for ME and 10.11 for elasticities.

Table 10.10
Marginal effects (ME) on both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit model

Explanatory Variables	**ME of E(y|x)**	**ME for E(y|y>0,x)**
Government ownership (GOV)	**-0.8090**	**-0.6167**
Free cash flow (FCF)	22.7772	17.3637
Firm size (MC) in US$000	**1E-05**	**8E-06**
Growth rate (GROW)	0.9723	0.7412
Firm leverage (LEV)	-0.0033	-0.0025
Business risk (BETA)	0.8103	0.6178
Firm profitability (prof)	**0.6954**	**0.5301**

The values of the coefficients in RE Tobit model (Table 10.7) and the values of marginal effects (ME) have the same signs. The ME of the variables on y^* is higher than those of the independent variables on the censored and truncated variables. The relative expected values of latent, censored, and uncensored variables, with values $E(y^* \mid x) = 39.98$, $E(y \mid x) = 42.89$, and $E(y \mid y > 0, x) = 49.70$, is an explanation for the shown behaviour.

Table 10.11
Elasticities of both censored and uncensored variables with respect to the continuous explanatory variables from RE Tobit model

Explanatory Variables	**δE(y|x)/δx**	**δE(E(y|y>0,x)/δx**
Government ownership (GOV)	**-0.3835**	**-0.2523**
Free cash flow (FCF)	0.0194	0.0128
Firm size (MC) in US$ 000	**0.1124**	**0.0739**
Growth rate (GROW)	0.0044	0.0029
Firm leverage (LEV)	-0.0068	-0.0045
Business risk (BETA)	0.0083	0.0055
Firm profitability (prof)	**0.2218**	**0.1459**

Government ownership was statistically significant and had a negative association with the dividend ratio. This finding suggests that when the government ownership of a firm increases, the firm chooses to reduce the dividend payout ratio. This result is in contrast to hypothesis H1 presented in Chapter 5. The marginal effects of this variable on y and $y > 0$ were found to be -0.809 and - 0.617 respectively, suggesting that when government ownership increases, firms choose to reduce the dividend payout ratio. The elasticity of the dividend payout ratio with respect to the leverage ratio was -0.384 and -0. 252, meaning that a 10 % increase in the government ownership would lead to a decrease of about 3.84% in the dividend payout ratio for all firms and 2.52% for the firms who always pay dividend, if all other factors remain the same.

This result explains that firms where the government owned a proportion of the shares would pay less dividend than firms owned completely by the private sector, which might be related to the growth rate, where those firms where the government owned a proportion of the shares have a higher growth rate (as discussed in the descriptive statistics, section 10.3). Therefore, they might prefer to use internal funds since external sources of funds are costly. Consequently, such firms would choose to reduce cash dividends. However this wrong sign might be related to the small size of DSE sample.

The second influencing variable in explaining dividend payment policy was firm size, which is consistent with the predicted hypothesis that larger firms pay higher dividends (H5). The marginal effects of this variable on y and $y > 0$ were found to be approximately 1E-05 and 8E-06. This finding suggests that when there is a thousand unit increase in the firm size, then this would lead to an increase in dividend ratio of 0.01 units for all firms and 0.008 for the firms who always pay dividends, if all other factors were to remain constant. The elasticity of the dividend payout ratio with respect to the leverage ratio was 0.112 and 0.074, meaning that a 10% increase in the leverage ratio would lead to an increase of about 1.12 % in the dividend payout ratio for all firms and 0.74% for the firms who always pay dividends if all other factors were to remain the same.

This result is consistent with those of Jensen and Meckling (1976), Smith (1977), Lloyd et al. (1985), Eddy and Seifert (1988), Alli et al. (1993), Jensen et al. (1992), Redding (1997), Holder et al. (1998), and Fama and French (2000). These studies found that large firms usually prefer to pay a higher dividend ratio than do small firms to reduce agency costs. Large firms are associated with high agency costs since widely spread ownership has more bargaining power and the influence of widespread ownership increases agency costs. Other explanation is that bigger firms face less issuance cost for external financing and hence are advantageously positioned in the capital market to raise external funds at a low cost.

Despite this, however, free cash flow appears as an insignificant variable as in the RE model in the previous section. Furthermore, the common variables of transaction cost (growth rate, leverage ratio and business risk) are insignificant. This suggests that transaction cost does not have a strong influence in dividend policy of firms listed on the DSE.

It should be noted that the results for the different specifications of the models are different in the case of the dividend policy models associated with the firms listed on the DSE. This is because the significant variables in the linear random effects model are growth rate and firm profitability. In the random effects Tobit model, firm profitability remains as a significant variable but the growth rate variable becomes insignificant. Firm size and government ownership appear as the new significant variables. Surprisingly, the government ownership variable is found to be negatively associated with the amount of dividend payout ratio for the case of DSE. This variable was consistently found to be positively associated with the dividend payout ratio for the whole sample (i.e., the firms listed on the GCC stock exchanges) and other samples (i.e., the firms listed on the Saudi Arabia stock exchange, Kuwait stock exchange, and Muscat stock exchange). The difference in sign of the variable for the case of DSE may due to the fact that there are only 45 observations from which eight parameters need to be estimated. In addition to this, the leverage ratio variable is found to be statistically insignificant in the random effects Tobit model for the case of the firms listed on the DSE. This variable was found to be significant in the case of the firms listed on the GCC stock exchanges.

10.6 Summary

The purpose of this chapter was to determine the dividend policies of non-financial firms listed on the Doha Stock Exchange for the period 1999-2003 and to explain their dividend policy. The chapter began with an explanation of the descriptive statistics of the sample. Then several tests were used for multicollinearity among the explanatory variables and heteroscedasticity. After that, dividend policy was examined using the fixed effects and random effects models and also the random effects Tobit model.

The results of the random effects model, which were subsequently confirmed by the Hausman test, showed that growth rate and firm profitability were significant factors that affected dividend policy. These results are not consistent with the whole sample (i.e. the firms listed on the GCC stock exchanges). The influence of government ownership and firm size, which were additional significant variables in explaining dividend policy for the whole sample, found to be insignificant for the firms listed on the DSE. On the other hand, growth rate, which was not significant in the dividend payout policy of the whole sample, became significant for the firms listed on the DSE.

However, the results of the Tobit model confirm that government ownership and firm size as well as firm profitability are statistically significant factors. The significance of firm size and firm profitability are consistent with the whole sample results. On the other hand, government ownership, which was positively significant in the whole sample, appears as a negatively significant explanatory variable in contrast to the predicted hypothesis.

The next chapter will describe the results of the dividend policy models of the firms listed on the Bahrain Stock Exchange.

CHAPTER ELEVEN

Dividend Payout Ratio of Companies Listed on the Bahrain Stock Exchange (BSE): Estimation Results

11.1 Introduction

This chapter presents the results of the dividend policy models of the firms listed on the Bahrain Stock Exchange (BSE). This includes the identification of the factors affecting the dividend payout policy of the firms and a comparison of the results with the dividend policy models of the firms listed on the GCC states stock exchange presented in Chapter 6. The fixed effects and random effects linear regression models and the random effects Tobit model described in Chapter 5 are used to estimate the model parameters. It should be noted that the total number of firms listed on the BSE is only 14, where the sample includes 12 firms of them with only 56 observations. This small sample may create a difficulty in estimating the dividend policy models and the results should be viewed with caution.

This chapter starts with a discussion of the descriptive statistics of the variables included in the models followed by a discussion on multicollinearity among the explanatory variables and a test for heteroscedasticity. After that, the results obtained from the fixed effects and random effects regression models are presented. The result of the Hausman test is then presented to select the appropriate model (fixed vs random). The chapter then presents results from the random effects Tobit model.

11.2 Preliminary Description of Firms

There were 14 non-financial firms listed in the BSE at the end of 2003. These listed firms were distinguished from firms listed on other GCC states stock exchanges in that the government owned a proportion of shares in all 14 non-financial firms. Figure 11.1 shows the percentage of a firm's share owned by the government for each of the 14 firms. The shares owned by the government exceeded 50% of total shares for four firms. An investigation revealed that these were normally large firms (that is, high value of market capitalisation) with high net profits. These firms also paid a high dividend ratio. For example, the Bahrain Telecommunication Company, in which the government owned 57% of the total shares, had the largest market capitalisation (US$ 1.6 billion), achieved the highest net profit (US$145 million), and paid a high dividend which was, around 76% (average) during the study period. The Bahrain Car Park Company in which the government owned 52% of its shares paid the highest dividend ratio (88.5%).

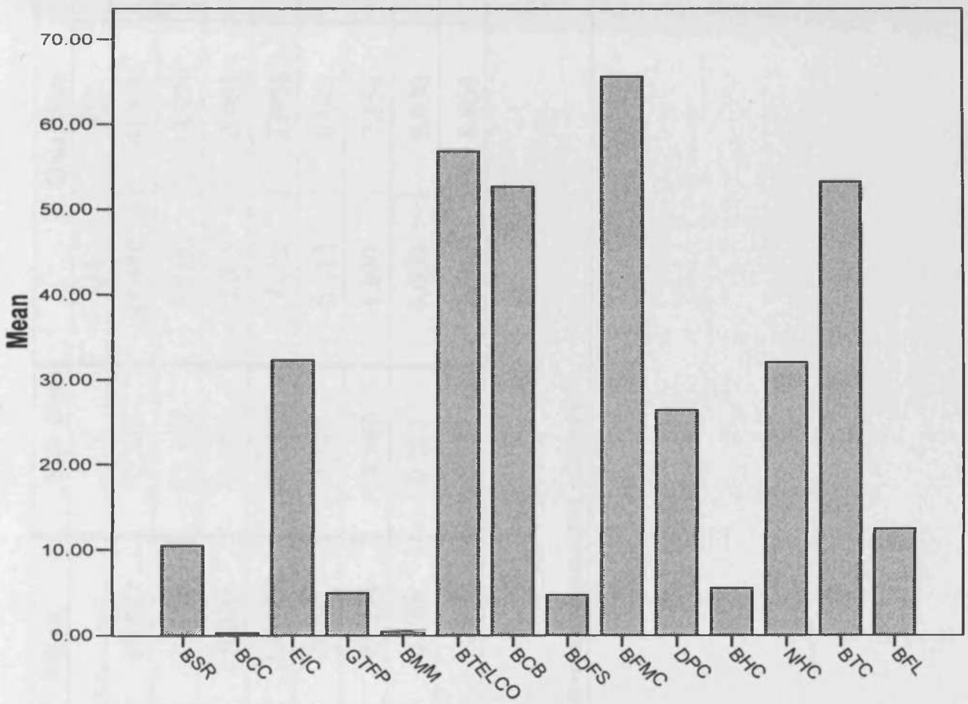

Figure 11.1 : Percentage of government ownership of each non-financial firm listed on the Bahrain Stock Exchange

11.3 Descriptive Statistics

Table 11.1 shows the descriptive statistics for the variables used in the study to examine the dividend policy of non-financial firms listed on the BSE for the period 1999 to 2003.

