CHAPTER ONE

1. Chapter 1: INTRODUCTION AND OVERVIEW

1.1 Introduction

The topic of dividend policy remains one of the most controversial issues in corporate finance. For more than half a century financial economists have engaged in modelling and examining corporate payout policy. Thirty years ago Black (1974, p.5) wrote that, “The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that don’t fit together”. In the thirty years since then a vast amount of literature has been produced examining dividend policy. Recently, however, Frankfurter et al. (2002) concluded in the same vein as Black that:

The dividend “puzzle,” both as a share value-enhancing feature and as a matter of policy, is one of the most challenging topics of modern finance/financial economics. Forty years of research … has not been able to resolve it (p.212).

Research into dividend policy has shown not only that a general theory of dividend policy remains elusive, but also that corporate dividend practice varies over time, between firms and across countries. Fama and French (2001), for instance, document a sharp decline in cash dividends paid by publicly traded (non-financial and non-utility) firms in the US over the last 25 years. In 1973 and 1978, the proportion of firms that paid dividends was 52.8 percent and 66.5 percent, respectively, whereas in 1999, only 20.8 percent of firms paid dividends. This significant decrease in dividend paying firms is partly due to the growth in firms that have never paid dividends (small size, less
profitable, and more growth options) and to a decline in propensity to pay dividends regardless of firms characteristics. Nevertheless, in a recent study, DeAngelo, DeAngelo and Skinner (2004) found that although the number of dividend-paying firms decreased over the period 1978-2000, the magnitude of dividends paid by US firms has actually increased. They show that this is largely due to the concentration of dividends and earnings. For instance, in 2000 the 25 top dividend-paying firms accounted for about 55 percent of aggregate industrial dividends paid and about 51 percent of aggregate earnings. In real terms, DeAngelo et al report that the level of dividends paid by these 25 firms in 2000 exceeds their 1978 level by $9.2 billion. This example highlights another enduring feature of the dividend policy debate. Researchers often disagree about the interpretation of the same empirical data.

The patterns of corporate payout policies not only vary over time but also across countries, especially between developed and emerging capital markets. Glen et al. (1995) found that dividend policies in emerging markets differed from those in developed markets. They reported that dividend payout ratios in developing countries were only about two thirds that of developed countries. More recently, Ramcharran (2001) also observed low dividend yields for emerging markets. Generally speaking, firms in emerging capital markets face more financial constraints and limited resources to finance their investment opportunities, which may result in more reliance on retained earnings and accordingly result in lower payout ratios. But this explanation is largely speculative, since so little research has been done on dividend policy in emerging equity markets.
La Porta et al. (2000a) suggested that dividend policy variations across countries can be explained by differences in their legal systems. They found that firms in countries governed by common law (better shareholder protection) made higher dividend payouts than those in civil law countries. For example, La Porta et al. reported a median payout ratio (dividends/earnings) of 37.42 percent for the common law countries sample and only 25.11 percent for the civil law countries sample. Aivazian, Booth and Cleary (2003a) compared a sample of firms operating in eight emerging markets with a sample of 99 US firms. They concluded “… results suggest that the dividend policies of firms in emerging markets react to variables similar to those in the United States; however, their sensitivity to these variables varies across countries” (p.387). In contrast to Glen et al. (1995) and Ramcharran (2001), they observed that, in general, payout ratios for emerging market firms were comparable to their US counterparts. It is worth pointing out that Aivazian et al. used the International Finance Corporation’s (IFC) database, similar to that used by Glen et al. (1995), where only the largest firms were included from each emerging market. This may bias their results but underscores the controversial nature of dividend policy.

Financial and business historians have shown that dividend policy has been bound up with the historical development of the corporation. In its modern form, however, dividend policy theory really only began in 1961 with the publication of the pioneering paper of Miller and Modigliani demonstrating that under certain assumptions including rational investors and a perfect capital market, the market value of a firm is independent of its dividend policy. The value of the firm is determined solely by its earning power and investment decisions, which are independent of dividend policy. The dividend
The irrelevance hypothesis has been central to the development of financial economics as a scientific discourse. In particular, it helped to integrate dividend policy into the wider theoretical discipline of financial economics by giving it similar theoretical underpinnings. However, the dividend irrelevance hypothesis is quite controversial, and empirical support for it is limited. In an attempt to develop more empirically supported models of dividend policy, financial economists have proposed a number of competing theories. These have attempted to explain the actual patterns of corporate dividend behaviour and why dividend policy seems to be relevant in the real world, where hypothesised perfect markets do not exist. Identifying which market imperfection matters in determining dividend policy has formed the basis for almost all subsequent theories of dividend policy.

The bird-in-hand theory (a pre-Miller-Modigliani theory) asserts that in a world of uncertainty and information asymmetry dividends are valued differently to retained earnings (capital gains). Because of uncertainty of future cash flow, investors will often tend to prefer dividends to retained earnings. As a result, a higher payout ratio will reduce the required rate of return (cost of capital), and hence increase the value of the firm. This argument has been widely criticised and has not received strong empirical support.

The tax-preference theory posits that low dividend payout ratios lower the required rate of return and increase the market valuation of a firm’s stocks. Because of the relative tax disadvantage of dividends compared to capital gains investors require a higher before-tax risk adjusted return on stocks with higher dividend yields (Brennan, 1970). The
thesis reviews several studies that present empirical evidence in support of the tax effect argument. It also considers other research that has produced opposing findings or provided different explanations.

Another closely related theory is the clientele effects hypothesis. According to this argument, investors may be attracted to the types of stocks that match their consumption/savings preferences. That is, if dividend income is taxed at a higher rate than capital gains, investors (or clienteles) in high tax brackets may prefer non-dividend or low-dividend paying stocks, and vice versa. Also, the presence of transaction costs may create certain clienteles. For example, to avoid the transaction costs associated with selling stocks, small investors (e.g. income-oriented) who rely on dividend income to satisfy their liquidity needs may prefer to invest in steady and high-dividend paying stocks. For the same reason, wealthy investors who are not relying on dividend income may be attracted to low-payout stocks. There are numerous empirical studies on the clientele effects hypothesis but the findings are mixed.

Despite the tax penalty on dividends relative to capital gains, firms may pay dividends to signal their future prospects. This explanation is known as the information content of dividends or signalling hypothesis. The intuition underlying this argument is based on the information asymmetry between managers (insiders) and outside investors, where managers have private information about the current performance and future fortunes of the firm that is not available to outsiders. Here, managers are thought to have the incentive to communicate this information to the market. According to signalling models (Bhattacharya, 1979, John and Williams, 1985, and Miller and Rock, 1985)
dividends contain this private information and therefore can be used as a signalling device to influence share price. An announcement of dividend increase is taken as good news and accordingly the share price reacts favourably, and vice versa. Only good-quality firms can send signals to the market through dividends and poor-quality firms cannot mimic these because of the dissipative signalling costs (for example, transaction costs of external financing, or tax penalties on dividends, or distortion of investment decisions). Moreover, as suggested by Lintner (1956), firms do not increase dividends unless the new level of dividends can be sustained at least in the near future. They are also reluctant to cut dividends because managers believe that it hurts a firm’s reputation.

The information asymmetry between managers and shareholders, along with the separation of ownership and control, formed the base for another explanation for why dividend policy may matter; that is, the agency costs thesis. This argument is based on the assumption that managers may conduct actions in accordance with their own self-interest which may not always beneficial for shareholders. For example, they may spend lavishly on perquisites or overinvest to enlarge the size of their firms beyond the optimal size since executives’ compensation is often related to firm size (see Jensen, 1986, Gaver and Gaver, 1993). The agency costs thesis predicts that dividend payments can reduce the problems associated with information asymmetry. Dividends may also serve as a mechanism to reduce cash flow under management control, and thus help to mitigate the agency problems. Reducing funds under management discretion may result in forcing them into the capital markets more frequently, thus putting them under the
scrutiny of capital suppliers (Rozeff, 1982, and Easterbrook, 1984). An important implication for this argument is that paying dividends may have a positive impact on firm value because it reduces the overinvestment problem.

Theories discussed above presented differing explanations for the determinants of corporate dividend policy, and provide a partial solution to the dividend puzzle (debate between these explanations remains unresolved). The existing literature has concentrated mostly on examining dividend policy in developed capital markets, especially the US. Relatively limited evidence exists in relation to emerging markets and particularly for Jordan. Among the first to examine corporate dividend policy in emerging markets was Glen et al. (1995). They concluded that

The evidence presented here provides insight into the dividend policies of emerging market firms, but it also illustrates the complexity of this issue and leaves many unanswered questions. A better understanding of dividend behavior in these countries will require much additional research, both at the aggregate and firm levels (p.24).

Since Glen et al.’s paper, some work on dividend policy in developing countries has been undertaken, but recently Ramcharran (2001) observed that:

“...dividend policy in the equity emerging markets from a corporate finance perspective has not been empirically examined to date...Continuing financial reforms in emerging markets, together with the validity of more published

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1 Jensen (1986) suggested that debt could also serve as a substitute for dividends to alleviate agency costs associated with free cash flow.

2 “The International Finance Corporation defines an emerging market as any market in a developing economy, with the implication that all have the potential for development” (see Kumar and Tsetsekos, 1999, p.443).
data, will encourage further research on other determinants of dividend policy, including the impact of agency costs, information, and taxes as well as the capital structure of firms”.

This suggests that much more research needs to be done on dividend policy in emerging markets. As far as the Jordanian capital market is concerned, to the best of the author’s knowledge, this study is the first to examine empirically the dividend policy of all publicly quoted companies in Jordan and to present evidence on what determines corporate payout policy in this market.

1.2 Motivation of this Research

There are three major motives for this research. Firstly, dividend policy has been a controversial subject for a long time. Although dividend policy is not a new area of research, it is still attracting the attention of financial economists and for many researchers it remains one of the most interesting and puzzling topics in modern corporate finance. The theories and explanations that have emerged have resulted in an enormous theoretical and empirical body of research with several hundred monographs, working papers, and journal articles\(^3\). This controversy therefore motivates the conduct of research on dividend policy where answers to many questions are still not clearly developed.

\(^3\) For instance, more than hundred articles were cited attempting to test Elton and Gruber’s (1970) original findings on taxes and share price behaviour around the ex-dividend date (see Elton, Gruber and Blake, 2002).
Secondly, an examination of what determines corporate dividend policy in emerging equity markets is currently not well established in the literature. Moreover, the existing work on emerging markets has also produced conflicting results. Emerging markets differ from those in developed countries in many aspects. They are often of more recent origins, have less information efficiency, more volatility, and are smaller in size (Kumar and Tsetsekos, 1999).Emerging markets also differ from those developed markets in other characteristics such as corporate governance, taxation on dividends and capital gains, and ownership structure. Moreover, emerging markets including Jordan are usually characterised by concentrated ownership, and financial systems that are bank rather than market-based. In this case, banks can play an important role in closing the information gap between firm management and the market, rendering the role of dividends as a device for signalling or reducing agency costs less important. In addition, firms in emerging markets are subject to more financial constraints than their counterparts in developed markets, which may have some influence on their dividend policy. These differences, and the peculiarities of the particular markets themselves, raise the question about the extent to which competing dividend policy theories can apply to such markets, in particular to Jordan. In some respects, Jordan provides an ideal ground for examining such theories and their implications for developed countries. It is a market that has been guided by international institutions, it has adopted an advanced trading pattern, and it seeks to model itself as a regional stock market.

Finally, evidence is currently very limited with regard to dividend policy in Jordan. It has been observed that the extant studies in this area have not focused on what

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4 Kumar and Tsetsekos (1999) provide a useful description of how stock markets in developing countries differ from those in developed or industrialised nations.
determines dividend policy of Jordanian publicly quoted companies. To support this claim, in a recent study Omet (2004) concluded that:

Based on the empirical findings of this paper, a number of related further research can be suggested. First, what are the determinants of the dividend behaviour of Jordanian companies? Are the explanatory power of mainstream dividend policy theories applicable to the Jordanian capital market? (p.297).

Moreover, the existing studies that have used Jordanian data have been based on small and in some respects biased samples, which make their findings unreliable although some of them have applied sound econometric methods. The lack of studies on dividend policy in emerging equity markets and in the Jordanian context in particular, and the shortcomings of those that do exist provide strong justification for the current study.

1.3 Objectives and Significance

This thesis aims at providing a direct evaluation of the dividend policies adopted by Jordanian companies listed on the Amman Stock Exchange (ASE). This is the first attempt to examine the determinants of corporate dividend policy for Jordanian firms by incorporating all companies listed on the ASE. By including all companies the study is more comprehensive and will hopefully avoid the sample selection problems associated with previous research.

The second objective of the thesis is to join the debate on dividend policy, but to do so via a case study of an emerging market. As stated earlier, emerging markets have
different characteristics compared to developed markets. Therefore, it is reasonable to expect that payout policies of firms operating in these markets may differ from those in developed markets. Nevertheless, these markets provide a useful test of the general prosperities of rival theories of dividend policy. Emerging stock markets also generally have several similar characteristics. In this case, corporate dividend policy in Jordan, to some extent, may share some important similarities with other emerging markets. Thus, the findings of this comprehensive study of firms traded on the Jordanian capital market could provide a fertile ground for future comparative research based on other emerging markets. Such findings may also provide the basis for reflection on empirical research in developed markets.

Thirdly, given the large body of theoretical and empirical research on dividend policy, and a number of excellent literature reviews, no comprehensive review of that literature currently exists. The thesis attempts to review the relevant literature in order to provide a focused review of the main contributions of that literature. It aims to show the current state of the debate, to trace its historical evolution and to provide an important reference source for future research in this area. The thesis has, for instance, cited more than 250 articles on dividend policy.

Finally, based on the findings of this research, the thesis attempts to provide potential researchers with areas of future research in emerging markets and the Jordanian context in particular.
1.4 Thesis Structure

The thesis is presented in six chapters. The current chapter has provided an overview of the research topic, motivation, objectives and significance of the thesis. The remainder of the thesis is organised as follows.

Chapter 2 presents the theoretical considerations and relevant prior work on dividend policy. It begins by presenting a general introduction on the topic, and reviews the historical background of dividends and corporate dividend policy. The chapter then presents the main modern theories of dividend policy starting with Miller and Modigliani’s dividend irrelevance hypothesis. It then provides the basic argument for the rival theories of dividend policy and the empirical evidence on them. The chapter also presents some empirical studies based on emerging markets in general and the available research findings for Jordan.

Chapter 3 provides an overview of the Jordanian capital market and the potential implications of this structure for corporate dividend policy in Jordan. It begins with a brief background of Jordan and its economy. The chapter then discusses the development of the Jordanian capital market and its major relevant characteristics. The chapter then goes on to discuss the ownership structure and corporate governance in Jordan. The chapter establishes that ASE is highly concentrated in terms of trading volume and market capitalisation. It also establishes that corporate governance in Jordan is adequate. The chapter presents the relevant finance and credit relationships in the Jordanian capital market. It shows that, although the financial system is a bank-based, Jordanian companies do not rely heavily on bank debt financing and most of the credit
facilities granted by Jordanian banks are short-term in nature, suggesting a rather unusual bank-based financial system. The chapter also provides an overview of dividend payout patterns and dividend policy in Jordan and, more generally, other emerging markets. Finally, the chapter suggests some important implications of dividend policy in Jordan.

Chapter 4 describes the sample data used in this study, and how this data was compiled and organised. The data employed in this study is derived from the annual publications of the ASE. Based on a 12-year period (1989-2000) and 160 companies listed on the ASE, a panel dataset was constructed. This dataset consist of all companies listed on the ASE covering four sectors: industrial, service, insurance, and banks. The chapter then presents detailed analysis of the development of the research hypotheses and questions, drawing on chapters 2 and 3. It also provides detailed discussion of the proxy variables used to test each hypothesis. These research hypotheses formed our empirical model to examine the determinants of corporate dividend policy in Jordan. The general-to-specific method is used to choose between competing hypotheses. The chapter then presents the method of estimation. Two specifications are used: Tobit and Probit analyses. The Tobit estimation is used to examine the determinants of the amount of dividends paid by Jordanian companies, while the Probit estimation is used to examine the determinants of the decision to pay dividends. Finally, the chapter discusses the Lintner model, which is used to test dividend smoothing of Jordanian companies.

Chapter 5 presents and discusses the results of the empirical testing. The chapter provides descriptive statistics of all variables used in the study along with some
statistical tests. It also provides several diagnostic tests including a multicollinearity test, a likelihood ratio test, and a heteroskedasticity test. The chapter shows the general-to-specific procedures to choose from the competing models. The first stage of the analysis discusses the results obtained from the random effects Tobit models on the determinants of the amount of dividends paid. This analysis covers both the statistical and the economic significance of coefficients of the variables. The chapter also presents some robustness checks to confirm the findings. The chapter then goes on to analyse the results from the random effects Probit models on the decision or the probability to pay dividends. In both Tobit and Probit analyses, the general-to-specific approach is used in order to determine the best fitting model specification. The chapter also provides the results of the Lintner model.

Finally, Chapter 6 provides a summary of the thesis and concluding remarks, including implications of the results and areas for further research.
2. Chapter 2: Theoretical Considerations and Prior Research

Equation Section 2

2.1 Introduction

As Bishop et al. (2000) remind us, in corporate finance, the finance manager is generally thought to face two operational decisions: the investment (or capital budgeting) and the financing decisions. The capital budgeting decision is concerned with what real assets the firm should acquire while the financing decision is concerned with how these assets should be financed. A third decision may arise, however, when the firm begins to generate profits. Should the firm distribute all or a proportion of earned profits in the form of dividends to the shareholders, or should it be ploughed back into the business? Presumably, in taking any course of action, managers should concentrate on how to maximise the wealth of shareholders for whom the firm is being managed. Managers must not only consider the question of how much of the company’s earnings are needed for investment, but also take into consideration the possible effect of their decisions on share prices.

The term ‘dividend policy’ refers to “the practice that management follows in making dividend payout decisions or, in other words, the size and pattern of cash distributions over time to shareholders” (Lease et al., 2000, p.29). This issue of dividend policy is one that has engaged managers since the birth of the modern commercial corporation.
Surprisingly then dividend policy remains one of the most contested issues in finance. The study of dividend policy has captured the attention of finance scholars since the middle of the last century. They have attempted to solve several issues pertaining to dividends and formulate theories and models to explain corporate dividend behaviour.

The dividend enigma has not only been an enduring issue in finance, it also remains unresolved. Almost thirty years ago Black (1976) described it as a “puzzle”, and since then an enormous amount of research has occurred trying to solve the dividend puzzle. Allen, Bernardo and Welch (2000, p.2499) summarised the current consensus view when they concluded “Although a number of theories have been put forward in the literature to explain their pervasive presence, dividends remain one of the thorniest puzzles in corporate finance”. The current thesis cannot expect to do more than make a small contribution to one of finance’s most enduring problems.

The enduring nature and extensive range of the debate about dividend policy has spawned a vast amount of literature that grows by the day. For this reason, a comprehensive review of all debates is not feasible in this thesis\(^5\). However, to do justice to the importance of both the topic of dividend policy as an area of financial economic research, and also to the literature that has been produced addressing that topic, would necessitate a longer review of the literature than would be normal for a thesis such as this\(^6\).

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\(^5\) Lease et al. (2000) and Allen and Michaely (2003) provide very good surveys of dividend policy literature.

\(^6\) This chapter is a shorter version of a long review of the literature that the author intends to publish in the future.
This chapter attempts to outline the main theories and explanations of dividend policies and to review the main empirical studies on corporate dividend policy. Along with the analysis of the Jordanian capital market, discussed in Chapter 3, the theoretical models outlined here will form the basis for the development of the research hypotheses to be tested in the thesis.

The chapter is organized as follows. Section 2 gives a short background of corporate dividend policy. Section 3 analyses the theories of dividend policy starting with the dividend irrelevance hypothesis of Miller and Modigliani, and then the alternative hypotheses including bird-in-the-hand, tax-preference, clientele effects, signalling, and agency costs hypotheses. Section 4 summarises the chapter and includes a discussion of the implications of the literature for the research undertaken in the thesis.

2.2 Background of Corporate Dividend Policy

The issue of corporate dividends has a long history and, as Frankfurter and Wood (1997) observed, is bound up with the development of the corporate form itself. Corporate dividends date back at least to the early sixteenth century in Holland and Great Britain when the captains of sixteenth century sailing ships started selling financial claims to investors, which entitled them to share in the proceeds, if any, of the voyages. At the end of each voyage, the profits and the capital were distributed to investors, liquidating and ending the venture’s life. By the end of the sixteenth century,

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7 This section based heavily on Baskin (1988) and Frankfurter and Wood (1997).
8 This type of business was called Commenda. Under the commenda, the commendator provided the capital and the commendatarius managed the investment (Walker, 1931, p.97).
these financial claims began to be traded on open markets in Amsterdam and were gradually replaced by shares of ownership. It is worth mentioning that even then many investors would buy shares from more than one captain to diversify the risk associated with this type of business.

At the end of each voyage, the enterprise liquidation of the venture ensured a distribution of the profits to owners and helped to reduce the possibilities of fraudulent practice by captains (Baskin, 1988). However, as the profitability of these ventures was established and became more regular, the process of liquidation of the assets at the conclusion of each voyage became increasingly inconvenient and costly. The successes of the ventures increased their credibility and shareholders became more confident in their management (captains), and this was accomplished by, among other things, the payment of “generous dividends” (Baskin, 1988). As a result, these companies began trading as going concern entities, and distributing only the profits rather than the entire invested capital. The emergence of firms as a “going concern” initiated the fundamental practice of firms to decide what proportion of the firms’ income (rather than assets) to return to investors and produced the first dividend payment regulations (Frankfurter and Wood, 1997). Gradually, corporate charters began to restrict the payments of dividends to the profits only.

The ownership structure of shipping firms gradually evolved into joint stock company form. But it was chartered trading firms more generally that adopted the joint stock form most commonly. In 1613, the British East India Company issued its first joint stock
shares with a nominal value. “No distinction was made, however, between capital and profit” (Walker, 1931, p.102). In the seventeenth century, the success of this type of trading company seemed poised to allow the spread of this form of business organization to include other activities such as mining, banking, clothing, and utilities. Indeed, in the early 1700’s, excitement about the possibilities of expanded trade and the corporate form saw a speculative bubble form, which collapsed spectacularly when the South Sea Company went into bankruptcy. The Bubble Act of 1711 effectively slowed, but did not stop, the development of the corporate form in Britain for almost a century (Walker, 1931).

In the early stages of corporate history, managers realized the importance of high and stable dividend payments. In some ways, this was due to the analogy investors made with the other form of financial security then traded, namely government bonds. Bonds paid a regular and stable interest payment, and corporate managers found that investors preferred shares that performed like bonds (i.e. paid a regular and stable dividend). For example, Bank of North America in 1781 paid dividends after only six months of operation, and the bank charter entitled the board of directors to distribute dividends regularly out of profits. “Paying consistent dividends remained of paramount importance to managers during the first half of the 19th century” (Frankfurter and Wood, 1997, p.24)

In addition to the importance placed by investors on dividend stability, another issue of modern corporate dividend policy to emerge early in the nineteenth century was that
dividends came to be seen as an important form of information. The scarcity and unreliability of financial data often resulted in investors making their assessments of corporations through their dividend payments rather than reported earnings. In short, investors were often faced with inaccurate information about the performance of a firm, and used dividend policy as a way of gauging what management’s views about future performance might be. Consequently, an increase in divided payments tended to be reflected in rising stock prices. As corporations became aware of this phenomenon, it raised the possibility that managers of companies could use dividends to signal strong earnings prospects and/or to support a company’s share price because investors may read dividend announcements as a proxy for earnings growth

To summarise, the development of dividend payments to shareholders has been tied up with the development of the corporate form itself. Corporate managers realized early the importance of dividend payments in satisfying shareholders expectations. They often smoothed dividends over time believing that dividend reductions might have unfavourable effects on share price and therefore, used dividends as a device to signal information to the market. Moreover, dividend policy is believed to have an impact on share price. Since the 1950’s, the effect of dividend policy on firm value and other issues of corporate dividend policy have been subjected to a great debate among finance scholars. The next section considers these developments from both a theoretical and an empirical point of view.

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9 Frankfurter and Wood (1997) describe how in the 1920’s and 1930’s corporate managers increasingly responded to the recognition that investor behaviour is affected by dividend policy. Managers used dividend policy to affect share prices (via investor reactions to payout ratios and to signal expected future earnings).
2.3 Dividend Policy Theories

The previous section established that dividend policy was bound up with the development of the corporate form itself. It was seen that the emergence of dividend policy as important to investors was, to some extent, driven by the evolving state of financial markets. Investing in shares was initially seen as analogous to bonds, so regularity of payments was important. It was also seen that in the absence of regular and accurate corporate reporting, dividends were often preferred to reinvested earnings, and often even regarded as a better indication of corporate performance than published earnings accounts. However, as financial markets developed and became more efficient, it was thought by some that dividend policy would become increasingly irrelevant to investors. Why dividend policy should remain so evidently important has been theoretically controversial.

Three main contradictory theories of dividends can be identified. Some argue that increasing dividend payments increases a firm’s value. Another view claims that high dividend payouts have the opposite effect on a firm’s value; that is, it reduces firm value. The third theoretical approach asserts that dividends should be irrelevant and all effort spent on the dividend decision is wasted. These views are embodied in three theories of dividend policy: high dividends increase share value theory (or the so-called ‘bird-in-the-hand’ argument), low dividends increase share value theory (the tax-preference argument), and the dividend irrelevance hypothesis. Dividend debate is not limited to these three approaches. Several other theories of dividend policy have been presented, which further increases the complexity of the dividend puzzle. Some of the
more popular of these arguments include the information content of dividends (signalling), the clientele effects, and the agency cost hypotheses\textsuperscript{10}. These are discussed in turn below beginning with dividend irrelevance hypothesis.

2.3.1. Dividend Irrelevance Hypothesis

2.3.1.1. The Basic Irrelevance Thesis

Prior to the publication of Miller and Modigliani’s (1961, hereafter M&M) seminal paper on dividend policy, a common belief was that higher dividends increase a firm’s value. This belief was mainly based on the so-called “bird-in-the-hand” argument, discussed in more detail shortly. Graham and Dodd (1934), for instance, argued that “the sole purpose for the existence of the corporation is to pay dividends”, and firms that pay higher dividends must sell their shares at higher prices (cited in Frankfurter et al., 2002, p.202). However, as part of a new wave of finance in the 1960’s, M&M demonstrated that under certain assumptions about perfect capital markets, dividend policy would be irrelevant.

Given that in a perfect market dividend policy has no effect on either the price of a firm’s stock or its cost of capital, shareholders wealth is not affected by the dividend decision and therefore they would be indifferent between dividends and capital gains. The reason for their indifference is that shareholder wealth is affected by the income generated by the investment decisions a firm makes, not by how it distributes that

\textsuperscript{10} The literature also provided another explanation of dividend policy based on a behavioural framework (see, e.g., Shefrin and Statman, 1984). This literature is not presented here since it is beyond the scope of this thesis.
income. Therefore, in M&M’s world, dividends are irrelevant. M&M argued that regardless of how the firm distributes its income, its value is determined by its basic earning power and its investment decisions. They stated that “…given a firm’s investment policy, the dividend payout policy it chooses to follow will affect neither the current price of its shares nor the total returns to shareholders” (p.414). In other words, investors calculate the value of companies based on the capitalised value of their future earnings, and this is not affected by whether firms pay dividends or not and how firms set their dividend policies. M&M go further and suggest that, to an investor, all dividend policies are effectively the same since investors can create “homemade” dividends by adjusting their portfolios in a way that matches their preferences.

M&M based their argument upon idealistic assumptions of a perfect capital market and rational investors. The assumptions of a perfect capital market necessary for the dividend irrelevancy hypothesis can be summarized as follows: (1) no differences between taxes on dividends and capital gains; (2) no transaction and flotation costs incurred when securities are traded; (3) all market participants have free and equal access to the same information (symmetrical and costless information); (4) no conflicts of interests between managers and security holders (i.e. no agency problem); and (5) all participants in the market are price takers. Given the importance of M&M’s argument in the dividend policy debate, the following section provides their proof of irrelevancy.
2.3.1.2. M&M Proof of Irrelevancy

To understand the M&M proposition of dividend irrelevancy, we shall start with the basic valuation model of common stock, that is the dividend discount model (DDM). Generally, the DDM states that the value of a stock is a function of future dividends (as a proxy for earnings) and the required rate of return on the stock. For example, the value of a share at time zero (today) is simply the present value of all future dividends discounted at an appropriate discount rate. This can be expressed as follows:

\[
P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + r_t)^t}
\]

where, \( P_0 \) is the current share price; \( t \) is the time of the dividend; \( D_t \) is the dividends paid at period \( t \); and \( r_t \) is the required rate of return for period \( t \). The DDM suggests that future discounted dividends (\( D_t \)) are the underlying determinant of the value of the current share price (\( P_0 \)), and not any future share price. The share price is the critical determinant of the firm value (\( V_0 \)). Accordingly, more dividends increase the value of the firm, other things being equal. This intuition was generally accepted by most of the economists until M&M published their paper, initiating a new direction in the dividend controversy thereafter.

In a perfect capital market the required rate of return for an investor on equity shares (\( r \)) is equal to dividends plus capital gains. That is (assuming one period world),

\[11\] The following is a synthesis of several accounts (see, for example, Bishop et al., 2000, Lease et al., 2000, and Allen and Michaely, 2002).
where, $P_0$ is the current market price of shares; $P_1$ is the expected market price at the end of period one (the ex-dividend price of the share); and $D_1$ is the dividend at the end of the period. Rearranging equation (2.2) we can obtain the current market price of shares as:

$$P_0 = \frac{D_1 + P_1}{(1 + r)};$$

(2.3)

Note that equation (2.3) can be derived also from the basic valuation model (2.1). Now, if we let $n$ be the number of shares outstanding at time zero, then the current value of the firm ($V_0$) is

$$nP_0 = V_0 = \frac{nD_1 + nP_1}{(1 + r)};$$

(2.4)

Recall that M&M stated that in a perfect capital market, firm value is independent of dividend policy. To illustrate, we can employ the sources and uses of funds equation. Given the assumption that the market value of the firm is independent of capital structure (Modigliani and Miller, 1958), debt financing is excluded from the analysis. On one hand, the firm’s sources of funds are cash flow from operations ($CF_1$) and any new equity financing ($mP_1$), where $m$ is number of shares issued at time one. On the other hand the uses of funds are dividends payments ($nD_1$) and investment made during the period ($I_1$). Since sources must equal the uses of funds, thus:

$$CF_1 + mP_1 = nD_1 + I_1;$$

(2.5)
Rearranging equation (2.5), we obtain

\[ nD_i = CF_i + mP_i - I_i \] ; \hspace{1cm} (2.6)

Substituting equation (2.6) into equation (2.4), for \( D_i \) we have

\[ V_0 = \frac{CF_i + mP_i - I_i + nP_i}{(1 + r)} \] ; \hspace{1cm} (2.7)

\[ V_0 = \frac{CF_i - I_i + (n + m)P_i}{(1 + r)} \] ; \hspace{1cm} (2.8)

Since \((n + m)P_i = V_i\), hence

\[ V_0 = \frac{CF_i - I_i + V_i}{(1 + r)} \] . \hspace{1cm} (2.9)

As dividends do not appear in the equation (2.9), and since operating cash flows \((CF_i)\), investments \((I_i)\) and required rate of return \((r)\) are not functions of dividend policy (either by their nature or by assumption), the value of the firm is thus independent of its current dividend policy (see M&M, 1961, p.414). This analysis can be repeated for more periods and the results will remain the same; that is, the value of the firm is unaffected by dividend policy.

The notion that in perfect capital markets dividend policy should be irrelevant is a logical extension of the neoclassical proposition of perfect competition into financial economics. Its elegance and simplicity were recognised by M&M. For instance, they observed in their initial paper that, “Like many other propositions in economics, the irrelevance of dividend policy, given investment policy, is ‘obvious, once you think of it’” (1961, p.414).
The above discussion suggests that the firm’s investment policy is the key determinant of its value and dividend policy is the residual. Operating cash flows depend on investments. In other words, the firm’s investments in positive net present value (NPV) projects will increase the cash flows from operation, which is the only way to increase the value of the firm. In summary, given the assumptions of perfect capital markets, the firm’s future cash flow from investment activities is the sole determinant of the value of the firm. The firm’s payout policy must therefore be independent of its value (Bishop et al., 2000).

2.3.1.3. Empirical Evidence

The M&M dividend irrelevance proposition has provided the foundation for much subsequent research on dividend policy. However, as stated by Ball et al. (1979, p.14), empirical tests of M&M’s “dividend irrelevance theorem have proven difficult to design and to conduct”. Recall that M&M built their conclusions on a certain set of assumptions of perfect capital markets. Relaxing one or more of these assumptions has formed the basis for most of theoretical and empirical studies.

In line with the dividend irrelevance hypothesis, Black and Scholes (1974) examined the relationship between dividend yield and stock returns in order to identify the effect of dividend policy on stock prices\textsuperscript{12}. They constructed 25 portfolios of common stocks listed on the New York Stock Exchange (NYSE), extending the capital asset pricing

\textsuperscript{12} It is worth pointing out that Black and Scholes’s study tested the tax-effect hypothesis, but it is presented here because its conclusion strongly supported M&M’s irrelevance proposition.
model (CAPM)\textsuperscript{13} to test the long run estimate of dividend yield effects. The study employed the following regression model:

\[
E(\tilde{R}_i) = \gamma_0 + \left[ E(\tilde{R}_M) - \gamma_0 \right] \beta_i + \frac{\gamma_1 (\delta_i - \delta_M)}{\delta_M} + \varepsilon_i ,
\]

where, \( E(\tilde{R}_i) \) is the expected return on portfolio \( i \), \( E(\tilde{R}_M) \) is the expected return on the market portfolio, \( \gamma_0 \) is an intercept to be compared with short-term risk free rate \( R_f \), \( \beta_i \) is the systematic risk of portfolio \( i \), \( \gamma_1 \) is the impact of dividend policy, \( \delta_i \) is the dividend yield on portfolio \( i \), \( \delta_M \) is the dividend yield on the market, and \( \varepsilon_i \) is the error term.

Black and Scholes used a long-term definition of dividend yield (previous year’s dividends divided by the year-end share price). Their results showed that the dividend yield coefficient \( \gamma_1 \) is not significantly different from zero either for the entire period (1936-1966) or for any of shorter sub-periods. That is to say, the expected return either on high or low yield stocks is the same. Black and Scholes, therefore, concluded that, “we are unable to show that differences in yield lead to differences in stock prices” (p.18). Stated another way, in their study neither high-yield nor low-yield payout policy of firms seemed to influence stock prices. Black and Scholes’s conclusion lent important empirical support to M&M’s dividend irrelevance argument. Other studies by leading financial economic researchers such as Miller and Scholes (1978,1982), Hess

\textsuperscript{13} The CAPM was developed alongside M&M’s work on efficient markets and forms an integral part of the framework of modern finance theory. The CAPM is expressed as follows: \( E(\tilde{R}_i) = R_f + \left[ E(\tilde{R}_m) - R_f \right] \beta_i \), where, \( E(\tilde{R}_i) \) is the expected return for security \( i \), \( R_f \) is the risk-free interest rate, \( E(\tilde{R}_m) \) is the expected return on the market portfolio, and \( \beta_i \) is the beta for security \( i \).
(1981) Miller (1986), and more recently, Bernstein (1996) provided evidence in support of the dividend irrelevance hypothesis (hereafter DIH).

While some empirical research supported the DIH, other research was not so supportive or provided evidence directly challenging the irrelevance hypothesis\(^{14}\). Building on Black and Scholes’s work, Ball et al. (1979) examined the effect of dividends on firm value using Australian data over the period 1960 to 1969. Ball et al., however, failed to find conclusive evidence to support M&M’s irrelevance proposition. Baker, Farrelly and Edelman (1985) surveyed the chief financial officers (CFOs) of 562 firms listed on the New York Stock Exchange (NYSE) from three industry groups (150 utilities, 309 manufacturing, and 103 wholesale/retail). Based on 318 responses, they found that respondents strongly agreed that dividend policy affects common stock prices. In another survey study, Partington (1985) found that Australian senior managers viewed dividend payments as a way to satisfy shareholders and support the share price. In a more recent study, Baker and Powell (1999) survey 603 CFOs of US firms listed on the NYSE, and observed that 90 percent of respondents believed that dividend policy affects a firm’s value as well as its cost of capital. Further studies by the same authors tend to confirm that dividend policy actually matters in the determination of firm value\(^{15}\). Other studies including Siddiqi (1995) and Casey and Dickens (2000) have provided evidence inconsistent with DIH.

\(^{14}\) A representative sample of that debate would include: Lintner (1962), Gordon (1963) Walter (1963), Baumol (1963), Brigham and Gordon (1968), and Van Horn and McDonald (1971).

Little evidence on the M&M dividend irrelevance hypothesis exists for emerging markets. Ben Naceur and Goaied (2002) examined 28 companies listed on the Tunisian Stock Exchange for the period 1990 to 1997. Using unbalanced panel data, they estimated a random effects Probit model to test whether the probability of creating future value of the Tunisian companies related to dividend policy, financial policy, and profitability. Dividend (measured by payout ratio) and financial (measured by debt to total assets) policies were found to be insignificant. Ben Naceur and Goaied concluded that their evidence supported the M&M irrelevance propositions of dividend and capital structure\textsuperscript{16} for Tunisian firms. In contrast, Omet and Abu-Ruman (2003) provided evidence inconsistent with the DIH. Omet and Abu-Ruman surveyed the CFOs of 47 manufacturing companies listed on the Jordanian capital market to identify their views about dividend policy. Based on 33 responses, the researchers observed that most of the CFOs questioned strongly agreed that dividend policy affects share prices. This evidence suggests that dividend policy matters in Jordan. However, given the small sample size in both the Omet and Abu-Ruman (2003), and the Ben Naceur and Goaied (2002) studies, their results should be treated with caution.

Despite all the empirical work testing the DIH, the impact of dividend policy on the value of a firm remains unresolved. In Section 2.3.1.1, it was noted that the proposition of dividend irrelevancy was based on several binding assumptions about the nature of perfect capital markets. This is an ‘a priori’ model of how markets should work if they were perfect. Naturally, once we depart M&M’s world of prefect capital market and

\textsuperscript{16} For capital structure irrelevance proposition, see Modigliani and Miller (1958).
relax one or more of the assumptions of perfect capital markets, the issue of dividend policy becomes more complicated. Introducing market imperfections might change the view that dividend decision is irrelevant. Importantly, if dividend policy is relevant it may interact with other decisions made by the firm about investment and financing. In other words, there may conceivably be a range of reasons why dividend policy might matter. As noted in the introduction of this chapter, the findings that dividends do matter have spurred a range of theoretical (and descriptive) explanations as to the cause of relevancy. The following sections review the main alternatives to DIH, starting with the ‘bird-in-the-hand’ argument.

2.3.2. High Dividends Increase Stock Value (Bird-In-The-Hand Hypothesis)

2.3.2.1. The Basic Argument

One alternative and older view about the effect of dividend policy on a firm’s value is that dividends increase firm value. In a world of uncertainty and imperfect information, dividends are valued differently to retained earnings (or capital gains). Investors prefer the “bird in the hand” of cash dividends rather than the “two in the bush” of future capital gains. Increasing dividend payments, ceteris paribus, may then be associated with increases in firm value. As a higher current dividend reduces uncertainty about future cash flows, a high payout ratio will reduce the cost of capital, and hence increase share value. That is, according to the so-called “bird-in-the-hand” hypothesis (henceforth BIHH) high dividend payout ratios maximize a firm’s value. Graham and
Dodd, for instance, argued that a dollar of dividends has, on average, four times the impact on stock prices as a dollar of retained earnings (see Diamond, 1967, p.16). Studies that provide support for the BIHH include Gordon and Shapiro (1956) Gordon (1959, 1963), Lintner (1962), and Walter (1963).

M&M (1961) have criticized the BIHH and argued that the firm’s risk is determined by the riskiness of its operating cash flows, not by the way it distributes its earnings. Consequently, M&M called this argument the bird-in-the-hand fallacy. Further, Bhattacharya (1979) suggested that the reasoning underlying the BIHH is fallacious. Moreover, he suggested that the firm’s risk affects the level of dividend not the other way around. That is, the riskiness of a firm’s cash flow influences its dividend payments, but increases in dividends will not reduce the risk of the firm. The notion that firms facing greater uncertainty of future cash flow (risk) tend to adopt lower payout ratios seems to be theoretically plausible (see, for example, Friend and Puckett, 1964). Empirically, Rozeff (1982) found a negative relationship between dividends and firm risk. That is, as the risk of a firm’s operations increases, the dividend payments decrease (see also Jensen, Solberg, and Zorn, 1992).

2.3.2.2. Empirical Evidence

Gordon (1959) suggested that there were three possible hypotheses for why investors would buy a certain stock. First, to obtain both dividends and earnings, second, to obtain dividends, and finally to get the earnings. He examined these hypotheses by estimating different regression models using cross-section sample data of four industries.
(chemicals, foods, steels, and machine tools) for two years 1951 and 1954. The dividend hypothesis was tested using a linear regression, which is similar to the following equation,

\[ P_i = \alpha_0 + \alpha_1 D_i + \alpha_2 R_i + \varepsilon_i \]  

(2.11)

where, for firm \( i \) and period \( t \), \( P \), \( D \), and \( R \) are the share price, dividends, and the retained earnings, respectively. The reciprocal of the dividend coefficient \( \alpha_1 \) is the estimated required rate of return on common stocks without growth, and the coefficient on retained earnings \( \alpha_2 \) is the price for growth. Gordon found that dividends have greater influence on share price than retained earnings. In addition, he argued that the required rate of return on a share increases with the fraction of retained earnings because of the uncertainty associated with future earnings. Similarly, Gordon (1963) argued that higher dividend payouts decrease the cost of equity or the required rate of return on equity. Using British data for the period between 1949 and 1957, Fisher (1961) reached a similar finding that dividends have greater impact on share prices than retained earnings.

Equation (2.11), however, was subject to several criticisms. Firstly, it does not take into account the risk variation among firms drawn from different industries, and this may lead to an upward bias in the coefficient on dividends \( \alpha_1 \). That is, high risk associated with a stock may result in low price and low payout, while low risk associated with a stock may result in high payout and low price. Secondly, the equation accounts only for the growth coming from investments that are financed with retained earnings, while it ignores the growth that may come from the use of external financing. This may bias the
coefficient of retained earnings $\alpha_2$. Thirdly, since dividends are more stable than reported earnings, the short-run fluctuations in income will be mainly reflected in change in retained earnings. If share prices and dividends are related to normal rather than reported income, the equation is biased in favour of dividends. Finally, dividends are measured more precisely than retained earnings because the estimated retained earnings depend on the accounting procedure followed to measure total earnings, which will place an additional downward bias on the retention coefficient $\alpha_2$ (see Friend and Puckett, 1964, and Diamond, 1967).

To correct for the potential bias resulting from the criticisms mentioned above (especially 1 and 2), Diamond (1967) introduced into the regression equation (2.11) the average three-year earning-price ratio centred on $t-1$. He examined the impact of dividends and retained earnings on share prices for a sample of 255 US firms from eight industries for 1961 and 1962\textsuperscript{17}. Diamond found only weak support for the notion that investors have preference for dividends over retained earnings. Alternatively, he found that in industries where rates of growth were relatively high, retained earnings were preferred marginally more than dividends, whereas in mature industries with low growth rate a dollar of dividends is slightly preferred to a dollar of retained earnings. This suggests a negative relationship between a firm’s growth and dividend payout\textsuperscript{18}. The results obtained by Diamond (1967) are consistent with earlier findings of Friend and Puckett (1964).

\textsuperscript{17} These industries are stores, petroleum, transportation and communications, primary metals, mining, and railroads.

\textsuperscript{18} Fama and French (2001) found that firms with higher growth and investments tended to have lower payouts.
More recently, Baker, Powell and Veit (2002a) surveyed managers of NASDAQ firms to assess their view about dividend policy issues including the BIHH. Their questionnaire contains one statement about the BIHH, stating “investors generally prefer cash dividends today to uncertain future price appreciation”. Based on 186 responses, only 17.2 percent agree with the statement, 28 percent no opinion, and 54.9 percent disagree. Therefore, they conclude, “…this finding does not provide support for the bird-in-the-hand explanation for why companies pay dividends”(p.278)\(^{19}\).

Empirical support for the BIHH as an explanation for paying dividends is generally very limited, and the argument has been challenged especially by M&M (1961) who argued that the required rate of return (or the cost of capital) is independent of dividend policy, suggesting that investors are indifferent between dividends and capital gains. Indeed based on the tax-preference explanation, discussed shortly, researchers such as Litzenberger and Ramaswamy (1979), among others, develop an explanation of dividend policy that reaches the opposite result. That is, investors are disadvantaged in receiving cash dividends. The next section examines the argument that low dividends are preferred to higher dividends.

\(^{19}\)In an earlier survey, Baker and Powell (1999) found a similar rate of agreement (17.7 percent) about the bird-in-the-hand explanation of dividend relevance.
2.3.3. Low Dividends Increase Stock Value (Tax-Effect Hypothesis)

2.3.3.1. The Basic Argument

The M&M assumptions of a perfect capital market exclude any possible tax effect. It has been assumed that there is no difference in tax treatment between dividends and capital gains. However, in the real world taxes exist and may have significant influence on dividend policy and the value of the firm. In general, there is often a differential in tax treatment between dividends and capital gains, and, because most investors are interested in after-tax return, the influence of taxes might affect their demand for dividends. Taxes may also affect the supply of dividends, when managers respond to this tax preference in seeking to maximize shareholder wealth (firm value) by increasing the retention ratio of earnings.

The tax-effect hypothesis suggests that low dividend payout ratios lower the cost of capital and increase the stock price. In other words low dividend payout ratios contribute to maximising the firm’s value. This argument is based on the assumption that dividends are taxed at higher rates than capital gains. In addition, dividends are taxed immediately, while taxes on capital gains are deferred until the stock is actually sold. These tax advantages of capital gains over dividends tend to predispose investors, who have favourable tax treatment on capital gains, to prefer companies that retain most of their earnings rather than pay them out as dividends, and are willing to pay a premium for low-payout companies. Therefore, a low dividend payout ratio will lower the cost of equity and increases the stock price. Note that, this prediction is almost the exact opposite of the BIHH, and of course challenges the strict form of the DIH.
In many countries such as the UK, US and Jordan a higher tax rate is applied to dividends as compared to capital gains taxes\textsuperscript{20}. Therefore, investors in high tax brackets might require higher pre-tax risk-adjusted returns to hold stocks with higher dividend yield. This relationship between pre-tax returns on stocks and dividend yields is the basis of a posited tax-effect hypothesis.

Brennan (1970) developed an after-tax version of the capital asset pricing model (CAPM) to test the relationship between tax risk-adjusted returns and dividend yield. Brennan’s model maintains that a stock’s pre-tax returns should be positively and linearly related to its dividend yield and to its systematic risk. Higher pre-tax risk adjusted returns are associated with higher dividend yield stocks to compensate investors for the tax disadvantages of these returns. This suggests that, ceteris paribus, a stock with higher dividend yield will sell at lower prices because of the disadvantage of higher taxes associated with dividend income. The Brennan model can be described as:

\[ E(R_{it} - R_{ft}) = \gamma_0 + \gamma_1 \beta_{it} + \gamma_2 (D_{it} - R_{ft}) \ , \]

(2.12)

where, \( R_{it} \) is the return on stock \( i \) in period \( t \), \( R_{ft} \) is the riskless rate of interest, \( \beta_{it} \) is beta coefficient for stock \( i \) in period \( t \) (systematic risk), and \( D_{it} \) is the dividend yield of stock \( i \) in period \( t \). It is assumed that the coefficient \( \gamma_2 \) is interpreted as an implicit tax

\textsuperscript{20}Note that in the US, the Tax Reform Act of 1986 substantially eliminated the preferential tax treatment of capital gains over dividends. Prior to the Act, dividends were taxed at a higher rate than capital gains, whereas following the Act, dividends and capital gains were taxed at the same rate (see, e.g. Casey and Dickens, 2000). In the case of Jordan, dividends and capital gains were exempt from taxes until 1996 when a 10 percent tax rate was imposed on dividends. This issue is discussed in more detail in Chapter 3.
bracket and is independent of the level of the dividend yield $D$. If the coefficient of dividend yield ($\gamma_2$) is statistically different from zero and positive, the results are interpreted as evidence of a tax effect. That is, higher pre-tax risk-adjusted returns are necessary to compensate investors for holding high-dividend-paying stocks because of the disadvantage associated with dividend income. The following section presents the debate concerning the above argument.

### 2.3.3.2. Empirical Evidence

A large body of empirical research is devoted to testing Brennan’s model and to understanding the relationship between dividend yields and stock returns. For example, Black and Scholes (1974) tested Brennan’s model and found no evidence of a tax effect. Recall from Section 2.3.1.3 that the coefficient of dividend impact in Black and Scholes’s model was found to be insignificant. Therefore, they concluded that low or high-dividend yield stocks do not affect the returns of stocks either before or after taxes. However, Litzenberger and Ramaswamy (1979) strongly challenged the results of Black and Scholes and criticised their methods, especially their definition of dividend yield.\(^{21}\) Litzenberger and Ramaswamy extended Brennan’s (1970) model and used a monthly dividend yield definition in classifying stock into yield classes, a positive dividend-yield class and zero dividend-yield class.

\(^{21}\) Recall that Black and Scholes used a long-term dividend yield definition (previous year’s dividends divided by previous year’s closing share price).
The results of Litzenberger and Ramaswamy show that the coefficient on dividend yield variable ($\gamma_2$) is positive and highly significant, under OLS, GLS, and MLE. Therefore, they provided empirical support for Brennan’s (1970) model. Litzenberger and Ramaswamy (1979, p.190) concluded that, “for every dollar increase in return in the form of dividends, investors require an additional 23 cents in before tax returns”. Of interest, the dividend coefficient $\gamma_2$ (0.236) obtained by Litzenberger and Ramaswamy is consistent in magnitude with that reported by Black and Scholes (1974). The implication of Litzenberger and Ramaswamy’s findings is that firms could increase their share prices by reducing dividends. However, if this prediction holds, one may raise a question about why corporations pay dividends at all?

Miller and Scholes (1982) challenged Litzenberger and Ramaswamy’s conclusion, and criticised their short-term (monthly) definition of dividend yield. They suggested that tests employing a short-term dividend yield definition are inappropriate for detecting the impact of differential tax treatment of dividends and capital gains on stock returns. Furthermore, Miller and Scholes argued that the positive yield-return relation was caused by information bias. The reason for this argument is that Litzenberger and Ramaswamy ignored the information effect of dividend omissions. An announcement of dividend omissions (perceived as bad news) may result in an upward bias in the dividend yield coefficient, since it reduces the return of the zero yield-dividend class. Miller and Scholes attempted to correct for the information bias and then re-ran Litzenberger and Ramaswamy tests. They found that the dividend yield coefficient was

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22 Blume (1980) reported positive and significant dividend yield coefficient, using long-run measure of yield.
not statistically different from zero. Hess (1981) found similar results to Miller and Scholes. In his study, Hess tested the relation between the monthly stock returns and dividend yield over the period of 1926 to 1980. He found mixed results and concluded, “… my work reinforces the findings of Miller-Scholes study…it lends further empirical support to the original M&M proposition” (p.453).

Litzenberger and Ramaswamy (1982) re-examined the relationship between dividend yield and stock returns after adjusting the dividend yield coefficient for any potential information effects. Their results, consistent with their previous findings, were that the yield coefficient is positive and statistically significant. Kalay and Michaely (2000) re-examine the Litzenberger and Ramaswamy (1979) experiment using weekly data. They attempt to find whether the positive dividend yield obtained by Litzenberger and Ramaswamy is due to tax effects or to the information effects as conjectured by Miller and Scholes (1982). Kalay and Michaely exclude all weeks containing dividend omissions. They find a positive and significant dividend yield coefficient, inconsistent with Miller and Scholes’s conjecture that the positive yield coefficient is driven by information biases. Furthermore, using daily and monthly British data, Poterba and Summers (1984) provide evidence that strongly supports the tax-effect hypothesis.

Along the lines of Litzenberger and Ramaswamy (1979) and Blume (1980), Keim (1985) used the Sharpe-Lintner CAPM to estimate the relation between long-run dividend yields and stock returns. He used a sample of 429 firms in January 1931 and

23 Also, Morgan (1982) had shown evidence inconsistent with the Miller and Scholes conjecture.
1289 firms in December 1978. In his study, Keim constructed six dividend-yield portfolios. The first portfolio contained all zero-dividend firms, and the other five ranked from lowest to highest positive dividend-yield firms. Consistent with Blume (1980), he documented a non-linear relation between dividend yields and stock returns, and his results rejected the hypothesis that average returns are equal across portfolios. Moreover, Keim tested the impact of firm size and stock return seasonality on the relationship between stock returns and dividend yields. He found a positive and significant yield coefficient. However, much of the non-linear relation was concentrated in the month of January for small firms. Nonetheless, Keim obtained the same results even after controlling for firm size. In addition, Keim reported an inverse relationship between positive yield and firm size as measured by market capitalization. Taken together, Keim concluded, “At a minimum, the results suggest the observed relation between long-run dividend yields and stock returns may not be solely attributable to difference in marginal tax rates for dividends and capital gains” (p.487). By and large, Keim’s results suggest a yield-related tax effect. However, because of the significant effect of the month of January (seasonality) on the relation between dividend yields and stock returns these findings are not totally consistent with the after-tax CAPM. This conclusion deepens the puzzle surrounding the issue of a yield-related tax effect.

More recently, using UK data Morgan and Thomas (1998) examine the relationship between dividend yields and stock returns over the period 1975 to 1993. Drawing on Keim’s (1985) 24 methodology, Morgan and Thomas tested the tax-based hypothesis in

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24 Keim (1985) used US data.
which dividend yields and stock returns are positively related. However, as they have pointed out, under the 1973 imputation tax system capital gains received a disadvantaged tax treatment when compared to dividend income; consequently the tax-based hypothesis, in the case of the UK, would predict a negative relation between dividend yields and risk-adjusted stock returns. To clarify, stocks with low yields should produce higher returns to compensate stockholders for the increased tax burden associated with capital gains, and vice versa. Contrary to prediction, Morgan and Thomas find a positive relationship between dividend yields and stock returns. Moreover, their results suggest a non-linear relation between risk-adjusted returns and dividend yield, which is inconsistent with Brennan’s model. Also, firm size and seasonality seems to influence the relationship between dividend yield and stock returns. Morgan and Thomas were therefore unable to provide support for the tax-effect hypothesis. In a previously mentioned study, Baker et al. (2002a) surveyed the managers of 630 NASDAQ firms and found weak or no support for the tax-preference theory.

To summarise, the tax-effect hypothesis (hereafter called TEH) is based on a simple proposition. Many investors are faced with dividends being taxed at a higher rate than capital gains. In addition, dividends are taxed immediately, while taxes on capital gains are deferred until the gains are actually realized. Therefore, the TEH suggests that taxable investors will demand superior pre-tax returns from stocks that pay a large proportion of their income in the form of highly taxed dividends. In other words, investors will value the dollar of capital gains greater than a dollar of dividends,
resulting in lower dividend-stocks selling at a relative premium to their higher-dividend counterparts. From the empirical studies referenced above, the evidence with respect to the TEH appears to be inconclusive. There is, moreover, a lack of evidence in relation to the TEH in emerging markets, since most of the prior research focused on developed capital markets.

In all of the studies discussed above the TEH has been addressed from one perspective: the relationship between dividend yields and the stock returns (CAPM-based studies). The literature, however, has also provided a vast amount of empirical research on the TEH by examining the behaviour of stock prices around the ex-dividend day (ex-dividend day studies). This issue will be addressed separately in the next section under the clientele effects hypothesis.

2.3.4. Clientele Effects of Dividends Hypothesis

2.3.4.1. The Basic Argument

In their seminal paper M&M (1961) noted that the pre-existing dividend clientele effect hypothesis (hereafter DCH) might play a role in dividend policy under certain conditions. They pointed out that the portfolio choices of individual investors might be influenced by certain market imperfections such as transaction costs and differential tax rates to prefer different mixes of capital gains and dividends. M&M argued that these imperfections might cause investors to choose securities that reduce these costs. M&M termed the tendency of investors to be attracted to a certain type of dividend-paying
stocks a “dividend clientele effect”\textsuperscript{25}. Nonetheless, M&M maintained that even though the clientele effect might change a firm’s dividend policy to attract certain clienteles, in a perfect market each clientele is “as good as another”; hence the firm valuation is not affected; that is, dividend policy remains irrelevant.

In practice, investors often face different tax treatments for dividend income and capital gains, and incur costs when they trade securities in the form of transaction costs and inconvenience (changing portfolios). For these reasons and based on different investors’ situations, taxes and transaction costs may create investor clienteles, such as tax minimisation induced clientele and transaction cost minimisation induced clientele respectively\textsuperscript{26}. These clienteles will be attracted to firms that follow dividend policies that best suit their particular situations. Similarly, firms may tend to attract different clienteles by their dividend policies. For example, firms operating in high growth industries that usually pay low (or no) dividends attract a clientele that prefers price appreciation (in the form of capital gains) to dividends. On the other hand, firms that pay a large amount of their earnings as dividends attract a clientele that prefers high dividends.

Allen, Bernardo and Welch (2000) suggest that clienteles such as institutional investors tend to be attracted to invest in dividend-paying stocks because they have relative tax

\textsuperscript{25} In the same vein, Pettit (1977) stated that “the net tendency of an individual investor to hold portfolios of securities that have particular dividend paying characteristics will be designated the “dividend clientele effect”” (p.421)

\textsuperscript{26} Another possible dividend clientele effect is related to risk clienteles. High-payout stocks tend to be less risky than low-payout stocks; hence, and based on the risk factor, dividends may attract certain clientele investors (see for example Pettit, 1977 and Scholz, 1992).
advantages over individual investors. These institutions are also often subject to restrictions in institutional charters (such as the “prudent man rule”), which, to some extent, prevent them from investing in non-paying or low-dividend stocks. Similarly, good quality firms prefer to attract institutional clienteles (by paying dividends) because institutions are better informed than retail investors and have more ability to monitor or detect firm quality. Allen et al. conclude with the proposition that, “…these clientele effects are the very reason for the presence of dividends…” (2000, p. 2531).

Tax-Induced Clientele-Effects

Since most of the investors are interested in after-tax returns, the different tax treatment of dividends and capital gains might influence their preference for dividends versus capital gains. This is the essence of the tax-induced DCH. For example, ceteris paribus, investors in low tax brackets who rely on regular and steady income will tend to be attracted to firms that pay high and stable dividends. In addition, some corporate or institutional investors tend to be attracted to high-dividend stocks (see, for example, Han, Lee and Suk, 1999, Dhaliwal, Erickson and Trezevant, 1999, and Short, Zhang and Keasey, 2002). On the other hand, investors in relatively high tax brackets might find it advantageous to invest in companies that retain most of their income to obtain potential capital gains, all else being equal. Some clienteles, however, are indifferent

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27 This prediction is consistent with the signalling hypothesis. In fact, Allen, Bernardo and Welch (2000) proposed a model that links signalling and agency arguments with the clientele effects of dividend hypothesis.

28 Using UK data, Short, Zhang and Keasey (2002) provide strong evidence in support of the notion that payout ratios and institutional ownership are positively related. However, they did not link their results to the clientele hypothesis.
between dividends and capital gains such as tax exempt and tax deferred entities (see Elton and Gruber, 1970, among others).

**Transaction Cost-Induced Clientele**

Another argument of the DCH is based on the proposition that dividend policy may influence different clienteles to shift their portfolio allocation, resulting in transaction costs. For example, small investors (such as retirees, income-oriented investors, and so on) who rely on dividend income for their consumption needs, might be attracted to (and even may pay a premium for) high and stable-dividend stocks, because the transaction costs associated with selling stocks might be significant for such investors. On the other hand, some investors (e.g. wealthy investors), who do not rely on their share portfolios to satisfy their liquidity needs, prefer low payouts to avoid the transaction costs associated with reinvesting the proceeds of dividends, which they actually do not need for their current consumption (Bishop et al., 2000). Note that for both groups of investors, transforming one financial asset to another, transaction costs need to be incurred. That is, M&M’s notion of homemade dividends is not costless and the existence of such costs may make dividend policy not irrelevant.

The other effect of transaction costs on dividend policy is related to the fact that firms may need to restore cash paid out as dividends with new equity issues (or debt financing) to take advantage of new investment opportunities. If issuing costs are significant, then firms are most likely to rely on retained earnings rather than external financing. This is reinforced by the empirical fact that retained earnings constitute the
major source of firm finance not just in developing but also even in developed capital markets. Fazzari, Hubbard and Petersen (1988) reported that, over the period of 1970 to 1984, the retained earnings amounted to 71.1 percent of the total source of funds of US manufacturing firms with an average retention ratio of 60 percent\textsuperscript{29}. In these cases, there should be a negative relationship between transaction costs and dividend payments. Firms can reduce or avoid such expenses by lowering dividend payments or not paying them at all. However, in practice, many firms continue to pay cash dividends, while at the same time issuing new equity and debt, suggesting that other factors may also be at work in influencing dividend policy.

An important implication of the DCH is that, by changing its dividend policy, a firm’s ownership structure might also change. Another implication of clientele theory is that firms should attempt to adopt a stable dividend policy to avoid inducing shareholders to modify their portfolios, entailing transaction costs\textsuperscript{30}.

The theoretical plausibility of dividend clientele hypothesis is relatively ambiguous. On the one hand, transaction costs and taxes may influence demands for dividends. But the mere existence of transaction costs or differential taxes is not on its own a rationale for a general theoretical explanation of the determination of dividend policy. Not surprisingly, therefore, most of the literature that has tested the DCH has produced

\textsuperscript{29} Note that the average retention ratio varies with the firm size. Smaller firms have greater retention ratio than larger firms.

\textsuperscript{30} See for example Scholz (1992) and Soter, Brigham and Evanson (1996). A question here is also whether these changes have an impact on firm value. In a competitive equilibrium, it would be expected that “one clientele is good as another”, and that the clientele effect of dividend policy is irrelevant to a firm’s value. To date, evidence on the link between clientele effects and firm value is inconclusive.
mixed results\textsuperscript{31}. The next section examines the empirical studies, which endeavour to deal with DCH from different perspectives.

2.3.4.2. Empirical Evidence

The empirical studies that examined the clientele effect hypothesis have taken different paths. A number of studies, discussed shortly, have studied investors’ portfolios and their demographic attributes including taxes. Pettit (1977) provided empirical evidence for the existence of a clientele effect by examining the portfolio positions of 914 individual investors. He found a significant positive relationship between investors’ ages and their portfolios’ dividend yield, and a negative relationship between investors’ incomes and dividend yield. Pettit suggested that elderly low-income investors tend to rely more on their portfolios to finance their current consumption, and avoid the transaction costs associated with selling stocks. Consequently, they have more of a tendency to invest in high-dividend stocks. Pettit also showed that investors whose portfolios have low systematic risk prefer high-payout stocks, and he found evidence for tax-induced clientele effect. However, using a sample constructed from the same database used in Pettit’s (1977) study, Lewellen et al. (1978) found only very weak supportive evidence of the clientele effect hypothesis. In a later study, Scholz (1992) developed an empirical model to test the DCH directly by examining individual investor portfolio data. He found that differential tax treatment of dividends and capital gains

\textsuperscript{31} Miller (1977) and Auerbach (1983) have presented theoretical models that are consistent with the presence of clientele effects.
influences investors’ decisions in choosing between higher-or-lower-dividend yield portfolios, consistent with dividend-/tax–clientele hypothesis.

Another strand of empirical testing has examined the relationship between dividend changes and clientele changes. Richardson, Sefcik and Thompson (1986) tested a sample of 192 US firms that initiated dividends for the first time during the period of 1969 through 1982. They attempted to investigate whether the observed (post-dividend-initiations) increase in firms’ stocks trading volume is due to the signalling effect or was a product of investors in various tax clienteles adjusting their portfolios. They found that the increased trading volume associated with dividend policy changes was mainly related to the information contained in the dividend announcement, and only a small part was related to clientele adjustment. Richardson et al. concluded that “…the evidence supporting the existence of clientele trading is somewhat weak” (p.330). Concurrent work by Asquith and Krasker (1985) reached a similar conclusion.\(^{32}\)

More recently, Dhaliwal, Erickson and Trezevant (1999) examined institutional shareholding changes following dividend initiations. Based on the theory of tax-induced clienteles, Dhaliwal et al. expected an increase in institutional ownership\(^{33}\) subsequent to dividend initiations. Using a sample of 133 dividend initiators from the 1982 to 1995 period, the results obtained are consistent with their prediction\(^{34}\). They reported that 80 percent of their sample firms experience an increase in institutional shareholders

\(^{32}\) Cited in Richardson et al. (1986), Dhaliwal et al. (1999) and Seida (2002).
\(^{33}\) Such as tax-exempt/tax-deferred entities and corporate investors with tax -preferred dividends.
\(^{34}\) Michaely, Thaler and Womack (1995), however, found weak or no empirical support for this notion. For example, they tested the possible changes in shares turnover rate for firms announcing dividend initiation or omission as a sign of a clientele change, and found little evidence.
following dividend initiation. Dhaliwal et al. found that this increase was statistically and economically significant\textsuperscript{35}. They concluded that the dividend/tax-clientele effect is “strong enough” to influence investors’ decisions. Seida (2002) provided evidence consistent with Dhaliwal et al.’s (1999) findings and the DCH. Earlier research by Bajaj and Vijh (1990), Ang, Blackwell and Megginson (1991), and Denis, Denis and Sarin (1994) provided empirical support for the existence of the dividend clientele hypothesis.

Finally, another strand attempts to infer the tax characteristics of a firm’s marginal investors by examining the movements of stock prices around the ex-dividend days\textsuperscript{36}, and therefore provides an indirect test of the DCH. The basic intuition of the relation between stock price and ex-dividend day is that, in a rational capital market, and in a world of certainty, share prices should drop by approximately the amount of dividend per share on the day the stock goes ex-dividend\textsuperscript{37}. When the stock goes ex (without)-dividend the investor has no claim to dividend payments, and thus will not pay the same amount as if the stock traded cum (with)-dividend\textsuperscript{38}. The stock price on the ex-dividend day should therefore be lower than in the cum-dividend period to reflect the lost dividend (Lease et al., 2000).

This notion, however, may not perfectly hold in some circumstances, because dividends are usually taxed more heavily than capital gains. Investors in high tax brackets will

\textsuperscript{35} For further supporting evidence, see also Han, Lee and Suk (1999)
\textsuperscript{36} The ex-dividend day is the first day in which the stock is traded “without” dividends, i.e. the current dividend is earmarked for the seller, not the buyer
\textsuperscript{37} Any other share price behaviour suggests arbitrage opportunities (see Kalay, 1982 and Lease et al. 2000).
\textsuperscript{38} The cum-dividend day is the last business day the stock is traded “with” dividend i.e. the stock’s buyer is entitled to receive a declared dividend.
therefore be better off receiving their income in the form of capital gains rather than dividends. The tax effect may mean that the drop in stock price may be less than the dividend because investors value dividends less than capital gains.

In a seminal paper, Elton and Gruber (1970) presented empirical evidence about the tax-induced clientele hypothesis by observing the share price behaviour around the ex-dividend day. Examining shares listed on the NYSE paying a dividend between April 1, 1966 and March 31, 1967, Elton and Gruber found that share prices fell by less than the amount of the dividend on ex-dividend days. They also found a positive relationship between the dividend yield of a stock and the proportionate size of its ex-dividend price drop. Elton and Gruber interpreted their results as evidence that differential taxes induced a preference for capital gains relative to cash dividends, therefore supporting the tax clientele hypothesis (that is, investors in high tax brackets invest in low-dividend yield stocks and vice versa). Elton and Gruber (1970, p.73) concluded, “… firms not only seem to attract a clientele but they attract a rational clientele – one which should prefer their dividend policy”.

Kalay (1982) criticising Elton and Gruber argued that the marginal tax rates of the investors cannot be inferred from the ex-dividend day price-drop-to-dividend ratio (hereafter “price-drop ratio”) and the observed positive relationship between price-

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40 The price-drop ratio can be defined as \((P_{\text{B}} - P_{\text{A}})/D\), where, \(P_{\text{B}}\) is the stock price cum-dividend, \(P_{\text{A}}\) is the stock price on the ex-dividend day, and \(D\) is the amount of dividends.
drop ratio and dividend yield may not be due to tax induced clientele effects. He presented another explanation, known as the “short-term traders” hypothesis. Kalay argued that, assuming certainty, if the ex-dividend price ratio drop is less than one (less than the amount of dividends), short-term traders who face the same tax rate on dividends and capital gains could make arbitrage profits. That is, investors can buy a stock before it goes ex-dividend and sell it soon after\textsuperscript{41}. However, this arbitrage process could be hampered by transaction costs\textsuperscript{42}. Kalay suggest that transaction costs are insignificant for broker dealers who are the potential short-term traders, while Elton, Gruber and Rentzler (1984) argue that it matters even for broker dealers. Karpoff and Walkling (1988, 1990) show that excess ex-dividend-day returns are positively correlated with transaction costs (measured by bid-ask spread), and this relationship increases for stocks with high-dividend yields. They also suggest that short-term trading around ex-dividend days is higher for high-yield stocks (see also Michaely and Vila, 1996), implying that short term trading (or dividend capture) may influence the ex-dividend day stock price changes, and hence any clientele effects may not be the only explanation for these changes.

Examination of the ex-dividend day behaviour of share prices has also been extended to different stock markets, including Australia (Brown and Walter 1986), Canada (Lakonishok and Vermaelen, 1983 and Booth and Johnston, 1984), Finland (Hietala, 1990), Greece (Milonas and Travlos 2001), Japan (Kato and Loewenstein, 1995), and

\textsuperscript{41} This practice is known as dividend capture (see Karpoff and Walkling, 1990).

\textsuperscript{42} The arbitrage profit could be also inhibited by the risk or the uncertainty of ex-dividend price. For further details on this issue see for example, Heath and Jarrow (1988), Grammatikos (1989). More recently, Michaely and Vila (1996) documented that risk and transaction costs affect the abnormal trading volume non-positively.
New Zealand (Bartholdy and Brown, 1999). These studies have found mixed support for the ex-dividend day effect.

It is worth noting that dividend clientele hypothesis predictions, to some extent, may contradict other explanations of dividend policy such as the signalling and agency costs hypotheses, discussed shortly. For example, according to the signalling hypothesis, dividends convey information about a firm’s future prospects, and in that sense investors with preferences for capital gains (for tax reasons) may still prefer firms with high-payout ratios, contradicting the prediction of the tax-induced clientele hypothesis. Also, based on agency theory, dividends may mitigate the free cash in hand of managers and reduce the agency problems, and for these reasons investors may also prefer high-dividend stocks even though they are tax-disadvantaged. The next two sections discuss these contending explanations in more detail.

2.3.5. The Information Content of Dividends (Signalling) Hypothesis

2.3.5.1. The Basic Argument

Another hypothesis for why M&M’s DIH is inadequate as an explanation of financial market practice is the existence of asymmetric information between insiders (managers and directors) and outsiders (shareholders). M&M assumed that managers and outside investors have free, equal and instantaneous access to the same information regarding a firm’s prospects and performance. But managers who look after the firm usually possess information about its current and future prospects that is not available to outsiders. This informational gap between insiders and outsiders may cause the true intrinsic value of
the firm to be unavailable to the market. If so, share price may not always be an accurate measure of the firm’s value. In an attempt to close this gap, managers may need to share their knowledge with outsiders so they can more accurately understand the real value of the firm. Historically, due to a lack of complete and accurate information available to shareholders, the cash flow provided by a security to an investor often formed the basis for its market valuation (Baskin and Miranti, 1997). In this way dividends came to provide a useful tool for managers in which to convey their private information to the market because investors used visible (or actual) cash flows to equity as a way of valuing a firm. Many academics and financial practitioners also suggest that dividends might have implicit information about a firm’s prospects. Even M&M (1961) suggest that when markets are imperfect share prices may respond to changes in dividends. In other words, dividend announcements may be seen to convey implicit information about the firm’s future earnings potential. This proposition has since become known as the “information content of dividends” or signalling hypothesis. However, M&M dismissed the possibility that this occurred by suggesting that the empirical evidence does not support the notion that investors prefer dividends to retained earnings.

According to the signalling hypothesis, investors can infer information about a firm’s future earnings through the signal coming from dividend announcements, both in terms of the stability of, and changes in, dividends. However, for this hypothesis to hold, managers should firstly possess private information about a firm’s prospects, and have incentives to convey this information to the market. Secondly, a signal should be true; that is, a firm with poor future prospects should not be able to mimic and send false
signals to the market by increasing dividend payments. Thus the market must be able to rely on the signal to differentiate among firms. If these conditions are fulfilled, the market should react favourably to the announcements of dividend increase and unfavourably otherwise (Ang, 1987, and Koch and Shenoy, 1999).

As managers are likely to have more information about the firm’s future prospects than outside investors, they may be able to use changes in dividends as a vehicle to communicate information to the financial market about a firm’s future earnings and growth. Outside investors may perceive dividend announcements as a reflection of the managers’ assessment of a firm’s performance and prospects. An increase in dividend payout may be interpreted as the firm having good future profitability (good news), and therefore its share price will react positively. Similarly, dividend cuts may be considered as a signal that the firm has poor future prospects (bad news), and the share price may then react unfavourably. Accordingly, it would not be surprising to find that managers are reluctant to announce a reduction in dividends. Lintner (1956) argued that firms tend to increase dividends when managers believe that earnings have permanently increased. This suggests that dividend increases imply long-run sustainable earnings. This prediction is also consistent with what is known as the “dividend-smoothing hypothesis”. That is, managers will endeavour to smooth dividends over time and not make substantial increases in dividends unless they can maintain the increased dividends in the foreseeable future. Lipson, Maquieira and Megginson (1998, p.44)

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43 Fama and Babiak (1968), Baker, Farrelly, and Edelman (1986), DeAngelo, DeAngelo, and Skinner (1992), and Baker, Veit and Powell (2001) find support for Lintner’s argument of dividend smoothing. The Lintner model is discussed in more detail in Chapter 4.
observed that, “managers do not initiate dividends until they believe those dividends can be sustained by future earnings”.

It is worth noting that, although management can use changes in dividends as a signal to convey information to the market, in some cases dividend changes may be an ambiguous signal. This can be illustrated through the case of FPL Group, the parent company of Florida Power & Light Company (see, Soter, Brigham and Evanson, 1996). On May 9, 1994 FPL announced a 32 percent cut in its quarterly dividends. The market responded negatively to the announcement and FPL’s stock price dropped by about 20 percent, because the market perceived it as a signal of bad future prospects. However, the FPL board had in fact decided to retain funds for new investments to improve the company’s future performance. After realizing the reason for the dividend reduction, financial analysts concluded that the action was not a signal of financial distress. Thereafter, FPL’s stock price recovered. The market was initially mistaken but the case is a good example of the possible (and sometimes contradictory) signalling effects of dividend announcements.

Although the information content of dividends (signalling) has been noted earlier, it was not modelled until the late 1970s and early 1980s. The most cited dividend signalling models can be found in Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985). In general, these models are based on several assumptions. There is asymmetric information between corporate insiders (managers) and outside investors

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44 The literature of dividend signalling has produced other models to represent the theory of asymmetric information (see, for example, Ambarish, John and Williams, 1987, Ofer and Thakor, 1987, Kumar, 1988, and Bernheim, 1991, Allen, et al., 2000)
(shareholders). Dividends contain information about the firm’s current and future cash flows, and managers have incentives to convey their private information to the market through dividend payments in order to close the information gap. The announcement of a dividend increase will be taken as good news and the market will bid up share prices accordingly. Similarly, an announcement that a dividend will be cut suggests unfavourable prospects and will tend to see the firm’s share price fall. Dividends are considered a credible signalling device because of the dissipative costs involved. For example, in Bhattacharya’s (1979) model the cost of signalling is the transaction cost associated with external financing. In Miller and Rock’s (1985) model the dissipative cost is the distortion in the optimal investment decision, whereas in John and William’s (1985) model the dissipative signalling cost is the tax penalty on dividends relative to capital gains. Therefore, only good-quality firms (under valued) can use dividends to signal their prospects, and poor-quality firms cannot mimic by sending a false signal to the market because of the costs involved in that action. A major criticism addressed to these models is why firms choose dividends to signal their prospects while other less costly means are available such as share repurchases (see, for example, Allen and Michaely, 2002).

2.3.5.2. Empirical Evidence

In the preceding section, the theory of dividend signalling was developed around the proposition that corporate insiders are more informed about the firm’s current

\footnote{For studies that reach a similar conclusion, see for example: Charest (1978), Aharony and Swary (1980), Asquith and Mullins (1983) Kalay and Loewenstein (1985), Denis et al. (1994), Yoon and Starks (1995), and Bali (2003).}
performance and future prospects than outsiders. This suggests that the market perceives dividends (and repurchases) as signals of a management’s view about the firm’s fortunes, and therefore share prices react to that signal. The empirical work on dividend signalling has examined two main issues. Firstly, whether share prices move in the same direction with dividend change announcements. Secondly, whether dividend changes enable the market to predict future earnings.

Finance scholars have addressed these issues extensively, but once again the results have been mixed and inconclusive. The first question has received much attention in the literature, because if the announcement of dividend changes does not have the predicted impact on share prices this will cast doubt on the validity of the information content of dividend hypothesis. Pettit (1972) observed that dividend announcements do communicate valuable information, and showed that the market reacts positively to the announcement of dividend increases (significant increase in stock prices), and negatively to the announcement of dividend decreases (significant drop in stock prices). Pettit also added, “…dividend announcement, when forthcoming, may convey significantly more information than the information implicit in an earnings announcement” (p.1002). Aharony and Swary (1980) suggest that dividend and earning announcements are not perfect substitutes and a proper test for the signalling hypothesis needs to take into account the effect of earnings announcements. Aharony and Swary found support for the results obtained by Pettit even after controlling for contemporaneous earnings announcements. Woolridge (1983) also found a significant
increase (decrease) in common stock returns following the unexpected dividend increase (decrease) announcements.

Asquith and Mullins (1983) examined the market’s reaction to dividend announcements for a sample of 168 firms that initiated dividends either for the first time in their corporate history or resumed paying dividends after at least a ten-year hiatus. Asquith and Mullins tested the average daily excess stock returns ten days before and ten days after the announcement of dividend initiation. For the two-day announcement period their result shows that there is an excess return of about +3.7 percent. Moreover, using cross-sectional regression Asquith and Mullins found a positive and significant relationship between the magnitude of initial dividends and the abnormal returns on the announcement day. This suggests that the size of dividend changes may also matter. In another empirical study, Asquith and Mullins (1986) reinforce their earlier findings and offer more support to the information content of dividend hypothesis.

Michaely, Thaler and Womack (1995) have gone further by examining the impact of both initiations and omissions of cash dividends on share prices reaction. They observed 561 dividend initiation events and 887 dividend omission events over the period of 1964 to 1988. Michaely et al. documented that, during three days surrounding the announcements, the average excess return was about –7.0 percent for omissions and +3.4 percent for dividend initiations. Note that the market reactions to dividend omissions are greater than for dividend initiations. This implies that the market reacts optimistically toward dividend initiations (or increases); however, the market is more
pessimistic in response to the announcements of dividend omissions (or decreases). Michaely et al. also found significant long-run drifts in stock prices in response to dividend initiations and omissions. They reported +7.5 percent excess returns after one year of initiation announcements and +24.8 percent after three years. For dividend omissions they reported abnormal returns of –11.0 percent in the first year and –15.3 percent after three years.

More recently, Bali (2003) presented evidence consistent with the preceding results. He reported an average 1.17 percent abnormal return for dividend increases and -5.87 percent for decreases. In addition, Bali examined the long run drifts of stock prices reaction to dividend increases and decreases and reinforced Michaely et al.’s (1995) findings.

From the empirical findings of these studies there seems to be general agreement that share prices follow the same direction as the dividend change announcements. Dividend increases and dividend initiations (decreases and omissions) are associated with subsequent significant increases (decreases) in share prices. Moreover, the reaction of share prices in the event of dividend decreases and dividend omissions is found to be more severe.

The signalling power of dividends, however, may not be the same in markets other than US markets. For example, in a comparison study of dividend policies between Japanese and US firms Dewenter and Warther (1998) revealed that the influence of dividends as a
signalling mechanism in Japan is significantly lower as compared to the US. They studied 420 US firms and 194 Japanese firms. The results of Dewenter and Warther’s study can be summarised as follows: for the narrow 2-day window (0, +1)\(^{46}\) in the event of dividend omissions the mean returns are -2.53 percent and -4.89 percent, while for dividend initiations +0.03 percent and +2.38 percent for Japanese and US firms, respectively. For a wide 62-day window (-60, +1) average returns are -6.48 percent and -17.03 percent, while for dividend initiations +0.1 percent and +10.24 percent for Japanese and US firms respectively. The results indicate that the impact of dividend omission and initiation announcements on US stock prices is significantly larger than on Japanese stock prices. Moreover, Dewenter and Warther conclude that Japanese firms are subject to less information asymmetry especially among keiretsu (industrial groups) member firms. These differences in the findings are attributable to the differences in corporate governance structures between Japan and the US, and moreover to the nature of corporate ownership in Japan. Conroy, Eades and Harris (2000) provide evidence consistent with Dewenter and Warther’s (1998) study for Japanese firms.

Using a sample of 200 German firms listed on Frankfurt Stock Exchange, Amihud and Murgia (1997) found support for the notion that dividend changes convey information about firms’ values. They examined the stock price reaction to dividend announcements using 255 events of dividend increase and 51 events of dividend decrease for the period of 1988 to 1992, and compared the results with findings of studies based on US data. Amihud and Murgia reported that the average excess return (AER) of stock prices is +

\(^{46}\) This period is the day of and the day after the announcement.
0.965 percent for dividend increase and –1.73 percent for dividend decrease\(^{47}\). In addition, Amihud and Murgia have observed that though the earnings news preceded dividend change announcements, dividends still have significant information. However, the findings of this study are inconsistent with tax-based signalling models (for example, John and William, 1985, and Bernheim, 1991) because dividends in Germany are not tax-disadvantaged. Recall that the tax-based signalling models propose that higher taxation on dividends makes them informative about a firm’s value. Thus, according to these models, if dividends do not suffer from a tax penalty (as in the case of Germany) share prices should not react to dividend changes.

Travlos, Trigeorgis and Vafeas (2001) provided evidence from an emerging market in favour of the dividend signalling hypothesis. They used a sample of 41 announcements of cash dividend increase and 39 announcements of stock dividends for firms listed on the Cyprus Stock Exchange for the period of 1985 to 1995, and examined market reaction to the announcement of cash dividend increases and stock dividends. Travlos et al. found positive and significant abnormal returns for both cash dividend increases and stock dividend announcements and interpreted their results as consistent with the signalling hypothesis.

El-Khoury and Almwalla (1997) provided evidence from the Jordanian Capital Market. They examined the impact of dividend changes on share prices for a sample consisting of 20 manufacturing companies listed on the Amman Financial Market (AFM) covering

\(^{47}\) In magnitude, the AER is similar to those reported by Pettit (1972) and Aharony and Swary (1980) for dividend increase and half for dividend decrease.
Between 1989 and 1993. In order to test only the effect of dividend changes on stock prices, all stocks subjected to announcements other than dividends were excluded from the sample. The researchers constructed portfolios of all common stocks and calculated the daily stock returns \( \pm 10 \) days surrounding the dividend announcement date. As reported by El-Khouri and Almwalla, the 2-day average return is \(-1.02\) percent for dividend increases and \(-1.1\) percent for dividend decreases. Although the effect of dividend announcements seems to be insignificant, surprisingly stock prices move in the same direction as dividend increases or decreases. Overall, announcements of dividend changes do not seem to have a significant impact on stock prices for companies listed on the AFM. However, these results may not be plausible due to the sample selection bias since only 20 companies were included in the study and only manufacturing firms.

In contrast to El-Khouri and Almwalla (1997), Omet and Abu-Ruman (2003) found evidence consistent with the signalling hypothesis. Omet and Abu-Ruman (2003) conducted a survey of the CFOs of 47 Jordanian manufacturing companies and also used the Lintner model to examine the stability of the corporate dividend policy of these firms. Their results revealed that Jordanian companies, to some extent, follow stable dividend policies, consistent with the signalling hypothesis.\(^{48}\) The survey results also produced similar evidence where 76 percent of the respondents agreed that firms use dividends to convey information about their prospects, and 67 percent of the respondents considered that announcements of dividend changes affects share prices. These mixed results with regard to Jordan provide a motive for more investigation.