Table 11.1
Descriptive statistics of the variables used in the study for non-financial firms listed on the Bahrain Stock Exchanges for the period 1999-2003

Variables	Mean	Std. Dev.	Quartiles		
			Q1	Q2	Q3
Dividend ratio (DIV)	64.027	32.983	44.650	61.500	77.300
Government ownership (GOV)	27.955	23.672	5.525	14.970	53.240
Free cash flow (FCF)	0.020	0.180	-0.095	0.005	0.140
Market Capitalisation (MC)$000	139129	405225	14152	23956	40475
Growth rate (GROW)	0.392	2.102	-0.015	0.040	0.090
Firm leverage (LEV)	19.338	28.980	4.800	7.850	22.100
Business risk (BETA)	0.088	0.257	0.000	0.030	0.075
Firm profitability (PROF)	10.302	6.387	5.500	8.850	12.800

Key
ALL =Data from all firms listed on the BSE
GC =Data from the firms where the government owned a proportion of shares

It can be seen from the descriptive statistics that the mean dividend ratio is 64% suggesting that the firms within the BSE distribute 64% (on average) of their net profit as cash dividends. The second quartile (Q2) of this variable is 61.5% which is close to the mean indicating that there are not any firms paid very high dividend. The third quartile (Q3) of dividend payout ratio is 77.3 suggesting that there are 75% firms which chose to distribute a cash dividend below 77.3% of their realised profits.

Table 11.1 shows that the government owned 28% (on average) of firms' shares. The second quartile (Q2) of this variable is 15% and the third quartile (Q3) is 53%.

The average free cash flow is 0.02 indicating 2% of excess of funds are required for all projects. The second quartile (Q2) and the third quartile of this variable is 0.005 and 0.14.

The mean value of market capitalisation (MC) is US$139 million. However, the third quartile (Q3) of MC is only US$40 million which is less than the mean. This is unusual and the possible reason is that there are a very small number of very large firms whose MC values are high and thus cause a higher mean for the sample.

The average firm growth rate is around 39%. The 50^{th} percentile (Q2) of this variable is 5% suggesting that the half of the firms has a relatively slower growth rate. The mean leverage ratio of the firms listed on the BSE is 19.3% suggesting that 19.3% of funds depended on external sources. The 50^{th} percentile of this variable is no more than 8% suggesting that 50% of the firms finance less than 9% of their projects from the external recourses. The third quartile (Q3) is 22%.

The mean value of systemic risk (BETA) is 0.09 explaining that non-financial firms listed on the BSE had a lower BETA than the markets. This low BETA (less than 1) suggests that these firms have relatively greater stability than the market as a whole and/or have a low correlation with the market behaviour.

Finally, the descriptive statistics for the profitability ratio (PROF) show that the firms of the BSE earned 10% above the money shareholders might have invested in them.

11.4 Multicollinearity and Heteroscedasticity Test

The VIF statistic was carried out to see whether there is any multicollinearity among the variables. The results suggest that there is not any problem of multicollinearity (see Table 11.2).

Table 11.2
Variance Inflation Function (VIF) for the explanatory variables

Variables	VIF	Tolerance
Firm profitability (PROF)	2.1	0.4766
Government ownership (GOV)	1.92	0.5195
Firm size (MC)	1.8	0.5547
Business risk (BETA)	1.72	0.5808
Firm leverage (LEV)	1.58	0.6319
Free cash flow (FCF)	1.21	0.8263
Growth rate (GROW)	1.12	0.8944
Mean VIF	1.65	

In addition to the VIF test, a pair-wise correlation matrix among the explanatory variables is also estimated to look for strong signs of multicollinearity. The results are shown in Table 11.3. It can be seen that the correlation coefficients are low for most of variables suggesting that there are no of multicollinearity among these explanatory variables.

Table 11.3
Correlation coefficients among the explanatory variables

Variables	GOV	FCF	MC	GROW	LEV	BETA	PROF
Government ownership (GOV)	1.0000						
Free cash flow (FCF)	0.1382	1.0000					
Market Capitalisation (MC)	0.3259	0.2237	1.0000				
Growth rate (GROW)	-0.1055	-0.1949	-0.0472	1.0000			
Firm leverage (LEV)	-0.3850	0.0295	0.0343	-0.0825	1.0000		
Business risk (BETA)	0.2542	0.1757	0.7380	-0.0508	0.0440	1.0000	
Firm profitability (PROF)	-0.1118	0.3308	0.5009	-0.1961	0.4186	0.4150	1.0000

To look for any signs of heteroscedasticity in the sample data, a graph of the residual squared against the predicted dependent variable ($\hat{y}$) is drawn. This is shown in Figure 11.2. It seems that there is no systematic relationship between these two variables suggesting that there may not be any problem of heteroscedasticity in the data. However, there are only 56 observations which may not be sufficient to test for the presence of heteroscedasticity using this graphical method.

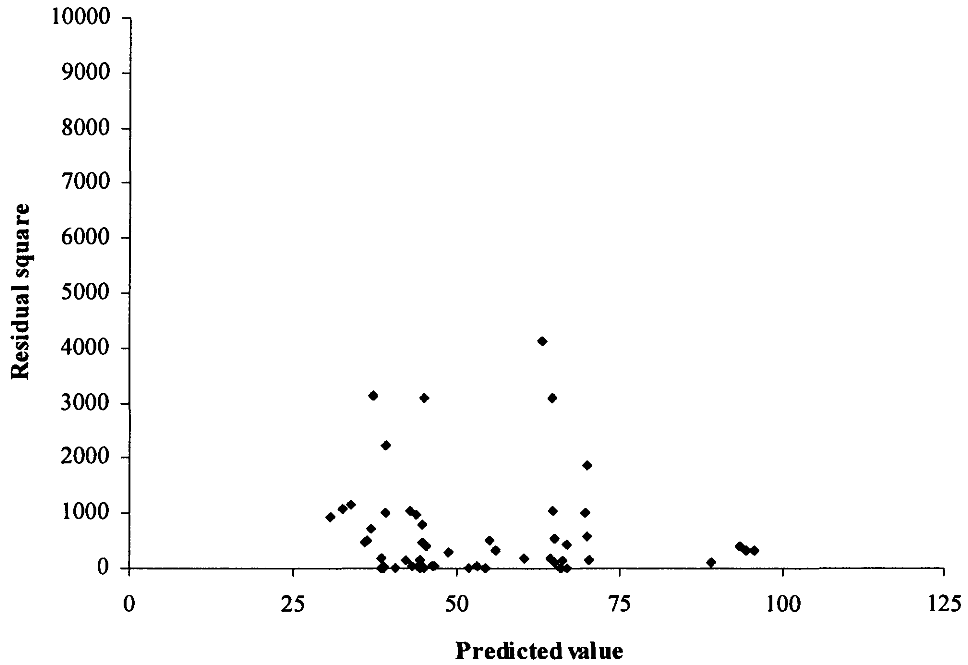

Figure 11.2: The pattern of estimated residual squared in the case of pooled OLS regression

Therefore, a formal test is used to see whether heteroscedasticity is present in the data. The test statistic is found to be 3.21 with a p-value of 0.073. Although the null hypothesis of homoscedasticity cannot be rejected at the 5% significance level, it can be rejected at the 10% significance level. This means that there is evidence of some heteroscedasticity in the data that should be accounted for in the modelling process.

11.5 Estimation Results

This section presents the results of the dividend policy model analysis of the firms listed on the BSE using the two models related to individual-firm specific effects; (1) normal fixed and random effects panel data regression models and (2) random effects Tobit model. The results from these two models are explained below.

11.5.1 Linear Panel Data Modelling Results: the fixed effects and random effects models (the General Model)

The results of the fixed effects and random effects models based on the zero-skewness log transformation of the variables are presented in Table 11.4. These models are termed as the general models (Model 1) as the explanatory variables included in these models are the same as the variables included in the models presented in Chapter 6 (for the case of the combined set of firms listed on the GCC stock exchanges).

Table 11.4 shows the results from the fixed effects and random effects models in which t-statistics are estimated using robust standard errors. Although the fixed effects model are significant as indicated by the F-test, the Wald test indicates that the random effects model is not significant. Moreover, the sample data do not support to conduct the Hausman test. The Hausman test cannot be performed in this case because of difficulties inverting the variance – covariance matrix for the difference in the estimates. Moreover, there are only 56 observations in the sample data and seven parameters need to be estimated.

Both the fixed effects and the random effects models are re-estimated after removing the outliers. It should be noted that there is only one outlier in this sample data. The results are found to be the similar to Table 11.4 (see Table 11.5). That is that the Wald test again suggests that the random effects model is insignificant and the Hausman test is inconclusive.

Table 11.4
Panel Data Estimation Results with the zero skewness log transformation

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	0.6600	1.03	**0.4243**	**1.83**
ln (Free cash flow - Kfcf)	-21.9484	-1.12	-4.6684	-0.42
ln(Market caputalisation - Kmc)	-0.0393	-0.74	0.2650	1.2
ln(Growth rate - Kgrow)	4.7785	5.16	-0.2024	-0.09
ln(Firm leverage - Klev)	2.0413	1.27	0.1587	0.42
ln(Business risk - Kbeta)	3.8372	1.18	-6.9209	-1.2
ln(Firm profitability - Kprof)	2.3308	0.1	21.8164	1.29
Constant	26.7422	0.24	-93.4672	-1.14
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	6.6300		4.6600	
p-value>F	0.0000		0.7016	
Obervations	56		56	
Groups	12		12	
Obvervations per group				
Minimum	3		3	
Maximum	4.7		4.7	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.4975		0.0027	
Between	0.0324		0.3164	
Overall	0.0219		0.1485	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	9.2600		10.1300	
p-value>F	0.0000		0.0015	
Hausman Test	Fixed vs Random effects			
Test statistic		-23.7		
p-value>Test statistic				

Table 11.5
Panel Data Estimation Results with the zero skewness log transformation - after removing the outliers

Dependent variable=Dividend Ratio	Fixed Effects		Random Effects	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
ln(Government ownership - Kgov)	0.6239	0.97	**0.4113**	**1.81**
ln (Free cash flow - Kfcf)	-19.3180	-1.03	-4.1628	-0.36
ln(Market caputalisation - Kmc)	-0.0420	-0.80	0.2798	1.23
ln(Growth rate - Kgrow)	**4.7305**	**5.01**	-0.1352	-0.06
ln(Firm leverage - Klev)	1.9497	1.19	0.1719	0.46
ln(Business risk - Kbeta)	3.6609	1.17	-7.4754	-1.27
ln(Firm profitability - Kroe)	6.4885	0.26	23.5302	1.37
Constant	-0.5858	0.00	-103.1021	-1.22
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	6.2700		4.4400	
p-value>F	0.0001		0.7276	
Obervations	55		55	
Groups	12		12	
Obvervations per group				
Minimum	3		3	
Maximum	4.6		4.6	
Average	5		5	
Model goodness-of-fit				
R-squared				
Within	0.0499		0.0097	
Between	0.0245		0.3152	
Overall	0.0283		0.1606	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	5.8600		11.3100	
p-value>F	0.0000		0.0008	
Hausman Test		Fixed vs Random effects		
Test statistic		-16.16		
p-value>Test statistic				
Decision				