\(^{48}\) Omet (2004) conducted another study and reaches a similar conclusion that Jordanian firms follow stable dividend policies.
Numerous studies have addressed another question of the information content of dividends hypothesis; that is, whether dividend changes enable the market to predict the future earnings of a firm. Empirical work that addresses this issue has yielded puzzling results. For example, Watts (1973) used a sample of 310 firms for the years 1946 to 1967, and annual definitions of dividends and earnings to test the hypothesis that current and past dividends provide more information to predict future earnings than that contained in current and past earnings. Watts tested the relationship between annual future earnings in year $t + 1$ and the level of dividends in years $t − 1$ and $t$. Also, he examined the association between the abnormal increase/decrease in stock prices and unanticipated changes in dividends. Watts regressed the coming year earnings ($t + 1$) on current year dividends ($t$). He documented that the average estimated coefficients of current dividends (across firms) are found to be positive; however, the average significance level was too small. Moreover, Watts reported similar results regarding the relationship between unanticipated dividend changes and share prices and concluded, “…in general, the information content of dividends can only be trivial” (p.211). Gonedes (1978) has reported similar results.

Using a sample of 1025 firms listed on the NYSE and on the American Stock Exchange (AMEX) between 1979 and 1991, Benartzi, Michaely and Thaler (1997) studied the relationship between firms’ future earnings and dividend changes. They did not find evidence to support the notion that changes in dividends have the power to predict changes in future earnings. Their results lend support to Watts’ findings. Alternatively, Benartzi et al. found that dividend changes are strongly linked to contemporaneous and
lagged earnings changes. Benartzi et al.’s results challenge the signalling hypothesis. DeAngelo, DeAngelo, and Skinner (1996) also found no evidence that dividends provide valuable information about future earnings.

In two separate papers, Laub (1976) and Pettit (1976) challenged Watts’ findings. They suggested that dividends convey information about future earnings prospects beyond those predicted by past earnings. Further, Nissim and Ziv (2001) found that dividend changes and earnings changes are positively correlated, and provide support for the signalling hypothesis. However, their results were not the same for dividend increases and decreases. Nissim and Ziv did not find an association between dividend decreases and future profitability after controlling for current and expected profitability, and they assumed that this result is possibly due to the accounting conservatism. Note that, unlike the first question that we addressed about the reaction of stock prices to dividend changes, the proposition that dividend changes transmit information about future earnings seems to have weak support.

Mixed support exists about issues relating to the information content of dividends hypothesis, a common concept in the dividend literature. As we noted from the studies referenced above, firms use dividend policy to communicate information about their future prospects to the market, and this provides another possible explanation of why firms pay dividends. Moreover, signalling could play a pivotal role in determining firms’ dividend policies and their values. Once more, most of the studies mentioned

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49 Healy and Palepu (1988) reported a positive association between unexpected dividend changes and subsequent unexpected earnings.
earlier (among many others) are built on firms operating in developed markets, especially in US markets. However, there is a lack of empirical evidence regarding firms perform in emerging markets particularly in Jordan.

The signalling hypothesis makes an important assumption that managers want to signal the proper value of the firm via dividends. However, a separate thesis has been developed on the basis that managers may have incentives not to pay dividends and will therefore need to be forced (or given incentives) to pay dividends. This aspect has been developed under basis of the agency costs hypothesis of dividends.

2.3.6. Agency Costs and Free Cash Flow Hypothesis of Dividend Policy

2.3.6.1. The Basic Argument

One of the assumptions of M&M’s perfect capital market is that there are no conflicts of interests between managers and shareholders. In practice, however, this assumption is questionable where the owners of the firm are distinct from its management. In these cases managers are always imperfect agents of shareholders (principals). This is because managers’ interests are not necessarily the same as shareholders’ interests, and they might conduct actions that are costly to shareholders, such as consuming excessive perquisites or over-investing in managerially rewarding but unprofitable activities. Shareholders therefore incur (agency) costs associated with monitoring managers’ behaviour, and these agency costs are an implicit cost resulting from the potential conflict of interest among shareholders and corporate managers. The payment of dividends might serve to align the interests and mitigate the agency problems between

Another source of the agency costs problem that may be influenced by dividend policy is the potential conflict between shareholders and bondholders. Shareholders are considered as the agents of bondholders’ funds. In this case, excess dividend payments to shareholders may be taken as shareholders expropriating wealth from bondholders (Jensen and Meckling, 1976). Shareholders have limited liability and they can access the company’s cash flow before bondholders; consequently, bondholders prefer to put constraints on dividend payments to secure their claims. Conversely, for the same reasons, shareholders prefer to have large dividend payments (Ang, 1987).

In an often-cited article, Easterbrook (1984) argued that dividends could be used to reduce the free cash flow in the hands of managers. In addition, Eastbrook hypothesised that dividend payments will oblige managers to approach the capital market to raise funds. In this case investment professionals such as bankers, and financial analysts will also be able to monitor managers’ behaviour. Therefore, shareholders are able to monitor managers at lower cost (and minimise any collective action problems). This suggests that dividend payments increase management scrutiny by outsiders and reduce the chances for managers to act in their own self-interest. However, Easterbrook suggested that increasing dividend payments might force managers to take undesirable

---

50 Chapter 3 shows that the financial system in Jordan is bank-based rather than market-based (so the bond market is not very well developed), and therefore this agency cost issue will not be tested in the thesis. For a discussion of the supervisory issues of bank based systems, see Demirguc-Kunt and Levine (1999)
actions like increasing firm leverage, which may sometimes increase the riskiness of the firm.

Along the lines of Easterbrook’s argument, Jensen (1986) provided another explanation for paying dividends based on the agency costs hypothesis. Jensen contended that firms with excess (free)\(^5\) cash flow give managers more flexibility for using the funds in a way that benefit themselves but not shareholders’ best interests. He argued that managers have incentives to enlarge the size of their firms beyond the optimal size to amplify the resources under their control and moreover to increase their compensation, which is often related to firm size (see also Gaver and Gaver, 1993). Thus, if a firm has a substantial surplus of cash the overinvestment problem will be more pronounced, and managers may undertake negative NPV projects. Extracting the excess funds of free cash flow that management controls can reduce this overinvestment problem. Increasing dividend payouts may help to mitigate the free cash flow under managers’ control, thereby preventing them from investing in negative NPV or poor projects. As a result, paying more dividends will reduce the agency costs between managers and shareholders. Moreover, Jensen has pointed out that debt might play a similar role to dividends in reducing the agency costs of free cash flow by reducing the funds under management control.

As noted earlier, M&M suggested that a firm’s dividend policy is independent of its investment policy. By contrast, the free cash flow hypothesis implies that dividend

\(^5\) According to Jensen, free cash flow is the cash not needed to finance positive NPV projects.
policy and the investment decision are interrelated. It is argued that an increase in dividend payments will reduce the “overinvestment” problem, which will have a positive impact on the market value of the firm, ceteris paribus (Lang and Litzenberger, 1989).

However, accepting the notion that increasing dividends will reduce the funds available to managers and force them to be in the market to acquire funds means that shareholders should be willing to tolerate the risk of the firm being more indebted and also accept paying higher personal tax rates on dividends. In other words, shareholders have to trade off between the costs and benefits of acquiring more dividends.

2.3.6.2. Empirical Evidence

The issue of agency costs hypothesis as an explanation of corporate dividend policy has been widely addressed in empirical research. Rozeff (1982), for instance, was one of the first to formally model agency costs using a large sample of US firms. Rozeff’s regression model and the hypothesised signs of the variables can be described as follows:

\[
PAY = \beta_0 - \beta_1 INS - \beta_2 GROW_1 - \beta_3 GROW_2 - \beta_4 BETA + \beta_5 STOCK + \varepsilon \tag{2.13}
\]

where \( PAY \) is the average payout ratio over a seven year period (1974-1980), \( INS \) is the percentage of common stock held by insiders over the seven year period, \( GROW_1 \) is the realized average growth rate of a firm’s revenues over a five year period (1974-1979), \( GROW_2 \) is the forecasted growth of sales over the five year period (1974-1979),

\(^{52}\) Two variables of Rozeff’s model are used in this study.
**BETA** is the firm’s estimated beta coefficient reported in the Value Line Investment Survey, and **STOCK** is the natural log of the number of shareholders at the end of the seven year period.

The key idea of Rozeff’s (1982) model is that the optimal dividend payout is at the level where the sum of transaction coats and agency costs are minimised, therefore the model is called “cost minimisation model”. Rozeff’s model contained two proxies for agency costs, namely **INS** and **STOCK**. Note that the hypothesised signs of these variables (**INS** and **STOCK**) are negative and positive, respectively. This indicates that there should be a negative relationship between the percentage of stock held by insiders (insider ownership) and the payout ratio, and a positive relationship between the number of shareholders (dispersion of ownership) and the dividend payout ratio. Rozeff suggested that the benefits of dividends in reducing agency costs are smaller for companies with lower dispersion of ownership and/or higher insider ownership. He found the agency costs variables significant and consistent with their hypothesised sign. Rozeff’s (1982) results provide empirical support for the agency costs hypothesis. A decade later, Dempsey and Laber (1992) updated the work of Rozeff using an extended period over the years 1981-1987 and strongly supported Rozeff’s findings (see also Lloyd, Jahera and Page, 1985).

Using factorial analysis to model the determinants of corporate dividend policy Alli et al. (1993) found the ownership dispersion factor insignificant in relation to dividend decision, inconsistent with Rozeff (1982). However, the insider ownership variable was
found to be significant and negatively related to dividend payouts. The overall results of Alli et al.’s study support the agency cost hypothesis of dividend policy.

Jensen, Solberg and Zorn (1992) applied three-stage least squares to examine the determinants of cross-sectional differences in insider ownership, debt, and dividend policy. They used a sample of 565 firms for the year 1982 and 632 firms for the year 1987. From the dividend equation, the insider ownership variable was found statistically significant with a negative sign. This implies that there is a negative relationship between insider holdings and dividend payments. The result of Jensen et al. is consistent with Rozeff (1982) and therefore with the agency costs hypothesis.

In more recent studies, Holder, Langrehr and Hexter (1998) examined 477 US firms over the period 1980 to 1990. They reported that insider ownership and dividend payouts are significantly and negatively related and that the number of shareholders positively influences payouts. In addition, Holder et al. found support for Jensen’s free cash flow hypothesis. Likewise, Saxena (1999) examined a sample of 235 unregulated and 98 regulated firms listed on the NYSE over the period of 1981 to 1990 and reinforced the findings of the Holder et al.’s study. Both studies are consistent with the agency costs hypothesis and provide evidence that agency cost is a key determinant of the firm dividend policy.

The estimated dividend policy equation of Jensen et al. study can be shown as: \( \text{DIVIDEND} = \text{DI} (\text{INSIDER, DEBT, BUSINESS RISK, PROFITABILITY, GROWTH, INVESTMENT}) \).
Further empirical support for the agency cost hypothesis and in particular for the free cash flow hypothesis came from Lang and Litzenberger (1989). While this study predates many of the agency costs studies discussed above, it does so from a different model of agency cost analysis, namely the free cash flow hypothesis of Jensen (1986).

Lang and Litzenberger tested a sample of 429 dividend-change announcements for US firms for the period of 1979 to 1984. Lang and Litzenberger used Tobin’s $Q$ ratio (hereafter $Q$)\(^{54}\) to distinguish between overinvesting-firms and value-maximising ones. They began with the proposition that, if $Q$ for a given firm is less than unity ($Q < 1$), the firm may be overinvesting. Similarly, if $Q$ is greater than one ($Q > 1$), a firm may be at the value-maximising level of investment.

Based on Lang and Litzenberger’s overinvestment hypothesis, firms with $Q$ less than one should be expected to have larger average stock returns following dividend change announcements. To clarify, low $Q$ firms experience positive abnormal stock returns following dividend increase announcements because the market anticipates this as a reduction in the overinvestment problem (good news). That is, increases in dividend payments reduce the cash flow that would have been otherwise invested in negative NPV projects. Conversely, dividend decreases suggest that the potential for overinvestment problems may have grown. This prediction is consistent with the free cash flow hypothesis. Lang and Litzenberger reported that the average stock returns for $Q < 1$ firms were significant for both dividend increases and decreases. Moreover, they

\(^{54}\) Tobin’s $Q$ can be defined as the ratio of the market value of the firm’s equity and debt to the replacement cost of its assets. For further details see Tobin (1969) and Perfect and Wiles (1994).
suggested that dividend changes for overinvesting firms ($Q < 1$) signal information about investment policies. In summary, Lang and Litzenberger provide evidence in support of free cash flow hypothesis; they also argue that the excess funds hypothesis provides a better explanation of share price reaction to dividend change announcements than the cash flow signalling hypothesis.

Other empirical studies have examined the agency theory of free cash flow and have found little or no support for the excess cash flow hypothesis. For example, using a sample of 55 self-tenders and 60 special dividend announcements between 1979 and 1989 Howe, He and Kao (1992) produced findings that challenge those of Lang and Litzenberger (1989) and show that there is no relationship between $Q$ and stocks’ reaction to one-time dividend announcements. Further, Denis, Denis and Sarin (1994) investigated a sample of 5992 dividend increases and 785 dividend decreases between 1962 and 1988. They examined the relationship between dividend yield and $Q$, and found the relationship to be negative. They argued that this negative relation is attributable to a negative correlation between dividend yield and $Q$, suggesting that the market perceived this as a signal that overinvestment problems may be being reduced. Also, Denis et al. examined the level of capital expenditures for low and high $Q$ firms in relation to dividend changes. They observed that $Q < 1$ firms increased their investments following dividend increases and decreased them following dividend decreases. This result contradicts the overinvestment hypothesis. In addition, using a sample 4179-dividend change announcements of firms listed on the NYSE over the period 1969 to 1988, Yoon and Starks (1995) arrived at the same conclusion. The
studies of both Denis et al. (1994) and Yoon and Starks (1995) provide support to the cash flow signalling hypothesis rather than free cash flow hypothesis as an explanation for the stock price reactions to dividend change announcements.

In a more recent study, Lie (2000) examined the free cash flow hypothesis using a large sample of special dividends, regular dividend increases, and self-tender offers. He found little evidence in support of the agency cost hypothesis. Moreover, Lie suggested that neither small special dividends nor the increase in regular dividends could solve the overinvestment problem. This is inconsistent with the agency hypothesis of free cash flow.

The studies discussed above have been carried out on developed capital markets, especially the US market. However, evidence from emerging markets has also been provided by Mollah, Keasey and Short (2000) and Manos (2002). Mollah et al. (2000) examined 153 non-financial companies listed on the Dhaka Stock Exchange (DSE) for the period of 1988 to 1997. Mollah et al. used pooled and cross-sectional OLS estimation to identify whether agency costs affect the dividend policy of firms listed on DSE. They reported that all the variables employed as proxies for the agency costs are statistically significant and, therefore, concluded that agency costs influence dividend policy in an emerging market like DSE. Making use of Rozef’s model, Manos (2002) examined the agency theory of dividend policy for 661 non-financial firms listed on the DSE.

55 “In a tender offer a firm offers to purchase its stock at a specified price, usually a premium to the market price” (Asquith and Mullins, 1986, p.33).
Bombay Stock Exchange in India for the year ending 2001. He found strong support for Rozef\'s “cost minimisation” model, and thus for the agency theory of dividends.

La Porta et al. (2000a) examined more than 4000 companies from 33 countries around the world including some emerging markets and provided empirical support for the agency costs hypothesis. Firstly, the researchers divided the countries into two categories: countries that provided good legal protection for minority shareholders, and countries where shareholders had poor legal protection\(^{56}\). Next, they analysed the effect of investor protection on dividend payouts and tested two alternative agency models: the “outcome” model and the “substitute” model. The first model implies that in countries with a more effective legal protection system, shareholders have greater rights and therefore can force managers to disgorge cash. As a result, dividends are an outcome of the legal protection of shareholders. They hypothesised that the more effective the legal protection the greater the rights of shareholders, and subsequently more dividends are paid, other things being equal.

The second or substitute model, predicts that managers can use dividends to establish a reputation if they need to go to the capital market to raise external funds. In countries with weak protection of shareholders, firms may need to establish a good reputation for their treatment of investors by paying more dividends to shareholders. That is, dividends serve as a substitute for legal protection of minority shareholders. This may especially

\(^{56}\) They suggested that, generally, in countries such as the US, UK, and Australia where common law is implemented, investors have better protection than in countries governed by civil law such as France, Germany, and Japan.
be the case in most emerging markets. La Porta et al. hypothesised that higher payouts are expected in countries with poor legal protection, other things being equal.

La Porta et al.’s results supported the outcome agency model of dividends. That is, in countries where shareholders have better protection, firms pay more dividends. Moreover, they found that firms operating in these countries and having a rapid growth rate paid fewer dividends than their counterparts with slow growth rates. This implies that shareholders use their legal power to force managers to disgorge cash when investment opportunities are low. La Porta et al.’s study is consistent with the agency costs explanation of dividend policy. In fact, their research suggests that dividends can be used to reduce the conflict between insiders and outsiders or shareholders. La Porta et al. (2000a,p. 27) concluded that, “Our data suggest that the agency approach is highly relevant to an understanding of corporate dividend policies around the world.”

While there is a suggestion that agency approaches may be very relevant internationally, there is a distinct lack of empirical evidence on such approaches in the case of Jordan. None of the studies that addressed the issue of dividend policy in Jordan relate agency cost issues to corporate dividend policy. Empirical research presented in Chapter 5 adds new evidence to the literature of dividend policy in emerging markets in general and the case of Jordan in particular.

To summarize, the empirical results for the agency costs explanation of dividend policy are mixed. The agency costs hypothesis posits that dividends mitigate the cash under
management control, and therefore reducing the possibility that managers will use the funds in their own self-interest. Dividends may also curb managers’ tendency for overinvesting. In this way, it is suggested that dividends serve to reduce conflict of interests between managers and shareholders. As dividend payments reduce the overinvestment problem and agency costs, they may have a positive impact on stock price, which is in turn the critical determinant of firm value. Lastly, we would expect the agency costs problem to be more severe for companies operating in emerging markets because of the nature of ownership structure and legal protection of investors in these countries. The lack of empirical evidence to support or refute this prediction in emerging markets and particularly in Jordan provides one of the motivations for this research.

2.4 Summary

The literature on dividend policy has produced a large body of theoretical and empirical research, especially following the publication of the dividend irrelevance hypothesis of M&M (1961). No general consensus has yet emerged after several decades of investigation, and scholars can often disagree even about the same empirical evidence. In perfect capital markets, M&M asserted that the value of a firm is independent of its dividend policy. However, various market imperfections exist (taxes, transaction costs, information asymmetry, agency problems, etc) and these market imperfections have provided the basis for the development of various theories of dividend policy including tax-preference, clientele effects, signalling, and agency costs.
This chapter began with an overview of the evolution of corporate dividend policy. It was noted that dividend policy has been bound up with the development and history of the corporation itself. The chapter also presented the basic argument and M&M proof of dividend irrelevancy. The chapter then explored the main theories that counter the irrelevancy proposition. In order to provide an understanding of dividend policy theories, the chapter attempted to explain the basic argument for each theory followed by the most important empirical evidence on testing of these theories.

Although numerous studies have examined various issues of dividend policy, they have produced mixed and inconclusive results. We also observed that most of the studies conducted on dividend policy used data from developed markets. The evidence in relation to emerging markets is often very limited. However, recently, there has been a growing interest among academics and financial practitioners to examine corporate dividend policy in these emerging markets. In the case of Jordan, the evidence is even more scant, and provides a further justification for the current research.

The theoretical and empirical research discussed in this chapter has established that a range of possible factors can influence dividend policy. The next Chapter therefore considers the characteristics of the Jordanian capital market, and these will then be used to formulate and develop the research hypotheses employing appropriate econometric methods.

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57 Issues related to corporate dividend policy such as ownership structure and corporate governance will be covered in more detail in Chapter 4.

3.1 Introduction

The previous chapter outlined the importance of dividend policy, the unresolved theoretical debate about determinants of dividend policy, and some of the gaps in the existing body of knowledge about it. It established for instance, that there is a gap in testing determinants of dividend policy in emerging markets (especially in the case of Jordan). One important point to come out of the research discussed in that chapter was that the nature, level of development, and institutional structure of capital markets could have important influences on dividend policy. That is, once dividend policy matters, there are many potential factors that may influence dividend policy, and the literature is divided about which of these factors matters and in what circumstances.

The objective of the current chapter is twofold. It discusses the main features of the Jordanian capital market, and its importance in the national economy. Most importantly it presents some important characteristics of the capital market in Jordan, such as financial structure and corporate governance patterns, as well as ownership characteristics, which will be used to inform our analysis of dividend policy in Jordan. In other words, this chapter shows structural characteristics of the Jordanian capital market that may affect firms’ financing, investment and dividend decisions.
The need for an efficient financial system is now understood to be a pivotal factor in spurring economic development and growth (see, for example, Levine, 1997, 2002, Levine and Zervos, 1998, Arestis, Demetriades and Luintel, 2001). A large body of empirical studies has addressed the impact of bank and stock market development on economic growth (see, among others, Atje and Jovanovic, 1993, Levine and Zervos, 1998, Ben Naceur and Ghazouani, 2003, and Beck and Levine, 2004). Stock markets and financial intermediaries are now considered a major engine of economic activity for their role in mobilizing savings, financing investments, monitoring firms, lowering the cost of information, and diversifying risk.

The establishment of the Jordanian capital market in 1976 was a major step in developing the financial system in Jordan. The capital market has developed rapidly if unevenly since then. Several international studies have established that Jordan now possesses a fairly well developed financial system, especially for a lower middle-income developing country. For instance, a recent study by Demirguc-Kunt and Levine (1999) has classified Jordan as a bank-based financially developed country. Creane et al. (2003) ranked Jordan in the higher level of financial development among the countries in the Middle East and North Africa (MENA)58.

The remainder of the chapter is organised as follows. Section 2 provides a brief overview of Jordan and its economy. This is provided mainly by way of background and for readers unfamiliar with the economic and political structure of Jordan and its place in the region. While it is not central to the thesis, it does establish a few particulars (such

58 Creane et al. (2003) classified countries into three categories, high, medium, and low level of financial development. They examined various aspects such: banking system, monetary policy, financial openness, regulations and supervision, non-financial sector, and institutional environment.
as its exposure to regional volatilities and its affect on economic growth), which may potentially be important in dividend policy. Section 3 discusses the development of the Jordanian capital market and its major relevant characteristics. Section 4 briefly discusses corporate governance in Jordan. Section 5 presents the relevant finance and credit relationships in the Jordanian capital market. Section 6 provides an overview of dividend payout patterns and dividend policy in Jordan and other emerging markets. Section 7 summarises the chapter and suggests some implications for the next chapter.

3.2 Jordan-Country Profile

3.2.1. Geography, Climate and Demography

Jordan is an Arab country located in the Middle East, northwest of Saudi Arabia, with a total area of 89,213 square kilometres (sq km), out of which 88,884 sq. km. is land and 329 sq. km. is water. About 92 percent of the land is semi-arid and only 6 percent is arable land. The climate of Jordan is a combination of Mediterranean and arid desert. In general the climate in Jordan is hot and dry in summer, and rainy in winter. The population of Jordan is estimated at 5.3 million inhabitants in 2002 with annual growth rate of 2.8 percent (Department of Statistics, 2002). Jordan’s population has increased dramatically in several periods, mainly due to the Israeli occupations of Palestine in 1948 and 1967, and more recently the Gulf War in 1991. In the two Israeli military annexations, Jordan received two waves of migration, 450,000 in 1948 and 400,000 in 1967. In the 1991 Gulf crisis more than 300,000 people came to Jordan from Arab Gulf states (mostly Jordanian citizens returning from abroad) (World Bank, 2003).
3.2.2. The Government

The Hashemite Kingdom of Jordan (official name) is a constitutional monarchy with representative government. His Majesty the King is the most powerful political and military figure in the country. The king is the chief executive authority and appoints a cabinet (Ministers Council), headed by a prime minister. The legislative power of Jordan rests in a bicameral parliament. The Upper House (Senate) currently comprises 55 members appointed by the king, and the 110-members (currently) of the Lower House (Chamber of Deputies) elected by universal suffrage on a four-year term (World Bank, 2003). Judicial power rests in three courts: civil, special, and religious. Under the constitution the judiciary is formally independent, the Higher Judiciary Council, a committee whose members are appointed by the King, and this Council determines the appointment and dismissal of judges.

3.2.3. The Economy

Jordan is a small country with an open economy. Unlike other countries in the region, it does not produce oil. Although Jordan is a major exporter of phosphates, it has relatively limited natural resources and scarce supplies of water. Jordan has only one outlet to the sea (in the Red Sea through the port of Aqaba in the south of the country) with very narrow shores. Jordan is a low-to middle-income country, has a large external debt, and poverty, inequality and unemployment remain major economic problems. The Gulf crisis in 1990, in particular, caused the return of many immigrant workers

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59 For official statements on the government, see for instance, www.kinghussein.gov.jo
60 For example, in 2003 the external debt amounted to 79.3% of the Gross Domestic Product (GDP) (Ministry of Finance, Jordan).
from Gulf countries, and increased both poverty and unemployment in Jordan\textsuperscript{61}. For example, as shown in Table 3-1, the poverty incidence was 3.0 percent of the total population in 1987 and rose to 14.4 percent in 1992. The projected headcount index of poverty in 2000 and 2001 is estimated to have been broadly at the 1997 level (World Bank, 2003). However, other studies have estimated the poverty in Jordan to be considerably higher than estimates reported by the World Bank. For instance, according to an official report by the Ministry of Planning and International Cooperation, the poverty rate in 1997 was 21.3 percent and the number of poor people 943,000\textsuperscript{62}.

\begin{table}[h]
\centering
\caption{Poverty Trends in Jordan, 1987-2001}
\begin{tabular}{lcccc}
\hline
\hline
Incidence: Headcount index (% of population) & 3.0 & 14.4 & 11.7 & 11.8 & 11.6 \\
Number of poor people (000’s) & 85 & 554 & 538 & 578 & 585 \\
Intensity: Poverty gap (% of poverty line) & 0.3 & 3.6 & 2.5 & -- & -- \\
\hline
\end{tabular}
\end{table}

\textsuperscript{61} Projection

The Kingdom depends heavily on foreign aid and overseas remittances by Jordanian expatriates. The country benefited from increased Arab aid during the oil boom of the late 1970s and early 1980s, when its annual economic growth averaged more than 10 percent. In the late 1980s, however, reductions in external financial assistance, worker’s remittances, and exports slowed real economic growth to an average of roughly 2 percent per year. From 1983 to 1989, the average annual growth rate of GDP was less than 1 percent. Moreover, the country was forced to rely increasingly on external debt to finance development plans. As a consequence, external debt jumped from US $1.90

\textsuperscript{61} The unemployment rate rose from 17 percent in 1987 to 20 percent in 1990 (Marashdeh, 1995).
\textsuperscript{62} Source: reported in AMAN News Center \url{http://www.amanjordan.org/english/daily_news}.
billion in 1980 to $8.40 billion in 1990 (Marashdeh, 1995). Figure 3-1 and Figure 3-2 below show the annual growth rate of the GDP and the total external debt during the period 1976-2000.

In terms of remittances, it is significant that by regional standards, Jordan possesses a highly educated and skilled labour force. Several hundred thousand Jordanians work in neighbouring countries especially the so-called ‘oil states’ where salaries are higher. According to one World Bank study “in the early 1980s, about half the Jordanian labour force was working abroad (Pissarides, 1993, p.11). In 2000, for instance, remittances from expatriates amounted to approximately 20 percent of the Gross Domestic Product (GDP) (World Bank, 2003).

**Figure 3-1 GDP: Annual Growth Rates (1976 - 2000)**

![Graph showing annual growth rates of GDP from 1976 to 2000](chart)


As a result of low growth and heavy indebtedness the government has been forced to make significant economic reforms including devaluing the Jordanian Dinar (JD)\(^{63}\).

\(^{63}\) The average exchange rate of the Jordanian Dinar against the US Dollar was $2.90/ JD and $3.0 /JD in 1986 and 1987 respectively. However, in 1988 the dinar fell to $2.7/ JD (losing 10 percent) and in 1989 (the crash) the JD depreciated by more than 37 percent, to $1.7/ JD (Central Bank of Jordan, 1990).
After the crisis brought about by the first Gulf War in 1991, the Jordanian economy rebounded quickly, experiencing real GDP growth of about 16 percent in 1992, and during the period 1993-1995 the economy grew at an average annual rate of 7 percent. The influx of savings from Gulf returnees (after the Gulf crisis 1990-1991) along with foreign debt relief and new concessional aid contributed to this economic recovery. However, the boom period of 1992-1995 was not sustained, and in the late 1990s the pace of economic growth slowed (World Bank, 1999). Since then the performance of the Jordanian economy has remained modest. For the period 1998-2000, Jordan had an average real GDP growth estimated at 3.2 percent. In 2001, per capita income was $1,750 with an annual per capita growth rate of 1.3 percent (World Bank, 2003). Table 3-2 shows the key economic indicators of the Jordanian economy for the period 1998 to 2002. During the period 1998-2002, the inflation rate, as measured by the percentage

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64 The poor economic performance during the period 1996-1997 was recorded in GDP growth of only 1.0 percent in 1996 and 1.3 percent in 1997. This was generally attributable to (1) a reduction in exports to Iraq (2) the construction sector had overbuilt in the early 1990s and (3) the 1997 Asia crisis hurt Jordan’s exports of potash and fertilizers (World Bank, 1999).
change in the Consumer Price Index, averaged 1.6 percent. With regard to the exchange rate, the Jordanian Dinar is pegged to the US dollar (US $ 1.4/JD). Total government revenues and grants are around 31 percent of GDP, and total expenditures were hovering around 35 percent of GDP, resulting in a budget deficit of about 4 percent.

In spite of the difficulties surrounding the Jordanian economy, the government has made several structural reforms aimed at transforming Jordan into a dynamic market economy, including privatisation of some state-owned enterprises, and liberalisation of the trading regime. Furthermore, Jordan has integrated into the regional and global economy by establishing Qualifying Industrial Zones (QIZ) in 1998, signing the Association Agreement with the European Union in 1999, joining the World Trade Organization (WTO) in 2000, and signing a Free Trade Agreement (FTA) with the US in October 2000.

To sum up, beside its limited natural resources, the Jordanian economy is vulnerable to external shocks and disturbances, especially those occurring within the region. The country was particularly adversely affected by the 1990-1991 Gulf crisis, and more recently, the outbreak of the Palestine Intifada in September 2000. The US invasion of Iraq in 2003 has also negatively affected the Jordanian economy, particularly the tourism industry and key export sectors.\footnote{It is worth noting that Jordan depends heavily on Iraqi oil and Iraq is a major Jordanian trading partner.}

The next section provides an overview of the major sectors of the Jordanian economy indicating their importance in relation to the GDP and overall economy.
### Table 3-2 Jordan: Selected Economic Indicators, 1998-2002

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002*</th>
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</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Population (000s)</td>
<td>4,756</td>
<td>4,900</td>
<td>5,039</td>
<td>5,182</td>
<td>5,327</td>
</tr>
<tr>
<td>Population Growth (%)</td>
<td>3.4</td>
<td>3.0</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Output and Prices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP at Current Market Prices (US$ million)</td>
<td>7,913</td>
<td>8,134</td>
<td>8,447</td>
<td>8,901</td>
<td>9,384</td>
</tr>
<tr>
<td>Real GDP Growth Rate (%)</td>
<td>3.0</td>
<td>3.1</td>
<td>4.1</td>
<td>4.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Nominal GDP Growth Rate (%)</td>
<td>9.2</td>
<td>2.8</td>
<td>3.8</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Per Capita GDP (US$)</td>
<td>1,664</td>
<td>1,660</td>
<td>1,676</td>
<td>1,718</td>
<td>1,762</td>
</tr>
<tr>
<td>Change in Consumer Price Index (%)</td>
<td>3.1</td>
<td>0.6</td>
<td>0.7</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Monetary Sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money Supply (M2) (JD Million)</td>
<td>6,026</td>
<td>6,748</td>
<td>7,435</td>
<td>7,866</td>
<td>8,419</td>
</tr>
<tr>
<td>Money Supply (M2) (Growth Rate)</td>
<td>8.1</td>
<td>11.9</td>
<td>10.2</td>
<td>5.8</td>
<td>7.0</td>
</tr>
<tr>
<td>US Dollar Per Jordanian Dinar (Period Average)</td>
<td>1.41</td>
<td>1.41</td>
<td>1.41</td>
<td>1.41</td>
<td>1.41</td>
</tr>
<tr>
<td><strong>Public Finance</strong></td>
<td>In percent of GDP (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Revenues and Grants</td>
<td>30.9</td>
<td>31.5</td>
<td>30.9</td>
<td>31.2</td>
<td>30.4</td>
</tr>
<tr>
<td>Tax Revenues</td>
<td>15.3</td>
<td>15.3</td>
<td>16.1</td>
<td>15.8</td>
<td>15.0</td>
</tr>
<tr>
<td>Foreign Grants</td>
<td>3.6</td>
<td>3.4</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Total Expenditures</td>
<td>37.2</td>
<td>35.4</td>
<td>34.3</td>
<td>34.7</td>
<td>34.5</td>
</tr>
<tr>
<td>Overall Deficit/ Surplus, Including Grants (Commitment Basis)</td>
<td>-6.3</td>
<td>-3.9</td>
<td>-3.4</td>
<td>-3.6</td>
<td>-4.1</td>
</tr>
<tr>
<td>Overall Deficit/ Surplus, Including Grants (Cash Basis)</td>
<td>-5.3</td>
<td>-2.4</td>
<td>-2.0</td>
<td>-2.5</td>
<td>-3.0</td>
</tr>
<tr>
<td>Outstanding External Public Debt</td>
<td>95.1</td>
<td>95.5</td>
<td>84.2</td>
<td>78.7</td>
<td>80.4</td>
</tr>
<tr>
<td>Outstanding Domestic Public Debt</td>
<td>20.5</td>
<td>18.3</td>
<td>20.6</td>
<td>22.3</td>
<td>25.1</td>
</tr>
<tr>
<td><strong>External Trade and Balance of Payments</strong></td>
<td>In Millions of US $</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merchandise Exports</td>
<td>1,802</td>
<td>1,831</td>
<td>1,899</td>
<td>2,294</td>
<td>2,770</td>
</tr>
<tr>
<td>Merchandise Imports</td>
<td>3,824</td>
<td>3,698</td>
<td>4,576</td>
<td>4,833</td>
<td>5,000</td>
</tr>
<tr>
<td>Current Account Balance</td>
<td>21.8</td>
<td>404.8</td>
<td>58.5</td>
<td>-4.2</td>
<td>467.7</td>
</tr>
<tr>
<td>Foreign Exchange Reserve</td>
<td>1,170</td>
<td>1,991</td>
<td>2,763</td>
<td>2,578</td>
<td>3,495</td>
</tr>
</tbody>
</table>

* Preliminary

Source: Ministry of Finance, Ministry of Planning and Central Bank of Jordan (CBJ).

## 3.2.4. Major Sectors of the Jordanian Economy

Broadly, the Jordanian economy consists of five key commodity-producing sectors and four services sectors. Table 3-3 below shows the main components of these sectors along with their importance measured by their contributions to the GDP (at constant basic prices).
Table 3-3 The Economic Sectors and their Relative Importance (1998-2002)

<table>
<thead>
<tr>
<th>Commodity-Producing Sectors</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001*</th>
<th>2002*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>4.9</td>
<td>3.3</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Mining and Quarrying</td>
<td>3.2</td>
<td>3.2</td>
<td>2.9</td>
<td>2.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>15.3</td>
<td>15.7</td>
<td>15.8</td>
<td>15.9</td>
<td>16.8</td>
</tr>
<tr>
<td>Electricity and Water</td>
<td>2.6</td>
<td>2.6</td>
<td>2.7</td>
<td>2.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Construction</td>
<td>5.1</td>
<td>5.1</td>
<td>5.1</td>
<td>5.4</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31.1</strong></td>
<td><strong>30.2</strong></td>
<td><strong>30.0</strong></td>
<td><strong>30.4</strong></td>
<td><strong>31.5</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Services Sectors</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade, Restaurants, and Hotels</td>
<td>11.2</td>
<td>11.5</td>
<td>12.0</td>
<td>11.8</td>
<td>11.5</td>
</tr>
<tr>
<td>Transport and Communications</td>
<td>17.0</td>
<td>17.5</td>
<td>17.5</td>
<td>17.7</td>
<td>17.9</td>
</tr>
<tr>
<td>Finance, Real Estate, and Business Services</td>
<td>20.6</td>
<td>20.1</td>
<td>20.0</td>
<td>19.8</td>
<td>19.4</td>
</tr>
<tr>
<td>Producer of Government Services</td>
<td>17.2</td>
<td>17.3</td>
<td>17.6</td>
<td>17.3</td>
<td>16.8</td>
</tr>
<tr>
<td>Other Services</td>
<td>2.9</td>
<td>3.4</td>
<td>2.9</td>
<td>3.0</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>68.9</strong></td>
<td><strong>69.8</strong></td>
<td><strong>70.0</strong></td>
<td><strong>69.6</strong></td>
<td><strong>68.5</strong></td>
</tr>
<tr>
<td><strong>GDP at Constant Basic Prices</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Preliminary
Source: Central Bank of Jordan.

3.2.4.1. Services sector

Table 3-3 shows that the services sector dominates the Jordanian economy making up approximately 70 percent of GDP. Finance, real estate, transport and communications, and government services are the major contributors with an average of 18.4 percent of the GDP. Jordan has a well-developed banking and financial services sector. As of 2002, there were 21 banks operating in Jordan including five foreign banks, and 26 insurance companies (CBJ, 2002). This sector will be discussed in more detail shortly.
Jordan has many historical and tourism sights, and the tourism industry is one of the main sources of income and foreign currency for Jordan. During the period 1997 to 2001, for instance, this sector contributed an average of more than 10 percent of GDP at current market prices. The tourism industry is also an important employer, and in 2001 there were about 22,864 employees in tourism-related activities. This sector, however, is sensitive to conflicts and disturbances in the region.

Of the other services sectors, the transport and communication sector contributed a 17.9 percent share to the GDP, at constant basic prices, in 2002. Jordan has an extensive and high quality road network, well-equipped port, and Royal Jordanian airlines (the national carrier) flies to more than 47 cities around the world. Jordan also has a modern communication infrastructure and an advanced internet services network.

3.2.4.2. Commodity-Producing Sectors

The commodity-producing sectors in Jordan generally consist of agriculture, mining and quarrying, manufacturing, electricity and water, and construction (Table 3-3). These sectors account for around 31 percent of the GDP at current basic prices. The industrial sector in Jordan comprises mainly of manufacturing and “mining and quarrying” sub-sectors. In relation to mining industries, Jordan is one of the world’s largest exporters of phosphates and potash, and these are a major source of export income. In 2001, for instance, phosphate and potash exports together accounted for JD228.8 million, about 17 percent of the total domestic exports (CBJ, 2002).
Jordan’s other large-scale industries include industrial production of cement, fertilizers and pharmaceuticals. The pharmaceutical industry is one of the rapidly growing industries within Jordan’s manufacturing sector. In 2002, exports of medical and pharmacy products earned Jordan JD 142.6 million (9.3 percent of total domestic exports), a 40.9 percent increase over 1998. The fertilizer industry also accounted for 4.2 percent of domestic exports (CBJ, 2002).

The construction sector is an important but volatile sector of the economy. In 1992 and 1993, for instance, it expanded considerably due to the demand for housing from about 300,000 returnees from the Gulf. It contributed 7.2 and 8.7 percent to GDP, at factor cost, in 1992 and 1993 respectively, with a growth rate of 20.8 percent. However, due to overinvestment, the sector’s share of the economy dropped in the subsequent years, and in 1995 the sector only grew by 0.8 percent (at factor cost), and in 1996 and 1997 growth in the sector was negative, -6.4 and –15.8 percent respectively (CBJ, 1998). Nevertheless, the sector contributed to GDP an average of 5.2 percent for the period 1998-2002, and employed 6.3 percent of the Jordanian labour force (Department of Statistics, 2002).

The agriculture sector’s share of GDP (at constant basic prices) amounted to 3.6 percent in 2002\(^\text{66}\) making it the third most important commodity-producing sector. The sector provides a livelihood for about 15 percent of the population and employed about an average of 6 percent of the total labour force during the period 1995-2000 (Ministry of Agriculture, Jordan). The sector’s primary problems are the Kingdom’s shortage of

\(^{66}\) Including hunting, forestry and fishing.
water, and the limited extent of arable land. Jordan is, therefore, a net importer of food. For example in 2002, 13.7 percent of Jordan’s imports were food and live animals, while its exports of agricultural products amounted to 9.8 percent (CBJ, 2002). The main crops in the country are wheat, barley, citrus, tomatoes, melons, and olives. The major livestock animals are sheep, while cattle, goats and poultry are also reared. Jordan imports those goods which cannot be produced locally such as rice, sugar, coffee and tea, and those goods insufficiently produced domestically such as wheat, meat, dairy products, vegetable fats and oil (Ministry of Agriculture, Jordan). In short, Jordan is unable to produce its food needs and there is always a deficit in the agricultural trade balance. Figure 3-3 summarizes the relative importance of the economic sectors in relation to their share of GDP (at constant basic prices) in 2002.

**Figure 3-3 2002 GPD Distribution By Sector (at Constant Basic Prices)**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Share of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>3.6%</td>
</tr>
<tr>
<td>Mining and Quarrying</td>
<td>3.0%</td>
</tr>
<tr>
<td>Finance, Real Estate, and Business Services</td>
<td>19.4%</td>
</tr>
<tr>
<td>Transport and Communications</td>
<td>17.9%</td>
</tr>
<tr>
<td>Trade, Restaurants, and Hotels</td>
<td>11.5%</td>
</tr>
<tr>
<td>Electricity and Water</td>
<td>2.6%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>16.8%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>16.8%</td>
</tr>
<tr>
<td>Other Services</td>
<td>2.9%</td>
</tr>
<tr>
<td>Producer of Government Services</td>
<td>16.8%</td>
</tr>
</tbody>
</table>

Source: Central Bank of Jordan, 2002

Having given some background on the structural characteristics and trends in the economy of Jordan, the remainder of the chapter will focus on the Jordanian Capital
Market, corporate governance in Jordan, the banking system and credit facilities, and some of the important trends in dividend policy in Jordan.