Table 11.6
Panel Data Estimation Results without log Skewness Transformation

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
Government ownership (GOV)	0.8494	1.24	**0.4918**	**2.28**
Free cash flow (FCF)	23.7537	0.82	19.7760	1.21
Firm Size (SIZE)	-0.6283	-0.50	**6.9948**	**1.90**
Growth rate (GROW)	**10.2028**	**7.92**	**6.1333**	**3.19**
Firm leverage (LEV)	0.0507	0.14	0.1376	0.79
Business risk (BETA)	9.9041	1.02	-4.7783	-0.41
Firm profitability (PROF)	-4.3663	-1.49	-1.4244	-1.56
Constant	85.4256	3.90	-12.3071	-0.34
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	13.800		40.110	
p-value>F	0.000		0.000	
Obervations	56		56	
Groups	12		12	
Obvervations per group				
Minimum	3		3	
Maximum	5		5	
Average	4.7		4.7	
Model goodness-of-fit				
R-squared				
Within	0.5183		0.3509	
Between	0.1448		0.406	
Overall	0.2032		0.3179	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	8.9900		0.3500	
p-value>F	0.0000		0.5533	
Hausman Test		Fixed vs Random effects		
Test statistic		-2.45		
p-value>Test statistic				
Decision				

Table 11.7
Panel Data Estimation Results for the BSE without log Skewness Transformation after removing the outliers

Dependent variable=Dividend Ratio	**Fixed Effects**		**Random Effects**	
Explanatory Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**
Government ownership (GOV)	0.3526	0.96	**0.3498**	**1.77**
Free cash flow (FCF)	-1.2842	-0.08	9.3795	0.66
Firm Size (SIZE)	-0.9942	-0.77	4.7924	1.52
Growth rate (GROW)	**9.8770**	**8.52**	**7.7797**	**6.18**
Firm leverage (LEV)	-0.2168	-0.77	0.0421	0.21
Business risk (BETA)	7.5218	0.98	1.7827	0.22
Firm profitability (PROF)	-1.8410	-1.05	-0.9123	-1.03
Constant	81.6094	4.25	7.9361	0.26
Descriptive Statistics				
F test for Model Significant				
F-statistic for Fixed effects and Wald Statistic for randon effects	15.0400		82.4100	
p-value>F	0.0000		0.0000	
Obervations	55		55	
Groups	12		12	
Obvervations per group				
Minimum	3		3	
Maximum	5		5	
Average	4.6		4.6	
Model goodness-of-fit				
R-squared				
Within	0.6102		0.5115	
Between	0.0010		0.1030	
Overall	0.1630		0.3037	
Fixed and Random effects vs OLS				
F-statistic for Fixed effects Breusch and Pagan Lagrangian multiplier test for random effects	5.8600		11.3100	
p-value>F	0.0000		0.0008	
Hausman Test		Fixed vs Random effects		
Test statistic		4.24		
p-value>Test statistic		0.752		
Decision		**Random effects model**		

Both random effects and fixed effects models are also re-estimated with the original values of the variables (that is, without using the zero-skewness log transformation) after removing the outliers. The results are presented in Table 11.7. According to the F-test and the Wald test, both the fixed and random effects models are found to be significant. The Hausman test suggests that the random effects model cannot be rejected. Therefore, the rest of the discussion will be based on this random effects model, with outliers removed, and with no log-transformation applied.

As can be seen in Table 11.7, two variables are now statistically significant in the random effects models. These are government ownership and growth rate. The slope coefficients and the elasticities associated with all the variables are presented in Table 11.8 in which elasticities are estimated at the means of explanatory variables.

Table 11.8
Slope coefficients and elasticities

Explanatory Variables	**Slope coeff**	**Ealsticity**
Government ownership (GOV)	**0.3498**	**0.1527**
Free cash flow (FCF)	9.3795	0.0030
Firm size (MC) in US$000	0.0344	0.0748
Growth rate (GROW)	**7.7797**	**0.0476**
Firm leverage (LEV)	0.0421	0.0127
Business risk (BETA)	1.7827	0.0024
Firm profitability (PROF)	-0.9123	-0.1468

Since free cash flow, growth rate, firm leverage, business risk, and firm profitability are found to be statistically insignificant, a number of hypotheses (H4, H5, H7 and H8) set out in Chapter 5 (section 5.2) could not be supported for the firms listed on the BSE. The interpretation of the significant variables is given below.

Government Ownership

The aforementioned results show that government ownership is efficient in explaining the dividend payout decision of the firms listed on the BSE. This is in line with the hypothesis that the dividend ratio increases when the percentage of shares held by the government increases (H1). The slope coefficient of this variable is 0.35 with a t-statistic of 1.77. The elasticity of the dividend payout ratio with respect to government ownership is 0.15 suggesting that, if all else were equal, a 10% increase in government ownership would lead to an increase of about 1.5% in the dividend payout ratio. This supports the observation that firms normally pay a higher dividend ratio when the government owned a proportion of the shares compared to those firms owned totally by the private sector.

The results for the Bahrain sample show that as the proportion of shares owned by the government increases, the firm will tend to choose to pay higher dividends. As for the previous analyses of the KSE, the SSE and the MSE, a set of potential mechnisms may explain this behaviour.

One reason for this positive association was proposed by Gul (1999a) who suggested that as government ownership increases; firms will be able to distribute higher cash dividends because government investor can attract external funds more, therefore they have relatively less difficulty raising funds to finance investment projects. In contrast, firms with less government ownership are more likely to experience difficulty raising funds and are therefore likely to depend on retained earnings for investment purposes.

Another reason expounded by Glen et al., 1995; La Porta et al., 2000; Naser, 2004 is that in emerging economies, governments play an important role in the dividend decision-making process. This is informed by the belief that investors need protection in countries with poor legal protection, and because the government is a powerful owner and invests for income purposes, then managers will be forced to disgorge cash in order to maintain the firm's reputation.

Gugler(2003) and Al-Malkawi (2005) related the positive association between the dividend payout ratio and government ownership to the double agency problem. That is, an agency conflict may appear between citizens and government representatives who may not perform in accordance with citizens' interests. Then an additional conflict may occur between the government ownership and other managers who may be interested more their personal interests than those of the firm. For these reasons, governments may force firms to pay high dividends in order to reduce the duplicated agency problem.

The other reason for the positive association is that because of oil price fluctuations, the government motivates firms to pay higher dividends in order to encourage investment in the private sector and consequently reduce the heavy dependency of the economy on the public sector. Because investors in Bahrain, as in other GCC countries, tend to prefer a cash dividend rather than capital gain, the government then uses the dividend as a tool to attract investment from the private sector.

Growth rate

Growth rate has a specific characteristic related to the BSE's sample compared with the whole sample of GCC states listed firms. The result is in line with the hypothesis that fast growth firms may choose to pay higher dividends. The slope coefficient of this variable is 7.78 where the t-statistic of 6.18 suggests that when the growth rate increases by one unit, the dividend payout ratio will increase by 7.78 units if all other explanatory variables remain constant. The elasticity of the dividend payout ratio with respect to growth rate is found to be 0.05 suggesting that, if all else were equal, a 10% increase in the firm growth rate would lead to an increase of about 0.5 in the dividend payout ratio.

These results are not consistent with the findings by Rozeff (1982), Lloyd et al. (1985), Jensen et al. (1992), Dempsey and Laber (1992), Alli et al. (1993), Moh'd et al. (1995) and Holder et al. (1998) but consistent with the results obtained by Travlos et al (2002) and La Porta et al. (2000). According to Travlos et al. (2002), one explanation for this positive relationship is that in countries where legal protection is low for shareholders, firms are likely to increase dividends to maintain their reputation until they experience better investment opportunities. In countries with better legal protection for shareholders, fast growth firms pay low dividends because legally protected shareholders are willing to wait for their dividend when investment opportunities are good (La Porta et al., 2000).

Statistically insignificant variables

Surprisingly, and in contrast with previous findings, firm profitability in the case of the BSE sample was an insignificant explanatory variable. This may suggest that these firms might have a stable and long-term dividend policy and therefore the dividend payout policy of any given year is not affected a great deal by the firm profitability for the same year. Such dividend policy might result from fact that the Bahrain government owns shares in all firms listed and they might encourage the firm to follow a stable dividend policy. However, a more mundane explanation for this discrepancy may be the relatively small sample size available for the BSE in this study, rather than any distinctive difference in firm behaviour.

In common with all previous samples the free cash flow remains insignificant in the BSE sample. Firm size, leverage ratio, and business risk also appeared as insignificant variables. As before, this combination suggests that transaction costs ar not a major determinant of dividend policy for these firms.

11.5.2 Estimation Results for Random Effects Tobit Model: the General Model

A unique characteristic of the firms listed in the BSE compared to others examined in this study is that they all paid dividend and they almost all paid it consistently throughout the study period. Only one firm did not pay dividend for three years. Therefore, the factors affecting the dividend policy in the case of the BSE may be different from those of the whole sample.

The estimation results for the random effects Tobit model are presented in Table 11.9 (Model A). The model parameters were estimated using the maximum likelihood estimation (MLE) method. The random effects Tobit model is also estimated after removing the outliers. The results are also shown in Table 11.9 (Model B). Both sets of significant and insignificant variables and the values of the coefficients are different and according to log-likelihood function, Model B is superior to Model A. This is also supported by the BIC (Bayesian Information Criterion) test, which was computed for both models. The results show that model B is superior (i.e. more parsimonious) to model A as it has smaller BIC value (i.e., 524 for the model B and 543.4 for model A).

Table 11.9
Estimation Results for Random Effects Tobit Model: the results before removing outliers and after removing outliers

Explanatory Variables	Model A: RE Tobit model before removing outliers		Model B: RE Tobit model after removing outliers	
Government ownership (GOV)	**0.4840**	**1.77**	**0.3081**	**2.41**
Free cash flow (FCF)	17.2347	0.77	1.8355	0.13
Firm size(Size)	3.5843	0.84	1.2940	0.53
Growth rate (GROW)	**8.9277**	**4.00**	**9.6610**	**7.09**
Firm leverage (LEV)	0.0830	0.39	-0.0943	-0.93
Business risk (BETA)	7.8661	0.41	7.1514	0.6
Firm profitability (PROF)	-1.7290	-1.59	**-1.0434**	**-1.93**
Constant	24.5116	0.53	47.9088	1.92
Descriptive statistics			-	-
Wald statistic	23.35		73.7800	
P-value>Wald statistic	0.0015		0.0000	
Observations	56		55	
Left-censored observations	3		3	
Uncensored observations	53		52	
Log-likelihood function	-255.5993		-245.90	
Bayesian Information Criteria(BIC)	543.4014		523.8595	

Only 3 out of the 56 observations have zero (0) dividend ratio. This suggests that the Tobit model may not be more appropriate than the linear models to investigate the dividend policy of the firms listed in the BSE. However, in order to be consistent with other dividend policy models associated with other countries, the random effects Tobit model (i.e., Model B in Table 11.9) is chosen.

The statistically significant variables of the random effects Tobit model after removing the outliers are government ownership, growth rate and firm profitability[4]. It should be noted that the coefficient for the firm profitability provides a different sign to that expected. This is a surprising result as one would expect that if firm profitability increases then cash dividend also increases. This is found by a number of studies such as Jensen et al.(1992), Han et al.(1999), Fama and French (2000), Wang et al.(2002), Pandy (2001), and Al-Malkawi (2005). Firm size which was significant in the case for all GCC model, becomes insignificant in the case for the BSE model. For the purposes of comparison, the results of the normal random effects model

[4] Firm profitability is statistically insignificant at the 95% confidence level.

without a zero-skewness log transformation, the random effects model with zero-skewness log-transformation and the random effects Tobit model after removing the outliers are presented in Table 11.10. As discussed, the random effects model with log skewness zero transformation is insignificant. The results of the other two models are similar in terms of significant variables except for the variable firm profitability.

Table 11.10
Estimation Results for the BSE

Explanatory Variables	**Linear FE (without Log Skewness Transformation)**		**Linear RE (with Log Skewness Transformation)**		**RE Tobit**	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Government ownership (GOV)	**0.35**	**1.77**	**0.41**	**1.81**	**0.31**	**2.41**
Free cash flow (FCF)	9.38	0.66	-4.16	-0.36	1.84	0.13
Firm size(Size)	4.79	1.52	0.28	1.23	1.29	0.53
Growth rate (GROW)	**7.78**	**6.18**	-0.14	-0.06	**9.66**	**7.09**
Firm leverage (LEV)	0.04	0.21	0.17	0.46	-0.09	-0.93
Business risk (BETA)	1.78	0.22	-7.48	-1.27	7.15	0.60
Firm profitability (PROF)	-0.91	-1.03	23.53	1.37	**-1.04**	**-1.93**
Constant	7.94	0.26	-103.10	-1.22	47.91	1.92
Descriptive statistics					-	-
F statistic (FE) and Wald statistic (	82.41		4.44		73.78	
P-value>Test Statistics	0.00		0.7276		0.0000	
Observations	55		55		55	
Left-censored observations					3	
Uncensored observations					52	
Log-likelihood function					-245.90	

The findings of this random effects Tobit model for the case of the BSE are partly consistent with the results of the random effects Tobit model presented in Chapter 6 for the case of the GCC. The growth rate variable, which was statistically insignificant in the case of the GCC, becomes significant in the case of the BSE.

As discussed in Chapter 5, the coefficients of RE Tobit model represent the underlying propensity to pay dividend, that is the impact of a change in an explanatory variable on the unconditional expectation of the unobserved or latent variable, y^*. Figure 11.3 shows the comparison between the model's predicted dividend ratio value at the expected $E(y \mid x)$ and the observed dividend ratio. As can be seen, there does exist an agreement between them suggesting that the model fits the data to some extent. It has been estimated that the random effects Tobit model marginally over-predicts the dividend payout ratio and the model prediction error is 0.22 %, which is very good.

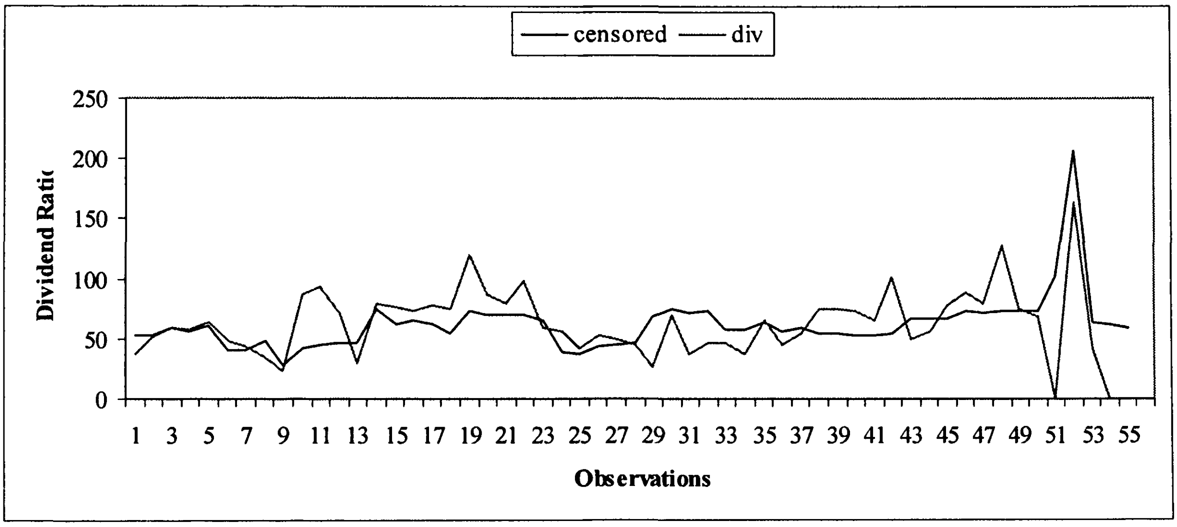

Figure 11.3: Observed and predicted values of dividend ratio

In addition to this, a paired sample t-test is used to check whether the means of the observed value and the model predicted value are the same. The results are presented in Table 11.11 and show that the p-value associated with the test is 0.78 meaning that the means are not significantly different.

Table 11.11
A paired sample t-test

	Observation	**Mean**	**Standard errore**
Observed value	55	62	3.99
predected value	55	63.4389	3.14
t-statestic		-0.2835	
p-value		0.7773	
Decision		**means are not diffrent**	

As discussed in Chapter 6, the main interest of this study is to estimate both marginal effects (ME) and elasticities of both censored (y) and uncensored ($y > 0$) variables with respect to the continuous independent variables included in RE Tobit model. The results are shown in Table 11.12 for ME and in Table 11.12 for elasticities.

Table 11.12
Marginal effects (ME) on both censored and uncensored variables (ME) with respect to the continuous explanatory variables

Explanatory Variables	ME of E(y|x)	ME for E(y|y>0,x)
Government ownership (GOV)	**0.3025**	**0.2782**
Free cash flow (FCF)	1.8022	1.6573
Firm size (MC) in US$000	9.0E-06	8.3E-06
Growth rate (GROW)	**9.4857**	**8.7231**
Firm leverage (LEV)	-0.0926	-0.0851
Business risk (BETA)	7.0217	6.4571
Firm profitability (PROF)	**-1.0245**	**-0.9421**

The sign of the marginal effect of a specific variable is the same as the sign of the corresponding coefficient from the Tobit model in Table 11.10). The marginal effects of the independent variables on the censored (y) and uncensored ($y > 0$) variables are lower compared with the marginal effects of the variables on y^*. One explanation for this would be the relative expected values of latent, censored, and uncensored variables as shown in Chapter 5. These values are found to be $E(y^* \mid x) = 61$, $E(y \mid x) = 62$, and $E(y \mid y > 0, x) = 64$. Table 11.13 presents the elasticsities of the independent variables.

Table11.13
Elasticities of both censored and uncensored variables with respect to the continuous explanatory variables from Model

Explanatory Variables	δE(y|x)/δx	δE(E(y|y>0,x)/δx
Government ownership (GOV)	**0.1334**	**0.1195**
Free cash flow (FCF)	0.0006	0.0005
Firm size (MC) in US$000	0.0205	0.0184
Growth rate (GROW)	**0.0609**	**0.0546**
Firm leverage (LEV)	-0.0294	-0.0263
Business risk (BETA)	0.0100	0.0089
Firm profitability (PROF)	**-0.1731**	**-0.1551**

It is interesting to note that both the marginal effect and the elasticity of the dividend ratio with respect to the common significant variables (government ownership and firm profitability) are higher in the model associated with the firms listed in the BSE than those of the GCC Stock Exchange. However, the more surprising finding is that there is a negative association between firm profitability and cash dividend for the firms listed on the BSE which does not support the hypothesis (H9) presented in Chapter 5.

Since the sign of the statistically significant variable - government ownership - is the same in both Tobit models and in the linear random effects model, the interpretations of this variable are not presented in this section. However, the interpretation of the new significant variable - firm profitability - is given below.

The firm profitability is found to be statistically significant and negatively associated with the dividend payout ratio. This means that if the profitability ratio of a firm increases, the dividend payout ratio paid by the firm decreases. The marginal effects of this variable on y and $y > 0$ are found to be -1.02 and -0.94 respectively suggesting that a one unit increases in the firm profitability would decrease 1.02 units in the dividend payout ratio for all firms and 0.94 units for the firms who always pay dividend if all other factors remain constant. The elasticities of the dividend payout ratio with respect to the leverage ratio are -0.17 and -0.16 meaning that a 10% increase in the leverage ratio would lead to a decrease of about 1.7% in the dividend payout ratio for all firms and 1.6% for the firms who always pay dividend if all other factors were to remain the same.

The reason for this unpredicted association is that the listed Bahraini firms are willing to pay a constant amount of cash dividend. Therefore, the dividend ratio becomes low as the realised profit increases, but increases when the firm realises a lower profit. However, this unexpected result of firm profitability might also be related to the small sample size distorting the estimation. Another probable reason is that in order to maintain a firm's reputation, the listed firms of the Baharain Stock Exchange may chose to pay a large dividend when the realised profit is not high. However another reason for this surprising result might be associated to the small size of BSE's sample which has the potential to render the estimations invalid.

Similar to the case for the firms listed in the GCC stock exchanges, the results for the different specifications of the models for firms listed in BSE also support each other.

This means that the specification is not important as far as all the variables except firm profitability are concerned. One surprising finding is that the negative association of firm profitability and cash dividend for the firms listed on the BSE.

11.6 Summary

This chapter aimed to determine the dividend policies of non-financial firms listed on the Bahrain Stock Exchange for the period 1999-2003 and give an explanation of their dividend payment behaviour.

As indicated at the beginning of this chapter, the small sample size of the BSE created a problem in the estimation of the normal panel data regression models. Different combinations of models were tried but finally the random effects model after removing outliers was selected to examine the factors affecting the dividend policy of the firms.

Results derived from this model showed that the dividend payout ratio of non-financial firms listed on the Bahrain Stock Exchange can be explained significantly by only two factors - government ownership and firm growth rate. The results indicate that firms will choose to pay a higher dividend ratio as government ownership and firm size increase. Moreover, the results showed that firms choose to increase dividend even if they have a high growth rate. By comparing these results with whole sample's results discussed in Chapter 6, one can point out that government ownership and firm size are the common significant variables. On the other hand, firm profitability, which was a significant explanatory variable, became an insignificant explanatory variable. Firm growth rate is a specific characteristic related to the BSE sample, which was able to explain dividend policy.

However, although only a small number of firms did not pay dividend in the sample of the BSE, the Tobit model was used for consistency with the firms listed on the other stock exchanges. This model's result showed that dividend policy can be explained by government ownership and growth rate. It was also showed that firm profitability negatively affected dividend ratio, which is a surprising finding and may relate to a policy of constant dividends being combined with general volatility in year-on-year profitability. Thus, the significance of government ownership is the only factor consistent with the whole sample results presented in Chapter 6.