3.3 The Capital Market in Jordan

3.3.1. Background and Developments

Long before the establishment of the Jordanian Capital Market in the late 1970s, shares of some publicly held companies were traded over-the-counter in an irregular market\textsuperscript{67}. Corporate bonds also were being traded from at least the early 1960s. It was, however from the mid-1970’s that the main developments in the Jordanian capital market occurred. In 1976, with the increasing economic importance of stock markets and in order to mobilize national savings, ensure quick and easy trading, and protect small investors, the government, in collaboration with the International Finance Corporation of the World Bank, established the Amman Financial Market (AFM). The AFM commenced operation in 1978.

During the 1980’s and early 1990’s the market grew in an irregular way, and by the mid-1990’s it was concluded that a further restructuring of the market was required to increase its size and liquidity. Accordingly, in mid-1997, the Jordanian government moved to upgrade the capital market and a new Securities Law was enacted (Securities Law No. 23 of 1997). Among other things, the AFM was superseded by the creation of the Amman Stock Exchange (ASE) along with the Jordan Securities Commission and

\textsuperscript{67} For example, shares of Arab Bank and Jordan Tobacco and Cigarettes Company traded in 1930 and 1931 respectively. Trading was then conducted through real estate offices and freelance brokers (CBJ, 2001).
the Securities Depository Centre. The main goal of the new restructuring of the capital market was the separation of the capital market monitoring role and its executive role (CBJ, 2001).

**Amman Stock Exchange (ASE)**

In March 1999, the Amman Stock Exchange (ASE) began operation as a non-profit, private institution enjoying financial and administrative independence, and run by a Chief Executive Officer (CEO) and a seven-member board of directors drawn from the private sector. The ASE is the only security market in Jordan where securities can be traded.

**Securities Deposit Centre (SDC)**

The Securities Deposit Centre (SDC) is a private non-profit institution with administrative and financial independence, run by a seven-member board of directors. The SDC is considered as the registrar of securities in Jordan. The SDC undertakes registration and transfer of ownership of securities traded on the ASE as well as clearance, and settlement of trades.

**Jordan Securities Commission (JSC)**

The Jordan Securities Commission (JSC) is a regulatory entity that monitors the ASE and SDC. The JSC enjoys financial and administrative autonomy, and is linked directly to the Prime Minister, and this independence enhances its ability to monitor the capital market. Besides its supervisory role, the JSC aims at protecting market participants and ensuring transparency, fairness and efficiency in transactions.
Since its foundation, the ASE has witnessed rapid growth and developments in many areas. For example, the number of listed companies on the ASE (and its forerunner the AFM) jumped from 66 companies in 1978 to 161 by the end of 2003. The ratio of market capitalisation (MCAP) to GDP has grown from 37 percent in 1978 to 80.4 percent in 2002. Trading value on the secondary market rose from JD 9.7 million in 1978 to reach JD 1242.2 million in 2002. The rapid growth of the ASE can be seen clearly in Figure 3-4 below, which shows trends in the market capitalisation of the ASE since its formation until 2002.

Another significant change that the ASE has witnessed is the implementation of an Electronic Trading System (ETS) in March 2000. The ETS technology was provided by the Paris Bourse and funded by the French government. This system has put the ASE in line with modern security markets around the world and provides a technical foundation for future development and growth. An additional advantage of the ETS is that it has increased investor confidence in the market since they can obtain the same information as brokers and stay up-to-date. It also makes trading quicker and easier, and increases
market efficiency. Table 3-4 below reports the number of listed companies, market capitalisation as a percentage of GDP, general price index, and traded value of the ASE for selected years 1978 through to 2003.

Table 3-4 ASE: Market Development (Selected Indicators), 1978-2003

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Listed Companies</th>
<th>Market Capitalisation (JD Million)</th>
<th>Market Capitalisation as a % of GDP (%)</th>
<th>General weighted price index (point)</th>
<th>Value Traded (JD Million)</th>
<th>Value Traded as a % of MCAP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>66</td>
<td>286.12</td>
<td>37.0</td>
<td>58.6</td>
<td>5.6</td>
<td>2</td>
</tr>
<tr>
<td>1980</td>
<td>71</td>
<td>495.53</td>
<td>42.0</td>
<td>75.7</td>
<td>41.4</td>
<td>8</td>
</tr>
<tr>
<td>1985</td>
<td>104</td>
<td>926.91</td>
<td>45.9</td>
<td>78.6</td>
<td>66.7</td>
<td>7</td>
</tr>
<tr>
<td>1989</td>
<td>106</td>
<td>1400.41</td>
<td>59.0</td>
<td>93.3</td>
<td>367.6</td>
<td>26</td>
</tr>
<tr>
<td>1990</td>
<td>105</td>
<td>1293.21</td>
<td>48.5</td>
<td>80.4</td>
<td>268.9</td>
<td>21</td>
</tr>
<tr>
<td>1995</td>
<td>97</td>
<td>3495.44</td>
<td>76.6</td>
<td>159.2</td>
<td>418.0</td>
<td>12</td>
</tr>
<tr>
<td>2000</td>
<td>163</td>
<td>3509.64</td>
<td>58.6</td>
<td>133.1</td>
<td>334.7</td>
<td>10</td>
</tr>
<tr>
<td>2002</td>
<td>158</td>
<td>5028.95</td>
<td>80.4</td>
<td>170</td>
<td>950.3</td>
<td>19</td>
</tr>
<tr>
<td>2003</td>
<td>161</td>
<td>7772.80</td>
<td>116.8</td>
<td>261.5</td>
<td>1855.2</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Amman Stock Exchange and Department of Statistics.

Table 3-4 also shows that the ASE has grown rapidly in size and importance both in terms of market capitalisation and market capitalisation as a percentage of GDP. In terms of market size, between 1978 and 2003 market capitalisation experienced large growth, climbing from just JD 286.12 million in 1978 to JD 7772.8 million by the end of 2003. Traded volume has also increased rapidly, especially in recent years, and reached JD 1855.2 million in 2003. However, the trading volume (as a percentage of MCAP) did not increase in proportion with the growth in market capitalisation. For instance, in 2003 the market capitalisation grew by about 45 percent over 2002, while the trading volume, as a percentage of MCAP, grew by about 26 percent. The general price index, weighted by market capitalisation, increased by more than four times, from

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68 Choice of years is based on certain considerations; for example 1978 is the year in which ASE began its operation, the years 1980-1989 provide us with a snapshot of the market in the 1980s (similarly 1990 and 1995), and the year 1989 in particular is the start year of the sample period of this thesis (similarly the year 2000 represents the last year of the sample period). Finally, the years 2002 and 2003 are the most recent indicators.
58.6 points in 1978 to 170 points in 2002. The importance of the market in relation to the national economy as measured by the ratio of market capitalisation to GDP also increased dramatically amounting to 116.8 percent by the end of 2003. The number of listed companies has more than doubled, from 66 companies in 1978 to 161 in 2003 (ASE, 2004).

The ASE, however, is a highly concentrated market particularly in terms of capitalisation and trading volume. The largest ten companies in the market accounted for 66.7 percent of the total market capitalisation in 2003\(^69\). This percentage is high even compared to other emerging markets. For example, for India it is 20 percent and for Argentina 61 percent (Muhtaseb, 2000)\(^70\). In 2001 and 2002, the top ten companies also accounted for 61.3 percent and 64.0 percent of the total traded value respectively.

### 3.3.2. Market Structure

The ASE enjoys a wide range of participants, including companies, individual and institutional investors, securities firms and dealers. There are currently 29 brokerage firms licensed by the JSC, out of which 13 are public shareholding companies and the rest limited liability companies. There are also individual brokers who are employed by brokerage firms, and must be qualified and licensed by the JSC. Like any other stock exchange the ASE comprises primary and secondary markets. It has four sectors: banks, industrial, services, and insurance.

\(^69\) Out of which the Arab Bank alone accounts for 34.5 percent.
\(^70\) Compared with a regional country, in 2001 the largest 10 companies listed on Kuwaiti Stock Exchange accounted for approximately 55.5 percent of total market capitalisation (Omet and Mashharawe, 2003).
3.3.2.1. Primary Market

The Primary Market, or the Initial Public Offering (IPO) Market, is the market through which new securities are issued (shares and bonds). After issuing on the primary market, securities are then traded in the Secondary Market. The volume of new issues on the ASE is less impressive in proportion to the total market capitalisation and GDP. Table 3-5 below shows that the average total value of shares and bonds issued amounted for only 5.6 percent of the market capitalisation for the period 1998-2002, and 3.9 percent of the GDP (at current market prices) for the same period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Shares (JD Million)</th>
<th>Bonds (JD Million)</th>
<th>Total New Issues (Shares &amp; Bonds) (JD Million)</th>
<th>Total New Issues as a % of MCAP (%)</th>
<th>Total New Issues as a % of GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>47.5</td>
<td>116.5</td>
<td>164.0</td>
<td>3.9</td>
<td>2.9</td>
</tr>
<tr>
<td>1999</td>
<td>53.3</td>
<td>75.3</td>
<td>128.6</td>
<td>3.1</td>
<td>2.2</td>
</tr>
<tr>
<td>2000</td>
<td>105.9</td>
<td>149.5</td>
<td>255.4</td>
<td>7.3</td>
<td>4.3</td>
</tr>
<tr>
<td>2001</td>
<td>60.7</td>
<td>283.5</td>
<td>344.2</td>
<td>7.7</td>
<td>5.5</td>
</tr>
<tr>
<td>2002</td>
<td>35.8</td>
<td>270.0</td>
<td>305.9</td>
<td>6.1</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Source: Amman Stock Exchange and Ministry of Finance.

3.3.2.2. Secondary Market

The Secondary Market of the ASE is currently dividend into three markets: First, Second, and Third Markets. Listed securities are traded on the First and Second Markets, while unlisted securities are traded on the Third Market. There is also a Bond Market, a Transactions Off-the-Trading Floor, and a Mutual Fund Market (ASE, and JSC, 2001).
• First Market
The First Market is basically intended for the “blue-chip” securities (the most liquid). A firm can be listed on the First Market if it fulfills the following conditions: (1) the firm’s paid-in capital is not less than JD 2 million with a net shareholders’ equity not less than its paid-in capital, (2) the firm must have made net profits before taxes in at least two out of the last three years, (3) the firm has distributed dividends or bonus shares at least once over the last three years, (4) the firm’s shares have been listed on the Second Market for at least a year, and (5) the firm’s turnover ratio of shares should be at least 10 percent over the last twelve months preceding the listing transfer, and its shares must have been traded on at least 15 percent of the trading days (JSC, 2001). In 2003 there were 79 companies listed on the First Market (ASE, 2003).

• Second Market
The Second Market is part of the Secondary Market in which less liquid shares are traded (compared with the ones on the First Market). Generally, companies trade their shares in this market before they transfer to the First Market. A firm can be listed on the Second Market if its net shareholders’ equity is not less than 50 percent of the paid-in capital, and a full year must have elapsed since the firm was granted the right to commence its business. In 2003 there were 82 companies listed on the Second Market.

• Third Market
The Third Market is that part of the Secondary Market in which unlisted securities are traded. This market is intended for the newly established companies. A public shareholding company (PSC) upon being approved to start business can apply to the ASE to trade its shares through this market. This Market offers emerging public shareholding companies that have a lack of liquidity an opportunity to enter and deal in
the market even though they are not yet listed on the Bourse. In order to protect investors trading on the Third Market, PSCs whose shares are traded in this market should disclose and supply the same information about their financial status to the ASE as well as JSC. Companies traded in this market must have good achievements before being transferred to the Second or First Markets. The Third Market is a small market as compared to the First and Second Markets. The number of companies in this market in 2003 was 28 compared with 161 companies in the First and Second Markets.

Table 3-6 sheds some light on these markets in terms of their size and trading activity. The table shows the number of traded shares and the number of transactions that were made in the years 2001, 2002 and 2003; it shows also the number of companies listed on these markets.

Table 3-6 ASE: First, Second and Third Markets

<table>
<thead>
<tr>
<th></th>
<th>First &amp; Second Markets</th>
<th>Third Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Traded Shares (million)</td>
<td>332.4</td>
<td>445.6</td>
</tr>
<tr>
<td>Number of Transactions (000s)</td>
<td>293.2</td>
<td>446.4</td>
</tr>
<tr>
<td>Number of Companies</td>
<td>161</td>
<td>158</td>
</tr>
</tbody>
</table>

Source: Amman Stock Exchange.

- **Bond Market**

The Bond Market is part of the Secondary Market in which development bonds, treasury bonds and corporate bonds are traded. Generally, trading activity in this market is low and the market is underdeveloped. For example, in the years 2001 and 2002 the trading volume of development bonds was only JD 0.9 million (0.02 percent of MCAP) and JD
0.5 million (0.01 percent of MCAP), respectively. In the same period, the market value of corporate bonds amounted to JD 6.3 million (0.14 percent of MCAP) and 9.2 million (0.18 percent of MCAP), respectively.

Note that the low proportion of new issues and bond trading volume indicates that Jordanian companies are not relying heavily on the bond market to finance their business activities. This along with the fact that the stock market is not a major source of new investment finance reinforces the idea that Jordan’s financial system is best characterised as being bank-based (see Demirguc-Kunt and Levine, 1999). This issue is taken up in more detail shortly.

3.3.2.3. Market Sectors

The ASE comprises four main sectors: Industrial, Services, Banking, and Insurance. In terms of size (as measured by MCAP) the banking sector ranked first, industrial second, followed by services and insurance respectively. Figure 3-5 shows that the banking sector accounted for about 54 percent of total MCAP (average period 1995-2001), followed by the industrial sector at 32 percent, the services sector at 12 percent and the insurance sector at 2 percent. In relation to trading volume, however, Figure 3-6 shows that the industrial sector is the largest with 43 percent of the total trading volume (average period 1996-2001), followed by the banking sector which also accounts for a large proportion of turnover at 41 percent, the service sector at 15 percent and finally the insurance sector with about 1 percent.\(^7\)

\(^7\) It should be noted that this ranking is different in certain years. For example, in 2001 the banking sector was more heavily traded than the industrial sector.
3.3.3. Trading System

It was noted in Section 3.3.1 that the ASE is now a fully automated trading system. All public shareholding companies (PSCs) are traded electronically and brokers can trade on the system remotely. All transactions take place through stockbrokers. Brokers place buy and sell orders into the trading system, which in turn matches those orders to generate a trade. Foreign investors can also trade through a licensed member of the ASE (JSC, 2001).
The trading mechanism at the ASE is continuous and strict price and time priority rules are applied. That is, if there are two buy (sell) orders that have taken place, the priority for execution will be for the higher (lower) price order. In the same way, if two or more orders of the same type have the same price, the one placed first has priority for execution. In order to avoid excessive volatility in share prices, the ASE has set the daily trading limits by +/- 5 percent (Maghyereh, 2003, and Omet and Abu-Ruman, 2003).

3.3.4. Transaction Costs

It is now well established that the costs associated with trading securities may have an impact on trading activities and investors’ portfolio returns. We can identify two types of trading costs: explicit costs (commissions, fees, and taxes) and implicit costs (marketability, and opportunity costs). Commissions are one of the main costs of dealing in the ASE. The commission for trading securities on the ASE varies between 0.0054 and 0.0074 of the value of traded shares and 0.0008 and 0.001 of the value of traded bonds. These commissions are paid to brokers (between 0.004 and 0.006 of value traded) and to the major market authorities [JSC (0.0005), ASE (0.0006), and SDC (0.0003)]. There is no stamp duty or similar transfer tax on transactions in securities (JSC, 2001).

Omet (2001) empirically examined the trading costs at the ASE, using daily bid-ask spreads. His study was conducted over a 15-week period following the implementation of the electronic trading system in 2000. Omet suggested that transaction costs tend to
be lower for companies with relatively high trading volumes. He reported an average trading cost of 1.05 percent in the ASE, which is relatively high when compared to other developed markets (0.026 in the NYSE and 0.31 in the Paris Bourse). Moreover, Omet pointed out that the implementation of the ETS did not seem to have reduced transaction costs.

### 3.3.5. Ownership Concentration at the ASE

The understanding of corporate ownership structure is very important since it may directly influence corporate decisions, especially about dividend payout. The concentration of ownership, in general, leads to a concentration in control, which, therefore, gives controlling shareholders considerable power and discretion over a firm’s key decisions. Although the concentration of control in the hands of large shareholders can reduce the agency problem, it may raise a new conflict between controlling and minority shareholders since controlling shareholders may attempt to generate private benefits from control and even effectively expropriate minority shareholders. It is therefore now seen that ownership concentration along with legal protection of (especially minority) investors are key determinants of effective corporate governance. As Shleifer and Vishny (1997, p.769) put it, “…successful corporate governance systems … rely on some combination of concentrated ownership and legal protection of investors”.

La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998, henceforth LLSV) suggested that companies in countries with weak corporate governance systems (such as French-civil law countries) tend to have high ownership concentration. This is because
concentration of ownership might be used as a substitute mechanism for the poor quality of investors’ legal protection. In a more recent study, LLSV (2000a) found that firms operating in countries with high legal protection of minority shareholders (common-law countries) pay higher dividends, compared to firms in countries where legal protection is poor (civil-law countries). Therefore, ownership concentration may play a significant role in determining corporations’ dividend policies. That is, firms with a high concentration of ownership and control will tend to make lower dividend payouts, since the controlling shareholders may have less incentive to pay out cash and a tendency to expropriate minority shareholders (including by distributing low dividends).

However, the behaviour of corporate dividend policy may differ according to the identity of the controlling owner. Using a sample of 214 Austrian firms Gugler (2003) examined the effect of ownership structure and control on dividend payout policy. He classified firms according to their control structure into state, family, banks, and foreign controlled firms. Gugler found that state controlled firms smooth and pay high dividends, while family controlled firms do not. Moreover, state controlled firms are most reluctant to cut dividends, which is consistent with the signalling and agency hypotheses. The corporate dividend behaviour of banks and foreign controlled firms tends to lie in between those of state and family controlled firms.

There has been little study of ownership structure in the Jordanian context, and thus evidence to date is quite limited. For example, in LLSV’s (1998) study, which included 49 countries around the world (including Jordan), information regarding ownership

\[\text{Carvalhal-da-Silva and Leal (2003) examined a sample of 225 Brazilian firms and provided empirical evidence in support of this conjecture.}\]
concentration in Jordan was unavailable\textsuperscript{73}. Nevertheless, we have been able to obtain some evidence about ownership structure in Jordan through the data provided by the ASE on the top ten companies. As mentioned previously, the largest ten companies listed on ASE account for about 67 percent of the total market capitalisation. Thus, analysing the ownership characteristics of these firms provides an important way of understanding ownership concentration in Jordan. Table 3-7 below reports the top ten companies at the ASE in terms of market capitalisation for 2003 and their ownership structure.

Table 3-7. ASE: Ten Largest Companies by MCAP, 2003 and their Ownership Structure

<table>
<thead>
<tr>
<th>COMPANY’S NAME</th>
<th>MCAP (JD Million)</th>
<th>% OF Total MCAP</th>
<th>DIND</th>
<th>DCORP</th>
<th>DFINS</th>
<th>DGOV</th>
<th>DN-JOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB BANK</td>
<td>2,684.0</td>
<td>35.5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>JORDAN TELECOM</td>
<td>555.0</td>
<td>7.1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>HOUSING BANK FOR TRADE &amp;FINANCE</td>
<td>433.0</td>
<td>5.6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ARAB POTASH</td>
<td>385.8</td>
<td>5.0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>THE JORDAN CEMENT FACTORIES</td>
<td>326.4</td>
<td>4.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>JORDAN KUWAIT BANK</td>
<td>213.8</td>
<td>2.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>JORDAN PHOSPHATE MINES</td>
<td>186.0</td>
<td>2.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>BANK OF JORDAN</td>
<td>154.0</td>
<td>2.0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>EXPORT &amp; FINANCE BANK</td>
<td>135.6</td>
<td>1.7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>JORDAN ELECTRIC POWER</td>
<td>123.2</td>
<td>1.6</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5,196.7</td>
<td>66.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: The ownership structure data constructed from the ASE guide, 2002. DFAM, DCORP, DFINS, DGOV, DN-JOR are, respectively, dummies and equal one if an individual (family), a corporation, a financial institution, the government (or its agencies), or non-Jordanian (individuals, institutions, governments) owns 5% or more of the company shares, and zero otherwise\textsuperscript{74}.


\textsuperscript{73}The proxies for ownership concentration used by LLSV are the mean and median of ownership by largest three shareholders in ten largest public companies.

\textsuperscript{74}5\% was the threshold of ownership used by the ASE in 2002.
Note that the ten largest companies reported in Table 3-7 consist of five banks, three industrial and two services companies. Banks alone account for about 48 percent of total market capitalisation of the ASE (out of which the Arab Bank accounts for about 36 percent). This indicates that the ASE is highly concentrated in terms of market capitalisation, but that banking is especially highly concentrated.

Table 3-7 also presents data on the ownership structure of these ten largest companies. Four companies (all banks) have an individual shareholder who owns 5 percent or more of their shares, and those individuals are members of the board of directors (controlling shareholders). Institutional ownership (corporations) is limited to three companies (one bank and two industrial), and financial institutions (mainly banks) have shares in one company. Except for one company (the Bank of Jordan), the government or its agencies namely the Social Security Corporation (SSC) and the Jordan Investment Corporation (JIC) own a significant amount of shares in those top ten companies. Finally, the table also shows that non-Jordanian investors have a considerable presence in the ASE, six companies (out of the top ten) have a non-Jordanian in their ownership structure (Section 3.3.61 provides further details about the ownership of non-Jordanian at ASE).

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75 It is worth noting that, non-Jordanian financial institutions have large shares in Jordanian companies.
76 The SSC enjoys juristic and financial independence; however, the government has substantial control over the SSC due to the sensitivity of its work dealing with public saving and interests.
77 The JIC considered as the investment arm of the government of Jordan. The JIC has a large portfolio consists of shares for major companies listed on ASE. However, after the implementation of the privatisation program, the government started selling its shares in the JIC portfolio. The major disposal of JIC was during 2000 and early 2001.
According to one report by MENA Regional Corporate Governance Working Group, (2003, p.20) “The dominant feature of the ownership structure of listed companies [in Jordan] is family companies”. However, as shown in Table 3-7, among the ten largest companies listed at ASE, only four companies seem to be controlled by individuals or families. Generally speaking, in markets where family-controlled companies are dominant it is not surprising to find low dividend yield ratios. Section 3.6 from this chapter shows that the dividend yield ratios in Jordan are relatively low compared to other emerging markets, which we may now suggest is due, in part at least, to the nature of ownership structure of the companies listed at the ASE.

**-Case Study: The Arab Bank**

Since the Arab Bank alone accounts for about 36 percent of the total market capitalisation of the ASE, it is worth providing some details for this company in terms of its ownership structure. The case study below illustrates some data on the Arab Bank ownership structure including the number of shareholders, number of shares, ownership ratio, and the name of the main shareholders of the bank. As at 2001, there were 8.8 million shares of the Arab Bank with 4,435 shareholders, out of which 2,809 were Jordanian, and 1,626 non-Jordanian. The ownership ratio of Jordanian shareholders amounted to 48.42 percent, including 35.16 percent individuals, 2.11 percent companies, 10.21 percent government agencies, and 0.94 percent others. However, the majority of the ownership stake (51.58 percent) is held by non-Jordanians. There are however only three shareholders who own 5 percent or more of the bank shares. The Social Security Corporation (Government agency) owns 10.21 percent of the total
shares, and the other two shareholders are individuals (Shoman family). The Shoman family established the bank, and they remain the major controlling shareholders.

Case Study

Arab Bank: Ownership Structure As at December 2001

<table>
<thead>
<tr>
<th>Ownership Ratio %</th>
<th>Ownership (share)</th>
<th>No. Of Shareholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Foreign</td>
<td>Arab</td>
</tr>
<tr>
<td>Individuals</td>
<td>75.36</td>
<td>0.02</td>
</tr>
<tr>
<td>Companies</td>
<td>5.24</td>
<td>0.61</td>
</tr>
<tr>
<td>Gov. Agencies</td>
<td>10.21</td>
<td>0.00</td>
</tr>
<tr>
<td>Government</td>
<td>6.36</td>
<td>0.00</td>
</tr>
<tr>
<td>Others</td>
<td>2.83</td>
<td>1.05</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>1.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Shareholders Owning 5% or more in the company shares</th>
<th>Ownership Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Social Security Corporation</td>
<td>10.21</td>
</tr>
<tr>
<td>2</td>
<td>Khalid Shoman</td>
<td>8.18</td>
</tr>
<tr>
<td>3</td>
<td>Abdul Majeed Shoman</td>
<td>5.71</td>
</tr>
</tbody>
</table>


3.3.6. Non-Jordanian Investment

Non-Jordanian investors can trade on the ASE without any restrictions or limits. Foreigners are allowed to own up to 100 percent of any investment project in any sector, with exceptions in certain activities or sectors. For example, until 2000, foreign ownership of a company (including listed companies) in the construction, trading, trade services and mining sectors was restricted to a 50 percent ownership ceiling. However, a new regulation was introduced in late 2000, which lifted all the restrictions of foreign

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78 Abdul Hameed Shoman is the founder of Arab Bank. The bank was first established and began business in Jerusalem (Palestine) in 1930. Following the Arab-Israeli conflict in 1948, the bank’s headquarters were moved to Amman (Jordan). After the death of the founder, the family carried on the business in Jordan and expanded branches abroad.
ownership in companies traded on the ASE (Jordan National Bank, 2002 and MENA Regional Corporate Governance Working Group, 2003).

Table 3-8 shows the percentage of non-Jordanian ownership in the shareholding companies by sector and net foreign investment (total buying minus total selling) for the period 1996-2003. For example, the percentage of non-Jordanian ownership in companies listed on the ASE by the end of 2002 stood at 37.4 percent of the total market capitalisation, out of which 27.9 percent were Arab investors and 9.5 percent non-Arab investors (ASE, 2002).

<table>
<thead>
<tr>
<th>Year</th>
<th>Banks</th>
<th>Insurance</th>
<th>Services</th>
<th>Industry</th>
<th>All Market</th>
<th>Net Foreign Investment ** (JD Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>47.7</td>
<td>16.5</td>
<td>7.3</td>
<td>21.8</td>
<td>32.8</td>
<td>8.52</td>
</tr>
<tr>
<td>1997</td>
<td>53.8</td>
<td>16.0</td>
<td>9.3</td>
<td>26.0</td>
<td>39.1</td>
<td>56.76</td>
</tr>
<tr>
<td>1998</td>
<td>56.4</td>
<td>15.1</td>
<td>11.6</td>
<td>28.1</td>
<td>43.9</td>
<td>122.61</td>
</tr>
<tr>
<td>1999</td>
<td>56.6</td>
<td>15.6</td>
<td>14.0</td>
<td>30.5</td>
<td>43.1</td>
<td>15.47</td>
</tr>
<tr>
<td>2000</td>
<td>55.2</td>
<td>17.9</td>
<td>21.3</td>
<td>30.2</td>
<td>41.7</td>
<td>-11.83</td>
</tr>
<tr>
<td>2001</td>
<td>49.3</td>
<td>17.8</td>
<td>20.0</td>
<td>27.4</td>
<td>38.5</td>
<td>-107.50</td>
</tr>
<tr>
<td>2002</td>
<td>50.2</td>
<td>18.9</td>
<td>26.8</td>
<td>26.4</td>
<td>37.4</td>
<td>0.88</td>
</tr>
<tr>
<td>2003</td>
<td>49.8</td>
<td>18.7</td>
<td>21.8</td>
<td>30.3</td>
<td>38.8</td>
<td>81.9</td>
</tr>
</tbody>
</table>

* As a percentage of market capitalisation. ** Total buying minus selling.
Source: Amman Stock Exchange.

At the sectoral level, the average ownership ratio of non-Jordanian investors over the period 1996-2003 of the banking sector amounted to nearly 52.4 percent, the industrial sector to 27.6 percent, the insurance sector to 17.1 percent, and the services sector to 16.5 percent.
In relation to trading activity, the value of shares purchased by non-Jordanian investors amounted to JD 104.5 million in 2001 and JD 233.4 million in 2002, representing 15.6 percent and 24.6 percent of the total trading volume respectively. Net foreign investment showed a positive balance of JD 0.9 million in 2002 compared to a negative balance of JD 107.5 million in 2001 (ASE, 2001 and 2002). In 2003, the net foreign investment increased considerably reaching JD 81.9 million, compared to JD 0.9 million in 2002.

### 3.3.7. Taxation and Repatriation of Income

#### 3.3.7.1. Repatriation of Income

Jordan has made an open environment for foreign investment. Foreign investors now enjoy no restrictions on the repatriation of investment capital and income.

#### 3.3.7.2. Taxes on Dividends and Capital Gains

According to Income Tax Law No. 57 of 1985, amended in 1995 and effective from January 1st 1996, a 10 percent distribution tax is imposed on distributed dividends\(^79\). The tax is withheld by the distributing company and paid within 30 days to the Tax Department. The recipients of dividend income have no further tax liability. Capital gains accrued from trading in shares and bonds are fully exempted from tax. Under the Income Tax Law, there are two types of taxation: personal and company.

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\(^79\) This law was amended in 2001 and implemented as of January 2002 removing the 10 percent tax on dividends (Jordan National Bank, 2002).
**Personal Taxation**

Income earned by individuals in Jordan is subject to Income Tax Law. However, the law differentiates between employees of local and foreign companies, and between employees of the public and private sectors. For example, salaries and wages of non-Jordanian employees working for foreign companies operating in Jordan are exempt from income tax (Article, 14, A.1), 50 percent of the salaries and wages of public sector employees is tax exempt, 50 percent of the first JD 12,000 of the salaries and wages of private sectors employees are exempted from tax, and 25 percent of every Dinar thereafter (Article, 14, A.2).

According to Income Tax Law No. 57 of 1985 as amended by No. 14 of 1995, the tax on assessable income of individuals (Jordanian) is charged at the following rates:

<table>
<thead>
<tr>
<th>Tax Rates for Individuals’ Taxable Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>For every Dinar of the first JD 2000</td>
<td>5 percent</td>
</tr>
<tr>
<td>For every Dinar of the next JD 2000</td>
<td>10 percent</td>
</tr>
<tr>
<td>For every Dinar of the next JD 4000</td>
<td>15 percent</td>
</tr>
<tr>
<td>For every Dinar of the next JD 4000</td>
<td>20 percent</td>
</tr>
<tr>
<td>For every Dinar of the next JD 4000</td>
<td>25 percent</td>
</tr>
<tr>
<td>For every Dinar thereafter</td>
<td>30 percent</td>
</tr>
</tbody>
</table>

Source: Ministry of Finance, Income Tax Department, 1996.

**Corporate Taxation**

Local and foreign companies are subject to tax on income generated from Jordan. The tax rates vary depending on the nature of the business activities. The following table shows the current tax rates on taxable income of various corporations’ activities. This rate remained unchanged since 1996\(^{80}\).

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\(^{80}\) Full details of the Tax Law can be obtained from the website (http://www.incometax.gov.jo).
Tax Rates for corporations’ Taxable Income

<table>
<thead>
<tr>
<th>Activity</th>
<th>Tax Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, Industry, Hotels, and Hospitals</td>
<td>15</td>
</tr>
<tr>
<td>Transportation and Constructional contracts (provided that paid up of the company capital is not less than JD 1000,000)</td>
<td>15</td>
</tr>
<tr>
<td>Banks, Financial, Insurance, Exchange, and Brokerage Companies</td>
<td>35</td>
</tr>
<tr>
<td>All other companies</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Ministry of Finance, Income Tax Department, 1996.


This section provides major financial indicators of the ASE over a 25-year period (1978-2003), including MCAP, price to earnings ratio (P/E), price to book value ratio (P/BV), turnover ratio, earnings per share (EPS), net income after taxes (NIAT), dividend yield ratio (D/Y), and cash dividends.

Table 3-9 reinforces the point made earlier about the increase in market capitalisation since the establishment of the ASE, including its increasing importance in the national economy (see also Table 3-4). The turnover ratio improved significantly over time from the late 1970s until the late 1980s. Notably, however, turnover retreated in the mid 1990s, and has only recently begun to recover. In 2003 turnover reached 49.1 percent, which is the highest level since 1992. In part this falloff in the turnover ratio was due to the rapid increase in the size of market capitalisation of the ASE in the 1990’s and in part to the slow growth of turnover. P/E and P/BV ratios vary through periods; however, they are comparable to other markets in Europe, the Middle East and Africa (Muhtaseb, 2000). The P/E ratio for the market as a whole reached its highest level in 1985 at 25.5 times, and fell to its lowest level in 1989 at 7.2 times. Currently, the P/E ratio is around 20 times, but this was a significant jump from the average for the last three years, which was around 14.5 times.
The overall profitability of Jordanian PSCs as measured by the ratio of NIAT to MCAP and EPS is less impressive. The ratio of NIAT to MCAP reached its lowest level in 2000 (3.03 percent) and did not exceed 10 percent except for two years, 1989 and 1990. Average EPS did not reach even half a Dinar in any year from 1978 to 2003. This suggests that many Jordanian firms have limited investment opportunities domestically, while many may be even subject to financial distress.

Table 3-9 ASE: Key Financial Indicators (1978-2003)

<table>
<thead>
<tr>
<th>Year</th>
<th>MCAP (JD Million)</th>
<th>P/E Ratio (times)</th>
<th>P/BV Ratio (times)</th>
<th>Turnover Ratio (%)</th>
<th>EPS (JD)</th>
<th>NIAT (JD Million)</th>
<th>NIAT as % of MCAP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>286.12</td>
<td>10.81</td>
<td>1.18</td>
<td>2.91</td>
<td>0.32</td>
<td>26.46</td>
<td>9.25</td>
</tr>
<tr>
<td>1979</td>
<td>452.29</td>
<td>12.39</td>
<td>1.43</td>
<td>5.52</td>
<td>0.31</td>
<td>36.52</td>
<td>8.07</td>
</tr>
<tr>
<td>1980</td>
<td>495.53</td>
<td>11.14</td>
<td>1.33</td>
<td>13.98</td>
<td>0.36</td>
<td>44.49</td>
<td>8.98</td>
</tr>
<tr>
<td>1981</td>
<td>834.61</td>
<td>15.80</td>
<td>1.85</td>
<td>19.99</td>
<td>0.36</td>
<td>52.83</td>
<td>6.33</td>
</tr>
<tr>
<td>1982</td>
<td>1034.82</td>
<td>17.03</td>
<td>1.69</td>
<td>16.83</td>
<td>0.22</td>
<td>60.77</td>
<td>5.87</td>
</tr>
<tr>
<td>1983</td>
<td>1053.36</td>
<td>20.90</td>
<td>1.55</td>
<td>14.48</td>
<td>0.12</td>
<td>50.40</td>
<td>4.78</td>
</tr>
<tr>
<td>1984</td>
<td>911.69</td>
<td>25.53</td>
<td>1.31</td>
<td>10.37</td>
<td>0.09</td>
<td>35.72</td>
<td>3.92</td>
</tr>
<tr>
<td>1985</td>
<td>926.91</td>
<td>18.69</td>
<td>1.74</td>
<td>10.20</td>
<td>0.14</td>
<td>49.59</td>
<td>5.35</td>
</tr>
<tr>
<td>1986</td>
<td>891.81</td>
<td>14.60</td>
<td>1.24</td>
<td>13.49</td>
<td>0.17</td>
<td>61.11</td>
<td>6.85</td>
</tr>
<tr>
<td>1987</td>
<td>929.38</td>
<td>15.18</td>
<td>1.25</td>
<td>26.60</td>
<td>0.16</td>
<td>61.21</td>
<td>6.59</td>
</tr>
<tr>
<td>1988</td>
<td>1104.68</td>
<td>11.96</td>
<td>1.31</td>
<td>28.83</td>
<td>0.23</td>
<td>92.39</td>
<td>8.36</td>
</tr>
<tr>
<td>1989</td>
<td>1400.41</td>
<td>7.18</td>
<td>1.48</td>
<td>49.55</td>
<td>0.49</td>
<td>194.98</td>
<td>13.92</td>
</tr>
<tr>
<td>1990</td>
<td>1293.21</td>
<td>7.26</td>
<td>1.20</td>
<td>33.44</td>
<td>0.44</td>
<td>178.04</td>
<td>13.77</td>
</tr>
<tr>
<td>1991</td>
<td>1707.10</td>
<td>11.10</td>
<td>1.43</td>
<td>37.75</td>
<td>0.36</td>
<td>153.83</td>
<td>9.01</td>
</tr>
<tr>
<td>1992</td>
<td>2295.65</td>
<td>14.76</td>
<td>1.65</td>
<td>86.23</td>
<td>0.38</td>
<td>155.50</td>
<td>6.77</td>
</tr>
<tr>
<td>1993</td>
<td>3463.93</td>
<td>24.14</td>
<td>2.19</td>
<td>51.12</td>
<td>0.27</td>
<td>143.48</td>
<td>4.14</td>
</tr>
<tr>
<td>1994</td>
<td>3409.29</td>
<td>19.47</td>
<td>1.86</td>
<td>25.89</td>
<td>0.26</td>
<td>175.10</td>
<td>5.14</td>
</tr>
<tr>
<td>1995</td>
<td>3495.44</td>
<td>17.63</td>
<td>1.68</td>
<td>20.98</td>
<td>0.24</td>
<td>198.25</td>
<td>5.67</td>
</tr>
<tr>
<td>1996</td>
<td>3461.16</td>
<td>17.46</td>
<td>1.67</td>
<td>17.72</td>
<td>0.22</td>
<td>228.54</td>
<td>6.60</td>
</tr>
<tr>
<td>1997</td>
<td>3861.95</td>
<td>14.30</td>
<td>1.63</td>
<td>17.80</td>
<td>0.20</td>
<td>217.68</td>
<td>5.64</td>
</tr>
<tr>
<td>1998</td>
<td>4156.56</td>
<td>16.29</td>
<td>1.56</td>
<td>18.57</td>
<td>0.18</td>
<td>244.36</td>
<td>5.88</td>
</tr>
<tr>
<td>1999</td>
<td>4137.71</td>
<td>14.30</td>
<td>1.44</td>
<td>19.13</td>
<td>0.17</td>
<td>174.09</td>
<td>4.21</td>
</tr>
<tr>
<td>2000</td>
<td>3509.64</td>
<td>14.82</td>
<td>1.12</td>
<td>11.59</td>
<td>0.11</td>
<td>106.18</td>
<td>3.03</td>
</tr>
<tr>
<td>2001</td>
<td>4476.74</td>
<td>15.34</td>
<td>1.38</td>
<td>20.32</td>
<td>0.06</td>
<td>292.59</td>
<td>6.54</td>
</tr>
<tr>
<td>2002</td>
<td>5028.95</td>
<td>12.97</td>
<td>1.23</td>
<td>26.55</td>
<td>0.15</td>
<td>296.53</td>
<td>5.90</td>
</tr>
<tr>
<td>2003</td>
<td>7772.75</td>
<td>21.75</td>
<td>1.85</td>
<td>49.10</td>
<td>0.15</td>
<td>NA</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Source: Amman Stock Exchange.
3.3.9. The ASE and other Arab Stock Markets: A Brief Comparison

The ASE is considered a well-developed market among the Arab stock markets. It is one of the oldest stock markets in the region, has good regulation and is a relatively liquid market. To show the size and the importance of the ASE compared to other Arab stock markets, Table 3-10 below presents some selected indicators for 11 Arab stock markets in 2002 including the ASE.

Table 3-10. Arab Stock Markets, Selected Indicators (2002)

<table>
<thead>
<tr>
<th>Stock Market</th>
<th>No. Of Listed Companies</th>
<th>MCAP (US$ Million)</th>
<th>MCAP as a % of GDP (%)</th>
<th>Value Traded as a % of MCAP (%)</th>
<th>Value Traded as a % of GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>40</td>
<td>7,716.4</td>
<td>97.2</td>
<td>2.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Egypt</td>
<td>1150</td>
<td>26,338.7</td>
<td>29.3</td>
<td>24.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Jordan</td>
<td>158</td>
<td>7,087.0</td>
<td>76.2</td>
<td>18.8</td>
<td>14.4</td>
</tr>
<tr>
<td>Kuwait</td>
<td>95</td>
<td>35,098.9</td>
<td>107.0</td>
<td>63.0</td>
<td>67.5</td>
</tr>
<tr>
<td>Lebanon</td>
<td>13</td>
<td>1,395.3</td>
<td>8.1</td>
<td>8.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Morocco</td>
<td>55</td>
<td>8,564.2</td>
<td>23.0</td>
<td>16.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Oman</td>
<td>140</td>
<td>5,268.1</td>
<td>26.2</td>
<td>11.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Qatar</td>
<td>25</td>
<td>10,567.2</td>
<td>64.2</td>
<td>8.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>68</td>
<td>74,851.4</td>
<td>40.1</td>
<td>41.4</td>
<td>16.6</td>
</tr>
<tr>
<td>Tunisia</td>
<td>46</td>
<td>2,125.7</td>
<td>10.0</td>
<td>11.6</td>
<td>1.6</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>36</td>
<td>29,845.3</td>
<td>42.8</td>
<td>3.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: Arab Monetary Fund, 2003 and The World Bank, 2003, World Development Indicators.

In terms of market size as measured by the number of listed companies (market breadth) the ASE ranks second after Egypt while, as measured by MCAP, the ASE ranks eighth. However, in terms of market depth and its importance in the national economy as measured by the ratio of MCAP to GDP the ASE was only exceeded by Kuwait and Bahrain. Although the ratio of trading value to MCAP (an indicator of the activity level

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81 There are two reasons for choosing the Arab stock markets for comparison with the ASE: 1) they are good examples of emerging capital markets; and 2) they have similar cultural context.
in the market, see Kumar and Testsekos, 1999) seems less impressive, the ASE ranks fourth among the Arab stock markets at 18.8 percent. Similarly, in terms of value traded as a share of GDP of 14.4 percent, Jordan was third after Kuwait and Saudi Arabia, which indicates that by Arab standards the ASE is relatively active even though small in terms of size (as measured by MCAP).

### 3.4 Corporate Governance in Jordan

The central objective of this section is to outline the structural characteristics of corporate governance in Jordan. It was established in Chapter 2 that ownership structure and corporate governance characteristics can affect the behaviour (including dividend policy) of firms. To recap briefly LLSV (2000b, p.4), define corporate governance as “… a set of mechanisms through which outside investors protect themselves against expropriation by the insiders”. Strong legal protection of minority shareholders and creditors reduces the risks of expropriation and agency costs. Therefore, firms with good governance arrangements should be able to raise external funds more easily, in both debt and equity forms, because investors will be more relaxed about investing and providing finance to such firms (see La Porta et al., 1997 and 2000b). Similarly, because good governance reduces the information asymmetry between insiders and outsiders, such firms will also have less need to signal to outside shareholders about prospects for the firm using dividends.