CHAPTER TWELVE
Discussion, Summary and Conclusions

12.1 Introduction

The aim of this thesis was to identify dividend policy determinants, and in particular to examine the validity of the agency explanation, in the listed firms of the GCC states' stock exchanges. Several econometric models have been used and the results of the whole sample of the GCC states' listed firms as well as the results of each of the GCC states' sample have been reported (Chapters 6 to 11). This chapter presents a general discussion of these results and presents a set of conclusions based on the research carried out in this thesis. The discussion focuses on the similarities and differences in the dividend payment characteristics of the non-financial firms of the Gulf Cooperation Council (GCC) countries, the disparity of the models used to investigate the dividend payment behaviour of these firms, and the various factors affecting the dividend payout ratio. The chapter then summarises the thesis and presents a set of conclusions. In the course of conducting this work a number of challenges were encountered, this chapter also discusses the limitations of this research, and identifies several recommendations for further research.

12.2 Discussion of Findings

12.2.1 General Dividend Characteristics

There are a total of 191 non-financial firms listed on the stock exchanges of the GCC states for which sufficient data were available. The information on dividend ratio per year for each firm was available for 5 years (1999-2003). Ideally, this would provide 955 observations. However, due to missing values for some years, the total number of observations was reduced to 929. An important point that should be noted here is that about 50% of the observations had a zero (0) dividend ratio and this mainly comprised observations from the firms listed on the Muscat Stock Exchange (MSE) and the Saudi Stock Exchange (SSE).

The non-financial firms listed on the stock exchanges of the GCC states distributed, on average, around 43% of their realised net profit as cash dividends. The firms listed on the Bahrain Stock Exchange (BSE) paid, on average, the highest dividend ratio, which reached up to 64%. The firms listed on the Kuwait, Saudi Arabia, and Doha stock exchanges paid almost half of their cash as dividends. However, the firms listed on the Muscat Stock Exchange distributed, on average, the lowest amount of cash dividends, at about 26% of their realised profits (see Table 12.1).

What is interesting to note here is that the percentage of average dividend ratio paid by the firms increased to high value when this was calculated only from the firms that chose to pay dividends (Table 12.1). It can be seen that firms that chose to pay cash dividends paid a very high ratio. The average highest percentage was found to be 102% for the firms listed on the SSE, 86% for the Kuwait Stock Exchange (KSE), and 78% for the Muscat Stock Exchange. These dividend ratios show that firms listed on the stock exchanges of GCC states tend to decide to pay a high dividend ratio or not to pay at all. This characteristic is consistent with the findings of studies of dividends related to emerging economies, which indicate that firms in developing countries, compared with firms of developed economies, pay higher dividend ratios than do firms of developed countries but this process is less stable (e.g. Glen et al., 1995; and Aivazian et al., 1999; and Adaoğlu, 2000).

An exception to this was found for the non-financial firms listed on the Bahrain where most chose to pay a cash dividend in all years 1999-2003. This might be related to the fact that the government owned a proportion of the shares in all non-financial firms included in the sample.

Table 12.1
Dividend payout ratios of the firms in GCC countries

	GCC	KSE	SSE	MSE	DSE	BSE
Total number of firms	191	37	57	75	10	12
Percentage of firms which did not pay dividend in some or all of the study period	675	67%	70%	80%	30%	8%
Percentage of zero observations	50%	36%	51%	66%	16%	5%
Dividend average for the total observations	43%	56%	50%	26%	52%	64%
Dividend average of the firms that paid dividends	85%	86%	102%	78%	62%	68%

Note:
GCC: the combined sample of all firms listed on the GCC states stock exchanges
KSE: Kuwait Stock Exchange sample
SSE: Saudi Stock Exchange sample
MSE: Muscat Stock Exchange sample
DSE: Doha Stock Exchange sample
BSE: Bahrain Stock Exchange sample

The other important point that should be noted is that the firms where the government owned a proportion of their shares paid higher dividend than did the firms owned completely by the private sector. There is an exception in the case of the firms listed on the Doha Stock Exchange (DSE), where government ownership appears to have led to a lower dividend payout ratio as compared to private sector ownership (see Table 12.2).

Table 12.2
Dividend ratio when the firms are classified into two groups

Stock exchange	Firms where government owns a proportion of their shares	Firms owned completely by private sector
GCC states' stock exchanges	49%	36%
Kuwait Stock Exchange	89%	43%
Saudi Stock Exchange	68%	39%
Muscat Stock Exchange	30%	14%
Doha Stock Exchange	47%	59%
Bahrain Stock Exchange	64%	-

12.2.2 Research Methodology

The main objective of this study was to test a number of hypotheses (discussed in Chapter 5) regarding how the characteristics of non-financial firms affect their dividend policies based on the agency theory. Since the data used to test those hypotheses were a cross-sectional (191 firms) time-series (5 years) dataset, panel data models were used.

The important variable of these hypotheses is the dividend payout ratios paid by the firms. Linear panel data regression models (such as fixed effects and random effects) were used when the dividend payout ratio is considered as a continuous variable. However, there were a large number of firms who never paid dividends to their shareholders. In this case, linear panel data models may not be appropriate. The more suitable model is a Tobit model. Therefore, this research employed two types of models to investigate the dividend policies of the non-financial firms.

The first comprised the normal fixed and random effects panel data regression models, which examined the effects of the characteristics of the firms on the amount of dividend paid. In these models, the dividend ratio was taken as a continuous variable and, therefore, a zero (0) dividend ratio (firms that did not pay any dividend) was considered as a real value. The Hausman test was then employed to select the appropriate model between the fixed and random effects models.

The second model was the random effects Tobit model, which exclusively treated zero (0) dividend ratios. In this model, the marginal effects and elasticities of the dividend ratio (as a censored and truncated) with respect to the explanatory variables were estimated separately for the firms that always paid dividend and for the firms that paid and firms that did not pay dividend.

Table 12.3 shows the methodology used for the GCC countries as a whole and the individual countries. When the dependent variable is considered as a continuous variable, the Hausman test selected the fixed effects model as a better model for the whole sample. However, there is not any significant difference between the FE and RE models both in terms of level of significance and magnitudes of slope coefficients. Interestingly, the Hausman test selected the random effects model as a better model for the case of the firms of individual countries. This suggests that there is no correlation between the individual specific unobserved effects and the observed variables in the case for individual samples.

Table 12.3
Models used for the firms listed in the GCC and individual countries

Stock exchange	First Model	Second Model
GCC states' stock exchanges	Fixed Effects	Random Tobit
Kuwait Stock Exchange	Random Effects	Random Tobit
Saudi Stock Exchange	Random Effects	Random Tobit
Muscat Stock Exchange	Random Effects	Random Tobit
Doha Stock Exchange	Random Effects	Random Tobit
Bahrain Stock Exchange	Random Effects	Random Tobit

In terms of the RE Tobit model, there were a significant number of zero (0) observations for the analyses of the combined sample of all GCC countries, and the individual KSE, SSE, MSE, and DSE. However, there were far fewer zero observations in the case of BSE.

12.2.3 Interpretation of the Effect of the Explanatory Variables on Dividends

Table 12.4 summarises the statistical significance of the explanatory variables considered in the models developed in the previous chapters. For the case of the whole sample (i.e., the firms listed on the GCC states), the appropriate model is the fixed effects model and for the case of individual country, the appropriate model is the random effects model. This table also shows whether or not a hypothesis related to a variable is consistent with the findings.

Table 12.4
Summary of Findings

Explanatory Variables[1]	Hypothesis direction	FE or RE models						RE Tobit m					
		GCC	KSE	SSE	MSE	DSE	BSE	GCC	KSE	SSE	MSE	DSE	BSE
Government ownership (GOV	+	** +	** +	** +	** +		* +	** +	** +	** +	** +	** -[2]	** +
institutional ownership (INST)	-/+	N/A[4]		N/A		N/A	N/A	N/A		N/A		N/A	N/A
large shareholders(LSH)	-/+	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		N/A	N/A
Free cash flow (FCF)	+												
Firm Size (SIZE)	+	** +			** +			** +		* +	** +	* +	
Growth rate (GROW)	-/+				** -	** -	** +						** +
Firm leverage (LEV)	-							** -	** -				
Business risk (BETA)	-									* -			
Firm profitability (PROF)	+	** +	** +	** +	** +	* +		** +	* +	** +	** +	* +	* -[2]

** Level of significance (5%)
 * Level of significance (10%)
1 The variables : GOV,FCF, SIZE, GROW,LEV,BETA and PROF have been included in the genral model, that has been tested. in all GCC states samples. INST is an additional variable appeared in model 2 , and tested in 2 countries:KSE's sample and BSE's sample. LSH have been used to model 3 as additional variable. It test dividend policy in the MSE sample only
2 these results contrasts with th hypothesis

In addition to the level of significance of each explanatory variable as shown in Table 12.4, it would be useful to compare the values of the slope coefficients and elasticities of each variable across different samples (GCC, KSE, SSE, MSE, DSE, and BSE). For this purpose, two tables (Tables 12.5 and 12.6) are produced. Table 12.5 is for the regression coefficients and elasticities from the linear panel data models across samples and Table 12.6 is for the same from the RE tobit model across samples.

As discussed, one should not compare the values of slopes and elasticities between Table 12.5 and 12.6. However, these values may be compared across different samples within a particular table. For instance, it can be seen that both the values of slope coefficient and elasticity associated with the variable, government ownership, for the case of the firms listed in the KSE is higher than those of any other stock exchanges. This suggests that government ownership is a more important determinant of dividend policy for KSE firms.

Table 12.5

Marginal effects (ME) and Elasticities (E) across GCC countries and individual countries from the normal panel data regression model

Firms	GCC		KSA		SSE		MSE		DSE		BSE	
	ME	E	ME	E	ME	E	ME	E	ME	E	ME	E
Government ownership (GOV)	**1.08**	**0.25**	**2.22**	**0.31**	**1.56**	**0.30**	**0.82**	**0.24**	**-0.16**	**-0.06**	**0.35**	**0.15**
Free cash flow (FCF)	-6.66	-1.69	-73.83	0.00	12.14	0.01	6.21	-0.01	-14.19	-0.01	9.38	0.00
Firm size (MC) in million US$	**0.02**	**0.30**	0.02	0.09	**0.01**	**0.40**	**0.791**	**0.60**	0.01	0.09	**0.03**	**0.07**
Growth rate (GROW)	-4.33	-0.32	-12.09	-0.11	4.59	0.01	**-6.91**	**-0.17**	**-28.27**	**-0.32**	**7.78**	**0.05**
Firm leverage (LEV)	**0.01**	**0.03**	**-0.39**	**-0.48**	0.05	0.05	0.00	-0.03	-0.01	-0.02	0.04	0.01
Business risk (BETA)	19.76	1.97	48.83	0.58	**-28.0**	**-0.33**	2.05	0.01	-5.40	-0.05	1.78	0.00
Firm profitability (ROE)	**2.89**	**12.21**	**3.16**	**0.69**	**13.61**	**1.72**	**3.32**	**0.98**	**5.39**	**1.43**	-0.91	-0.15

Table 12.6

Marginal effects (ME) and Elasticities (E) across GCC countries and individual countries from the random effects Tobit model (where y is a censored variable)

Firms	GCC		KSA		SSE		MSE		DSE		BSE	
	ME	E	ME	E	ME	E	ME	E	ME	E	ME	E
Government ownership (GOV)	**0.39**	**0.09**	**0.81**	**0.12**	**0.43**	**0.08**	**0.26**	**0.08**	**-0.81**	**-0.38**	**0.30**	**0.13**
Free cash flow (FCF)	2.22	0.00	-0.55	0.00	1.37	0.00	-0.56	0.00	22.78	0.02	1.80	0.00
Firm size (MC) in 000 US$	**8E-06**	**0.117**	-3E-06	-0.016	**4E-06**	**0.127**	**4E-04**	**0.225**	**1E-05**	**0.112**	9E-06	0.021
Growth rate (GROW)	-1.33	-0.01	-1.27	0.00	3.01	0.00	-3.13	-0.06	0.97	0.00	**9.49**	**0.06**
Firm leverage (LEV)	**-0.03**	**-0.07**	**-0.18**	**-0.25**	-0.12	-0.12	-0.02	-0.19	0.00	-0.01	-0.09	-0.03
Business risk (BETA)	-3.40	-0.03	8.33	0.11	**-17.75**	**-0.20**	-4.49	-0.02	0.81	0.01	7.02	0.01
Firm profitability (ROE)	**0.66**	**0.13**	**0.41**	**0.10**	**1.68**	**0.20**	**1.06**	**0.32**	**0.70**	**0.22**	**-1.02**	**-0.17**

The following subsections discuss the implications of each variable assessed in Table 12.4 in more detail.

Government Ownership

Both linear panel data models (FE for the case of whole sample and RE for the case of individual countries) and RE tobit models suggest that government ownership is a statistically significant variable at the 95% confidence level in determining the amount of dividend paid by the firms. This result is consistent both for the combined set of firms listed on the GCC stock exchange and for the state-level samples, with the exception of the Doha Stock Exchange. Therefore, this result supports the hypothesis (H1) that there should be a positive association between dividend and government ownership.

This finding is consistent across the majority of the sample groups and indicates that firms that include the government as an investor of their firms tend to pay higher dividends compared to the firms where the government is not an investor. This result is also in line with studies based on emerging markets which examined government ownership (Glen et al., 1995; La Porta et al., 2000; Naser, 2004; Al-Malkawi, 2005). In the RE Tobit model the impact of government ownership on dividend policy became significant for the combined sample of firms listed on the GCC stock exchange and in all individual states' stock exchanges samples. The surprising result is that government ownership of the firms listed on the DSE affected negatively on dividend payout ratio. However, a small sample size may suggest that this finding is unreliable.

It is interesting to note that for the firms listed in Kuwait Stock Exchange both the values of slope coefficient and elasticity associated with government ownership are the highest (see Tables 12.5 and 12.6). This is true for both linear panel data models and RE Tobit models. Several possible reasons for this positive relationship between government ownership and dividend are summarised below.

The economic and social activities of the GCC states depend heavily on government revenue, which is primarily realised by exporting crude oil. However, because of ongoing oil price fluctuations, as well as the Gulf War expenditure, deficits have appeared and become permanent in the budgets of GCC states. Therefore, the GCC governments follow several policies to diversify their economic resources in order to reduce the heavy dependency on oil revenue and public sector expenditure. The aim of these polices is to encourage investors to invest in the private sector, and paying a high dividend is a significant tool that has been used by governments to enhance firm reputation for not exploiting minority shareholders, thereby attract the public to invest in the private sector.

Moreover, governments in countries, where the legal protection for outside shareholders is poor, become influential investors and can drive managers and controlling shareholders to pay dividends. The effect of government ownership reduces agency conflict between inside owners and outside shareholders, protects outside shareholders from unscrupulous firms, and hence avoids the exploitation of minority shareholders and thereby reduces agency problem (Glen et al., 1995; La Porta et al., 2000; Naser, 2004).

Another explanation for this positive association is that governments in the GCC states hold a proportion of equities in the listed firms, in particular the large firms. That is, government involvement may duplicate the agency conflict. In other words, agency problems might appear between citizens, who are not directly in control, and their government representative. The agency problem, on the other hand, might also appear between the state-owner and other managers who may take actions for their own interests. Therefore, the government-owner imposes a requirement that companies pay high dividends to reduce the agency costs since they (Government-owner) are not directly involved in the management of the firm. (Al-Malkawi, 2005).

In addition the positive association might be related to the governments of GCC states being large investors who are able to pay higher dividends. The reason is that the governments have relatively less difficulty raising resources to finance investments projects. On the other hand, firms with low government ownership or no government ownership are more likely to face difficulty in raising funds and are therefore likely to depend on retained earnings for investment purposes (Gul, 1999a).

Institutional Ownership

This variable has been investigated only for firms listed on the Kuwait and Muscat stock exchanges, since this information was only available in these two countries an not for any other GCC countries. The hypothesis (H2) predicted that the dividend payout is positively/negatively associated with the percentage of shares owned by institutions. The results of both samples; the KSE's listed firms and MSE's listed firms, reported an insignificant relationship. The main purpose of this hypothesis is to examine whether such additional data can provide additional explanations for the association between ownership and dividend policy in such countries.

The lack of significance found here conflicts with a number of developed market studies. For example Allen et al. (2000) indicated that the attending of institutional investors promote firms to pay higher dividends, since institutions got the professional ability to monitor the managers' activities. Shleifer and Vishny (1986) and Moh'd et al. (1995) added that firms which have institutional ownership distribute higher dividends in order to attract large shareholders. The results also failed to support those of McConnell and Servaes (1990) who found that institutions employ teams of share analysts, allowing them to draw on complicated computer-generated information networks when evaluating the effectiveness of the decisions of managers, making the institutions powerful investors. They suggest that with the existence of institutional owners, manager entrenchment becomes difficult and therefore the need for dividends as a tool to reduce agency costs will be less important. Institutional ownership has been also examined in developing market. While Manos (2002) supported a positive relationship between dividend and institutional ownership, Amidu and Abor (2006), and Al-Malkawi(2005) also examined the impact of institutional owners in indicated no influence of institutional ownership on dividends, which is similar to the results observed in this study for firms listed on the KSE and MSE. This insignificant influence might be related to institutional investors in these states not paying attention to dividends.

Large Shareholders

Hypothesis 3 (H3) was be tested only for firms listed on the Muscat Stock Exchange (by using two additional models), since it the only stock exchanges among other GCC states' stock exchanges disclosing information about majority shareholder ownership during the period 1999 to 2003. In common with institutional ownership, the inclusion of large shareholders as an additional variable test whether such additional data can provide additional explanations for the relationship between ownership and dividend policy for firm listed on the MSE.

The hypothesis (H3) predicted that dividend payout is positively/ negatively associated with the percentage of shares owned by large shareholders. However the result reported insignificant relationship. As such, this result does not supported previous studies based on firms listed in developed markets (e.g. Shleifer and Vishny ,1986; Gugler and Yurtoglu , 2003; Mancinelli and Ozkan ,2006) which found a negative association between dividend and large shareholders, and argued that an increased level of large shareholder ownership would lead these shareholders to act in favour of their personal interests rather than in the interests of the firm.

This result also contrasts with that of with Travlos et al. (2002) who tested the firms listed on young stock exchanges. They reported a positive association between large shareholders and dividend payment and argued that firms in emerging markets pay higher dividends to build a strong reputation for not exploiting their minority shareholders.

The insignificant relationship between dividend payout and large shareholders might be related to that large shareholders, who are often controlling shareholders do not bothering about distributing shareholders. Another reason might be related to the positive influence of government ownership, which might diluted by the presence of other influential shareholders, causing an insignificant relationship overall between large shareholders and dividend payout policy. Future research needs to separate the large shareholders and re-examine their influence on dividend policy.

What might be important to mention here is that the insignificance of these institutional ownership and large shareholders variables might support the hypothesis that government ownership is the most influential factor investors, among others that affected dividend policy in the GCC states' listed firms.

Free Cash Flow

Hypothesis 4 (H4) predicted a positive relationship between dividend payout ratio and free cash flow. However, the modelling results indicated that free cash flow is the only variable found to be statistically insignificant consistently in all models considered in this study. However, this result is not consistent with a number of other studies that examine the impact of free cash flow in developed markets. These studies found that firms with a greater free cash flow pay more dividends in order to reduce the agency costs of the free cash flow (e.g. Jensen, 1986; Holder et al., 1998). Very few studies have examined the impact of free cash flow in emerging markets. Sawicki (2005) found most of her results supported a positive relationship between dividend and free cash flow. On the other hand, Mollah (2002) found that free cash flow is not a significant explanatory variable, which is similar to the results of this study.

What might be notable is that free cash flow was the only agency theory explanatory variable found to have no influence on dividend policy in all samples. This might be related to the significant influence of government ownership for these firms which may force firms with high free cash flow to distribute dividend. This concept has been explained in detail by La Porta et al who (2000) support the outcome model in which firms in countries with low legal protection pay lower dividends than firms in countries that have strong legal protection.

Firm Size

Firm size was found to be statistically significant in all linear panel data models and the RE models for the case of the whole sample and the MSE sample (see Table 12.4). In the RE Tobit model, this variable was statistically significant at the 90% confidence level for the case of SSE and DSE samples. In all cases, the relationship was positive suggesting that large firms paid high dividends. This result is consistent with the predicted hypothesis (H5) that as a general characteristic there is a positive association between dividend and firm size.

This finding supports the idea that most large firms choose dividends in order to reduce agency conflict, which is generally higher in large firms than smaller firm as discussed previously. Moreover large firms are perhaps also more able to generate external funds because they have easier access to the capital market. The latter explanation also supports the transaction cost theory. In general, the firm size variable was found to be significant in most of the GCC states except Kuwait and Bahrain. This is consistent with studies on developed markets (e.g. Lloyd et al., 1985; Eddy and Seifert, 1988; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000). This finding is also consistent with some studies on emerging markets (Manos, 2002; Mollah, 2002; Al-Malkawi, 2005; Sawicki, 2005). Furthermore, market capitalisation was not significant in the KSE or BSE samples and this may explain the observed differences. This is in line with Aivazian et al (2003) who examined the impact of firm size in an emerging market but they found little evidence that firm size significantly affected dividend policy.