Like many countries in the MENA region, such as Egypt and Lebanon, the legal system in Jordan is governed by the civil law. All obligations, responsibilities or rights are supported by legislation. Provisions under the Company Law or Securities Law in
Jordan provide for the protection of minority shareholders\textsuperscript{82}. Shareholders representing not less than 15% of the subscribed share capital can call for an extraordinary meeting of the general assembly of the company, and they can also require the Controller of Companies to inspect the company for possible violations (JSC, 2001). In addition, all shareholders have the same rights and they have the right to discuss and vote on the assembly regarding the company’s matters. Importantly, insiders are legally responsible for the use of any confidential information in their own self-interest.

Under the Jordanian Companies Law, the Chairman and members of the Board of Directors may be held responsible for breaches and they may also be held jointly and severally liable in damages for losses resulting from the breach. In the event of liquidation, if the company's assets are insufficient to meet its obligations as a result of the negligence of its chairman, members of the board, the general manager, or its auditors, the court may charge those responsible for the deficit jointly and severally (JSC, 2001).

Another way of drawing conclusions about corporate governance in Jordan is through empirical research. Bardhan (1997) provided a ranking of corruption for about 70 countries around the world including Jordan. Bardhan’s study revealed that the strength of the governance system in Jordan was regarded of high quality as measured by the average indices of corruption, red tape, and efficiency of the legal system. Jordan scored 7.7 on Bardhan’s governance scale (the scale range from 0 to 10, with higher scores for lower levels of corruption). In an often-cited paper, LLSV (1998) examined the legal

\textsuperscript{82}La Porta et al. (1998) observed that investors enjoy stronger legal protection in common-law countries compared to civil-law countries.
rules pertaining to investor protection, and the quality of enforcement of these rules for 49 countries (Jordan included). Table 3-11 below highlights some of the features of shareholders rights and the quality of enforcement of these rights in Jordan, which is constructed from LLSV’s (1998) study.83

Table 3-11. Shareholder Rights and the Law Enforcement in Jordan

<table>
<thead>
<tr>
<th>Shareholder Rights</th>
<th>Law Enforcement</th>
<th>Accounting Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) One Share-One Vote</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B) Proxy By Mail Allowed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C) Shares Not Blocked before the Meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D) Pre-emptive Right to New Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E) Mandatory Dividends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F) Efficiency of Judicial System</td>
<td>8.66</td>
<td></td>
</tr>
<tr>
<td>G) Rule of Law</td>
<td>4.35</td>
<td></td>
</tr>
<tr>
<td>H) Corruption</td>
<td>5.48</td>
<td></td>
</tr>
<tr>
<td>I) Risk of Expropriation</td>
<td>6.07</td>
<td></td>
</tr>
<tr>
<td>J) Rating on Accounting Standards*</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adopted from La Porta et al. (1998, p.1131, 1137), and *Aivazian et al. (2003b, p.107)84.

A) One Share-One Vote: equals one if the ordinary shares carry one vote per share, and zero otherwise.
B) Proxy By Mail Allowed: equals one if the company law allows shareholders to mail their proxy vote to the firm, and zero otherwise.
C) Shares Not Blocked before the Meeting: equals one if shareholders are not required to deposit their shares prior to a general shareholders meeting, and zero otherwise.
D) Pre-emptive Rights: equals one if shareholders have priority to buy new issues of stock, and this right can be waived only by a shareholders’ vote; equals zero otherwise.
E) Mandatory Dividends: equals the percentage of net income that the company law requires firms to distribute as dividends among ordinary shareholders.
F) Efficiency of Judicial System: Scale from 0 to 10, with lower scores, lower efficiency levels.
G) Rule of Law: Scale from 0 to 10, with lower scores for less tradition for law and order.
H) Corruption: Scale from 0 to 10, with lower scores for higher levels of corruption.
I) Risk of Expropriation: the risk of “outright confiscation” or “forced nationalization”. Scale from 0 to 10, with lower scores for higher risks.
J) Rating on Accounting Standards: A = adequate.

83 In La Porta et al.’s (1998) study, there are more measures not shown here.
84 The accounting standard measure denoted by “na” in La porta et al.’s study.
The study (Table 3-11) shows that shareholder protection in Jordan varies among the measures used. In some cases Jordan is ranked as protective while in others it is not. For example, company law in Jordan imposes a one-share-one-vote rule. The law does not require shareholders to submit their shares before a shareholders’ meeting (similar to common-law countries such as Australia, Canada, and the US). However, the law does not allow shareholders to vote by mail, does not give shareholders pre-emptive rights to new share issues, and shareholders are not protected from expropriation by directors (not reported in the table). Finally, Jordanian company law does not mandate companies to pay out a certain portion of their income as dividends. It is worth noting that in LLSV (1998) all measures employed to assess creditor rights were denoted by “n/a” in the case of Jordan.

In relation to the quality of law enforcement, Jordan scores high (8.66) in the efficiency of the judicial system, while other measures appeared to be moderate. In comparison with the internationally accepted quality of accounting standards Jordan rated adequate (see Booth et al., 2001 and Aivazian et al., 2003b).

In summary, the evidence shows that corporate governance in Jordan is generally adequate. By and large, the law provides satisfactory levels of protection for outside investors. The implication of the quality of corporate governance on dividend policy can be seen through the efficiency of the legal system in providing minority shareholders with the power to extract dividends from companies, i.e. through voting rights and other means of protection to protect minority shareholders’ wealth from being expropriated.

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85 According to La Porta et al. (1998), this measure (mandatory dividend right) may play a substitute role for the weakness of other legal protection for shareholders.
Thus, dividends could be explained partly as an outcome of investors’ legal protection (see LLSV, 2000a). However, LLSV (2000a) provide an alternative explanation of paying dividends (another agency model of dividends) in which companies pay dividends as a substitute for legal protection, i.e. to establish a good reputation. The problem here is that with high levels of insider ownership, and high levels of retained earnings, it may not be necessary for firms to use dividend policy to establish this reputational effect, and minority shareholders may just be too weak to matter or have much influence.

3.5 Finance and Credit in the Jordanian Capital Market

In bank-based financial systems such as Jordan, banks and financial intermediaries usually play a major role in the national economy. For example in bank-based systems, financial institutions tend to play key roles “in mobilising savings, allocating capital, overseeing the investment decisions of corporate managers, and in providing risk management vehicles” (Demirguc-Kunt and Levine, 1999, p.2). The remainder of this section outlines the key features of the banking system in Jordan.

3.5.1. The Banking System in Jordan

The Central Bank of Jordan (CBJ) is the dominant financial institution in Jordan’s banking system. Established in 1964 it enjoys an independent corporate body. The CBJ represents the monetary authority in Jordan and acts as the fiscal agent for the

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86 On the assumption that occasionally companies need to visit the financial market to obtain funds. According to LLSV this explanation will be especially relevant in countries where minority shareholders have weak legal protection.
government. It exercises strict controls on banks to ensure a safe and sound banking system. By the end of 2002, the average risk-weighted capital adequacy rate stood at 17.5 percent, and net nonperforming loans was 13.1 percent of total loans (Crenae et al., 2003).

The banking sector in Jordan is privately owned, well developed, efficient, and profitable. Jordanian banks implement modern banking techniques and use automated systems in their operations including automated cheque clearing, electronic data-transmission networks, phone banking and e-banking services. Jordanian Banks can also deal in buying, selling and maintaining accounts in foreign currencies under the supervision of the CBJ (Crenae et al., 2003).

There are twenty-one banks operating in Jordan, nine of which are domestic commercial banks, five investment, two Islamic, and five foreign banks. There are also five specialized credit institutions for agricultural, industrial, rural and urban development, and housing. The Jordanian banks have a large network of branches with about 471 branches serving most parts of the country (each branch serves about 10,000 people). There are also 139 branches operating abroad, 52 of which are in the Palestinian territories (CBJ, 2001).

The total assets of the Jordanian licensed banks have grown very quickly in the last two decades. In 2002 the total assets/liabilities amounted to JD 15.1 billion (227.3 percent of GDP) compared to JD 1.1 billion in 1980. However, the Jordanian banking system is

87 The foreign banks include Egyptian Arab Land Bank, Rafidain Bank, HSBC Bank Middle East, Standard Chartered Grindlays Bank, and Citibank NA.
highly concentrated in terms of total assets. The largest three banks account for 90 percent of total assets (Creane et al., 2003).

### 3.5.2. Credit Facilities

Jordanian Banks are actively engaged in project financing and extending lines of credit to projects in various sectors of the economy. The total of credit facilities granted to various economic activities have grown rapidly over time. For instance, over a five-year period (1990 to 1995) credit advances doubled. In 2003 total credit reached JD 5262.4 million compared to JD 4546.5 million in 2000, a 16 percent increase (Table 3-12).

| Table 3-12 Licensed Banks’ Credit Facilities According to Type and Maturity | (JD Million) |
| --- | --- | --- | --- | --- |
| **Total Credit** | 1863.5 | 3705.7 | 4546.5 | 5262.4 |
| **Overdrafts** | 632.7 | 1215.3 | 1419.8 | 1304.7 |
| **Loans and Advances** | 962.8 | 2063.5 | 2711.4 | 3620.5 |
| Due within Less than (12) Months | 232.3 | 1014 | 1191.9 | 1301.2 |
| Recommendation of total Loan and Advances | 24.1% | 49.1% | 44.0% | 35.9% |
| More than (12) Months | 627.6 | 870.1 | 1098.9 | 1638.4 |
| Percentage of total loans and Advances | 65.1% | 42.2% | 40.5% | 45.3% |
| Receivable | 30.6 | 92.7 | 68.5 | 119.6 |
| Accrued | 72.3 | 86.7 | 352.1 | 561.3 |
| Discounted Bills and Bonds | 268.1 | 426.9 | 415.3 | 337.2 |
| Due within Less than (12) Months | 144.2 | 293.4 | 262.1 | 199.9 |
| More than (12) Months | 30.9 | 53.6 | 57.8 | 18.7 |
| Receivable | 12.9 | 27.2 | 8.6 | 21.8 |
| Accrued | 80.1 | 52.7 | 86.8 | 96.8 |
| **Ratio to Total Credit (%)** | | | | |
| Overdraft | 34.0 | 32.8 | 31.2 | 24.8 |
| Loans and Advances | 51.7 | 55.7 | 59.6 | 68.8 |
| Discounted Bills and Bonds | 14.3 | 11.5 | 9.2 | 6.4 |

Source: Central Bank of Jordan.
It is important to note that credit facilities in Jordan are mostly short term and are also directed mainly to firms in the services sector. According to Creane et al. (2003) “Banks (in Jordan) seek to match maturities by lending short term, with only a few corporate loans stretching beyond three years”. In 2003, short-term credit (including overdrafts) accounted for about 50 percent of total credit facilities.

This highly unusual feature of a bank-based system will be discussed in coming chapters. But a couple of points seem worth noting here. A large proportion of credit in short-term forms suggests that banks play an important role in monitoring firms’ activities, and the relative shortage of long-term finance will encourage firms to rely more heavily on internal financing. Moreover, when short-term financing is predominating in a firm’s capital structure this will subject the firm to more financial constraints because short-term financing needs to be repaid or renewed on a regular basis. This will have obvious implications for dividend policy. Table 3-13 shows the sectorial distribution of credit facilities.

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>2.0</td>
<td>2.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Mining</td>
<td>1.4</td>
<td>2.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Industry</td>
<td>13.4</td>
<td>15.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Construction</td>
<td>20.4</td>
<td>16.4</td>
<td>14.5</td>
</tr>
<tr>
<td>General Trade</td>
<td>26.3</td>
<td>24.0</td>
<td>24.4</td>
</tr>
<tr>
<td>Tourism and Transportation</td>
<td>6.5</td>
<td>6.4</td>
<td>6.6</td>
</tr>
<tr>
<td>Public and Financial Services</td>
<td>9.7</td>
<td>8.6</td>
<td>9.5</td>
</tr>
<tr>
<td>Buying Shares and Other</td>
<td>20.3</td>
<td>24.1</td>
<td>25.3</td>
</tr>
</tbody>
</table>

Source: Central Bank of Jordan.
Table 3-13 reveals that only a small proportion of credit facilities are extended to primary commodity-producing sectors. The agriculture and mining sectors’ share of total credit does not exceed 5 percent. In 2002, the industrial and construction sectors’ share of total credit amounted to 15.4 percent and 14.5 percent respectively. On the other hand, commercial (general trade) and “buying shares and other” (includes consumption loans) sectors amounted to about 50 percent of total credit facilities. In short, about two-thirds of lending activity is directed to commercial and other services sectors, which indicates that Jordanian banks are following (or prefer) a short-term credit strategy.

An empirical study conducted by Omet and Mashharawe (2003) confirmed that Jordanian companies have very low ratios of long-term debt in their capital structure. Omet and Mashharawe examined the determinants of capital structure for a number of Arab countries including Jordan, and reported that the mean value of long-term debt to total liabilities of 51 non-financial Jordanian companies for the period 1996-2001 is only 5.4 percent. However, the authors did not provide an explanation for the extremely low leverage ratio. Booth et al. (2001) examined the capital structures in ten developing countries. They observed that long-term debt ratios of these countries are considerably lower compared with developed countries. In relation to Jordan, Booth et al. show that, for a sample of 38 firms, the total debt ratio was 47.0 percent and 44.7 percent, respectively, for the periods 1983-1990 and 1985-1987. The ratio of long-term debt to net worth (shareholders’ equity), however, is 11.5 and 10.9 percent for the same periods.

88 The countries included in Booth et al.’s study are: Brazil, India, Jordan, Korea, Malaysia, Mexico, Pakistan, Thailand, Turkey, and Zimbabwe.
The above discussion of lending activities of Jordanian banks may provide a partial explanation for the low leverage ratios of Jordanian companies. Possibly, this is because Jordanian companies have very high business risk due to the political and economic environment in the region\textsuperscript{89}, and that the Jordanian domestic market is relatively small. Moreover, the relatively high interest rates on credit facilities granted by the Jordanian banks may deter Jordanian companies from obtaining debt financing (see Table 3-14). An important implication for this is that in the face of a short-term bias in credit by banks, and with relatively costly access to that credit, Jordanian companies will be encouraged to rely more heavily on shareholders’ capital and retained earnings in particular to finance their business activities.

<table>
<thead>
<tr>
<th>Table 3-14 Weighted Average Interest Rates on Credit Facilities, 1995-2003 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Loans and advances</td>
</tr>
<tr>
<td>Discount bills &amp; bonds</td>
</tr>
</tbody>
</table>

Source: Central Bank of Jordan.

3.6 Dividends and Dividend Policy in Jordan

Cash dividends in Jordan have increased considerably over time, but from a low base. For example, in 1978 Jordanian public shareholding companies distributed JD 10.7 million compared to JD 102.7 million in 1998 (an 860 percent increase) and JD 180.5 million in 2002 (a 1587 percent increase), shown in Table 3-15. However, when judged by the ratio of cash dividends to market capitalisation, Jordanian companies, to some

\textsuperscript{89} A large proportion of Jordanian exports go to Arab markets, and these markets are subject to great instability due to the political environment.
extent, seem to follow stable dividend policies\textsuperscript{90}. The ratio of cash dividends to MCAP ranged between 2.1 percent (in 1992) and 3.6 percent (in 1982). Moreover, the ratios of cash dividends to MCAP revealed that Jordanian companies pay low cash dividends in relation to market capitalisation. Figure 3-7 below illustrates cash dividends and the ratio of dividends to MCAP for the period 1978-2002.

\textbf{Figure 3-7 Cash Dividends and the Ratio of Dividends to MCAP (1978-2002)}

![Figure 3-7 Cash Dividends and the Ratio of Dividends to MCAP (1978-2002)](image)

Source: Amman Stock Exchange

Table 3-15 presents the aggregate data of dividend yield ratios and cash dividends paid by Jordanian companies since the establishment of the ASE. The table also shows cash dividends as a fraction of total market capitalisation and dividend per share\textsuperscript{91}.

\textsuperscript{90} Omet and Abu-Ruman (2003) empirically examined a sample of companies listed on the ASE over a 15 year period (1986-2000) and found that Jordanian companies follow stable dividend policies. Similarly, Aivazian, Booth, and Cleary (2003b) observed that most Jordanian companies do not change their dividend payouts.

\textsuperscript{91} The criterion used by the ASE to calculate the dividend yield ratio is the ratio of cash dividends to market capitalisation. However, from the available data, the figures of dividend yield ratio (as shown in Table 3-15) are different from our own calculated figures of cash dividends to MCAP ratio.
Table 3-15 Dividend Yield and Cash Dividends in Jordan (1978-2003)

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividend Yield Ratio (%)</th>
<th>Cash Dividends (JD Million)</th>
<th>Cash Dividends as % of MCAP (%)</th>
<th>Cash Dividends Per Share (JD)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>3.73</td>
<td>10.66</td>
<td>2.36</td>
<td>0.13</td>
</tr>
<tr>
<td>1979</td>
<td>3.26</td>
<td>14.74</td>
<td>2.98</td>
<td>0.12</td>
</tr>
<tr>
<td>1980</td>
<td>3.71</td>
<td>18.38</td>
<td>2.20</td>
<td>0.15</td>
</tr>
<tr>
<td>1981</td>
<td>2.71</td>
<td>22.62</td>
<td>2.19</td>
<td>0.15</td>
</tr>
<tr>
<td>1982</td>
<td>2.83</td>
<td>29.25</td>
<td>2.78</td>
<td>0.11</td>
</tr>
<tr>
<td>1983</td>
<td>2.60</td>
<td>27.34</td>
<td>3.00</td>
<td>0.06</td>
</tr>
<tr>
<td>1984</td>
<td>3.65</td>
<td>33.31</td>
<td>3.59</td>
<td>0.08</td>
</tr>
<tr>
<td>1985</td>
<td>3.40</td>
<td>31.48</td>
<td>3.53</td>
<td>0.09</td>
</tr>
<tr>
<td>1986</td>
<td>3.08</td>
<td>27.47</td>
<td>2.96</td>
<td>0.08</td>
</tr>
<tr>
<td>1987</td>
<td>3.46</td>
<td>32.20</td>
<td>2.91</td>
<td>0.09</td>
</tr>
<tr>
<td>1988</td>
<td>3.26</td>
<td>36.01</td>
<td>2.57</td>
<td>0.09</td>
</tr>
<tr>
<td>1989</td>
<td>3.11</td>
<td>43.54</td>
<td>3.37</td>
<td>0.11</td>
</tr>
<tr>
<td>1990</td>
<td>4.46</td>
<td>57.62</td>
<td>3.38</td>
<td>0.14</td>
</tr>
<tr>
<td>1991</td>
<td>3.81</td>
<td>65.05</td>
<td>2.83</td>
<td>0.15</td>
</tr>
<tr>
<td>1992</td>
<td>3.16</td>
<td>72.47</td>
<td>2.09</td>
<td>0.18</td>
</tr>
<tr>
<td>1993</td>
<td>2.25</td>
<td>77.80</td>
<td>2.28</td>
<td>0.15</td>
</tr>
<tr>
<td>1994</td>
<td>2.18</td>
<td>74.34</td>
<td>2.13</td>
<td>0.11</td>
</tr>
<tr>
<td>1995</td>
<td>2.25</td>
<td>78.61</td>
<td>2.27</td>
<td>0.09</td>
</tr>
<tr>
<td>1996</td>
<td>2.27</td>
<td>82.90</td>
<td>2.15</td>
<td>0.09</td>
</tr>
<tr>
<td>1997</td>
<td>2.31</td>
<td>88.94</td>
<td>2.14</td>
<td>0.08</td>
</tr>
<tr>
<td>1998</td>
<td>2.37</td>
<td>102.72</td>
<td>2.48</td>
<td>0.08</td>
</tr>
<tr>
<td>1999</td>
<td>2.88</td>
<td>109.99</td>
<td>3.13</td>
<td>0.08</td>
</tr>
<tr>
<td>2000</td>
<td>3.64</td>
<td>113.89</td>
<td>2.54</td>
<td>0.07</td>
</tr>
<tr>
<td>2001</td>
<td>2.70</td>
<td>136.94</td>
<td>2.72</td>
<td>0.08</td>
</tr>
<tr>
<td>2002</td>
<td>3.21</td>
<td>180.54</td>
<td>2.32</td>
<td>0.09</td>
</tr>
<tr>
<td>2003</td>
<td>2.36</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

* Cash Dividends / Number of Subscribed Shares.
Source: Amman Stock Exchange and Author’s calculations based on data taken from ASE.

Table 3-15 shows cash dividend per share (the ratio of cash dividend to the number of subscribed shares) for the entire market. The ratio ranged between JD 0.06 and JD 0.18. Note that in the last eight years (1995-2002) the ratio remained fairly stable, which indicates that Jordanian firms do not change their dividend policy rapidly over a short period of time. This aspect will be discussed in more detail in Chapters 4 and 5.
Dividend yields in Jordan are generally low compared to other emerging markets. Table 3-16 below reports the dividend yields for 16 emerging markets including Jordan. For instance, in 2001 the dividend yield in Jordan amounted to 2.8 percent, which is significantly lower than most of the other emerging markets reported in the Table.

Table 3-16. Dividend Yield for Selected Emerging Markets, 1998-2001 (%)

<table>
<thead>
<tr>
<th>Stock Market</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>Standard Deviation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>4.0</td>
<td>3.2</td>
<td>3.5</td>
<td>7.8</td>
<td>2.14</td>
</tr>
<tr>
<td>Bahrain</td>
<td>N.A.</td>
<td>N.A.</td>
<td>7.0</td>
<td>7.2</td>
<td>0.14</td>
</tr>
<tr>
<td>Brazil</td>
<td>7.8</td>
<td>3.2</td>
<td>3.7</td>
<td>6.6</td>
<td>2.23</td>
</tr>
<tr>
<td>Croatia</td>
<td>2.8</td>
<td>2.0</td>
<td>1.8</td>
<td>6.7</td>
<td>2.29</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>3.2</td>
<td>1.7</td>
<td>1.7</td>
<td>10.5</td>
<td>4.21</td>
</tr>
<tr>
<td>Egypt</td>
<td>7.4</td>
<td>3.7</td>
<td>5.3</td>
<td>7.7</td>
<td>1.88</td>
</tr>
<tr>
<td>Ghana</td>
<td>9.6</td>
<td>6.2</td>
<td>2.7</td>
<td>8.3</td>
<td>3.01</td>
</tr>
<tr>
<td>India</td>
<td>1.9</td>
<td>1.2</td>
<td>1.5</td>
<td>2.4</td>
<td>0.52</td>
</tr>
<tr>
<td>Jordan</td>
<td>1.8</td>
<td>2.7</td>
<td>3.4</td>
<td>2.8</td>
<td>0.66</td>
</tr>
<tr>
<td>Kenya</td>
<td>6.0</td>
<td>7.2</td>
<td>9.6</td>
<td>26.3</td>
<td>9.47</td>
</tr>
<tr>
<td>Korea</td>
<td>0.9</td>
<td>0.6</td>
<td>2.1</td>
<td>1.8</td>
<td>0.71</td>
</tr>
<tr>
<td>Morocco</td>
<td>1.8</td>
<td>2.2</td>
<td>3.2</td>
<td>4.5</td>
<td>1.20</td>
</tr>
<tr>
<td>Oman</td>
<td>N.A.</td>
<td>N.A.</td>
<td>7.5</td>
<td>9.2</td>
<td>1.20</td>
</tr>
<tr>
<td>Pakistan</td>
<td>13.0</td>
<td>5.7</td>
<td>6.2</td>
<td>12.5</td>
<td>3.94</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>8.6</td>
<td>3.5</td>
<td>3.2</td>
<td>3.9</td>
<td>2.55</td>
</tr>
<tr>
<td>Tunisia</td>
<td>4.7</td>
<td>3.2</td>
<td>2.8</td>
<td>5.2</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s, 2002, and* Author’s calculation.

Table 3-16 also indicates that the fluctuation of dividend yields (measured by the standard deviation) in Jordan is relatively small compared to its emerging counterparts. That is, comparatively, Jordanian companies follow relatively stable dividend policies, which is consistent with the signalling and agency cost hypotheses of dividends. However, it is inconsistent with the prediction that in countries where bank-based financial systems dominate (like Jordan), dividends play a less significant role as a signalling or agency reduction mechanism (see Aivazian et al., 2003b).

92 The signalling hypothesis predicts that firms are reluctant to cut dividends (see, for example, Lintner, 1956).
3.7 Summary

This chapter has highlighted the main features of the Jordanian economy and its capital market. It has outlined structural features of the economy, and the financial system in particular, that may influence key decisions by firms. This summary is intended to draw out some of those key structural and characteristics of the capital market in Jordan, which will be used to inform the econometric testing of the various hypotheses in the following chapters.

The Jordanian economy is characterised by a number of particular features, including a small open economy, but with scarcity of natural resources, and vulnerability to exogenous shocks in the region. Many of these factors have affected the growth of the economy and the performance of public shareholding companies. Although Jordan is a developing country, it is relatively financially developed. The banking system in Jordan is well developed, efficient, and profitable. Jordanian banks have a wide network of branches covering most of the country. The financial system in Jordan is classified as bank-based, which suggests that banks play an important role in the economy. However, credit is relatively expensive, and the lending policies of Jordanian banks are mostly short-term and directed toward the service sectors. These factors may have implications on firms financing decisions, which will be explored in coming chapters.

The Jordanian financial market is relatively small (measured by MCAP), but when judged by its share of GDP, the market seems to play a significant role in the national economy. By regional standards, the ASE is considered as a developed and active market. Similar to other financial markets, the ASE has Primary and Secondary markets.
The Primary Market in which new issues (shares and bonds) take place is relatively small and inactive market when judged by its share of MCAP and GDP (see Section 0). The Secondary Market, where issued shares are traded, is classified into three markets, First, Second, and Third Markets. The most liquid securities are traded in the First Market, while the less liquid shares are traded in the Second Market, and unlisted securities are traded on the Third Market. The Bonds Market in Jordan is still underdeveloped, with slow and low trading activity. Therefore, one can expect that Jordanian companies will tend to rely more on short-term bank debt and retained earnings in financing their business activities. This shortage of new capital on the stock market, along with the structure and cost of bank credit may also have an important impact on dividend policy (i.e. pay less dividends), which we explore in coming chapters.

As we noted earlier, the Jordanian financial system has been classified as a bank-based financially developed system. The corporate governance system in Jordan is considered quite adequate (although it is governed by civil-law). These two features are more usually associated with developed countries. However, if we look at ownership concentration, we find the ASE to be a highly concentrated market in terms of market capitalisation and trading volume, features more usually related to developing countries with poor corporate governance.

In bank-centred capital markets (like Jordan), where banks are more informed and can exercise more monitoring power on firms than arm’s-length creditors such as bondholders, agency and information asymmetry problems will tend to be less severe. In
addition, since banks, usually, make their lending decisions on the basis of a firm’s creditworthiness, bank credit may convey information (signalling) to the market about the firm’s prospects\(^9\) Similarly, if ownership concentration is high (or a large number of firms are closely held), agency costs are mitigated because insiders help to monitor managers. Therefore, in a market characterised by bank-centric and high concentration of ownership, using dividends as a mechanism to reduce agency costs or as a signalling device might be less important and more costly than other devices. This may explain the observed low dividend yield ratios in the case of Jordan. However, we have noticed that, to some extent, Jordanian companies seem to follow a stable dividend policy, which is consistent with the signalling and agency hypotheses. These peculiarities in the Jordanian context give us more justification to conduct this research.

This chapter has served at least two important purposes for this thesis. It has built on the literature review, which established that contending and unresolved theories exist which attempt to explain the determinants of dividend policy. This chapter therefore provided an overview of several important features of the economy and capital market that have been implicated in that debate about dividend policy determination.

The next chapter introduces the methodology necessary for conducting the empirical testing of the determinants of dividend policy in Jordan. In motivating the methodology and proxies used in the testing, we will have cause to return to aspects of both this chapter and the literature review. This chapter has also therefore provided prima facie

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\(^9\) Rajan (1992) showed that banks are more informed than arm’s-length lenders and can control a firm’s investment decisions through debt contract. Other empirical research provided evidence that bank credit may serve as a signalling device (see among others, James, 1987, Lummer and McConnell, 1989, Best and Zhang, 1993, and Andre, Mathieu, and Zhang, 2001).
evidence that will be used to introduce the expected sign and strength of the variables selected, and therefore is also important to the analysis of the results that follow in Chapter 5.
4. Chapter 4: Data Description, Research Methods and Models

Equation Section 4

4.1 Introduction

The previous three chapters established the research objectives and the theoretical framework on dividend policy, as well as the key characteristic of the Jordanian capital market. Building on that work, this chapter will specify testable research hypotheses and questions, which in turn will be used in attempting to identify the determinants of corporate dividend behaviour for the case of Jordan.

To recapitulate briefly, Chapter 2 established the development of the theoretical analysis of dividend policy as well as the unresolved theoretical debates in the area. Following Miller and Modigliani’s (1961) pioneering dividend irrelevance hypothesis, financial economists have advanced a number of contradicting theories in an attempt to explain why corporate dividend policy does seem to matter in practice. Some theories have developed around the proposition that dividend policy is relevant due to the existence of (differential) taxes (see, for example, Litzenberger and Ramaswamy, 1979, Poterba and Summers, 1984, and Barclay, 1987). Others argue that clientele effects matter in dividend policy (see, for example, Pettit, 1977, Scholz, 1992, Allen et al., 2000, and Seida, 2002). Another dividend policy hypothesis suggests that dividend policy is affected by other market imperfections such as information asymmetries and agency costs. The former, known as signalling theory, predicts that firms can convey information to the market by paying dividends (see, for example, Bhattacharya, 1979, Aharony and Swary, 1980, Asquith and Mullins, 1983,
Miller and Rock, 1985, Amihud and Murgia, 1997, and Bali, 2003). The latter, known as agency theory, argues that dividends can reduce the costs of shareholder-manager (or controlling-minority shareholder) conflict (see, for example, Rozeff, 1982, Easterbrook, 1984, Jensen, 1986, Alli et al., 1993, and Manos, 2002). Debate between these theoretical models remains unresolved. An important observation to emerge from this literature, however, is that once dividend policy is not irrelevant, there are many possible factors that may act as a determinant of dividend policy. Importantly also, the literature has concentrated mostly on dividend policy in developed capital markets. Both the unresolved nature of the theoretical debate, and relative neglect of dividend policy in developing capital markets motivated a consideration of the potential factors that may affect dividend policy in the case of Jordan.

Chapter 3 established a number of characteristics of the Jordanian capital market that were set against existing theories of dividend policy. To recapitulate briefly, the Jordanian capital market is relatively small as measured by market capitalisation, but when judged by its size relative to the GDP, the market seems to play a significant role in the national economy. The capital market in Jordan is characterised by a relatively small inactive primary market and an underdeveloped bond market. By regional standards, the ASE is considered a developed and active market. Jordan has been characterised as a bank-based system, meaning that little capital is raised on either the stock or bond markets. However, Jordan is not an ideal type bank based system, bank credit is mostly short-term in nature, and non-financial firms have quite low leverage ratios. The principal source of new finance for these firms is retained earnings.
The previous chapter also showed that Jordan possesses some features that are more related to developed countries such as adequate corporate governance and a developed bank-based financial system. However, Jordan also has features more related to developing countries with poor corporate governance, such as that the ASE is highly concentrated in terms of market capitalisation and trading volume. Although high ownership concentration might reduce agency costs and information asymmetries it may lead to conflicts between large and controlling owners and small minority shareholders. These characteristics have several implications for corporate dividend policy in Jordan, and will be used in explaining our results.

Chapter 2 established that there are a limited number of studies on dividend policy that have been carried out in the Jordanian context. Those that exist have produced mixed results, and suffer from sample selection bias problems resulting from the exclusion of many firms who do not choose to pay dividends. To the best of the author’s knowledge, the present study is the first to analyse the determinants of corporate dividend policy in Jordan incorporating all companies listed on the ASE. Moreover, this chapter develops a more comprehensive range of testable research hypotheses and employs more coherent methodology.

The remainder of the chapter is structured as follows. The next section describes the sample data used in this study, and how this data was compiled and organised. It is followed by the research hypotheses and questions, drawing on the earlier analysis of the theoretical literature, but also through a discussion of existing empirical testing. The
research methodology will then be presented, including a justification of the empirical models used.

4.2 Data Description

4.2.1. Source of Data and Sample Period

The data employed is derived from the annual report publications of public shareholding companies held by the Amman Stock Exchange (ASE). The ASE data consist of balance sheets, income statements, financial ratios, and other relevant information for all publicly quoted companies. The data is available on compact disks (CD) from the year 1989 onward, and these CDs contain different Guides. Each Guide includes data for all listed companies divided among four economic sectors: industrial, services, insurance, and banking. The financial data used in this study has been constructed mainly from three Guides, 1994, 1997 and 2001. These three Guides have presented the data on the same basis for the period from 1989 to 2000. However, the new issue, for example, Guide 2003 uses a different reporting system. For this reason, we chose the period from 1989 to 2000, that is 12 years of consistent data. This is adequate for conducting this type of dividend study. The analysis is based on annual data, because the data set is annual\(^\text{94}\).

4.2.2. Panel Database Construction

From the available financial data, the database was constructed including all financial figures for all companies. The sample consists of 160 companies of which 75 are industrial

\(^{94}\) A number of dividend studies have used annual data (see, for example, Lintner, 1956, Fama and Babiak, 1968, Kim and Maddala, 1992, DeAngelo et al. 1992, Bradley, Capozza and Seguin 1998, Ho 2003, and Aivazian, Booth and Cleary, 2004).
companies, 43 service companies, 26 insurance companies, and 16 banks. These companies ranged from old to newly established ones, and some companies were de-listed during the study period. Therefore, the number of observations for each company is different. In order to gain the maximum possible observations, pooled cross-section and time-series data is used. Because the number of observations for each company is not identical, this results in an unbalanced panel. The initial sample begins with 1920 firm-year observations (160 firms multiplied by the 12-year period). However, the total number of firm-year observations is different for some variables due to missing observations. For example, 1511 firm-year observations are obtained for cash dividends and net income after taxes, 1415 observations for market capitalisation, and 1382 observations for market-to-book value ratio.

The problem of missing data increases when we constructed variables related to ownership structure, especially in terms of the number of shareholders in each company and the percentage held by insiders (directors and managers). The data for these two variables were available only from 1994 onward (except 1998), and we had to refer to other Guides (1995, 1996, 1999 and 2000) to obtain such information. The total number of observations for the proportion of insider ownership and the number of common shareholders is 936 and 886 observations respectively. Note that the variable percentage held by insiders has more observations. That is because, for a given firm, if the figures of percentage held by insiders in years 1997 and 1999 are the same it is assumed that the figure corresponding to year 1998 is the same. Similarly, and following La Porta et al. (1999), and Gugler and

95 Appendix A provides a list of the companies used in this study.
Yurtoglu (2003) this approach is adopted in constructing other relevant variables of ownership structures 96.

Jordanian companies have several types of owners in their ownership structure (for example, family, state, and institutions). The 10-percent threshold level of ownership is used to identify the ultimate owner of each company. For example, if an individual (institution) owns 10 percent or more of a company’s shares, that company is considered as family-owned (institutional-owned). The 10-percent threshold is the criterion used by the ASE throughout the study period.

The present study includes both dividend-paying as well as non-dividend-paying firms. The exclusion of non-dividend-paying firms results in a well-known selection bias problem. As Deshmukh (2003, p.253), for instance, observed “If firms find it optimal to not pay dividends, then their exclusion from any empirical analysis may create a selection bias in the sample, resulting in biased and inconsistent estimates of the underlying parameters” (see also Anderson, 1986, and Kim and Maddala, 1992). In the study sample, there are only 13 companies that paid dividends throughout the study period (12-years). Therefore, including all companies in the analysis should give the results more robustness.

4.2.3. Cash Dividends Versus Share Repurchase and Stock Dividends

The focus of this study is on payout only in the form of cash dividends rather than share repurchases or stock dividends. The reason for this is because Jordanian companies are not

96 La Porta et al. (1999, p.475) point out that, “Since ownership patterns tend to be relatively stable, the fact that the ownership data do not all come from the same year is not a big problem”.

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allowed to repurchase their shares, and stock dividends are not commonly used. In relation to stock dividends, Jordanian companies started distributing stock dividends from 1997. Over the 6-year period from 1997 to 2002 there are only 3 to 6 percent of total listed companies who distribute stock dividends. Therefore, in this study the term dividends will be only refer to cash dividends.

4.2.4. Summary Statistics: Measures of Dividend Policy

This section provides summary statistics for three measures of dividend policy, namely cash dividends, the dividend payout ratio, and dividend yield. The cash dividend represents the amount of annual cash distributed to shareholders as Jordanian companies pay dividends on an annual basis. The dividend payout ratio is the ratio of dividend per share to earnings per share. The dividend yield is dividend per share to market value per share. Table 4-1 presents descriptive statistics on dividend policy for the pooled cross-section time-series sample by sector from 1989 to 2000. Note that banks have the highest mean value of cash dividends, while in terms of the payout and dividend yield ratios they come third after insurance and industrial companies respectively. The services companies have the lowest mean payout and dividend yield ratios. The mean payout and dividend yield ratios for the overall sample are 0.3115 and 0.0270, respectively.

97 This information is based on a personal interview by the researcher with officers working at the Department of Issuance and Disclosure, JSC.
Table 4-1: Descriptive Statistics on Dividend Policy By Sector (1989-2000)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Cash Dividends</th>
<th>Payout Ratio</th>
<th>Dividend Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>-Industrial</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>688,355</td>
<td>0.3015</td>
<td>0.0286</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2156353</td>
<td>0.7507</td>
<td>0.03799</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>719</td>
<td>642</td>
<td>629</td>
</tr>
<tr>
<td><strong>-Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>230,922</td>
<td>0.2929</td>
<td>0.0196</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>523638</td>
<td>1.6759</td>
<td>0.0293</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>370</td>
<td>363</td>
<td>290</td>
</tr>
<tr>
<td><strong>-Insurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>123,947</td>
<td>0.3747</td>
<td>0.0380</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>150493</td>
<td>0.6331</td>
<td>0.0358</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>240</td>
<td>363</td>
<td>216</td>
</tr>
<tr>
<td><strong>-Banks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1,950,973</td>
<td>0.2999</td>
<td>0.0203</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4980346</td>
<td>0.3907</td>
<td>0.0230</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>182</td>
<td>175</td>
<td>181</td>
</tr>
<tr>
<td><strong>-All</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>638,777</td>
<td>0.3115</td>
<td>0.0270</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2355069</td>
<td>1.0287</td>
<td>0.0346</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>1511</td>
<td>1420</td>
<td>1316</td>
</tr>
</tbody>
</table>

4.3 Hypotheses Development and Selection of Relevant Proxy Variables

Chapter 2 examined the main theoretical arguments for dividend policy along with the empirical evidence. This in turn is now used as a guide to formulate research hypotheses given the key characteristics of Jordanian capital market presented in Chapter 3. The justifications and selection of the relevant proxy variables will be discussed here, while a detailed description of these variables is presented in Section 4.5

4.3.1. H1: Dividends Serve as a Bonding Mechanism to Reduce Agency Problems

Potential agency problems for companies arise between shareholders (principals/ suppliers of funds) and management (agents) with the separation of ownership and control that
occurs with the development of the joint stock form of organisation (see Jensen and Meckling, 1976). The economic theory of agency conflict argues that both principals and the agents are expected to be utility maximisers, but that there may well be different utility maximisation objectives between owners and managers. “Agency problems arise because, under the behavioral assumption of self interest, agents do not invest their best effort unless such investment is consistent with maximizing their own welfare” (Barena, Haugen and Senbet, 1985, p.26). In addition, managers (agents) may conduct actions that are costly to shareholders, such as consuming excessive perquisites or over-investing in managerially rewarding but unprofitable activities.

The agency hypothesis of dividends posits that dividend payments can be used as a mechanism to alleviate agency problems (see, for example, Rozeff, 1982, Easterbrook, 1984, Jensen et al., 1992, among others). The distribution of cash resources reduces the size of internally generated funds available to managers forcing them into the capital markets more frequently to obtain external financing, thereby subjecting managers to the scrutiny of the capital markets. In order to secure the needed funds, managers will have incentives to both disclose information and reduce agency costs (Easterbrook, 1984, and Moh’d, Perry and Rimbey, 1995). Therefore, dividend payments benefit shareholders by reducing the agency costs associated with monitoring managers in expanding this role to the capital market. Nevertheless, this is not costless to shareholders. There are costs associated with obtaining more external financing such as flotation costs, interests, and bankruptcy costs.

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98 Another potential agency problem may arise between shareholders and bondholders. Chapter 3 established that the Jordanian capital market is characterised by a small and underdeveloped bond market. The issue of agency conflicts between bondholders and stockholders may therefore not be of great significance in Jordan.
The payments of dividends also serve to reduce “free cash flow” from being wasted on unprofitable or negative NPV projects. When a firm has exhausted all profitable growth opportunities, positive NPV projects, the agency problems between shareholders and managers will be more severe since the firm has excessive cash flow (Jensen, 1986). The payment of large dividends to shareholders reduces the discretionary funds available to managers, therefore reducing the potential overinvestment problem and minimising shareholder-manager conflict accordingly. However, Jensen (1986) argued that debt could also serve effectively as a substitute mechanism for dividends in reducing the agency costs of free cash flow. This argument may apply to Jordan since the financial system in Jordan is bank-based and banks play an important role in financing business activities. Chapter 3 provided evidence that a high proportion of Jordanian firms’ capital structure is short-term debt and the dominant type of credit facilities granted by Jordanian banks is short-term in nature. Consequently firms must subject themselves to bank scrutiny more frequently when they approach banks for financing.

Chapter 2 established that a substantial amount of research attention has been directed toward analysing the relationship between dividends and agency costs. However, to the best of the author’s knowledge, there is no single study that has addressed the issue of agency costs and dividend policy in the Jordanian context. This motivates the present study to examine whether agency costs affect the corporate dividend policy of Jordanian firms. Having established in Chapter 3 that the Jordanian capital market is highly concentrated in terms of market capitalisation and trading volume and that Jordan has a bank-based financial system, the agency problems are therefore expected to be less severe.

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For further evidence, see, for example, Agrawal and Jayaraman (1994).
in the case of Jordan. This is because, presumably, concentrated ownership and bank-firm relations will play an important role in monitoring firms. However, the ownership structure of Jordanian companies could have some influence on corporate dividend policy, and so this issue will be discussed separately in the next hypothesis.

The discussion above shows that agency costs may play a significant role in determining firms’ dividend policy. A crucial question is how to obtain a suitable proxy for agency costs. Rozeff (1982) argued that the larger the number of shareholders, the greater the dispersion of ownership, the more difficult and costly is monitoring. That is, agency costs increase with the dispersion of ownership. To control agency costs in firms whose owners are dispersed there will tend to be a greater demand for higher dividend-payout ratios. A widely documented measure of ownership dispersion is the number of common shareholders (see, for instance, Rozeff, 1982, Lloyd, Jahera and Page, 1985, Dempsey and Laber, 1992, Schooley and Barney, 1994, Moh'd et al., 1995, and Deshmukh, 2003). In this study the natural logarithm of number of shareholders (STOCK) is used to measure ownership dispersion and this will then be used as one proxy for agency costs. The hypothesised relation between dividend payouts and the number of shareholders variable is expected to be positive. That is, in order to alleviate the agency costs associated with an increasing number of shareholders firms should pay more dividends, other things being equal.

The second proxy for agency costs is the percentage of a firm’s common stock held by insiders (INSD). This proxy has been widely used in the literature (see, for example, Rozeff, 1982), Lloyd et al., 1985, Dempsey and Laber, 1992, Jensen et al., 1992, Collins et
al., 1996, Holder et al., 1998, and Mollah et al., 2000). It has been argued that agency costs may be reduced if insiders (managers, directors, and other executive officers) increase their ownership in the firm, because this can help to align the interests of both managers and shareholders (Jensen and Meckling, 1976). Therefore, the higher the proportion of managers in firm ownership, the less is the need for using dividends as a device to mitigate agency costs. That is, the role of dividends in reducing agency costs is less important for firms with higher degrees of insider ownership. Hence, the proportion of insider ownership (INSD) is expected to bear a negative relation to dividend payouts. Another explanation for the hypothesised negative relation between payouts and insiders with a large control stake is that insiders may become entrenched, and begin to maximise their own welfare instead of distributing the cash to shareholders (Maury and Pajuste, 2002).

The relationship between insider ownership and dividend payouts may not be monotonic. For example, Schooley and Barney (1994), using US data, show that at high degrees of insider ownership (chief executive officer (CEO)) at which managers become “entrenched” agency costs tend to increase and then dividend yield turns out to be positively related with CEO ownership. Schooley and Barney reported that the minimum dividend yield occurs when CEO ownership is about 14.9 percent. Beyond this level (the point of entrenchment), increases in CEO ownership causes dividend yield to increase.\(^\text{100}\)

Using UK data, Farinha (2003) presented evidence consistent with this prediction.

Before moving to the next hypothesis, it is worth pointing out that in their replication of Rozeff’s (1982) work, Lloyd, Jahera and Page (1985) put forward a question about

\(^{100}\) For further evidence on the entrenchment hypothesis see, for example, McConnell and Servaes (1990), and Dutta, Collins and Wansley (1999).
whether the agency costs variables (number of shareholders and insider holding) used by Rozeff are merely proxies for the firm’s size. They control for size, and in addition to those variables employed by Rozeff (and in this study) they regress the log of the number of shareholders and the percentage of stock held by insiders on sales (proxy for size) and use the residuals in an attempt to segregate agency effects from size influences. Lloyd et al. found support for Rozeff’s model and concluded “…dividend payout is affected by both agency cost effects and size effects” (p.27). The association between size and dividend-payout ratios is found to be positive in other studies (see also Moh’d et al., 1995, and Holder et al., 1998).

4.3.2. \( H_2 \): Ownership and Control Structures Affect Corporate Dividend Policy

Although the relation between dividend payouts and a firm’s ownership structure can be examined within the agency theory framework, in the case of Jordan it is important to address the relationship separately because of the variety of owners of Jordanian firms (for instance, families, institutions, government, and foreign investors). Various types of owners may have different preferences for dividends, for example, due to agency costs or other reasons like taxes. Therefore, different types of controlling owners may have different influences on corporate dividend payouts (Maury and Pajuste, 2002). Furthermore, the corporate governance system in Jordan is characterised by relatively

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101 Lloyd et al. have noted that an alternative measure of size is the firm’s market capitalization.

large shareholders. Majority control grants the largest shareholder considerable power over a firm’s key decisions, such as dividend policy.

Shleifer and Vishny (1997) suggest that the presence of large controlling shareholders seems to be widespread throughout the world. Large shareholdings are “relatively uncommon” in countries like the US and UK, while in other countries like Germany and Japan commercial banks control major companies. In France, cross-ownership investors are common while, in most European countries (e.g. Italy, Finland, and Sweden), Latin American, East Asia, and Africa, firms are family-controlled. In their study of the ownership structure of large corporations in 27 countries, La Porta et al. (1999) reported that, at the 20-percent threshold level of control (10-percent), 36 percent (24 %) of the firms are widely held, 30 percent (35%) are family-controlled, 18 percent (20%) are state-controlled, 5 percent (8%) are controlled by financial companies, 5 percent (4%) are controlled by non-financial corporations, and 5 percent (9%) are miscellaneous.

The theoretical consideration and prior research on ownership structure and dividend policy was discussed at Chapter 3 but deserves further consideration here. A considerable amount of research has examined the influence of ownership and control structures on firms’ financing decisions and performance. A growing number of studies centre on the relationship between ownership structure and dividend policy in developed markets such as the US, UK, Japan, and Germany\textsuperscript{103}. However, little work has been carried out to test this relation in emerging markets, including the Jordanian capital market.

\textsuperscript{103} Short (1994) presented an extensive survey of the relevant literature.
The identity of a firm’s controlling shareholder may influence its key decisions including “payout” policy. In family-controlled firms, shareholder-manager conflict is significantly reduced since the managers and the ultimate owners are usually the same\textsuperscript{104}, and large shareholders (families) have strong incentives and an ability to perform the monitoring role\textsuperscript{105}. As a result, the use of dividends as a tool to reduce agency costs or information asymmetry between managers and owners is less valuable, and accordingly, family-owned and controlled firms are expected to have low dividend payout ratios. Another reason for low payout ratios in family-controlled firms may be due to tax preferences for capital gains over dividends. Dividends are taxed immediately, while capital gains are not taxed until realized. In addition, family members may expropriate other minority shareholders and enjoy private benefits instead of paying the generated cash in the form of dividends.

In addition to family ownership, the government or its agencies also own and control a large number of publicly traded firms in many countries around the world\textsuperscript{106}. Having the government (or its agencies) as a firm’s largest shareholder may influence its dividend policy. In state-controlled firms, the government acts on behalf of the citizens (the ultimate owners) who are not directly in control. Therefore, in such firms, “a double principal-agent [conflict] even exists” (Gugler, 2003, p.1301). That is, on the one hand agency problems may arise between citizens and government representatives, as they might not work for the citizens’ best interests, and on the other hand between state-owner and other managers. The payment of dividends may reduce the cash flow available to managers, and hence help to alleviate agency problems. Moreover, due to the tax advantages that governmental

\footnotesize{\textsuperscript{104} According to La Porta et al. (1999, p.500) “For the universe as a whole,…, (at least) 69 percent of the time, families that control firms also participate in management”.}  
\footnotesize{\textsuperscript{105} However, in such firms a potential agency problem may arise between non-family shareholders and controlling family shareholders.}  
\footnotesize{\textsuperscript{106} Evidence is derived from La Porta et al.’s (1999) study.}
entities may obtain, such as tax exemptions, they may prefer to invest in firms that pay large and steady dividends. Therefore, other things being equal, state-controlled firms are expected to pay more dividends.

Although the direct state ownership in Jordan is relatively small, there are considerable amounts of indirect state ownership through some government agencies, mainly the Jordan Investment Corporation and the Social Security Corporation (see Chapter 3), at least for the period covered in this study (1989-2000). This directs the author’s attention to the question about whether and how that state ownership might influence corporate dividend policy in Jordan.

As far as ownership structure of the firm is concerned, institutional investors can play a significant role in monitoring corporate managers\textsuperscript{107}, therefore reducing agency costs. The economies of scale of large shareholders (such as institutions) enable them to perform the monitoring role more effectively and at relatively low cost. Moreover, institutional investors are in a better position, compared to small investors, to takeover inefficient firms, which may oblige managers to be more efficient. Shleifer and Vishny (1986) argue that small shareholders favour high dividend payments to attract and compensate large shareholders in order to perform the role of monitoring the management. However, as suggested by Short et al. (2002, p.108), “the arm’s length view of investment held by many institutional investors, coupled with the incentives to free ride with respect to monitoring activities, suggests that institutional shareholders are unlikely to provide direct monitoring themselves”. Recent research documented that corporate or institutional

\textsuperscript{107} See, for example, McConnell and Servaes (1990) and Crutchley, Jensen, Jahera and Raymond (1999).
investors tend to be attracted to high-dividend stocks (see for example Han et al., 1999, Dhaliwal et al., 1999, Allen et al., 2000, and Short et al., 2002). Redding (1997) argued that, institutional investors are more likely to invest in dividend-paying stocks for tax and fiduciary reasons. Thus, a positive relationship between institutional ownership and dividend payouts is hypothesised.

However, depending on the type of institutional investor (for instance, financial or non-financial institution), this prediction may be ambiguous. For example, bank-controlled firms may have low dividend payouts because banks seek greater security for their debt (Amihud and Murgia, 1997). Alternatively, for cash needs or asset-liability management considerations some corporations (non-financial) may prefer regular and high dividend payouts (see Trojanowski, 2004).

Chapter 3 showed that, there is a considerable presence of foreign owners in Jordan. For example, between 1996 and 2000 foreign owners represented on average about 40 percent of the ASE market capitalisation. Foreign investors can take many forms such as individuals, institutions or governmental agencies; therefore the influence on firms’ dividend policy is unclear. However, Dahlquist and Robertson (2001) document that foreign investors seem to prefer firms with greater potential growth, that is, having low payout ratios. The inverse relationship between a firm’s growth opportunities and its payout ratios is well documented (see, among many others, Higgins, 1972, Rozeff, 1982,

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108 Except for Short et al.’s study, the evidence provided by the aforesaid studies are consistent with the clientele effects of dividends explanation. Short et al.’s findings support the free cash flow hypothesis.
109 Black (1976) pointed out that certain portfolio managers deem that it is imprudent to invest in non-dividend-paying stocks.
110 It is worth noting that the foreign ownership is highly concentrated in the banking sector (53.9 % average period 1996-2000) followed by industrial (27.3%), insurance (16.2%), and services (12.7%) sectors.
Jensen et al., 1992, Alli et al., 1993, and Fama and French, 2001). Glen et al. (1995) indicate that investors from industrial countries often invest in stocks of developing countries for their long-run growth potential, and not so much for short-term cash flow from dividends. In the case of Jordan, however, most of the non-Jordanian investors in the ASE are from the regional countries in the Middle East. Note that the non-Jordanian ownership is highly concentrated in the financial sector (70.1% average, period 1996-2000). Therefore it may not be a significant determinant of corporate dividend policy in Jordan.

Finally, the data suggests that there are many firms in Jordan who have multiple large shareholders with at least 10 percent of the shares. As suggested by Faccio, Lang and Young (2001) the presence of multiple owners might alleviate expropriation of minority shareholders by the controlling shareholder. This implies that firms with multiple owners will pay higher dividends, which in turn suggests a positive relationship between dividend payouts and multiple owners. However, it could be argued that the presence of multiple large shareholders also mitigates the agency problem. This implies a negative rather than positive relationship between multiple owners and dividend payouts.

Ownership structure may therefore influence firms’ dividend payout policies but in different ways. The empirical evidence regarding this issue is inconclusive. Gugler (2003) examined a panel of 214 Austrian firms over the period 1991-1999 and concluded that the firm’s ownership and control structure significantly affects its dividend policy. He observed that family-controlled firms have lower payout ratios and were more likely to cut dividends and with the opposite for state-controlled firms. In his study Gugler found that
dividend smoothing is “marginally important” for banks- and foreign-controlled firms. Using a sample of 225 Brazilian firms, Carvalhal-da-Silva and Leal (2003) found that state-controlled firms have the highest payout ratios with an average of 36 percent, while family-controlled firms have the lowest with 28 percent. Foreign- and institutional-controlled firms have dividend payouts of 35 percent and 34 percent respectively, although the results were not statistically significant. For China, Wei, Zhang and Xiao (2003) showed that ownership structure is an important determinant of corporate dividend policy. They found significant positive (negative) relationship between state (individual) ownership and cash dividends.

However, using a sample of 133 Finnish listed firms, Maury and Pajuste (2002) found a positive relationship between individual or family-controlled firms and dividend levels. Maury and Pajuste attribute this result to tax reasons. In addition, they found lower dividend payout ratios in firms where the CEO is a controlling shareholder. Maury and Pajuste also found that payout ratios and institutional shareholders were negatively related, which may be attributable to group affiliation. The authors argued that firms affiliated to a group tend to pay lower dividends since, through group affiliation, owners can obtain the firm’s earning by means other than dividends such as “cross-subsidisation of firms in the group”. Faccio, Lang and Young (2001) found that corporations that are tightly affiliated to a business group pay significantly higher dividends than those that are loosely affiliated\(^\text{111}\). The authors also observed that firms with multiple large shareholders pay more (less) dividends in the case of Europe (Asia). Faccio et al. concluded that “…in Europe, the other large shareholders appear to help contain the controlling shareholder’s

\(^{111}\) The authors show that corporations in Western Europe pay higher dividends than in East Asia.
expropriation of minority shareholders; in East Asia they appear to collude in that expropriation” (p.56).

Based on the above discussion, to test the link between dividend policy and ownership structure (Hypothesis 2), a set of four dummy variables were included to describe the ownership structure of the firm: family (FAML), state (STATE), institution (INST), and multiple (MULT)\(^{112}\). As stated earlier, to identify the ultimate owner of the firm we employed the 10-percent threshold level of ownership, which is the criterion used by the ASE throughout the study period. The 10-percent threshold level of ownership has also been widely used in literature and has been used, for example, by La Porta et al. (1999), Faccio et al. (2001), and Maury and Pajuste (2002), among others.

### 4.3.3. \(H_3\): Dividends as a Signalling Device

Along with the agency costs hypothesis, the information content of dividends (signalling) hypothesis has received close scrutiny amongst academics and financial practitioners. Chapter 2 established that signalling might be an important determinant of dividend policy. In order to develop a testable hypothesis, this section recapitulates aspects of that chapter to derive a testable hypothesis of signalling theory.

In a world of imperfect capital markets, there is often an information asymmetry between insiders (managers) and outside investors (shareholders)\(^{113}\). Presumably, managers possess

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\(^{112}\) Several studies have employed dummy variables to identify the ultimate owner of the firm, see for example, La Porta et al. (1999), Alonso et al. (2002), Maury and Pajuste (2002), Short et al. (2002), Carvalhal-da-Silva and Leal (2003), Gugler (2003), and Gugler and Yurtoglu (2003).

\(^{113}\) Recall from Chapter 2 that, under M&M’s perfect capital market assumptions all market participants have symmetrical and costless information.
more information about a firm’s current and future prospects. This information might not be reflected perfectly in the share price. The firm’s true intrinsic value is therefore unavailable to the market. As a result, managers may need to share their private knowledge with outsiders in order to bring the market value of the firm closer to its real value.

In this context, managers can use dividends as a signalling device to convey their insider information to the market (see, for example, Bhattacharya, 1979, John and Williams, 1985, and Miller and Rock, 1985). The theory of dividend signalling asserts that the market perceives dividends as a signal of a management’s view about the firm’s future profitability, and share prices respond accordingly\footnote{Aharony and Swary (1980, p.1) stated, “Two of the most important signaling devices available are earnings and dividend figures”. According to Asquith and Mullins (1986, p.36) “Dividends serve as a simple, comprehensive signal of management’s interpretation of the firm’s recent performance and its future prospects”.}. It is well documented that share price reacts positively to dividend increase (or initiation) and negatively to dividend decrease (or omission)\footnote{For empirical supporting evidence see, for instance, Pettit (1972), Aharony and Swary (1980), Asquith and Mullins (1983), Woolridge (1983), Michaely et al. (1995), Yoon and Starks (1995), and Bali (2003).}. However, using dividends as a signalling mechanism is not costless. For example, firms that choose dividends to signal their future prospects may incur transaction costs associated with obtaining external financing (Bhattacharya, 1979). Another potential cost associated with signalling through paying dividends is the distortion of a firm’s investment decisions (Miller and Rock, 1985). Furthermore, shareholders may incur costs due to the unfavourable tax treatment of dividends relative to capital gains (John and Williams, 1985).

Because of the dissipative cost associated with signalling (Bhattacharya, Miller and Rock, and John and Williams’ models), only high-quality firms can use dividend payments to
reduce the asymmetric information with outsiders and convey their future prospects. This implies that firms need to keep their dividend payments at a sustainable level. Low quality firms cannot mimic this behaviour by sending false signals to the market, because they will not be able to maintain the required level of dividends. A dividend cut may cause the share price to fall and the firm might lose its creditability regarding any future signalling, holding other factors constant.

The signalling framework provides an explanation of why firms smooth dividends. In a pioneering study, Lintner (1956) found that the US companies follow stable dividend policies. He suggested that managers attempt to smooth dividends over time and not to make substantial increases in the dividend levels unless that increase can be sustained in the near future. The key determinant of a firm’s decision to change dividends is thus thought to be a change in its earnings or earnings potential. Lintner argued that managers are reluctant to cut dividends because they believe that dividend cuts hurt the firm’s reputation (negative signal). Lintner developed a quantitative model to capture smoothing in dividends through partial adjustment toward target payout ratio, and the model can be described as follows:

\[ D^*_t = r_t E_t, \quad (4.1) \]

\[ D_t - D_{t-1} = \alpha_i + c_i (D^*_t - D_{t-1}) + u_t; \quad (4.2) \]

where for firm \( i \), \( D^*_t \) is the desired dividend payment in period \( t \); \( r_t \) is the target payout ratio; \( E_t \) is the earnings in period \( t \); \( D_t \) is the actual dividend payments in period \( t \); \( \alpha_i \) is the intercept term; \( c_i \) is the speed of adjustment coefficient; and \( u_t \) is the error term.

The constant term \( (\alpha_i) \) is expected to have positive sign; it has been introduced
“somewhat arbitrarily” (see Green, Pogue and Watson, 1993) to show that firms are reluctant to cut dividends\(^{116}\). The speed of adjustment coefficient \((c_i)\) shows the stability in dividend changes and measures the speed of adjustment at which a firm will move toward the target payout ratio \((r_i)\) in response to earnings change. A higher value of \(c_i\) indicates less dividend smoothing. In short, Lintner’s model suggests that firms establish their dividend payouts in line with their current earnings and their previous year dividends. In addition, firms move gradually toward a target payout ratio and do not make an immediate response to the changes in earnings. As shown by Lintner, equation (4.2) can be rewritten as:

\[
D_i = \alpha_i + c_i r_i E_i + (1 - c_i) D_{i(t-1)} + u_{it}.
\] (4.3)

Several studies have examined corporate dividend behaviour using the Lintner model in developed as well as emerging stock markets. For developed stock markets, see Brittain (1964), Fama and Babiak (1968), and Fama (1974) for the US, Nakamura (1989), and Dewenter and Warther (1998) for the US and Japan, McDonald, Jacquillat and Nussenbaum (1975) for France, Shevlin (1982) for Australia, and Sembenelli (1993) for Italy. For emerging stock markets, see Mishra and Narender (1996) for India, Adaoglu (2000) for Turkey, Pandey (2001) for Malaysia, Omet (2004) for Jordan. Taken together, these studies provide empirical support for Lintner’s model in those countries.

As noted above, dividend smoothing is consistent with signalling models, which implies that firms are more reluctant to cut than to raise dividends. Also, as Lintner suggests, Fama and Babiak (1968) found that the predictive power of the Lintner model improved by suppressing the constant and adding a lagged earnings variable. In a latter study, Fama (1974) showed that the lagged earnings variable is not significant when added to the model, but continued to suppress the constant term from the model.
dividend increases may be considered as a signal of a permanent rightward shift in the
distribution of earnings. Thus, firms may use dividend stability as a signalling mechanism.
Prior research that has linked dividend stability with signalling includes Gombola and Liu
(1993), Sembenelli (1993), Dewenter and Warther (1998), Gwilm, Morgan and Thomas
(2000), Kumar and Lee (2001), Fairchild (2003), and Omet and Abu-Ruman (2003),
among others. Aivazian et al. (2003b) for instance have noted that

Dividend signalling models offer valuable insights about the role of dividends. In
particular they explain why dividends are more stable than earnings and why firms
are reluctant to cut dividends (p.103)...[dividend smoothing] is a key empirical
result supporting the signalling and agency cost hypotheses (p.117).

Thus, for the purpose of this research, employing dividend stability using the Lintner
model to test the signalling hypothesis is warranted. If the Lintner model performs well in
Jordan it can be concluded that signalling is important\textsuperscript{117}.

As stated earlier, firms with greater information asymmetry, ceteris paribus, will have to
pay more dividends to signal the same level of earnings compared to firms with lower
levels of information asymmetry. In addition to the Lintner model, therefore, a further test
of the signalling hypothesis is conducted. The hypothesis can be examined by identifying
the relationship between information asymmetry and dividend payouts. A major problem
arising here is finding a credible measure for the degree of information asymmetry. A
potential proxy for the degree of information asymmetry is the trading volume of a firm’s
shares. “Trading volume is a measure of liquidity in that it captures the willingness of

\textsuperscript{117} It is worth noting that most of the empirical studies have tested the signalling hypothesis by examining
the reaction of stock prices to the announcement of dividend changes. But lack of such data in relation to
Jordan is the reason for not conducting this test here.
some investors who hold a firm’s shares to sell and the willingness of others to buy” (Leuz
and Verrecchia, 2000, p.99). In general, investors tend to invest in securities that are better
known in the market, that is, with less information asymmetries. Therefore, other things
being equal, the higher the information asymmetry of a security the lower its trading
volume. This analysis uses annual share turnover as a proxy measure for information
asymmetry. Using this proxy for information asymmetry, the signalling hypothesis
predicts an inverse relationship between share turnover and dividend payouts. Banerjee,
Gatchev and Spindt (2003) found that the likelihood of a firm paying a dividend is
negatively related to its share turnover, which they used as a proxy for the firm’s market
liquidity.\footnote{The authors also argued that dividend payouts are negatively related to improved market liquidity.}

Although it is far from perfect, there is support in the literature for annual share turnover
as a proxy for information asymmetry (see, for example, Dierkens, 1991, Bartov and
Bodnar, 1996, and Leuz and Verrecchia, 2000). Dierkens (1991) studied the effect of
information asymmetry on the equity issue process. The author employed share turnover,
as well as three other variables, as a proxy for information asymmetry. Dierkens
suggested, “…trading could release information and decrease the information asymmetry
of the firm” (p.186). Bartov and Bodnar (1996) examined whether differences in
information asymmetry influences firms’ accounting choices. The authors used two
proxies for information asymmetry, namely bid-ask spread and annual share turnover.
Bartov and Bodnar suggested that trading volume may be subject to other information
events such as earnings announcements, yet it has less problems than bid-ask spread. In
addition, Bartov and Bodnar noted that higher information asymmetry causes lower

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trading volume in a stock because uninformed investors tend to reduce their trade in such
stocks. Therefore, we expect the annual share turnover to be negatively correlated with
dividend payouts.

Other studies, however, have linked firm size with the signalling hypothesis (Eddy and
Seifert, 1988, Ghosh and Woolridge, 1988, and Deshmukh 2003, among others). For
example, Ghosh and Woolridge (1988) examined stock market reaction to the
announcement of dividend changes. They suggested that for small firms, with higher
information asymmetry, dividend announcements convey more information. Consistent
with their prediction, Ghosh and Woolridge found the size coefficient significant with a
positive sign. Also, Eddy and Seifert (1988) reached a similar conclusion. Deshmukh
(2003) found that the likelihood of a firm to initiate dividends is positively correlated with
its size. Deshmukh interpreted his result as consistent with a “pecking order” hypothesis
but not with the signalling hypothesis\(^\text{119}\). Thus firm size may serve as a proxy for the level
of information asymmetry (see also Vermaelen, 1981, Atiase, 1985, Bhushan, 1989, and
Deshmukh, 2003). We have shown that (Hypothesis 1), other studies have used size as a
proxy for agency costs. To avoid potential conflict, firm size is not used directly as a proxy
to test either agency costs or signalling hypotheses.

Chapter 3 established that, in terms of the signalling hypothesis, the Jordanian capital
market has some features inconsistent with the signalling hypothesis in the sense that it is
classified by high ownership concentration and a bank-based financial system. In a

\(^{119}\) The Pecking order hypothesis predicts that firms prefer to use internally generated funds (cheapest) to pay
dividends and finance their growth opportunities. If external financing is needed, firms prefer to issue debt
before external equity because of the lower flotation and information costs associated with debt compared to
equity financing (see Myers, 1984, and Myers and Majluf, 1984).
market characterised by highly concentrated ownership, investors (especially majority investors) are, to some extent, well informed about the companies in which they invest. This suggests that using dividends to convey information may be less important. Similarly, in a bank-based financial system, bank-firm relations may serve as a signalling device, which might render the role of dividends less significant. Therefore, the signalling hypothesis may be a less important determinant of corporate dividend policy for Jordanian firms. Moreover, Chapter 2 showed that, for Jordan, empirical evidence in relation to the signalling hypotheses is mixed. For example, using a sample of 20 Jordanian firms, El-Khoury and Almwalla (1997) failed to detect any significant changes in share prices following a dividend change announcement, and concluded that there was “…no information effect of the changes in dividends” (p.92). On the other hand, Omet and Abu-Ruman (2003) provided evidence consistent with the signalling hypothesis in Jordan. Studies by Glen et al. (1995) and Aivazian et al. (2003b) suggest that the use of dividends as a signalling device is less important in emerging markets.

4.3.4. $H_4$: Firm Growth and Investment Opportunities are Negatively Associated with Dividend Payouts

Recall from Chapter 2 that, according to Miller and Modigliani (1961), in perfect capital markets, corporate investment and dividend decisions are independent. However, in the presence of market imperfections such as taxes, flotation costs, and agency costs, both dividend and investment decisions might be closely related or interdependent. The

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121 Empirical support for such assertion can be found in Dhrymes and Kurz (1967), McCabe (1979), Anderson (1983), and Mougoue and Mukherjee (1994), among others.
relationship between investment and dividend policies can be seen from two perspectives. Firstly, by paying dividends a firm is forgoing a relatively cheap source of financing, i.e. retained earnings, as compared to debt and new equity issues. Secondly, dividend payments reduce the firm’s available funds for investment activities. In other words, dividends and investments are competing for limited and low-cost internal funds (see Dhrymes and Kurtz, 1967, Partington, 1985, and Elston, 1996).

This suggests that in imperfect capital markets there may be a link between dividends and investments\textsuperscript{122}. Intuitively, firms with high growth and investment opportunities will need the internally generated funds to finance those investments, and thus tend to pay little or no dividends. In contrast, firms with slow growth and fewer investment opportunities are likely to pay more dividends. Note that this prediction is consistent with the free cash flow hypothesis. That is, companies with low investment opportunities are likely to have an overinvestment problem, hence by paying dividends companies can limit management’s policy of overinvesting (see Jensen, 1986, and Lang and Litzenberger, 1989). Furthermore, the negative relationship between firms’ growth opportunities and dividend payouts is consistent with the pecking order theory of Myers and Majluf (1984). Myers and Majluf suggested that firms experiencing high growth opportunities will have low payout ratios.

Researchers such as Rozeff (1982), Jensen et al. (1992), Alli et al., (1993), Gaver and Gaver (1993), Deshmukh (2003), Ho, Lam and Sami (2004), and many others, have found a significant negative relationship between dividends and firms’ investment opportunities. Barclay et al. (1995) document that, investment opportunities are a significant determinant

\textsuperscript{122} Also, it suggests a link between a firm’s investment, dividend, and financing decisions (see, e.g. Dhrymes and Kurz, 1967, McCabe, 1979, and Mougoue and Mukherjee, 1994).
of corporate dividend policy. More recently, Fama and French (2001) affirmed that investment opportunities influenced dividend decision. They found that firms with better growth and investments opportunities have lower payouts\textsuperscript{123}.

Furthermore, according to the “maturity hypothesis” presented by Grullon, Michaely and Swaminathan (2002), as firms become mature their growth and investment opportunities shrink, resulting in a decline in their capital expenditures. Thus, more free cash flows are available to be paid as dividends. Grullon et al. point out that a dividend increase is a sign of “changes in a firm’s life cycle, especially as to a firm’s transition from higher growth phase to a lower growth phase” (p.389). Using a large sample of dividend change announcements of US firms for the period 1967 to 1993, Grullon et al. found that, firms that increase dividends experience decline in their systematic risk\textsuperscript{124} and profitability. They stated “… according to the maturity hypothesis, an increase in dividends is informative about a shrinking investment opportunity set, declining systematic risk, declining return on assets, and profit growth” (p.423).

A decline in a firm’s risk is perceived as good news, while decrease in profitability is bad news. In their study, Grullon et al. showed that the stock market reacts positively to a dividend-increase announcement, which implies that the good news about risk reduction dominates the bad news about declining in profitability. In addition to the good news associated with the decrease in the systematic risk, the market may perceive a dividend

\textsuperscript{123} It worth noting that several researchers have examined the relationship between investments and dividends within the causality framework (see, for example, Smirlock and Marshall, 1983, Partington, 1985, Mougoue and Mukherjee, 1994, and Louton and Domian, 1995). These studies, however, produced mixed results.

\textsuperscript{124} Bajaj and Vijh (1990) found that dividend increases led to a significant decrease in stock beta of 0.014 and dividend decreases caused an increase in beta of 0.077.
increase as helping to reduce the overinvestment problem\textsuperscript{125}. Grullon et al. concluded “… an increase in dividends may not only convey information about changes in the firm’s fundamentals but also about the management’s commitment not to overinvest” (p.423). In sum, Grullon et al.’s findings are consistent with the free cash flow hypothesis but not with the signalling hypothesis.

In order to test whether investment opportunities affect dividend policy, an adequate proxy(s) should be chosen. The first proxy for growth and investment opportunities is the firm’s market-to-book ratio (MBR). The MBR is a reasonable proxy for Tobin’s Q (see, for example, Perfect and Wiles, 1994, and Aivazian et al., 2004). The logic for considering MBR as a good proxy for investment opportunities simply the idea that if a firm’s market value is greater than its book value (assets in place) then it has larger growth opportunities. This proxy has been widely used in the literature (see, for instance, Barclay et al., 1995, Cleary, 1999, Travlos et al., 2001, Deshmukh, 2003, and Aivazian et al., 2003a, 2004). The higher the firm’s MBR the greater the growth options, therefore the less likely to pay dividends in order to finance that growth.

To ensure the robustness of the results, another proxy for growth opportunities often suggested in the literature is used, that is the firm’s price-earning ratio (PER)\textsuperscript{126}. The PER is a good indicator of future growth prospects since it incorporates the market assessment of a firm’s future cash flows (Alonso, Iturriaga, Sanz, 2000). The PER relates the current share price to its earning per share (EPS), and shows how much investors are willing to

\textsuperscript{125} Recall that the signalling hypothesis posits that dividend changes convey information about a firm’s future cash flow rather than a decrease in risk or overinvestment problem.

pay for each dollar of a firm’s earnings. Investors are willing to pay a premium for fast growing companies, i.e. those companies that usually retain their earnings to finance future growth. Other things held constant, firms with higher PE ratios have higher growth than firms with low PE ratios (positive relation with growth options). Therefore, a negative relationship between PER and dividend payouts is expected. However, ceteris paribus, PE ratios are negatively related with risk. That is higher risk firms have lower PE ratios (Constand, Freitas and Sullivan, 1991). It is well documented in the literature that firms facing higher risk tend to pay lower dividends, i.e. a negative relation between risk and payout ratios (see, e.g. Rozef, 1982, Moh’d et al., 1995, Collins et al., 1996, Grullon et al., 2002, and Aivazian, 2003a). This in turn implies a positive rather than a negative relationship between the PE ratio and dividend payout ratios. Therefore, a third proxy to test the relationship between investment opportunities and dividends may be required.

Generally speaking, mature companies are likely to be in their low-growth phase with less investment opportunities (see Barclay et al., 1992, Grullon et al., 2002, and Deshmukh, 2003). These companies are relatively older and do not have the incentives to build-up reserves as a result of low growth and few capital expenditures, which enable them to follow a liberal dividend policy. On the contrary, new or young companies need to build-up reserves to face their rapid growth and financing requirements. Hence, they retain most of their earnings and pay low or no dividends. Therefore, the age of the firm (AGE) is used as a proxy for the firm’s growth opportunities. Although this proxy is not commonly used in finance literature, several studies have related firm growth to age (Evans, 1987, Farinas and Moreno, 2000, Rodriguez et al., 2003, and Huergo and Jaumandreu, 2004, among others). Other things held constant, as a firm gets older its investment opportunities decline.
leading to lower growth rates, consequently reducing the firm’s funds requirements for capital expenditures. Therefore, dividend payout should be positively related to the firm’s age. Yet, we do not expect the impact of age to always be linear. Thus, we allow the effect of age to be non-linear by including the age squared (AGESQ). If the coefficient on AGESQ appears to be negative, then our assumption of a quadratic relationship between age and dividends is true.

Little evidence on the relationship between investment opportunities and dividend payouts exists in the Jordanian context. There are only two studies that tackled this issue. These studies were conducted by Glen et al. (1995) and more recently by Aivazian et al (2003a)\textsuperscript{127}. Both studies have examined dividend policy for different emerging markets including Jordan. For example, Glen et al. (1995) used various measures of growth and produced mixed results. The researchers found an insignificant relationship between growth opportunities and a firm’s dividend decision. Aivazian et al. (2003a) used the market to book ratio (MBR) as a proxy for the investment opportunity set, which was expected to have an inverse relationship with dividend payments. However, Aivazian et al. found a positive relationship between MBR and dividends for their entire sample. For Jordan, the coefficient of MBR was 0.021 with a $t$-statistic of 6.19 (significant), indicating that, for Aivazian et al.’s sample, firms in Jordan pay dividends even when they have growth opportunities. This peculiarity deserves more investigation.

In addition to the results of these above studies, Chapter 3 established that the Jordanian economy is characterised by a small market, limited resources, and relatively low and

\textsuperscript{127} Both studies have used the IFC database, which includes eight emerging markets: India, Jordan, Korea, Malaysia, Pakistan, Thailand, Turkey, and Zimbabwe.
volatile economic growth in the sample period. This indicates that there may be limited investment opportunities available for Jordanian companies. As a result, profitable companies will have an abundance in cash relative to domestic investment opportunities, resulting in a tendency for higher dividend payouts.

4.3.5. $H_5$: The Firm Size is Positively Associated with Dividend Payouts

A large firm typically has better access to capital markets and finds it easier to raise funds with lower cost and less constraints compared to a small firm. This suggests that the dependence on internal funding decreases as firm size increases. Therefore, ceteris paribus, large firms are more likely to afford paying higher dividends to shareholders\(^{128}\). Numerous empirical studies have documented that size is a significant determinant of a firm’s dividend policy, and that it is positively related to dividends (see Lloyd et al., 1985, Chang and Rhee, 1990, Barclay et al., 1995, Reeding, 1997, Holder et al. 1998, Fama and French, 2001, Aivazian et al., 2004, among others). However, as Smith and Watts (1992) and Gaver and Gaver (1993) point out, the theoretical foundation for the impact of size on dividend policy is weak\(^{129}\).

In this study, there are two main reasons for testing the relation between firm size and dividend policy. Firstly, consistent with prior research the firm’s size should be included in the analysis as a control variable. Secondly, and more importantly, there is lack of research evidence available on the impact of size effects on dividend payouts in Jordan. The only known study is that already mentioned, conducted by Aivazian et al. (2003a). They use

\(^{128}\) Higgins (1972) contests the assertion that larger firms should pay more dividends because they have easier access to capital markets.

\(^{129}\) Note that, in both studies the size variable was found to be significant and positively related to dividends.
pooled OLS estimation, to test whether the dividend policies of firms operating in emerging markets differ from their US counterparts. Due to sample limitations, Aivazian et al. run their regression with and without the market-to-book ratio (proxy for investment opportunity). In relation to Jordan, the coefficient of size variable (natural logarithm of sales) produce mixed results. For example, when the estimation includes the market-to-book ratio the size coefficient exhibits a positive sign (0.356) with \( t \)-statistic of 1.64, but when the market-to-book ratio is not included the size coefficient has a negative sign (-0.007) with \( t \)-statistic of –0.04. Note that, in both cases the results are insignificant. These results may be attributable to the small sample size employed.

There are different measures of firm size (e.g. employment, sales, assets, and capitalisation). In order to avoid any inherent limitations associated with using a single measure for firm size (Rodriguez et al., 2003), two alternative measures are used here, namely the firm’s total assets and the firm’s market capitalisation. The firm’s total assets is an obvious proxy for size, and it has been used, for example, by Ang and Paterson (1984), Alli et al. (1993), Gaver and Gaver (1993), Olson and McCann (1994), Dhaliwal et al. (1999), and Aivazian et al. (2004). The firm’s market capitalisation of common equity also has frequently been used by earlier research as a measure for size (see, among others, Eddy and Seifert, 1988, Ghosh and Woolridge, 1988, Bhushan, 1989, Shores, 1990, La Porta et al., 1999, and Deshmukh, 2003). The natural logarithm of both the firm’s total assets (LNTA) and the firm’s market capitalisation (MCAP) has been used to proxy for firm size.
As stated earlier, large firms have more flexibility in raising funds from capital markets with a relatively lower cost, while small firms do not. This suggests less reliance on internal finance. Therefore, other factors held constant, large firms are expected to pay higher dividends. Based on this prediction and consistent with previous research the size variables are expected to have a positive relationship with dividend payouts.

4.3.6. \( H_6 \): The Firm Debt is Negatively Associated with Dividend Payouts

In order to offer a more comprehensive view of the determinants of dividend policy, the relationship between capital structure and dividend payouts of the firm should be considered. The financial structure of a firm consists of both debt (liabilities) and equity financing. Long-term financing usually refers to the firm’s capital structure, and the extent to which a firm relies on debt financing is called financial leverage. In addition to the tax advantages (interests deduction on income), the use of debt financing can lever-up shareholders’ return on equity. However, leverage entails risk; that is, when a firm acquires debt financing it commits itself to fixed financial charges embodied in interest payments and the principal amount, and failure to meet these obligations may lead the firm into liquidation.

The risk associated with high degrees of financial leverage may therefore result in low dividend payments because, ceteris paribus, firms need to maintain their internal cash flow to pay their obligations rather than distributing the cash to shareholders. In addition, some debt covenants have restrictions on dividend payments, because creditors want to secure their debt and avoid being expropriated by shareholders. Therefore, other things being equal, an inverse relationship between debt and dividend payouts seems plausible. A large

Furthermore, as argued by Jensen (1986), debt can serve as a substitute device for dividends in reducing the agency costs of free cash flow. That is, when a firm obtains debt, it makes a fixed commitment to creditors, which reduces the discretionary funds available to managers and subjects them to the scrutiny of debt-suppliers. This suggests that, highly levered firms are expected to have low dividend payouts. To illustrate, Agrawal and Jayaraman (1994) found that payout ratios for all-equity firms are significantly larger than levered firms. The mean (median) of payout ratio\textsuperscript{130} for all-equity firms is 0.325 (0.318), compared to a mean (median) of 0.188 (0.167) for levered firms. Agrawal and Jayaraman concluded that their results were consistent with Jensen’s (1986) hypothesis that dividends and debt are substitutes in controlling agency costs of free cash flow.

To examine the extent to which debt can influence dividend payouts, the study used the financial leverage ratio defined as the ratio of total short-term and long-term debt to total shareholders’ equity (DER)\textsuperscript{131}. Based on the above discussion, a negative association is expected between dividends and financial leverage.

Recall from Chapter 3 that the capital structure of Jordanian companies is characterised by a considerably low proportion of long-term debt, and due to the underdeveloped bond

\textsuperscript{130} This ratio defined as dividend per share to earning per share.
\textsuperscript{131} See Duke and Hunt (1990) for using different versions of financial leverage ratio.
market in Jordan the main source of debt financing is banks. This implies that Jordanian companies are subject to more financial constraints. Fazzari, Hubbard and Petersen (1988) showed that firms facing greater financing constraints retain most of their income. For this reason, in the case of Jordan, debt may play a significant role in determining corporate dividend policy. Aivazian et al (2003a) provide empirical support for this prediction in relation to Jordan. In their study, the relationship between the debt ratio (total liabilities to total assets) and dividends is found to be negative and significant. For the 316 observations sample the coefficient of debt ratio was \(-0.086\) with \(t\)-statistic of \(-4.57\), and for the 334 observations the coefficient was \(-0.048\) with \(t\)-statistic of \(-2.68\). We believe that more tests need to be conducted in order to have conclusive evidence about the relationship between debt and dividend policy in Jordan.

4.3.7. \(H_7\): There is a Positive Relationship Between a Firm’s Profitability and Dividend Payouts

The decision to pay dividends starts with profits. Therefore, it is logical to consider profitability as a threshold factor, and the level of profitability as one of the most important factors that may influence firms’ dividend decisions. The theory suggests that dividends are usually paid out of the annual profits, which represents the ability of the firm to pay dividends. Thus, firms incurring losses are unlikely to pay dividends\(^{132}\). This statement might be demonstrated by the following quote “An annual loss is essentially a necessary condition for dividend reductions in NYSE firms with established earnings and dividend record” (DeAngelo, DeAngelo and Skinner1992, p.1862). In his classic study, Lintner

\(^{132}\) Of course, this is not strictly true, since firms could pay dividends out of earlier profits (retained earnings).
(1956) found that a firm’s net earnings are the critical determinant of dividend changes\textsuperscript{133}. Furthermore, several studies have documented a positive relationship between profitability and dividend payouts (see, for example, Jensen et al, 1992, Han et al., 1999, and Fama and French, 2002).