Growth Rate

Growth rate appears as a significant factor affecting dividend payout policy in the case of the firms listed on the Muscat Stock Exchange, the Doha Stock Exchange and the Bahrain Stock Exchange in the RE panel models. These significant results are in line with hypothesis (H6) in that growth rate may affect dividend payout positively or negatively. The results for the firms listed on the MSE and DSE indicated that firm growth rate was statistically significant and negatively associated with dividend payment. The explanation for this negative association might be related to that since a faster rate of growth needs higher investment expenditure and costly external financing, firms with a high growth rate would choose to pay fewer dividends. On the other hand, firms will pay dividends only when internally generated funds are not completely used up for investment. The reason that this is true only for the sample from the MSE and DSE might be related to the fact that they have the highest growth rates among the GCC states. The negative association has been supported by most studies based on developed markets (e.g. Rozeff, 1982; Lloyd et al., 1985; Titman and Wessels, 1988; Murrali and Welch, 1989; Jensen et al., 1992; Alli et al., 1993; Dempsey and Laber, 1992; Moh'd et al., 1995; Holder et al., 1998) and is also consistent with some other studies based on developing market, such as those by Manos (2002), Gul (1999a), and Aivazian et al. (2003).

On the other hand, the growth rate of the firms listed on the BSE showed a positive association with dividend payment. This result is also consistent with that of La Porta et al. (2000), who distinguished the growth-dividend association in countries with a high level of legal protection for outside shareholders and in those with poor legal protection. They explained that when the level of legal protection for shareholders is high, fast-growth firms will chose to reduce dividends because legally protected shareholders are agreeable to waiting for their dividend when there is a good investment opportunity.

In contrast, in countries that have poor legal protection for shareholders, firms may chose to increase dividends to maintain their reputation when they implement a good investment project. Travlos (2002) reported that in an emerging market where there is greater uncertainty about future cash flow, firms will increase dividend when there are more investment opportunities in order to signal to the market that the company is performing satisfactorily, and this in turn builds and maintains a good reputation for firms. In summary, growth rate can have different influences on dividend policy. For firms listed on the MSE and DSE, the growth rate represents the transaction–dividend policy explanation. For firms listed on the BSE, growth rate represents the dimension of firm reputation.

The growth rate remained a specific characteristic related to the dividend policy of listed firms on the BSE only and it has positive effects. In other words, the impact of firm growth rate is not related to dividend policy in most of the GCC states, which means that GCC companies have other sources of funds and they do not rely on retained earnings. Firm growth rate also appeared as a non-significant variable in the study by Mollah (2002) who tested the dividend policy of firms listed on the Dhaka Stock Exchange.

Leverage Ratio

The financial leverage hypothesis (H7) predicted that dividend payout policy is positively/negatively associated with financial leverage. However, the variable - leverage ratio, which is taken as the proxy for financial leverage, is not significant in any samples when the linear RE model is used. This variable becomes significant in the cases for the combined sample, and the KSE sample when the RE Tobit model is applied. In this model, this variable has a negative association with the amount of dividend payment. This suggests that firms listed on the GCC and KSE will pay lower dividend in order use internal available funds to meet their obligations since external financing is costly. Moreover, firms with a high leverage ratio will chose to pay lower dividends because a high leverage ratio is an alternative to dividend in reducing the agency problem. This result is consistent with most studies based on developed markets (e.g. Rozeff, 1982; Lloyd et al., 1985; Titman and Wessels, 1988; Jensen et al., 1992; Alli et al., 1993; Dempsey and Laber, 1992; Moh'd et al., 1995; Holder et al., 1998); and it is also consistent with some studies of developing countries, such as those by Mollah (2002), Aivazian (2003), and Al-Malkawi (2005).

The lack of significance of leverage ratio in th majority of the samples from GCC states considered in this study might show that firms do not take account of leverage when they maks dividend decisions.

Business Risk

Business risk appears as an insignificant variable in the FE and RE models. It becomes statistically significant in the SSE sample when the RE Tobit model is used. This indicates that when there is uncertainty about future cash flows, firms will choose to pay fewer dividends. This result is consistent with the expected hypothesis (H8) in that there is a negative association between dividend payout ratio and business risk.

While the results here indicate that business risk is not a significant variable in explaining dividend policy in most of the samples from GCC states, this variable has been found to be negatively significant in most studies that examined the impact of transaction cost in explaining dividend policy (e.g. Rozeff, 1982; Lloyd et al., 1985; Chang and Rahee, 1990; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998). This negative association is also supported by Manos (2002) in a study based on the Bombay Stock Exchange as an example of an emerging market.

What might be important to mention is that the common transaction cost variables (growth rate, leverage ratio, and business risk) appeared to be insignificant variables in most of the GCC states' stock exchanges. This suggests that transaction costs do not have a direct influence on the dividend payout policy. In other words, the firms listed on the GCC states stock exchanges consider the agency problem and firm reputation more than transaction costs when they are making the decision to pay dividends.

Firm Profitability

Firm profitability was generally found to be statistically significant in all linear panel data models except for the sample from the Bahrain Stock Exchange (see Table 12.4). There was a positive relationship between this variable and dividend implying that this finding is consistent with the study hypothesis (H9). For the case of the RE Tobit model, this variable was found to be statistically significant in all samples. However, a more surprising result is that there was found to be a negative association between firm profitability and the amount of dividend payments.

The positive association between dividend ratio and firm profitability is consistent with the findings of a number of existing studies for the case of developed markets (Jensen et al., 1992; Han et al., 1999; Fama and French, 2000). It is also in line with the studies of dividends for the case of emerging market (Adaoğlu, 2000; Pandy, 2001; Wang et al., 2002; Al-Malkawi, 2005). They argued that firms in developed countries have a clear dividend policy and managers are reluctant to make a cut in dividends, consequently they focus their attention on distributing a moderate dividend rather than paying a high dividend today followed by a lower one tomorrow. On the other hand, the dividend payout policies of firms listed on emerging stock exchanges are based heavily on realised profit. La Porta et al. (2000) indicate that in developing countries, legal protection for shareholders is of a low quality so shareholders will take whatever cash dividend they can get from the realised profit.

Firm profitability in the case of the BSE sample might related to the fact that the dividend policy of these firms might have a long-term dividend policy and hence dividend payout policy of each year do not depend heavily on the firm profitability for the same year. Such dividend policy might be related to government ownership appearing in all firms listed on the BSE, and they might allow the firm to follow a constant dividend policy.

On the other hand, the BSE's sample results from the RE Tobit model showed that there is a negative association between dividend and firm profitability. This finding contrast with the hypothesis (H9). This relationship might be explained in terms of a substitution hypothesis in which firms pay low dividend when there is a high profit but pay high dividends when profit is low. The substitution hypothesis could also be used to help maintain firm reputation during the period of profitability. Further research should be conducted to address this issue. However another reason for this unpredicted result might be related to the small size of BSE's sample which distort the estimations.

From the discussion of these findings, it can be concluded that the firms listed on the GCC states' stock exchanges mainly pay dividend in order to reduce agency cost and enhance firm reputation. In some cases, dividend can also be used to reduce transaction cost but this appears to be less important in explaining the dividend policy of these firms.

12.3 Thesis Summary

The thesis has developed a number of econometric models to investigate the determinants of dividend policies of non-financial firms listed on the GCC states stock exchanges. The conclusions of the thesis are presented below.

Chapter 1 introduced the motivation of the thesis, the aims and objectives of the study, the methodology used to achieve the study objective, and finally the organisation of the thesis.

Chapter 2 presented the main economic characteristics of the GCC states. This includes a discussion on an important feature of the GCC states' economies which is that they are unique compared to other developing countries. This is because GCC states have huge oil revenue and as a result, the per capita income in these countries exceeds that of developed countries. This high income from the oil revenue leads governments to depend on oil revenues to control the economies of the states. This has been noted from

- the GDP, which shows that the GCC depends excessively on the oil sector;
- the domination of the public sector;
- the high dependency of national economics on international economics;
- the high dependency of government budgets on external factors rather than the traditional tool, tax;
- an accumulation of national labour force in the public sector.

The chapter also discussed that because of oil price fluctuation, deficits have appeared in state budgets. Therefore, the governments in these countries have tried to diversify their economic sources by adopting a number of strategies. One of these strategies is to develop the private sector and one of the first steps was the decision to establish a securities market to mobilize private sector investment.

Chapter 3 discussed capital markets, stock exchanges, and ownership structure in detail. It showed that the capital markets in these countries are very limited in scope and instrument. It presented two examples of capital markets in GCC states, namely the capital markets in Oman and Saudi Arabia. It also talked about the development of the assumption that the capital markets in Kuwait, Bahrain and Qatar are similar to the Saudi capital market. The capital market section concluded with the argument that while the capital markets in the GCC states might have heard many views on how to develop an emerging capital market, little evidence of development has been seen. The reason for this lack of development is that diversification of income sources is an important maxim usually heard at times when deficits appear in the state budget but forgotten at times of surplus. The second section discussed the nature of the stock exchanges in GCC states and the development of the stock markets in each of these states, namely Kuwait, Saudi Arabia, Muscat, Qatar and Bahrain. It also compared the stock exchanges of the GCC states with other Arab stock markets. The comparison showed that the market capitalisation of firms listed in GCC states captures more than 80% of the total market capitalisation of Arab markets, and 70% of the value traded, indicating that the stock exchanges in the GCC states are the largest and the most active among other Arab stock exchanges. The chapter then moved to ownership structure. It started by explaining that government ownership in particular plays an important role in the listed firms of the GCC states, more so than large shareholders. The chapter concluded by highlighting that company law in the GCC states does not include any article or item compelling a firm to distribute a certain percentage of realised earning as dividends. Thus, the decision to pay dividend or the amount of dividend is left to each firm to discuss. The chapter also reported some general characteristics of dividend payout policies in these countries.

Chapter 4 presented an extensive literature review of previous work investigating the determinants of a firm's dividend policy. The literature was divided into three sections: the first section discussed different explanations for dividend policy, and the second and third sections discussed empirical studies of dividend policy in both developed and and in emerging markets respectively. The first section explained that since Miller and Modigliani (1961) established the irrelevance of dividends in perfect capital markets, dividend policy has become one of the most controversial subjects in finance. That is, several theories and explanations have accrued in the literature that explain the payment of dividends by giving attention to imperfect markets, arguing that an imperfect market is closer to the real world. These studies explain the significance of dividends by concentrating on the following categories: the bird in the hand explanation, the tax effect hypothesis and clienteles explanation, signalling theory and the information asymmetry problem, transaction costs of external financing and residual theory, and the role of dividends in decreasing agency problems.

The second and third section discussed empirical evidence concerning dividend policy by focusing on agency theory. The discussion started with dividend policy studies undertaken in developed economies by presenting one of the earliest empirical studies to introduce the agency theory explanation: Rozeff (1982) was among the first to explicitly recognize the role of insiders as one of monitoring the managers. He found dividend policy to be negatively related to the level of insider holdings. One interpretation of his result is that firms with higher levels of insider holdings have less need to signal firm value through dividends than comparable firms with lower levels of insider holdings. Additionally, in the context of the investment and financing decision, Myers and Majluf (1984) showed that the level of insider holdings is itself a signal of firm value.

A number of studies have re-examined Rozeff's model and have supported his findings. Others have examined and compared the influence of different types of ownership on dividend policy (e.g., managerial shareholders, large shareholders, institutional ownership). This section of the thesis also discussed the impact of transaction cost on dividend policy.

However, it has been argued that most studies have investigated and examined dividend policy in developed countries' firms, while little attention has been given to explaining the dividend policy of firms in emerging markets. These studies have argued that dividend policy in emerging markets is different from dividend policy in developed markets in that the markets are young, are less efficient with high uncertainty about future cash flow, a high degree of information asymmetry, and poor legal protection for outside shareholders, and they are expected to incur high agency costs. Dividend has been suggested to reduce the agency cost. As in the section discussing studies of developed economies, the section concerning emerging markets also reviewed the empirical studies by focusing on the agency problem-as a duplicated problem in the emerging market.

This chapter concluded by summarising and comparing the sort of characteristics that might affect the dividend policy of firms in developed markets and emerging markets. This comparison showed that dividend characteristics in developing markets are more contradictory, supporting the argument of Glen et al. (1995) in that more pieces have been added to the dividend puzzle when current research has attempted to explain the dividend behaviour of firms listed in emerging markets. As a consequence of this argument and to update the empirical tests, the chapter concluded that it is important to understand the dividend policy of particular stock markets, such as in the GCC states, because this will provide new evidence which may help to understand dividend policy in emerging markets.

Chapter 5 developed a total of nine hypotheses to test the impact of ownership structure, firm size, free cash flow, growth opportunities, leverage ratio, business risk, and firm profitability in explaining dividend payout policy. The hypotheses are summarised as follows:

H1: The dividend payout is positively associated with government investment.

H2: The dividend payout is positively/negatively associated with the percentage of shares owned by large institutions.

H3: The dividend payout is positively associated with the percentage of shares owned by large shareholders.

H4: The dividend payout is positively associated with free cash flow.

H5: The dividend payout is positively associated with firm size.

H6: The dividend payout is positively/negatively associated with growth opportunities.

H7: The dividend payout is positively/negatively associated with financial leverage.

H8: The dividend payout is positively/negatively associated with business risk.

H9: The dividend payout is positively associated with current firm profitability.

Three hypotheses associated ownership structure; H1, H2, and H3. Due to the unavailability of appropriate data elsewhere, H2 was only tested on the firms listed on the KSE and MSE and H3 was tested on the firms listed in MSE alone.

The discussion of the hypotheses was followed by a presentation of the proxy variables used to test the research hypotheses. The data collection was then presented. The main sources of data were stock exchanges in GCC states, namely the Kuwait Stock Exchange, Saudi Arabia Stock Exchange, Muscat Stock Exchange, Doha Stock Exchange and Bahrain Stock Exchange. The study was based on a panel dataset consisting of a total of 191 firms, and covering the period 1999-2003.

The chapter then introduced two types of econometric models to examine the research hypotheses. The first is the linear panel data model (i.e., fixed and random effects models) which assumes that the dependent variable of the models, the dividend payout ratio, is a continuous variable. Since it is a panel data methodology, it is possible to control for unobserved firm-specific effects on dividends. The second econometric model was the random effects tobit model which is more suitable if the dependent variable, the dividend payout ratio, has a substantial proportion of zero (0) observations.

Chapter 6 presented and discussed the results of the non-financial firms listed on the stock exchanges of GCC states as a whole sample. The results of each GCC states were presented and discussed in **Chapters 7, 8, 9, 10 and 11**. The findings of these analyses are summarised together below.

According to the linear panel data models (either FE or RE) and the RE Tobit model, the results regarding the study hypotheses suggested that:

Government ownership was a statistically significant factor in all samples except the DSE sample. This variable is generally positively associated with dividend, meaning that as the percentage of shares held by the government increases, firms pay a higher dividend. Firm profitability was also a significant positive factor in all samples except the BSE sample. The firm profitability elasticity of dividend was the highest among all other variables. This result supports the idea that in emerging markets, firm profitability is the important factor in determining dividend payout policy. Market capitalisation, which was a significant positive factor in the whole sample, was only significant in the MSE sample, indicating that large firms pay a higher dividend ratio in order to reduce the agency problem, beside that the large firms have easier access to the capital market than small firms. The growth variable appeared as a specific characteristic related to the MSE, DSE, and BSE samples. The results for firms listed on the MSE and DSE indicated that when there is a high level of growth opportunity, firms choose to pay a lower dividend. On the other hand, the findings for firms listed on the BSE indicated that these firms choose to increase the dividend ratio when there is high growth. The other variables, i.e., free cash flow, leverage ratio, and business risk, were not significant.

The findings of the random effects Tobit model indicated the following.

Government ownership and firm profitability appeared as significant variables in all samples although they were not significant in the DSE and BSE samples. Surprisingly, government ownership appeared as a negative explanatory variable in the DSE sample, which is contradictory to hypothesis (H1). Furthermore, the results concerning firm profitability were surprising because it was found to be a negative explanatory variable, which is in contrast with hypothesis (H9). Firm size was significant in all samples except the KSE and BSE samples. This result is consistent with hypothesis (H5) in that there is a positive association with dividend ratio. Growth rate was a significant positive factor only in the BSE, showing that rapidly growing firms will choose to pay a higher dividend ratio. Leverage ratio appeared as a new significant variable in the whole sample and in the KSE sample, indicating that firms pay a lower dividend when there is an increase in leverage ratio, which is consistent with hypothesis (H7). Business risk also became a new significant variable: it appeared as a specific characteristic related to the SSE sample. This result is consistent with hypothesis (H8), that firms pay a lower dividend when there is high business risk. Free cash flow was the only non-significant variable in all samples.

It should be noted that in the RE Tobit model, the results for each of the individual stock exchanges became closer to each other, suggesting that the ability to better account for non-dividend paying years removed a source of variation present in the panel method results.

12.4 Conclusion

This thesis aimed to determine the factors that affected dividend payout policy. In particular, the study focuses on the explanation of agency theory and transaction cost theory. This thesis made an original contribution in number of aspects: First, it is the first study to investigate the dividend policies of the non-financial firms listed on the GCC states' stock exchanges. Secondly, the study has highlighted a number of dividend policy characteristics associated with this region, which may have implications for shareholders' investment decisions in the GCC states' market. Moreover, this study has contributed to the debate on dividend policy by adding new evidence from an emerging market. This is especially valuable as dividend policy in an emerging market is likely to be different when compared with a developed market, in part according to the nature, size and efficiency of each market. On the other hand, this study also identifies similarities among emerging stock markets. Hence, testing the dividend policy of firms listed on the GCC states' stock exchanges has provided a deep base for future comparative studies on other emerging markets. Finally, through a thorough review of the literature, it was noted that a only a very small number of studies have examined the dividend policy in emerging economies: therefore, this work contributes to a potentially significant research field and provides a new reference for future research in this area.

This study hypotheses developed during this study relate to the agency cost hypothesis and the transaction cost hypothesis using data collected from a number of resources for five GCC states; Kuwait, Saudi Arabia, Oman, Qatar, Bahrain. The hypotheses have been tested by using the panel data method (1) with fixed effects and random effects models, and (2) the random effects Tobit model.

The results indicated that the common and main characteristics of dividend payout policy of the GCC states listed firms is that the dividend payout ratio is related strongly and directly to government ownership and firm profitability. These results above all indicate that firms pay dividend in order to reduce agency conflict and maintain corporate reputation. This is especially important since the legal protection for outside shareholders is limited in these countries. The results also show that the common variables of transaction cost (growth rate, leverage ratio, and business risk) were less important in their explanation of dividend policy, since these variables were significant in comparatively few cases. Thus, the dividend policy of firms listed on the GCC stock exchanges may be characterised as being affected mainly by agency cost and partly by transaction cost affected.

Another important consideration is that the two additional variables: institutional ownership and large shareholders have been introduced to examine in more detail the dividend policy of firms listed on the Kuwait and Muscat stock exchanges. These are the only GCC countries that disclose additional information related to corporate ownership stricture. However, the results suggest that neither institutional ownership nor large shareholders influence dividend payout policy. The insignificance of these two ownership variables might imply that government shareholders tend to be among the most influential investors and this affects dividend policy in the GCC states' listed firms. The importance of government ownership influence is supported by the free cash flow results, which were not found to influence dividend payout policy in any of the samples examined. This might imply that government ownership, is an additional influential factor, where firms with high free cash flow may be forced to pay large amount of dividends.

Overall, this research indicated that government ownership plays an important role in dividend policy, which might be a special characteristic related the GCC stock exchanges in particular.

12.5 Limitations of this Study

The dividend policy models developed in this thesis overcome some shortcomings of existing studies related to GGC states in terms of methods and characteristics of firms. Existing studies associated with the GCC states simply employed a linear regression model to develop dividend policies and did not consider some important characteristics of firms that may substantially affect dividends. In this thesis, sophisticated econometric models (random effects and fixed effects panel data models and random effects Tobit models) were used to develop the dividend policy models by considering a set of important factors affecting the amount of dividend payment. Nevertheless, this study has several limitations that should be highlighted:

- One of the main limitations of this research is that this study only examines the dividend policies of non-financial firms and excludes financial firms. This is due to the unavailability of full information on financial firms listed on the GCC states. If the panel data on both types of firms would have been available, then a series of interesting comparisons might have been made.

- The other main limitation of this research is the sample size, specifically the relatively short time series of data (5 years). The results would have been more robust if a longer time series data could have been used, but despite this the available sample reveals some interesting associations.

- Some variables have been discussed and included in previous studies but were not available here (e.g. future growth rate, institutional ownership, large shareholders), because these information was not available in all GCC states' listed firms.

- There are a number of proxies for each variable and this study only considered one type of proxy to represent each variable. For instance, the variable, firm size may be represented by a number of different proxies such as total assets, market capitalisation, sales, and the number of shares per shareholder. This study only considers market capitalisation as a proxy for firm size. Therefore, it is not possible to see whether the results would remain the same if other proxies were to be used.

12.6 Recommendations and Scope for Future Research

This thesis presents some notable results by examining the determinants of dividend policy of the firms listed on the GCC states and considering the agency theory explanation. Therefore, it lays open opportunities and presents avenues for more in-depth research related to dividend policy. One example for future research would be to continue the exploration into other emerging markets, especially the other Arab stock exchanges, by using the advanced econometric models employed in this study.

Another avenue for further research is that since the results of this study revealed that firm profitability is the key determinant of dividend policy in the GCC states, it might be useful to extend the research on this point by examining the smoothness of dividend policy in these countries.

During the study period, the ownership regulation limited investment in the stock exchanges to shareholders with GCC nationality. Recently, most of the GCC stock exchanges have allowed other Arab and foreign investors to invest in the GCC markets. A potential research area would concern how these new investors have affected the dividend policy of firms listed in the GCC states.

Future studies could be conducted to examine whether dividend policy has an influence on firm valuation and share price reaction, both of which have been of major interest in the dividend policy literature but were not the centre of the current study.

An important and new characteristic related to the GCC states in particular is whether the board of directors includes a member of a royal family and moreover whether these individuals are simultaneously active in their corporate and royal duties. This area could be investigated in future studies although this would require information that is not currently available. In addition it would be worthwhile to research the impact of royalty ownership on dividend policy decision this could shed some interesting light into questions of transparency, disclosure and financial reporting.

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