Evidence from emerging markets also supports the proposition that profitability is one of the most important factors that determines dividend policy. For example, Adaoglu (2000) found that a firm’s earnings is the main factor in determining dividend decisions in Turkey. Pandey (2001) has arrived at a similar conclusion for Malaysian firms. More recently, Aivazian et al. (2003a) in their study of the dividend policy of emerging market firms and US firms demonstrated that profitability has a significant impact on dividend payouts for both samples. In relation to Jordan, the coefficients on profitability (measured by return on equity) were positive and statistically different from zero.

Recall that the pecking order hypothesis suggests that firms finance investments first with the internal finance, and if external financing is necessary, firms prefer to issue debt before issuing equity to reduce the costs of information asymmetry and other transactions costs (Myers 1984, and Myers and Majluf, 1984). This financing hierarchy thesis might also have an effect on the dividend decision. That is, taking into account the costs of issuing debt and equity financing, less profitable firms will not find it optimal to pay dividends, ceteris paribus. On the other hand, highly profitable firms are more able to pay dividends and to generate internal funds (retained earnings) to finance investments. Therefore, the pecking order hypothesis may provide an explanation for the relationship between

\textsuperscript{133} Studies by Fama and Babiak (1968), Turnovsky (1967), DeAngelo, DeAngelo, and Skinner (1992), Baker et al. (2001) support Lintner’s findings.
profitability and dividends. Fama and French (2002) used the expected profitability of assets in place for testing the pecking order hypothesis. In a previously mentioned paper, Fama and French (2001) interpreted their results of the positive relationship between profitability and dividends as consistent with the pecking order hypothesis.

Based on the above discussion, profitability is expected to be a key determinant of corporate dividend policy in Jordan. To test this hypothesis, the after tax earnings per share (EPS) is used as a measure of a firm’s profitability (see, e.g. Kumar and Sopariwala, 1992, Ahmed and Khababa, 1999, and Kaufmann, Gordon and Owers, 2000). This measure is easy to calculate and familiar to all market participants. EPS is considered to be “the market’s pre-eminent measure of firm performance” (Kaufmann et al., 2000,p.219). The hypothesised relationship between EPS and dividends is positive.

4.3.8. H₈: The Relative Tax Disadvantage of Dividends Induces Lower Dividend Payouts

Chapter 2 established that the tax-preference theory proposed that companies should retain rather than distribute their income because of the preferential tax treatment of capital gains versus dividends. In general, capital gains have tax advantages over dividends even when both are subject to the same tax rate because taxes on capital gains are deferred until the shares are actually sold, while dividends result in an immediate tax burden for shareholders. Because most investors are interested in the after-tax return, the influence of taxes might affect their investment decisions (the demand for dividends). Also, presumably, as managers endeavour to maximise shareholders’ wealth, taxes may also affect firms’ dividend decisions (the supply of dividends).
The differential tax advantage of capital gain versus dividend income is the underlying assumption for tax-preference theory. This theory suggests that low dividend payouts lower the cost of capital. That is, investors who have favourable tax treatment on capital gains will be willing to pay a premium for low-payout stocks (see, for example, Litzenberger and Ramaswamy, 1979, 1982, and Poterba and Summers, 1984). In contrast, investors require higher pre-tax risk adjusted returns on high-payout stocks to compensate for the tax disadvantages of these returns (Brennan, 1970). Therefore, according to this hypothesis, firms can maximise their values by adopting low dividend payout policies. However, as argued by Miller and Scholes (1978), taxes are irrelevant in determining dividend policy because taxes on dividend income can be avoided.

Another related issue involving the tax effect is the clientele effect. The tax-induced clientele hypothesis argues that investors are attached to firms that have dividend policies that suit their tax situation. For example, investors in low tax brackets who rely on regular and steady income may prefer firms that pay high and stable dividends. While investors in high tax brackets tend to invest in companies that pay low or no dividends. Other clienteles such as tax-exempt and tax-deferred entities are indifferent between dividends and capital gains (Dhaliwal et al., 1999). Accordingly, ceteris paribus, firms may alter their dividend policies to attract a particular tax clientele.

Prior to 1996, investors paid no taxes on income received from Jordanian companies in both the form of capital gains and dividends. However, as shown in Chapter 3, in 1996 the
Jordanian Income Tax Authority imposed a 10 percent tax rate on dividends\textsuperscript{134}, resulting in making dividend payments costly for investors. Since this study covers the period between 1989 and 2000, which includes five years following the implementation of taxes on dividends, it is important to examine if the resulting relative tax disadvantage of dividends induces Jordanian firms to reduce their payout ratios.

To the best of the author’s knowledge, there is only one empirical study, conducted by Omet (2004), to test corporate dividend behaviour in Jordan after the implementation of a 10 percent tax on dividends. His sample consisted of 44 companies listed on the ASE covering the period between 1985 and 1999. Omet examined the impact of tax change on dividend policy using the Lintner model and found no significant effect of tax changes on dividend payout ratios. In his study, Omet used balanced panel data and included those companies who paid dividends for at least 12 years. This study, however, used unbalanced panel data and included all companies without exclusion of the non-paying companies.

In order to examine any change in dividend payouts following the change in tax law we introduced a dummy variable (DTAX), which divides the study into two periods, post-tax (1996-2000) and pre-tax (1989-1995). This approach has been widely used in the literature especially when there are two regulatory periods involved in the study (see, for example, Casey et al., 1999, Adaoglu, 2000, Casey and Dickens, 2000, and Omet, 2004). According to the tax-preference hypothesis the introduction of taxes on dividends should have a negative impact on dividend payout ratios. However, given the firm tax clientele, the tax-induced clientele hypothesis makes no predictions about the relation between taxes and

\textsuperscript{134} This law was again amended in 2001 and implemented as of January 2002 removing the 10 percent tax on dividends.
dividend payouts. Furthermore, having established that (see Chapter 2) the empirical evidence on dividend taxation is mixed and inconclusive, and taking into account the relatively small tax rate (10%) that has been imposed on dividends, the relationship between DTAX and dividend payouts may be uncertain. Nonetheless, based on the tax-preference argument, the association between DTAX and dividends is anticipated to be negative. There is no conceivable reason to expect the DTAX variable to be significantly different from zero, i.e. to affect dividend policy in Jordan.

4.3.9. $H_9$: The Firm’s Asset Mix is a Determinant of its Dividend policy

In Hypothesis 6, the firm’s capital structure is assumed to influence its dividend policy. Here the firm’s asset mix is taken into consideration. In general, the firm’s assets are divided into short-term (current) and long-term (fixed) assets. Long-term assets in turn can be either tangible or intangible. The firm’s tangible assets can be used as collateral against debt financing, especially in securing long-term debt (see, for example, Booth et al., 2001, and Bevan and Danbolt, 2004). Thus, ceteris paribus, a high level of tangibility in a firm’s asset structure increases its debt capacity. This suggests less reliance on retained earnings, which in turn implies that there will be more cash to be paid as dividends. Therefore, firms with more tangible assets are more likely to pay dividends.

This assertion suggests that asset tangibility and dividend payouts should be positively correlated. Aivazian et al. (2003a) provided empirical supporting evidence for this relation for US firms. However, for firms operating in emerging markets they find the opposite, i.e.
a negative relationship between tangibility of firm assets and dividends. The authors attribute this result to the peculiarity of the financial system of these countries, where short-term bank financing is more prevalent. They argue that, since the short-term bank debt is dominating in those markets, a greater proportion of tangible assets will reduce firms’ short-term borrowing capacity. In other words, a large percentage of long-term tangible assets will reduce the share of short-term assets that can be used as collateral for short-term bank financing. This conclusion is consistent with our findings that have been established in Chapter 3 in relation to Jordan. That is, the Jordanian financial system is bank-based with short-term financing dominating.

Aivazian et al. found the tangibility coefficients negative and significant in the two samples used for Jordan. In the first sample where 316 observations were used the coefficient of tangibility was -0.045 with t-statistics of -3.91, and in the second sample where 334 observations were used the coefficient was -0.050 with t-statistic of -4.34. Since we did not observe any other empirical evidence regarding the relationship between assets structure and dividends in the Jordanian context, the inclusion of this variable in this study as a determinant of dividend policy is motivated. In addition, the link between a firm’s asset structure and dividend policy has received little direct attention in the literature.

To be consistent with Aivazian et al. the same definition of tangibility (TANG) will be used, that is the ratio of current assets minus total assets divided by total assets. Booth et al. (2001) used a similar definition. Given the characteristics of the Jordanian capital

\(^{135}\) Most recently, Omran and Pointon (2004) found a similar result for firms traded on the Egyptian Stock Market.

\(^{136}\) An alternative measure of tangibility often suggested in the literature is the ratio of fixed to total assets (see, e.g. Rajan and Zingales, 1995, and Bevan and Danbolt, 2004).
market this variable is expected to have negative impact on the dividend policy of non-financial companies. Note that financial companies, such as banks and insurance companies, are eliminated from the sample here because tangible assets are not measured in this sector. Therefore, this variable will not be included in the general model rather than tested separately, because the general-to-specific method used in this study, discussed shortly, required that the competing models should come from the same sample.

4.4 Choosing Between Competing Hypotheses: The General-to-Specific Method

In Section 4.3 nine hypotheses were developed and a set of related proxy variables were identified. The selected variables constitute the general model to be tested in order to determine the factors that may affect dividend policy in the case of Jordan. To choose between the competing hypotheses and to arrive at the best model that fits the data the general-to-specific method is used. The general-to-specific method is generally referred to as the London School of Economics approach to econometric modelling\(^\text{137}\). The method “involves the formulation of a ‘general’ unrestricted model that is congruent with the data and the application of a ‘testing down’ process, eliminating variables with coefficients that are not statistically significant, leading to a simpler ‘specific’ congruent model that encompasses rival models” (Owen, 2003, p.609). The general-to-specific approach has received considerable attention in modern econometric modelling (see, for example, Hendry, 1995, Hendry and Krolzig, 1999, Hoover and Perez, 1999, Krolzig and Hendry, 2001, and Krolzig, 2003).

\(^{137}\) It is also sometimes referred to as Hendry methodology, owing to the significant contribution by Professor David Hendry.
Within the framework of the general-to-specific method, the model specification begins with a general (unrestricted) model incorporating all the variables that have been identified and supported by the theory covering various competing hypotheses. This process takes the following form of Model 1:

\[ y_{it} = \alpha_i + \sum_{j=1}^{n} \beta_j X_{i,j,t} + \epsilon_{it} \]  

(4.4)

where \( y_{it} \) is the dependent variable (dividend yield) for firm \( i \) in period \( t \), and \( X_{i,j,t} \) is explanatory variable \( j \) for firm \( i \) in period \( t \), \( \alpha \) and \( \beta \) are parameters, \( n \) is the number of explanatory variables, and \( \epsilon_{it} \) is the error term, which is assumed to be iid \( N(0, \sigma^2) \).

Next, from the general model a more specific (restricted) model can be obtained by eliminating the variables with insignificant \( t \)-statistics. An appropriate test statistic (Wald test) is conducted to test the validity of these restrictions. That is, to ensure that the coefficients of the dropped variables are jointly not different from zero. This step will produce the more parsimonious model, Model 2:

\[ y_{it} = \alpha_i + \sum_{j=1}^{n-k} \beta_j X_{i,j,t} + \epsilon_{it} \]  

(4.5)

where \( k \) is the number of restrictions or the variables eliminated from the general model.

The previous step is repeated and other jointly insignificant variables are removed until the model specification contains all variables that are statistically significant. Further, in testing the competing models the likelihood-ratio (LR) test is carried out. The statistic

\[ LR = -2[LogL_r - LogL_{ur}] \]

follows a \( \chi^2(k) \), where \( k \) is the number of restrictions and the null model is the restricted model. This test enables us to see whether the additional
parameters in the unrestricted model significantly increase the likelihood. In other words, to confirm whether or not the unrestricted model is statistically different from the restricted model.

The general model to be estimated using the Tobit specification, for firm $i$ in period $t$ (mathematical signs indicate the hypothesised impact on dividend policy as measured by dividend yield) can be written as:

$$
DYLD = \gamma_0 + \gamma_1STOCK - \gamma_2INSD - \gamma_3FAML + \gamma_4STATE + \gamma_5INST + \gamma_6MULT + \gamma_7AGE - \gamma_8AGESQ - \gamma_9MBR - \gamma_{10}DER - \gamma_{11}TURN - \gamma_{12}DTAX + \gamma_{13}MCAP + \gamma_{14}EPS \pm \gamma_{15}NONFIN + \epsilon
$$

where the variables are defined in Section 4.5 below. This model (4.6) is also estimated using the Probit specification for testing the decision to pay dividends. In this case the dependent variable is PYDIV.

### 4.5 Definition of Variables

In Section 4.3, we selected and justified the variables that are going to be used as proxies for testing different theories or hypotheses, which also comprise the general model [Equation (4.6)]. This section aims at providing a more detailed description of these variables in order to avoid any ambiguity related to their definition and interpretation of results. The dependent variable(s), and proxy variables for each hypothesis along with the hypothesised sign of the regression coefficients are presented below.
4.5.1. Dependent Variable(s):

-Tobit Regression Models

In this study dividend policy is primarily measured by the dividend-to-price ratio or dividend yield (DYLD). Formally, the dividend yield is the dividend per share (DPS) divided by closing market price per share (MPS), i.e.

\[
DYLD = \frac{DPS}{MPS}
\]

The dividend yield is used rather than the payout ratio (dividends to earnings) for two reasons. Firstly, the denominator in dividend yield is a market measure (share price) compared to an accounting measure (net income), and secondly, to avoid problems of negative payout ratios resulting from negative earnings or excessively high payout ratios resulting from income being close to zero (Schooley and Barney, 1994). In addition to Schooley and Barney (1994) several studies have employed dividend yield as a measure of dividend policy (dependent variable). It has been used, for example, by Chang and Rhee (1990), Gaver and Gaver (1992) Smith and Watts (1992), Barclay et al. (1995), Reeding (1997), Gul (1999), Han et al. (1999), and Ho, Lam and Sami (2004), among others. However, dividend yield may not be a perfect measure of dividend policy because of the pricing problems that may exist with this measure (see, for instance, Aivazian et al., 2003a). Thus, for checking robustness, other alternative proxies are also used. For example, the natural logarithm of actual cash dividends (LNDIV) of the firm is used as a second measure of dividend policy. The dividend-to-total-assets ratio (DIV/TA) is also used as a measure of dividend policy. Fama and French (2002), and Aivazian et al. (2003a) have used this measure.
-Probit Regression Models

PAYDIV: In the Probit regressions, the dependent variable is a binary equal to one if the firm paid dividends, and zero otherwise.

4.5.2. Independent Variables

- Hypothesis 1

STOCK: The natural logarithm of the number of common stockholders of a firm (measure of ownership dispersion). *The hypothesised sign of the coefficient is positive.*

INSD: The percentage of a firm’s stocks held by insiders. To construct this variable we calculate the percentage of common stocks held by the general manager or the directors of the company. As stated earlier the 10-percent threshold level of ownership is used. If the owner of 10-percent or more is not the general manager or in the board of directors we will not consider him/her as an insider since he/she is not involved in the firm’s decisions. *The hypothesised sign is negative.*

-Hypothesis 2

To avoid repetition, the 10-percent cut-off rate level of ownership and control is applied for all types of owners. Like other countries, in Jordan shareholders who own a substantial amount of a firm’s stocks have controlling power through their voting rights and usually they are members of the board of directors. To examine the effect of ownership and control structure the following variables were used:

FAML: Family dummy equals one if an individual is the controlling shareholder, and zero otherwise. A firm is owned and controlled by a family if a person or one of his relatives
who carry the same surname owns 10 percent or more of the firm’s stocks. *The hypothesised sign is negative.*

**STATE:** State dummy equals one if the government, or one of its agencies, is the controlling shareholder, and zero otherwise. *The expected sign is positive.*

**INST:** Institutional dummy equals one if an institution (financial or non-financial corporation) is the controlling shareholder, and zero otherwise. *The hypothesised sign of the coefficient is positive.*

**MULT:** Multiple owners dummy equals one if a firm is controlled by more than one type of owner, i.e. if there is more than one shareholder who owns 10 percent of the stocks (e.g. family, state, and institutional), and zero otherwise. *The expected sign is positive.*

*-Hypothesis 3*

**TURN:** Share turnover ratio; the ratio of the number of shares traded at the end of the year (NOSHT), to the number of shares outstanding at the end of the fiscal year (NOSH), i.e.

\[
TURN = \frac{NOSHT}{NOSH}
\]

*The hypothesised sign of the coefficient is negative.*

*-Hypothesis 4*

**MBR:** Market-to-book-value ratio; the ratio of a firm’s market value per share (MPS) to its book value per share (BVS), where the BVS is the ratio of total shareholder’s equity (SHEQ) to the number of shares outstanding, i.e.
\[ MBR = \frac{MPS}{BVS} \]

where

\[ BVS = \frac{SHEQ}{NOSH} \]

The hypothesised sign is negative.

**PER**: Price-earnings ratio; the ratio of market price per share (MPS), to the earnings per share (EPS), defined shortly, i.e.

\[ PER = \frac{MPS}{EPS} \]

The expected sign is negative.

**AGE**: Firm’s age, which is calculated as the difference between the calendar year at \( t \) and the establishment date of the firm as reported in the ASE database. The hypothesised sign of the coefficient is positive.

**AGESQ**: the square of AGE. We hypothesised that a quadratic relationship exists between AGESQ and dividends\(^{138}\). The expected sign is negative.

**-Hypothesis 5**

**MCAP**: Firm’s market value of common equity: natural logarithm of market capitalisation (MCAP), where \( MCAP = NOSH \times MPS \)

\(^{138}\) This technique has been used, for example, by Schooley and Barney (1994), and Crutchley et al. (1999) but for different variables.
LNTA: Natural logarithm of a firm’s total assets.

*The hypothesised sign coefficients for both MCAP and LNTA are positive.*

**Hypothesis 6**

DER: Debt-to-equity ratio: the sum of total short-debt and total long-term debt (TD), to total shareholders’ equity (SHEQ), i.e.

$$DER = \frac{TD}{SHEQ}$$

*The hypothesised sign is negative.*

**Hypothesis 7**

EPS: Earnings per share; the net income after taxes (NIAT) divided by the number of shares of common stock outstanding, i.e.

$$EPS = \frac{NIAT}{NOSH}$$

*The hypothesised sign is positive.*

**Hypothesis 8**


**Hypothesis 9**

TANG: Tangibility: the ratio of current assets (CA) minus total assets (TA) divided by total assets, i.e.
\[ TANG = \frac{CA - TA}{TA} \]

The expected sign is negative.

-Control variable:

NONFIN: Non-financial companies dummy equals one if the firm belongs to the industrial or services sectors, and zero elsewhere, i.e. insurance or banking sectors. The hypothesised sign is positive/negative.

4.6 Specification and Estimation Method

4.6.1. Tobit Estimation

As stated earlier, the sample is based on firm-year panel data. Using panel data gives “more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency” (Baltagi, 2001, p.6). “A panel data set can be useful because it allows the researcher to sort out economic effects that cannot be distinguished with the use of either cross-section or time-series data alone” (Pindyck and Rubinfeld, 1998, p.250). Applying panel data techniques to examine corporate dividend policy is becoming a more frequent practice in the literature. For example, it has been used by Anderson (1986), Chowdhury and Miles (1989), Kim and Maddala (1992), Malécot (1996), and more recently, Adaoglu (2000), Pandey (2001), Benito and Young (2003), Gugler and Yurtoglu (2003), Ho (2003), Aivazian et al. (2004), Omet (2004), and Trojanowski (2004).
In considering the dividend decision firms have only two options, either to pay or to not pay dividends. In Jordan, many companies do not pay dividends at all, and even those who pay dividends do not pay them continuously\textsuperscript{139}. This gives the dependent variable (dividends) a special feature in that it takes two outcomes. It is either equal to zero or positive. Dividends can never be negative. Therefore, OLS is not an appropriate method to analyse the payment of dividends, because of the nature of the dependent variable. Indeed there is what one calls a “mass point” in 0 because the dividends paid by firms can only be positive or nil. The appropriate technique in this case is to apply TOBIT estimations. Kim and Maddala (1992) explicitly supported this claim:

\begin{quote}
In analysing models of dividend behavior, there are two aspects that need to be taken into account, both of which necessitate the use of limited dependent variable models. The first is that some companies pay dividends, and others do not. Even those companies paying dividends may not pay them all the time. This creates a\textit{ censoring problem} (p.111).
\end{quote}

It is well established in econometrics that any estimation of dividend behaviour using data on individual firms which have this censoring characteristic necessitates the use of the Tobit model. For more support on this point see, for example, Anderson (1986), Kim and Maddala (1992), and Huang (2001a, 2001b).

The evaluation of the determinants of the amount of dividends is carried out using the general specification of the censored data estimations, namely the Tobit model. Indeed, the

\textsuperscript{139} Of the 1511 cash dividend observations in our sample, 853 observations (56.45 percent) are zero dividends.
observed dependent variable, the amount of dividend paid by each firm, may either be zero or positive. The data are then censored in the lower tail of the distribution.

The estimations involve the following general structure:

The latent underlying regression for the amount of dividend paid by the firms is defined as (see Verbeek, 2000, p. 340):

\[ y_{it}^* = x_{it}' \beta + \alpha_i + \epsilon_{it} \]  

(4.7)

with the observed dependent variable being such that:

\[
\begin{align*}
    y_{it} &= 0 \quad \text{if } y_{it}^* \leq 0 \\
    y_{it} &= y_{it}^* \quad \text{if } y_{it}^* > 0
\end{align*}
\]

We assume that \((\epsilon_{it}, \alpha_i) \sim \text{BVN}(0,0,\sigma^2,\sigma^2)\) and the absence of a correlation between these two disturbances. All effects are uncorrelated across individuals (the random effects \(\alpha_i\) and the error term \(\epsilon_{it}\) are assumed to be \(\text{iid } N(0,\sigma^2)\) and \(\text{iid } N(0,\sigma^2)\) respectively, and independent of \(x_{i1},...,x_{iT}\), with zero means and variances \(\sigma^2\) and \(\sigma^2\)).

The likelihood function can be written as:

\[
f \left( y_{i1},...,y_{iT} | x_{i1},...,x_{iT}, \beta \right) = \int_{-\infty}^{\infty} \prod_{t} f \left( y_{it} | x_{it}, \alpha_i, \beta \right) f ( \alpha_i ) d\alpha_i ,
\]

(4.8)

Using Olsen’s (1978) transformation, let \(d_{it} = 1\) if the observation is not censored \((y_{it} > 0)\) and 0 otherwise. We can write the density of the observed random variable as:
\[ f(y_i | \alpha_i, d_{it} = 0) = \text{Prob}\left[ y_i^* \leq 0 | \alpha_i \right] = \Phi \left( \frac{-x_i' \beta - \alpha_i}{\sigma_\epsilon} \right); \]
\[ f(y_i | \alpha_i, d_{it} = 1) = \frac{1}{\sigma_\epsilon} \phi \left( \frac{y_i - x_i' \beta - \alpha_i}{\sigma_\epsilon} \right). \] (4.9)

Hence the function to be maximised with respect to \( (\beta, \sigma_\epsilon, \sigma_a) \) is defined as:

\[
L(.) = \sum_{i=1}^{n} \log \left\{ \int_{-\infty}^{\infty} \frac{1}{\sigma_\epsilon \sqrt{2\pi}} \exp \left( -\frac{\alpha_i^2}{2\sigma_\epsilon^2} \right) \prod_{t=1}^{T_t} \Phi \left( \frac{-x_i' \beta - \alpha_i}{\sigma_\epsilon} \right)^{1-d_{it}} \left[ \frac{1}{\sigma_\epsilon} \phi \left( \frac{y_i - x_i' \beta - \alpha_i}{\sigma_\epsilon} \right) \right] d\alpha_i \right\}. \] (4.10)

This likelihood is maximised by Gauss-Hermite quadrature using STATA (version 8).

The main emphasis in the analysis of the results from maximum likelihood estimation (MLE) will be on the significance of each estimated coefficient as well as on the overall significance of the model as judged by the Chi-square \( (\chi^2) \) statistics derived from the Wald test statistic. The Wald test statistic follows a \( \chi^2 \) distribution with degrees of freedom equal to the number of coefficient restrictions.

The error term in equation (4.7) is assumed to be homoskedastic. That is, the variance of the error term is constant across firms and there is no correlation of the error terms across firms. However, there is the possibility of the presence of heteroskedasticity in the model, which may result in inconsistent parameter estimates. This will be tested using a two-stage procedure described in the next chapter.

**Marginal effects:**
The estimated coefficients give the impact of a change in a regressor variable on the unconditional expectation of the latent variable:

\[ \frac{\partial E[y^*]}{\partial x} = \beta. \]  

(4.11)

However, we are interested in the impact of such changes on the observed dependent variable, not on the latent, unconditional latent variable. That is, we want to know:

\[ \frac{\partial E[y|x]}{\partial x} \]

(4.12)

Greene (1999) showed as a general result that the marginal effects, conditional on the censoring, can easily be computed as the multiplication between the parameters obtained in the estimations and the probability for the observed sample to be uncensored. This appears to be a strong result since it applies even if the density of the error term is assumed to a non-normal distribution. In our estimations, this general result translates as:

\[ \frac{\partial E[y|x]}{\partial x} = \beta \times \text{Prob}[y^* > 0|x], \]  

with the subscripts omitted for clarity purposes. The tables that present the results will display both the coefficients and marginal effects.

### 4.6.2. Probit Estimation

In the previous section, the estimation seeks to understand the determinants of the amount of dividends paid by Jordanian firms. However, another important question is to examine the determinants of the decision to pay dividends. These estimations are carried out using the Probit model. Similar to the Tobit estimation, the probability to pay dividends is estimated using the random effect specification on panel data. The model is defined as:
The dichotomous variable \( y \), observed, is related to the latent variable \( y^*_t \) by the relation:

\[
y^*_t = \begin{cases} 
0 & \text{if } y^*_t \leq 0 \\
1 & \text{if } y^*_t > 0
\end{cases}
\]

with \( y^*_t = 1 \) if the firm \( i \) paid dividends at period \( t \), and \( y^*_t = 0 \) otherwise.

\( x^*_t \) represents the set of the individual exogenous characteristics of the firms that are assumed to condition the firms’ decisions on dividend policy.

Because each firm is observed for 12 years, one must introduce a panel dimension to the estimations since pooling the data would neglect the inter-firm heterogeneity and consequently would lead to some biases in the estimations. We can then write \( u^*_t \) under the form:

\[
u^*_t = \alpha_i + \lambda_t + \varepsilon_t
\]

where \( \alpha_i \) represents the inter-firm effect and \( \lambda_t \) the intra-firm effect. Since nothing in the database enables us to assume the presence of a strong intra-firm effect because of the relative steadiness of the ownership structure of the Jordanian firms, we restrict our analysis to the incorporation of the inter-firm effect, which is likely to have a strong impact on the observed dividend policy decision. This assumption implies that \( E(u_t, u_t) = \sigma^2 + E(\varepsilon_t, \varepsilon_t) \). As a consequence, we introduce a random effect in our estimation of the probability to pay dividends\(^{140}\).

---

\(^{140}\) Probit estimations don’t lend themselves to incorporating fixed effects in the tested equations, as it leads to identification problems.
If the $\alpha_i$ are not correlated to the $x_i$ and are randomly drawn from a distribution $G$ indexed by a finite number of parameters $\delta$, then the logarithm of the likelihood function is defined by:

$$\log L = \sum_{i=1}^{N} \log \left[ \prod_{t=1}^{T} F(\beta' x_{it} + \alpha)^{y_{it}} \left\{ 1 - F(\beta' x_{it} + \alpha) \right\}^{1-y_{it}} \right] dG(\alpha / \delta) ; \quad (4.14)$$

Maximizing (4.14) yields efficient estimations of the $\beta$'s and $\delta$ if $N$ is large enough. However, in order to compute the estimator of maximum likelihood, one must evaluate a T-integral. Several methods exist in order to simplify the numeric computation.

It is worth noting that (Heckman, 1981), conditional on $\alpha_i$, the error terms $v_{it} = \alpha_i + \epsilon_{it}$ are independent and normally distributed with an expected value of $\alpha_i$ and a variance of 1. One can then write:

$$\text{Prob}(y_{i1}, \ldots, y_{iT}) = \int_{c_{\alpha}}^{b_{\alpha}} \cdots \int_{c_{\alpha}}^{b_{\alpha}} \int_{-\infty}^{\infty} \prod_{t=1}^{T} \phi(v_{it} / \alpha_i) f(\alpha_i) d\alpha_i dv_{i1} \cdots dv_{iT} ;$$

$$= \int_{-\infty}^{\infty} f(\alpha_i) \prod_{t=1}^{T} \left[ \Phi(b_{it} / \alpha_i) - \Phi(c_{it} / \alpha_i) \right] d\alpha_i$$

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$^{141}$ If the $\alpha_i$ are correlated with the $x_{it}$, it is impossible to use this function as the bias related to the omitted variables remains. We must then specify a distribution of $\alpha$ conditionally to $x$. Chamberlain (1980) proposes: $\alpha_i = \sum_{i=1}^{T} a_i x_{it} + \eta_i = a_i x_i + \eta_i$, with $a_i = (a_{i1}, \ldots, a_{iT})$ et $x_i = (x_{i1}, \ldots, x_{iT})$, the log likelihood becoming:

$$\log L = \sum_{i=1}^{N} \log \left[ \prod_{t=1}^{T} F(\beta' x_{it} + a_i' x_i + \eta)^{y_{it}} \left\{ 1 - F(\beta' x_{it} + a_i' x_i + \eta) \right\}^{1-y_{it}} \right] dG^*(\eta), \quad \text{where} \quad G^*(\cdot) \text{ is a univariate distribution of } \eta. \text{ The only difference lies in the addition of the term } a_i' x_i. \text{ Thus the estimation technique proposed above remains the same, whatever the degree of generality of the function chosen.}
with: \( c_{it} = -\beta' x_{it}, \quad b_{it} = 0 \) if \( y_{it} = 1 \); and \( c_{it} = -\infty, \quad b_{it} = -\beta' x_{it} \) if \( y_{it} = 0 \). \( f(\alpha_i) \) is the density of \( \alpha_i \) (variance: \( \sigma^2_\alpha \)).

Thus, conditioning according to the inter-firm effect, our computational problem skips from the evaluation of a T-integral to a simple integral implying the joint product of a normal density and the difference between two cumulative normal distributions. Equation (4.15) is estimated using the Gauss quadrature procedure (Butler & Moffit, 1982). The software packages LIMDEP and STATA use this method to estimate the maximum likelihood.

### 4.7 The Lintner Model

In his classic study Lintner (1956) presented a model of dividend behaviour suggesting that a firm’s dividend or change in dividends is a function of current earnings and the dividend in the previous year (lagged dividend). The Lintner model is introduced here to examine the behaviour of corporate dividend policy in Jordan, mainly to test whether Jordanian companies follow a stable dividend policy. If the model works well, and dividends appear to be stable in Jordan, one can interpret this as consistent with the signalling hypothesis.

Since many companies in Jordan do not pay dividends, the censoring problem has to be taken into account. As stated earlier, the exclusion of non-dividend-paying firms may result in a selection bias problem (see Anderson, 1986, and Kim and Maddala, 1992). Therefore, an appropriate estimation for the Lintner model in this case is through a Tobit
(censored) model (see, for example, Anderson, 1986, Kim and Maddala, 1992, and Huang, 2001a, 2001b). To test for dividend stability of the Jordanian companies the Lintner model in Equation (4.3) is modified as:

\[
D^*_t = \beta_0 + \beta_1 E^*_t + \beta_2 D_{t(t-1)} + \epsilon_t ;
\]

where, for firm \(i\), \(D^*_t\) is the desired dividend payment, which is observed only when dividends are positive. That is:

\[
D_t \begin{cases} 
= D^*_t \text{ if } D^*_t > 0 \\
= 0 \text{ otherwise }
\end{cases}
\]

\(E^*_t\) is the net income after taxes in period \(t\); \(D_{t(t-1)}\) is the dividend payments in period \(t-1\); \(\beta_0, \beta_1, \beta_2\) are parameters; and \(\epsilon_t\) is the error term, which is assumed to be \(iid \ N(0, \sigma^2)\). All variables are on a per share basis\(^{142}\). Model (4.16) simply states that the decision to pay dividends this year is affected by the current year earnings per share and the previous year dividends per share. Both coefficients \(\beta_1\) and \(\beta_2\) should be positive and significant. In the analysis, the emphasis will be on two statistics, the speed of adjustment factor \((1 - \beta_2)\) and the implicit target payout ratio \((\beta_1 / (1 - \beta_2))\). The Lintner model will be estimated using the random effects Tobit model described in Section 4.6.

Recall that Lintner argued that a positive intercept in the model is an indication of a reluctance to cut dividends. However, Fama and Babiak (1968) found that the Lintner model performs better when the constant is suppressed and a lagged earnings term is added. Kalay (1980) provided an alternative explanation for the Lintner model that does

\(^{142}\) Several studies have estimated the Lintner model using per share data including, for example, Fama and Babiak (1968), Fama (1974), Shevlin (1982), Mishra and Narender (1996), Adaoglu (2000), Pandey (2001), Aivazian et al. (2003b), and Omet (2004).
not involve a reluctance to cut dividends. In addition, several studies estimated the Lintner model without the intercept term (Fama 1974, Morgan and Saint-Pierre, 1978, Dewenter and Warther, 1998, and Aivazian et al., 2003b, among others). For comparison purpose, the Lintner model will be estimated here both with and without the constant.

Omet (2004) provided empirical evidence on the validity of the Lintner model in Jordan. He used a sample of 44 companies for a 15-year period (1985-1999). Omet’s sample consisted of 660 firm-year observations balanced panel data. He estimated the Lintner model using a pooled OLS, a random effects model, and a fixed effects model. In his study, the Hausman specification test favoured the fixed effects model. From the fixed effects model, Omet estimated the coefficient on earnings per share to be 0.041 \((t\text{-statistic} = 8.032)\) and a coefficient on the lagged dividend per share of 0.480 \((t\text{-statistic} = 14.907)\). These estimates indicate a speed of adjustment coefficient \((\epsilon)\) of 0.52 and implicit target payout ratio \((\eta)\) of 0.08. Omet concluded that Jordanian companies adhere to stable dividend policy. However, Omet’s study may suffer from a sample selection bias problem, since his sample included only those companies that paid dividends for at least 12 years of the study period.

4.8 Summary

This chapter provided a detailed description of the data used in this study. The sample comprises 160 firms quoted on the ASE covering the period from 1989 to 2000. The analysis is based on a panel data set constructed from the available data. Unlike most dividend studies especially those which used Jordanian data, this study includes both dividend-paying and non-dividend-paying firms since exclusion of the non-dividend
paying firms from the analysis may lead to a selection bias. The chapter also provided summary statistics of the dividend policy measures.

Building on chapters 2 and 3, nine testable research hypotheses were developed. These research hypotheses and questions attempt to identify the determinants of corporate dividend policy in Jordan. The chapter also presented the proxy variables used to test the research hypotheses. The selected proxy variables are clearly defined and justified based on theory and prior research.

The general-to-specific method is used to choose between competing hypotheses. The analysis aims at examining both the determinants of the amount or the level of dividends paid by the firms and the decision to pay dividends. Therefore, Tobit and Probit estimations were used. To examine the amount of dividends paid the Tobit specification is used. The choice of Tobit estimation was justified by the nature of the depended variable. Since some companies pay dividends and others do not, this suggests a censoring problem and the Tobit model is the appropriate method to model censored data. The chapter described the general form of the random effects Tobit model. In testing for the decision to pay dividends, the random effects Probit model is used. In this case the aim is to examine the factors that affect the probability of a firm to pay dividends. Both Tobit and Probit models are estimated with the maximum likelihood estimation. Finally, the chapter explained the Lintner model, which will be used to test the stability of corporate dividend policy in Jordan. Analysis of the results will be presented in the next chapter.
5. Chapter 5: Analysis and Discussion of Results

Equation Section 5

5.1 Introduction

While the argument of the irrelevance of corporate dividend policy in perfect capital markets has been very important in financial theory, there is also much controversy about dividend policy in the real world where market imperfections exist. The presence of information asymmetry, agency problems, taxes, and transaction costs all seem to make dividend policy matter. Chapter 2 established that a large body of theoretical and empirical research has attempted to identify the determinants of corporate dividend policy. To date, however, there is no consensus about what factors affect corporate payout policy. The issue gets even more complicated when it comes to emerging markets. This study attempts to provide an insight into dividend policy in one emerging market (ASE) where there is a lack of evidence about the determinants of corporate dividend decisions.

Chapter 4 established nine testable research hypotheses derived from the theoretical and empirical research and from the microstructure of the Jordanian capital market. The chapter also provided a detailed description of the dataset used in this study, along with the test and estimation method. Based on the data derived from the publications of the ASE, we constructed a cross-section and time-series panel dataset. The sample consists of 160 Jordanian firms covering 12-years from 1989 to 2000. Since more than 50 percent of the observations recorded zero dividends, the Tobit model or censored
regression model specification was used to test the research hypotheses for the level of dividends paid. In addition, the Probit specification is used to examine the probability or the decision to pay dividends.

To recapitulate, Table 5-1 provides a summary of the research hypotheses and the proxy variables developed in the preceding chapter, along with the expected sign of each variable in relation to dividend policy measures. The table also identifies the dependent variable(s) used in the regressions.

Table 5-1: Summary of Research Hypotheses and Proxy Variables

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Proxy(s)</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Agency costs</td>
<td>STOCK: natural log of number of common stockholders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INSD: percentage held by insiders</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
</tr>
<tr>
<td>H2: Ownership structure*</td>
<td>FAML: family dummy = 1 if firm is family owned</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>STATE: state dummy = 1 if firm is owned by the</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>government or its agencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INST: institution dummy = 1 if firm is owned by</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>an institution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MULT: multiple dummy = 1 if firm has multiple owners</td>
<td>Positive</td>
</tr>
<tr>
<td>H3: Signalling</td>
<td>TURN: share turnover (proxy for information asymmetry)</td>
<td>Negative</td>
</tr>
<tr>
<td>H4: Investment opportunities</td>
<td>MBR: market-to-book ratio</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>PER: price-earning ratio</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>AGE: age of the firm</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>AGESQ: the square of AGE</td>
<td>Negative</td>
</tr>
<tr>
<td>H5: Size</td>
<td>MCAP: natural log of market capitalisation</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>LNTA: natural log of total assets</td>
<td>Positive</td>
</tr>
<tr>
<td>H6: Financial leverage</td>
<td>DER: debt-to-equity ratio</td>
<td>Negative</td>
</tr>
<tr>
<td>H7: Profitability</td>
<td>EPS: earning per share</td>
<td>Positive</td>
</tr>
<tr>
<td>H8: Taxes</td>
<td>DTAX: tax dummy = 1 for the years 1996-2000</td>
<td>Negative</td>
</tr>
<tr>
<td>H9: Assets structure</td>
<td>TANG: tangibility of assets</td>
<td>Negative</td>
</tr>
<tr>
<td>Control variable</td>
<td>NONFN: is a dummy variable to control for industry effects = 1 if a firm belongs to non-financial sector, and zero otherwise</td>
<td>Negative/Positive</td>
</tr>
<tr>
<td>Dependent variable(s)</td>
<td>DYLD: dividend yield (dividend-to-price ratio)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LNDIV: natural log of cash dividends</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIV/TA: dividend-to-total assets ratio</td>
<td></td>
</tr>
</tbody>
</table>

Note: * The 10% threshold level of ownership is used to identify the ultimate owner of the firm.
Comprehensive descriptive statistics of all variables used in the study are given in the next section. This is followed by several diagnostic tests. The chapter also presents and discusses the results obtained from the Tobit and Probit regressions for the determinants of the amount of dividends paid and the decision to pay dividends. In both cases, the general-to-specific method is used starting with a general model incorporating all variables then testing down to more parsimonious models. A separate section is provided to test Hypothesis 9 (asset structure). A further test for the signalling hypothesis is conducted employing the Lintner model. The analysis also provides several robustness checks, for example, using different measures of dividend policy and alternative proxy variables in some cases.

5.2 Descriptive Statistics

Table 5-2 presents summary statistics of all variables used in the analysis. The table reports the mean, standard deviation, minimum, maximum, coefficient of variation (CV)\textsuperscript{143}, and the number of observations for each of the dependent and independent variables. The CV indicates that there is a significant variation among the explanatory variables. Note that there is a large difference in the variance of the two dependent variables used in the Tobit analysis as measured by the standard deviation. The variable DYLD has a standard deviation of 0.0346, which is significantly lower than the 6.5894 standard deviation of LNDIV. However, from the CV the variance of DYLD is higher than LNDIV. The standard deviation of the DIV/TA is comparable to that reported for DYLD.

\textsuperscript{143} The coefficient of variation CV is defined as the standard deviation over the mean.
Table 5-2 Descriptive Statistics for the Dependent(s) and Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Coefficient of Variation</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DYLD</td>
<td>0.0270</td>
<td>0.0346</td>
<td>0</td>
<td>0.4000</td>
<td>1.2815</td>
<td>1316</td>
</tr>
<tr>
<td>LNDIV</td>
<td>5.7382</td>
<td>6.5894</td>
<td>0</td>
<td>17.3766</td>
<td>1.1483</td>
<td>1511</td>
</tr>
<tr>
<td>DIV/TA</td>
<td>0.0197</td>
<td>0.0320</td>
<td>0</td>
<td>0.2448</td>
<td>1.6244</td>
<td>1511</td>
</tr>
<tr>
<td>STOCK</td>
<td>3.0679</td>
<td>0.7461</td>
<td>1.1139</td>
<td>5.4065</td>
<td>0.2432</td>
<td>885</td>
</tr>
<tr>
<td>INSD</td>
<td>0.2885</td>
<td>0.2455</td>
<td>0</td>
<td>0.9454</td>
<td>0.8510</td>
<td>936</td>
</tr>
<tr>
<td>FAML</td>
<td>0.3031</td>
<td>0.4598</td>
<td>0</td>
<td>1</td>
<td>1.5170</td>
<td>1181</td>
</tr>
<tr>
<td>STATE</td>
<td>0.2100</td>
<td>0.4075</td>
<td>0</td>
<td>1</td>
<td>1.9405</td>
<td>1181</td>
</tr>
<tr>
<td>INST</td>
<td>0.5385</td>
<td>0.4987</td>
<td>0</td>
<td>1</td>
<td>0.9261</td>
<td>1181</td>
</tr>
<tr>
<td>MULT</td>
<td>0.3680</td>
<td>0.4825</td>
<td>0</td>
<td>1</td>
<td>1.3111</td>
<td>1182</td>
</tr>
<tr>
<td>AGE</td>
<td>15.7384</td>
<td>13.5327</td>
<td>0</td>
<td>70</td>
<td>0.8599</td>
<td>1598</td>
</tr>
<tr>
<td>AGESQ</td>
<td>430.7171</td>
<td>703.8408</td>
<td>0</td>
<td>4900</td>
<td>1.63411</td>
<td>1598</td>
</tr>
<tr>
<td>MBR</td>
<td>1.2900</td>
<td>1.0253</td>
<td>-0.02</td>
<td>12.67</td>
<td>0.7948</td>
<td>1382</td>
</tr>
<tr>
<td>DER</td>
<td>2.1429</td>
<td>6.9389</td>
<td>-177.2418</td>
<td>69.27</td>
<td>3.2381</td>
<td>1511</td>
</tr>
<tr>
<td>TURN</td>
<td>0.2992</td>
<td>0.6711</td>
<td>0</td>
<td>7.9933</td>
<td>2.2430</td>
<td>1491</td>
</tr>
<tr>
<td>DTAX</td>
<td>0.5000</td>
<td>0.5002</td>
<td>0</td>
<td>1</td>
<td>1.0004</td>
<td>1592</td>
</tr>
<tr>
<td>MCAP</td>
<td>15.7310</td>
<td>1.4030</td>
<td>11.1563</td>
<td>21.3562</td>
<td>0.0892</td>
<td>1320</td>
</tr>
<tr>
<td>EPS</td>
<td>0.2823</td>
<td>1.7743</td>
<td>-8.3879</td>
<td>28.2986</td>
<td>6.2852</td>
<td>1514</td>
</tr>
<tr>
<td>TANG</td>
<td>0.48542</td>
<td>0.2610</td>
<td>0.0002</td>
<td>0.9927</td>
<td>0.5377</td>
<td>1089</td>
</tr>
<tr>
<td>NONFIN</td>
<td>0.7375</td>
<td>0.4401</td>
<td>0</td>
<td>1</td>
<td>0.5968</td>
<td>1920</td>
</tr>
<tr>
<td>DPS*</td>
<td>0.11001</td>
<td>0.3388</td>
<td>0</td>
<td>4.0</td>
<td>3.0797</td>
<td>1507</td>
</tr>
</tbody>
</table>

Note: Variables are defined in Table 5-1. * DPS = dividend per share, which is the dependent variable in the Lintner model (see Table 5-11).
Table 5-3 provides summary statistics on the number of firm-year observations of zero and positive cash dividends over the period 1989-2000. As Table 5-3 reports, more than half (56.5 percent) of the firm-year observations in our sample have zero dividends. The lowest percentage of firm-years where there are zero dividends was in 1991, while the highest was in 2000. Note that the firm-year zero observations are significantly higher in the period between 1996 and 2000. This suggests a decline in the propensity to pay dividends among Jordanian firms. Recall from Chapters 3 and 4 that dividends and capital gains were subject to zero income tax prior to 1996. However, in 1996 the Jordanian Income Tax Authority imposed a 10 percent tax rate on dividend income. The observed differences in the frequency distribution of zero firm-year observations in cash dividends between the pre-tax (1989-1995) and post-tax (1996-2000) periods, therefore, may be attributable to that regulatory change.

<table>
<thead>
<tr>
<th>Year</th>
<th>Zero Values (Frequency)</th>
<th>Percentage (%)</th>
<th>Positive Values (Frequency)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>34</td>
<td>39.1</td>
<td>53</td>
<td>60.9</td>
</tr>
<tr>
<td>1990</td>
<td>33</td>
<td>36.7</td>
<td>57</td>
<td>63.3</td>
</tr>
<tr>
<td>1991</td>
<td>29</td>
<td>31.2</td>
<td>64</td>
<td>68.8</td>
</tr>
<tr>
<td>1992</td>
<td>36</td>
<td>36.0</td>
<td>64</td>
<td>64.0</td>
</tr>
<tr>
<td>1993</td>
<td>41</td>
<td>38.3</td>
<td>66</td>
<td>61.7</td>
</tr>
<tr>
<td>1994</td>
<td>66</td>
<td>52.4</td>
<td>60</td>
<td>47.6</td>
</tr>
<tr>
<td>1995</td>
<td>87</td>
<td>62.1</td>
<td>53</td>
<td>37.9</td>
</tr>
<tr>
<td>1996</td>
<td>104</td>
<td>67.1</td>
<td>51</td>
<td>32.9</td>
</tr>
<tr>
<td>1997</td>
<td>103</td>
<td>66.9</td>
<td>51</td>
<td>33.1</td>
</tr>
<tr>
<td>1998</td>
<td>110</td>
<td>70.1</td>
<td>47</td>
<td>29.9</td>
</tr>
<tr>
<td>1999</td>
<td>105</td>
<td>68.2</td>
<td>49</td>
<td>31.8</td>
</tr>
<tr>
<td>2000</td>
<td>105</td>
<td>70.9</td>
<td>43</td>
<td>29.1</td>
</tr>
<tr>
<td>Overall sample (1989-2000)</td>
<td>853</td>
<td>56.5</td>
<td>658</td>
<td>43.5</td>
</tr>
</tbody>
</table>

A formal statistical test of whether dividend payout ratios differ between the two periods is conducted. A non-parametric Wilcoxon rank-sum test is used because the
assumption of normality is violated in the data\textsuperscript{144}. The null hypothesis is that the dividend payout ratios for both periods have the same distribution. The Wilcoxon test statistic yields a Z-statistic of 7.84 (P-value = 0.000) suggesting that the null hypothesis is strongly rejected. That is, there is a statistically significant difference between the dividend payout ratios of the two time periods. Figure 5-1 below clearly shows that the number of firm-year observations of zero dividends is larger in the period between 1996 and 2000, compared with the period between 1989 and 1995.

Figure 5-1 also shows that in the period from 1989 and 1994 the frequency distribution of zero and positive dividends follows a relatively similar pattern, as it does for the period between 1996 and 2000. This implies that Jordanian companies to some extent follow a stable dividend policy once we take into account any structural shifts in the

\begin{align*}
\text{Generally, the Wilcoxon test statistic takes the form} \quad z &= w \left( n_1 + n_2 + 1 \right) \\
&\quad \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}},
\end{align*}

where $n_1$ is the number of observations from the first population (pre-regulatory change), $n_2$ is the number of observations from the second population (post-regulatory change), and $w$ is the sum of the ranks from the first population (see Mason, Lind and Marchal, 2000,p.555).
regulatory environment. Table 5-4 shows the means and standard deviations of dividend payout ratios by sectors for the period 1989-2000 (study period).

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry</th>
<th>Services</th>
<th>Insurance</th>
<th>Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>34%</td>
<td>23%</td>
<td>60%</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>(0.460)</td>
<td>(0.356)</td>
<td>(0.296)</td>
<td>(0.316)</td>
</tr>
<tr>
<td>1990</td>
<td>35%</td>
<td>15%</td>
<td>22%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>(0.298)</td>
<td>(0.305)</td>
<td>(1.941)</td>
<td>(0.352)</td>
</tr>
<tr>
<td>1991</td>
<td>55%</td>
<td>27%</td>
<td>74%</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>(0.278)</td>
<td>(0.415)</td>
<td>(0.500)</td>
<td>(0.305)</td>
</tr>
<tr>
<td>1992</td>
<td>37%</td>
<td>16%</td>
<td>55%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>(0.978)</td>
<td>(0.233)</td>
<td>(0.230)</td>
<td>(0.365)</td>
</tr>
<tr>
<td>1993</td>
<td>44%</td>
<td>27%</td>
<td>70%</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>(0.411)</td>
<td>(0.338)</td>
<td>(0.408)</td>
<td>(0.194)</td>
</tr>
<tr>
<td>1994</td>
<td>27%</td>
<td>135%</td>
<td>46%</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>(1.111)</td>
<td>(6.023)</td>
<td>(0.332)</td>
<td>(0.247)</td>
</tr>
<tr>
<td>1995</td>
<td>30%</td>
<td>27%</td>
<td>33%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>(0.431)</td>
<td>(0.353)</td>
<td>(0.312)</td>
<td>(0.176)</td>
</tr>
<tr>
<td>1996</td>
<td>28%</td>
<td>19%</td>
<td>32%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>(0.454)</td>
<td>(0.327)</td>
<td>(0.429)</td>
<td>(0.282)</td>
</tr>
<tr>
<td>1997</td>
<td>33%</td>
<td>16%</td>
<td>27%</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>(0.693)</td>
<td>(0.298)</td>
<td>(0.358)</td>
<td>(0.360)</td>
</tr>
<tr>
<td>1998</td>
<td>25%</td>
<td>20%</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>(0.425)</td>
<td>(0.369)</td>
<td>(0.341)</td>
<td>(0.299)</td>
</tr>
<tr>
<td>1999</td>
<td>8%</td>
<td>20%</td>
<td>26%</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td>(1.485)</td>
<td>(0.357)</td>
<td>(0.368)</td>
<td>(0.855)</td>
</tr>
<tr>
<td>2000</td>
<td>26%</td>
<td>21%</td>
<td>11%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>(0.412)</td>
<td>(0.436)</td>
<td>(0.259)</td>
<td>(0.402)</td>
</tr>
</tbody>
</table>

Overall period 30% 29% 37% 30%
(0.751) (1.676) (0.633) (0.391)

Note: First numbers are the mean payout ratio and numbers within parentheses are the standard deviation.

5.3 Diagnostic Tests

Table 5-5 presents the correlation matrix and the variance inflation factors for all explanatory variables used in the analysis. The low intercorrelations among the explanatory variables used in the regressions indicate no reason to suspect serious
multicollinearity. To further check, a diagnostic test of multicollinearity is also employed. The dependent variable DYLD is regressed against the explanatory variables shown in Table 5-5 without AGESQ and the variance inflation factors (VIFs) computed for the independent variables. As a rule of thumb, if one of the individual VIFs is greater than 10, there is an indication of a multicollinearity problem (Gujarati, 1995, p.339). The VIF values reported in Table 5-5 are small (much less than 10) with an average of 1.64 indicating an absence of multicollinearity between the variables.

The likelihood ratio (LR) test reported at the bottom of each table of the results (presented below) provides a formal test for the pooled (Tobit/Probit) estimator against the random effects panel estimator. For all estimated regressions, the results of the LR test indicate that the panel-level variance component is important and, therefore, the pooled estimation is different from the panel estimation. The reported coefficient of Rho ($\rho$), which is the panel-level variance component, provides a similar test. It represents the proportion of the total variance contributed by the panel-level variance component. In the case where $\rho = 0$ the panel-level variance component is not important and the panel (Tobit/Probit) estimator is not different from the pooled (Tobit/Probit) estimator (see Stata 8 manual, StataCorp, 2003, p.176). The estimated value of Rho ($\rho$) in all regressions is significant.

---

145 The high correlation between AGE and AGESQ does not create a multicollinearity problem since both variables are not linearly related (see, for example, Schooley and Barney, 1994).

146 The VIF can be defined as: $VIF(B_{Ri}) = 1/(1 - R^2_i)$, where $R^2_i$ is the squared multiple correlation coefficient between $x_i$ and the other explanatory variables (see Maddala, 2001, p.272). The minimum value of VIF is one, where $R^2_i$ is equal to zero. Hence, the closer the VIF value is to one the lower is the degree of multicollinearity.
Table 5-5 Correlation Matrix and Variance Inflation Factors (VIF) for the Explanatory Variables

<table>
<thead>
<tr>
<th></th>
<th>STOCK</th>
<th>INSD</th>
<th>FAML</th>
<th>STATE</th>
<th>INST</th>
<th>MULT</th>
<th>AGE</th>
<th>AGESQ</th>
<th>MBR</th>
<th>DER</th>
<th>TURN</th>
<th>DTAX</th>
<th>MCAP</th>
<th>EPS</th>
<th>TANG</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSD</td>
<td>-0.362</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAML</td>
<td>-0.166</td>
<td>0.107</td>
<td>1.000</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STATE</td>
<td>-0.145</td>
<td>0.484</td>
<td>0.144</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INST</td>
<td>-0.156</td>
<td>0.405</td>
<td>0.013</td>
<td>0.016</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MULT</td>
<td>-0.236</td>
<td>0.480</td>
<td>0.388</td>
<td>0.171</td>
<td>0.545</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>0.0904</td>
<td>0.241</td>
<td>-0.024</td>
<td>0.402</td>
<td>-0.017</td>
<td>0.157</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGESQ</td>
<td>0.1626</td>
<td>0.170</td>
<td>-0.042</td>
<td>0.365</td>
<td>-0.084</td>
<td>0.104</td>
<td>0.946</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBR</td>
<td>-0.148</td>
<td>0.215</td>
<td>-0.062</td>
<td>0.117</td>
<td>0.018</td>
<td>0.031</td>
<td>0.039</td>
<td>0.017</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DER</td>
<td>-0.007</td>
<td>0.098</td>
<td>-0.053</td>
<td>0.040</td>
<td>0.012</td>
<td>-0.058</td>
<td>0.121</td>
<td>0.151</td>
<td>0.434</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TURN</td>
<td>0.085</td>
<td>-0.216</td>
<td>-0.053</td>
<td>-0.160</td>
<td>-0.090</td>
<td>-0.160</td>
<td>-0.095</td>
<td>-0.097</td>
<td>0.102</td>
<td>0.014</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTAX</td>
<td>-0.087</td>
<td>0.047</td>
<td>0.079</td>
<td>0.092</td>
<td>0.129</td>
<td>0.080</td>
<td>0.007</td>
<td>0.004</td>
<td>-0.294</td>
<td>0.037</td>
<td>-0.074</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCAP</td>
<td>0.178</td>
<td>0.085</td>
<td>0.202</td>
<td>0.244</td>
<td>0.030</td>
<td>0.016</td>
<td>0.315</td>
<td>0.368</td>
<td>0.306</td>
<td>-0.009</td>
<td>-0.160</td>
<td>-0.151</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>-0.020</td>
<td>-0.022</td>
<td>-0.069</td>
<td>0.058</td>
<td>-0.055</td>
<td>-0.056</td>
<td>0.068</td>
<td>0.042</td>
<td>0.094</td>
<td>-0.075</td>
<td>-0.060</td>
<td>-0.073</td>
<td>0.178</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>TANG</td>
<td>0.010</td>
<td>0.018</td>
<td>-0.124</td>
<td>0.003</td>
<td>-0.037</td>
<td>-0.100</td>
<td>-0.113</td>
<td>-0.023</td>
<td>0.014</td>
<td>0.094</td>
<td>0.112</td>
<td>0.038</td>
<td>0.080</td>
<td>-0.084</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>VIF</strong></td>
<td>1.32</td>
<td>2.35</td>
<td>1.61</td>
<td>2.20</td>
<td>2.34</td>
<td>2.32</td>
<td>1.42</td>
<td>-</td>
<td>1.81</td>
<td>1.45</td>
<td>1.11</td>
<td>1.21</td>
<td>1.51</td>
<td>1.14</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Note: Variables are defined in Table 5-2
In attempting to test for heteroskedasticity, a two-stage test procedure is employed. An important test for heteroskedasticity is the Lagrange Multiplier test devised independently by Breusch and Pagan (1979) and Godfrey (1978). The test is based on the auxiliary regression of the square of the estimated errors from the model to be tested against a $1 \times m$ vector of variables $z_i$, including a constant.

$$\hat{e}_i^2 = z_i' b + v_i \quad v_i \sim \mathcal{N}(0, \sigma^2) \quad \forall i \{i = 1,...,n\} \quad (5.1)$$

The squared errors are used as sample counterparts to the unknown disturbance variance, which may be a linear function of the variables $z_i$. These usually comprise some or all of the right hand side variables in the original model. The test statistic commonly used, $nR^2 \sim \chi^2(m)$ under the null hypothesis of homoskedastic errors, where $R^2$ is the coefficient of determination of the auxiliary regression (Mittelhammer, Judge and Miller, 2000, p. 536).

Even though the auxiliary regression (5.1) is linear it need not be confined to testing for heteroskedasticity in linear models, but can be used to test for heteroskedasticity in all stochastic models that contain additive disturbances, which are independently and identically distributed. That is, the test can be used to test for heteroskedasticity in the general stochastic model:

$$y_i = f(x_i, \beta) + \epsilon_i \quad \epsilon_i \sim \mathcal{N}(0, \sigma^2) \quad \forall i \{i = 1,...,n\} \quad (5.2)$$

The general model contains, within it, non-linear panel models such as the random effects Tobit model. However, it is necessary to modify the heteroskedasticity test of (5.1) if the
errors that are subject to test contain a random effects shift. That is, if the non-linear model is of the type:

\[ y_{it} = f(x_{it}, \beta) + \varepsilon_{it}, \quad \varepsilon_{it} = a_i + v_{it}, \quad a_i \sim \mathcal{N}(0, \sigma^2_a) \text{ and } v_{it} \sim \mathcal{N}(0, \sigma^2) \] (5.3)

then the reported estimated errors will contain the term \( a_i \). The errors must be purged of this component. One-way of doing this is to adopt a two-step test procedure.

First, retrieve the estimated errors from the main model and regress the square of these errors against a set of dummy variables representing each individual in the cross section. The errors from this regression will be squared errors purged of \( a_i \). These errors can now be used as the dependent variable in the auxiliary regression (5.1) but without taking the square. Further, the right hand side variables in the second step of the auxiliary regression can be all or some of the independent variables in the main regression.

The results of the test described above show that our models do not suffer from a heteroskedasticity problem. For example, in the general model (Model 1 of Table 5-6) the observed Chi-square value of 2.5806 \((nR^2 = 759*0.0034)\) is not significant at the 5 percent level (the 5 percent critical value from a Chi-square distribution with 1 degree of freedom is 3.841). Similarly, the observed Chi-square for models 2 and 3 (parsimonious models) are 2.8842 and 1.0626 respectively. Therefore the null hypothesis of homoskedasticity (or no heteroskedasticity) is not rejected. We applied the same test for the Lintner model (L1) in Section 5.4.6, where the lagged dependent variable is included in the model. The results suggest the absence of the heteroskedasticity problem (the observed Chi-square value is 0.5376).
5.4 Analysis of the Results

The analysis of the results is presented here in different subsections. It begins with an analysis of the determinants of dividend policy and, in particular, the level or the amount of dividends is examined using the Tobit model. This includes an analysis of the statistical significance of each variable as well as the economic significance. The Probit model is then used to examine the decision to pay dividends. Note that these are different questions to be answered. That is, some variables may be important determinants of the amount of dividends paid but not necessarily affect the decision to pay dividends. The analysis then moves to examining the effect of asset structure on dividend policy using both Tobit and Probit specifications. Finally the Lintner model is examined.

5.4.1. The Determinants of Dividend Policy: Tobit Analysis

Table 5-6 gives the results of the maximum likelihood estimation (MLE) of the random effects Tobit model, defined in Chapter 4. The table shows three models in which dividend policy is measured by the dividend yield (DYLD). The second column of each model reports the estimated marginal effects, which is the probability of the dependent variable to be uncensored. That is, the probability of a non-dividend-paying firm to pay dividends conditional on a change in each of the explanatory variables. The general model (Model 1) includes fifteen variables and encompasses all of the models, with 759 firm-year observations. Of the fifteen variables used in the model, twelve have the hypothesised signs with the exception of STOCK and MBR. Seven variables are statistically different from zero. To control for industry effects, a dummy variable (NONFIN) is included taking a value of one if a firm belongs to industrial or services sectors, and zero otherwise (that is
for firms in the insurance or banking sectors). The overall significance of the model was tested using the Wald test, which has a Chi-square ($\chi^2$) distribution under the null hypothesis that all the exogenous variables are equal to zero. The value of the $\chi^2$ statistic is 85.75 with a P-value of 0.000, indicating that the explanatory power of the model is significant beyond the 1 percent level.

In the process of moving from the general to the specific model, six variables (STOCK, FAML, INST, MULT, MBR, and TURN) were dropped from Model 1 generating Model 2. Using the $\chi^2$ statistic, the hypothesis of jointly zero coefficients for those six variables could not be rejected [$\chi^2 (6) = 3.43; P\text{-value} = 0.7532$]. In addition, the likelihood ratio test (LRT) is performed to test Model 2 (restricted) against Model 1 (unrestricted) and see whether this process statistically provides additional explanatory power to the model. In other words, do the additional parameters in the unrestricted model significantly increase the likelihood? In this case, the LRT statistic is $LR = -2 \left[ 270.47 - 272.33 \right] = 3.72$, and the critical value from a $\chi^2$ distribution, with 6 degrees of freedom, is 12.59 ($P = 0.05$). Since the computed value is less than the critical value, the null hypothesis is not rejected. That is, the null model (Model 2), which is the restricted model, cannot be rejected. Therefore, Model 1 does not provide a statistically significant increase in likelihood over Model 2, which supports our exclusion of the aforesaid variables.

Similarly, two variables (DTAX and NONFIN) were dropped from Model 2 since the $\chi^2$ statistic shows that they are jointly not statistically different from zero [$\chi^2 (2) = 2.64; P$-

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147 The likelihood ratio (LR) test statistic is calculated as $LR = -2 \left[ LogL_R - LogL_{UR} \right]$, which follows a $\chi^2(k)$ distribution, where $k$ is the degrees of freedom equal to the number of restrictions.
value = 0.2670]. This allowed the development of Model 3. In testing Model 3 against Model 2, the null hypothesis, that the explanatory power of the two models is equal, is not rejected (LR statistic = 2.64, critical value, with 2 degrees of freedom, = 5.99). That is, the null model (Model 3) cannot be rejected. The variables included in Model 3 possess the anticipated sign and are statistically significant. From models 2 and 3, the coefficient of NONFIN was not statistically different from zero, suggesting that industry effects may not be important. At the aggregate level, the regressions (Models 1 – 3) are highly significant at the 1 percent level or better.
Table 5-6 MLE Results for Random Effects Tobit Model

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model (1)</th>
<th>Model (2)</th>
<th>Model (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient Estimates</td>
<td>Marginal Effects (%)</td>
<td>Coefficient Estimates</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.26550*** (-4.10)</td>
<td>-0.27823*** (-5.43)</td>
<td>-0.30033*** (-6.25)</td>
</tr>
<tr>
<td>STOCK</td>
<td>-0.00805 (-1.01)</td>
<td>-0.241</td>
<td>—</td>
</tr>
<tr>
<td>INSD</td>
<td>-0.06007*** (-2.61)</td>
<td>-0.04111** (-2.04)</td>
<td>-1.237</td>
</tr>
<tr>
<td>FAML</td>
<td>-0.00434 (-0.43)</td>
<td>-0.130</td>
<td>—</td>
</tr>
<tr>
<td>STATE</td>
<td>0.02411* (1.93)</td>
<td>0.770</td>
<td>0.02106* (1.90)</td>
</tr>
<tr>
<td>INST</td>
<td>0.00795 (0.76)</td>
<td>0.237</td>
<td>—</td>
</tr>
<tr>
<td>MULT</td>
<td>0.00394 (0.37)</td>
<td>0.118</td>
<td>—</td>
</tr>
<tr>
<td>AGE</td>
<td>0.00437*** (4.52)</td>
<td>0.131</td>
<td>0.00425*** (3.93)</td>
</tr>
<tr>
<td>AGESQ</td>
<td>-0.00006*** (-3.67)</td>
<td>-0.002</td>
<td>-0.00006*** (-3.64)</td>
</tr>
<tr>
<td>MBR</td>
<td>0.00015 (0.04)</td>
<td>0.005</td>
<td>—</td>
</tr>
<tr>
<td>DER</td>
<td>-0.00300** (-2.59)</td>
<td>-0.090</td>
<td>-0.00299*** (-2.95)</td>
</tr>
<tr>
<td>TURN</td>
<td>-0.00020 (-0.02)</td>
<td>-0.006</td>
<td>—</td>
</tr>
<tr>
<td>DTAX</td>
<td>-0.00737 (-1.52)</td>
<td>-0.224</td>
<td>-0.00638 (-1.40)</td>
</tr>
<tr>
<td>MCAP</td>
<td>0.01605*** (3.62)</td>
<td>0.479</td>
<td>0.01541*** (4.72)</td>
</tr>
<tr>
<td>EPS</td>
<td>0.00456** (2.52)</td>
<td>0.136</td>
<td>0.00494*** (2.84)</td>
</tr>
<tr>
<td>NONFIN</td>
<td>-0.01686 (-1.30)</td>
<td>-1.686</td>
<td>-0.01705 (-0.97)</td>
</tr>
<tr>
<td>Rho (ρ)</td>
<td>0.59667*** (10.46)</td>
<td>—</td>
<td>0.58796*** (10.46)</td>
</tr>
</tbody>
</table>

| Notes: * Significant at the 10, 5, and 1 percent levels, respectively. t-statistics are in parentheses. See Table 5-1 for variable definitions. ** The proportion of the total variance contributed by panel-level variance component. LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit) estimator against the random effects panel estimator. |
5.4.1.1. Agency Costs

In a direct test for the agency costs hypothesis \((H_1)\), two proxies are used: \(\text{STOCK}\) and \(\text{INSD}\). According to the agency costs argument the variable representing ownership dispersion (\(\text{STOCK}\)) should be positively correlated with dividends. The logic for this notion is that when a firm’s ownership is widely dispersed the level of shareholder control will diminish, and they will demand higher dividend payouts to mitigate agency costs and reduce the cash available to managers in an attempt to protect themselves from being expropriated. The regression result of Table 5-6 shows that the variable \(\text{STOCK}\) has a negative sign but is not significantly different from zero\(^{148}\), indicating that ownership dispersion does not appear to influence dividend policy in Jordan. Chapter 3 established that firms in Jordan tend to have high levels of ownership concentration. Research has established elsewhere that in such markets, corporate governance tends to be dominated by a few key inside owners. In these cases of ‘insider control’, minority shareholders will not be able to exert much influence on dividend policy, and the degree of outside ownership will often therefore not be of much significance.

As predicted, the coefficient of the second proxy of agency costs (\(\text{INSD}\)) is negative and statistically significant at the 1 and 5 percent levels. These results remain consistent throughout the regressions, Models 1 to 3. This indicates that insider ownership is an important determinant of corporate dividend policy in Jordan, in particular the level of dividends. The negative and significant relationship between dividend yield and insider ownership lends support to Rozeff (1982), who proposed that the use of dividends as a bonding mechanism to reduce agency costs is less important when there is higher insider

\(^{148}\) Using US data, Alli et al. (1993) obtained a similar result.
ownership. That is, in firms where insiders (executives) have a greater proportion of ownership, agency problems are less severe and, hence, using dividends to alleviate the agency costs may become less important. The negative impact of INSD on dividend yield is also consistent with the argument that insiders may become entrenched and then attempt to extract private benefits instead of paying cash dividends to shareholders (see, for example, Maury and Pajuste, 2002).

The findings of a negative relationship between insider stock ownership and the dividend yield are also consistent with the prior research based on advanced capital markets including Jensen et al. (1992), Alli et al. (1993), Moh’d et al. (1995), and Holder et al. (1998), among others. The results are also similar to those of Mollah et al. (2000) who examined firms traded on an emerging market, that is, the Dhaka Stock Exchange. However, for Indian firms, Manos (2002) reported different results. He found a positive and significant relationship between INSD and dividend payout.

5.4.1.2. Ownership Structure

From Hypothesis 2, the variables representing the firm’s ownership structure are expected to influence its dividend policy. Four dummy variables are used, FAML, STATE, INST, and MULT. Table 5-6 shows that in Model 1 the coefficients of those variables have the expected sign but are not significantly different from zero, with the exception of STATE. The three dummies FAML, INST, and MULT are jointly insignificant \( \chi^2 (3) = 2.08; \) P-value = 0.5553. Therefore, we dropped them from Model 1, while we kept STATE since it was significant at the 10 percent level.
The insignificant coefficients of ownership structure variables, with the exception of STATE, indicate that these variables do not appear to determine corporate dividend policy in Jordan (the amount of dividends). However, the existence of the government or its agencies as a controlling shareholder seems to influence the level of dividends paid. The positive significant relationship between dividend yield and STATE is consistent with the assertion that, ceteris paribus, state-controlled firms tend to pay more dividends. This prediction is based on the argument that state-controlled firms are often subject to a double set of agency costs since the ultimate owners of these firms are the citizens. In addition, government entities may have tax privileges so they prefer to invest in dividend-paying firms. These results are in line with those obtained by Gul (1999) who found a positive and significant relationship between dividend yield and government ownership for companies listed on the Shanghai Stock Exchange, and the findings of Gugler (2003) that state-controlled firms in Austria tend to have large target payout ratios and smooth dividends.

As stated in Chapter 4, the relationship between dividend policy and firm ownership structure has been examined within the agency theory framework. From the evidence obtained so far, the significant negative (positive) relationship between INSD (STATE) and dividend yield, it appears that agency costs are an important determinant for corporate dividend policy in Jordan.

5.4.1.3. Signalling

In the presence of information asymmetry between a firm’s managers and outside investors, the signalling hypothesis predicts that dividends can be used as a mechanism to convey information to the market about the true value of the firm, and only good-quality
firms can use such a device. In testing whether this hypothesis (H₃) can provide an explanation for corporate dividend policy in Jordan, two approaches were developed. In the first stage, a proxy variable for information asymmetry is used and included in the regression. The Lintner model is then applied to our sample firms. Regarding the first approach, the firm share turnover ratio (TURN) is used as a proxy for information asymmetry. As discussed in Chapter 4, the signalling hypothesis posits an inverse relationship between share turnover and dividend yield. That is, shares with high information asymmetries should exhibit lower trading volume (TURN), ceteris paribus.

As predicted, the result from Model 1 in Table 5-6 show that the coefficient on TURN is negative, but the null hypothesis of zero coefficient for the variable could not be rejected ($t$-statistic = -0.02). The evidence here, therefore, does not provide support for the signalling hypothesis. One possible explanation for this result is that the proxy for information asymmetry is weak. However, as discussed below, further tests for the signalling hypothesis will be conducted by applying the Lintner model (see Section 5.4.6).

### 5.4.1.4. Growth and Investment Opportunities

Hypothesis 4 predicts that firms with high growth and investment opportunities tend to retain their income to finance those investments, thus paying less or no dividends. The variables MBR and AGE are used as proxies for growth and investment opportunities. The coefficients on MBR and AGE are expected to bear negative and positive signs, respectively. From the regression results (Model 1) in Table 5-6, contrary to expectations, the coefficient of MBR is positive and insignificant, whereas, as predicted, the coefficient of AGE is positive and significantly different from zero. These findings indicate that the
market-to-book value ratio is not related to dividend yield, while firm age is positively related to dividend yield. The positive coefficient on MBR is analogous to that reported by Aivazian et al (2003a) for Jordanian firms; however, they obtain a significant coefficient in their results. As a further check, the price-earning ratio (PER) is used in place of MBR as a proxy for growth opportunities, not reported in Table 5-6, and the result remains unchanged, i.e. insignificant, but the coefficient on PER is negative\textsuperscript{149}.

However, the hypothesised relationship between dividends and growth and investment opportunities could not be rejected since the other proxy variable for growth (AGE) is highly significant with \( t \)-statistics of 4.52, 3.93 and 3.83 in models 1, 2 and 3, respectively. The age of the firm is consistently significant at the 1 percent level, suggesting that mature firms tend to pay higher levels of dividends. These results, reported in Table 5-6, are consistent with prior research of Manos and Green (2001) who found that the age of the firm and the payout level are positively related for independent (non-group affiliated) Indian firms. In their study, Manos and Green applied a Tobit model, but unlike here they used the variable AGE as a measure for firm’s reputation. They argue that older firms have more reputation and therefore have better access to the capital market, which results in less reliance on internal funds.

The result also provides empirical support for the maturity hypothesis proposed by Grullon et al. (2002). That is, as firms become mature their growth opportunities tend to decline resulting in lower capital expenditure needs, and thus more cash flows are available for dividend payments. When a mature firm has little or no investment opportunities, a high

\textsuperscript{149} See Appendix B for the full estimated model.
level of dividends will reduce the discretionary resources available to managers that could be wasted in perquisites or unprofitable projects. In other words, dividends reduce the agency costs associated with free cash flow. The results hence also provide support for the free cash flow hypothesis (Easterbrook, 1984, and Jensen, 1986).

To the best of the author’s knowledge, this thesis provides the first attempt to document that the age of the firm is quadratically negatively related to dividend yield as shown by the significant positive coefficients on AGE and the significant negative coefficients on AGESQ (squared of age) in all regressions. This non-linear relationship between the age of the firm and dividend yield (negative sign of AGESQ) may imply changes in a firm’s life cycle, that is, movement from a lower growth phase to a higher growth phase. In other words, when a firm finds new investment opportunities (growth phase) it will pay less or no dividends because paying dividends is no longer optimum. Again, this evidence reinforces the interpretation above that the positive association between the age of the firm and dividend yield is consistent with Grullon et al.’s (2002) maturity hypothesis, and accordingly with the free cash flow hypothesis of Easterbrook (1984) and Jensen (1986).

5.4.1.5. Size

Another variable found to be a determinant of corporate dividend policy in Jordan is the firm size (Hs). As expected, Table 5-6 reports that the coefficients on size (MCAP) are robustly positively correlated with dividend yield. The $t$-statistics of the coefficients on MCAP for models 1, 2 and 3 are 3.62, 4.72 and 5.34, respectively, which are highly significant at the 1 percent level. The effect of size on dividend policy is robust even when an alternative measure of firm size is used. For example, when market capitalisation is
replaced with the natural log of total assets (LNTA) in Model 3 (not reported), the estimated coefficient of LNTA is 0.01065 with a t-statistic of 3.22\textsuperscript{150}. The variable LNTA is not included along with MCAP because they are highly correlated (0.8621)\textsuperscript{151}. Before moving on, it is worthwhile noting that, as suggested by Fama and French (2002), firm size may serve as a proxy for age, which suggests that the effects of the two variables, age and size, on dividend policy cannot be separated. However, we believe that this issue has no effect on our analysis since we controlled for both variables and showed clearly that our explanatory variables do not suffer from any multicollinearity problem. In any case, the two variables are found to be exogenous.

The positive and significant correlation between dividend yield and size suggests that large firms are more able to pay dividends. These results are consistent with the findings of Fama and French (2001) that large firms are more likely to pay dividends. They are also consistent with Reeding (1997) who developed a model showing that the fraction of large companies ($\theta^L$) paying dividends is greater than that of small companies ($\theta^S$), that is $\theta^L > \theta^S$. Using market capitalisation as a proxy for size, Reeding tested his hypothetical model empirically for firms traded on the NYSE and confirmed that large firms are more likely to pay dividends in that market. The present results, however, are inconsistent with Aivazian et al. (2003a) who found mixed results regarding the relationship between size and dividend policy for several emerging markets and especially for Jordan.

\textsuperscript{150} Appendix C provides the full estimated model.
\textsuperscript{151} For US firms, Gaver and Gaver (1993) found a positive relationship between a firm’s dividend yield and size, measured by logarithm of total assets.
The significant and positive relationship between size and dividends also lends support to the agency costs explanation. The intuition here is that the larger the firm, the more difficult (costly) is the monitoring (i.e. the greatest the agency problem). Thus, dividends could play a role in helping to alleviate the agency problem. Also, the positive relation between dividend yield and size supports the generally accepted view proposed by many finance scholars that larger firms have easier access to capital markets (see, among others, Lloyd et al., 1985, Holder et al., 1998, Fama and French, 2002, and Aivazian et al. 2004), and have lower transaction costs associated with acquiring new financing as compared to small firms (Alli et al., 1993).

This analysis did not provide a direct test of the relationship between business risk and dividend policy. Theory suggests that firm business risk is negatively related to dividends (see, for example, Rozeff, 1982, and Crutchley et al., 1999). As argued by Rajan and Zingales (1995, p.1451), “Larger firms tend to be more diversified and fail less often, so size … may be an inverse proxy for bankruptcy”. That is, the larger the firm size the less risk of bankruptcy. The robust positive relationship between size and dividend yield in the present study provides evidence consistent this notion.

5.4.1.6. Financial Leverage

Hypothesis 6 predicts a negative relationship between a firm’s financial leverage and dividend yield. Table 5-6 shows that the coefficients on debt-to-equity ratio (DER) are negative and statistically significant at the 5 and 1 percent levels. The t-statistics of the

\footnote{Fama and French (2002) suggested that larger firms are subject to less volatile earnings and cash flows, and used firm size as proxy for volatility.}
coefficients on DER for models 1, 2 and 3 are 2.59, 2.95 and 2.61, respectively. This suggests that firms with high debt ratios tend to pay fewer dividends, and the level of dividend payments thus seems to be negatively correlated with the level of financial leverage. In relation to emerging equity markets, Aivazian et al. (2003a) provided evidence consistent with findings presented here. They found a negative and statistically significant relationship between debt and dividend payments for firms operating in emerging markets, including Jordan.

Recall that Jensen (1986) argued that debt could serve as a substitute mechanism for dividends in reducing the agency costs of free cash flow. That is, when a firm obtains debt, it makes a fixed commitment to creditors, which reduces the discretionary funds available to managers and subjects them to scrutiny of debt-suppliers. This suggests that highly levered firms are expected to have low dividend payouts. Agrawal and Jayaraman (1994) found empirical support for this prediction. Although Jordanian firms are not generally highly geared, the results obtained here provide support for Jensen’s thesis. However, a word of caution should be added. The sample used in this study consists of all companies listed on the ASE including financial companies, which are highly levered.

5.4.1.7. Profitability

Turning to the firm’s profitability \( (H_7) \), the estimates of earnings per share (EPS) are all positive and significant at the 1 percent level, with the exception of Model 1 which is significant at the 5 percent level. This suggests that profitability is a critical determinant of the level of dividends paid by Jordanian firms. The positive relationship between
profitability and dividends is well documented in the literature (see, for example, Jensen et al, 1992, Han et al., 1999, and Fama and French, 2001, 2002).

These results are consistent with the key finding of the pioneering research of Lintner (1956, p.107) that “… net earnings were the predominant element which determined current changes in dividends…”. In addition, the results are consistent with the work of Aivazian et al. (2003a) who concluded that profitability affects dividend payments in emerging markets, including Jordan. Similarly, the significant positive relationship between profitability and dividends is generally consistent with the pecking order theory (see Fama and French, 2001 and 2002).

5.4.1.8. Taxes

Recall from Chapter 3 that the Jordanian Income Tax Authority implemented a 10 percent tax rate on dividend income in 1996. As a result, one can expect that this regulatory change would affect dividend policy since dividends became more costly to investors than capital gains. That is, taxes on dividends will have negative impact on the level or the amount of dividends paid. Chapter 4 developed a hypothesis to test this prediction by including a dummy variable (DTAX) into the analysis taking a value of one for the years 1996-2000 (post-tax period), zero otherwise.

The results from Table 5-6 show that the implementation of a 10 percent tax rate on dividends in 1996 seems to have had no significant influence on corporate dividend policy in Jordan. Consistent with the tax-preference theory, the coefficients on DTAX are negative in models 1 and 2, but the hypothesis of zero coefficients for tax variable could
not be rejected. This suggests that the imposition of the 10 percent tax on dividends did not materially affect the level of dividends paid by Jordanian companies, consistent with our prediction (see Chapter 4). This result lends support for the findings of Omet (2004) that the implementation of the tax had no impact on corporate dividend behaviour in Jordan. However, this finding may seem inconsistent with the results obtained in Section 5.2 that there were statistically significant differences between dividend payout ratios before and after the regulatory change (as shown by the Wilcoxon test) suggesting a possible tax effect. Since the evidence is mixed, we are unable to draw a strong conclusion either way at this stage about whether imposition of taxes affects dividend policy in Jordan. But, the Probit analysis is used to provide further evidence. To this end, for our sample, we have at best only weak support for the tax-effect hypothesis.

5.4.2. The Economic Significance of the Coefficients

The previous sections discussed and analysed the statistical significance of each coefficient of the variables used to proxy the research hypotheses in question. Although it has been shown how these variables statistically influence dividend policy, the coefficients displayed do not account for the relative influence of the variables on the dependent variable. In the Tobit models, the coefficients do not provide the marginal effects (economic significance) of each variable on the dependent variable. Therefore, the marginal effects for each variable is computed using the following formula (see Green, 1999):

\[
E[y|x] = \Phi(x'\beta / \sigma)[x'\beta + \sigma \phi(x'\beta / \sigma) / \Phi(x'\beta / \sigma)]
\]  

(5.4)
where, $\phi$ and $\Phi$ are the density and cumulative distribution function (cdf) of the standard normal distribution, $\beta$ is the vector of coefficient estimates, $x'$ is the vector of mean of independent variables, and $\sigma$ is the standard deviation of $y$ (dependent variable).

The marginal effects for each coefficient estimates is reported in the table above where the results of the Tobit model are presented. But for convenience, Table 5-7 below presents the marginal effects of the coefficients that were statistically significant. Recall that our nesting procedures resulted in the development of Model 3 from which the figures in Table 5-7 are taken.

### Table 5-7 Marginal Effects of Tobit Model

<table>
<thead>
<tr>
<th>INSD</th>
<th>STATE</th>
<th>AGE</th>
<th>AGESQ</th>
<th>DER</th>
<th>MCAP</th>
<th>EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.273</td>
<td>0.610</td>
<td>0.117</td>
<td>-0.002</td>
<td>-0.066</td>
<td>0.480</td>
<td>0.167</td>
</tr>
<tr>
<td>(-2.35)</td>
<td>(1.79)</td>
<td>(3.78)</td>
<td>(-3.78)</td>
<td>(-2.58)</td>
<td>(5.32)</td>
<td>(3.40)</td>
</tr>
</tbody>
</table>

Notes: $t$-statistics are in parentheses. See Table 5-1 for variable definitions.

In relation to the agency costs variable INSD, other things being equal, a 1 percent change in the proportion held by insiders expected to account for 1.273 percent change in dividend yield. Similarly, a 1 percent increase in government ownership in a firm would lead to an increase in the dividend yield by 0.610 percent. Note that the marginal effects of agency costs variables are significantly larger than the other variables supporting the conclusion that the agency costs hypothesis provides an important explanation of dividend policy in Jordan.

The age of the firm (AGE) seems to influence DYLD but only marginally. Recall that this variable was designed to proxy for growth and investment opportunities. Mature firms
with less growth and investment opportunities tend to pay more dividends. As a firm becomes one year older, the estimated increase in DYLD is 0.112 percent, ceteris paribus. The square of age (AGESQ) appears to be negative and statistically significant, suggesting that dividend yield and age are quadratically related, consistent with our hypothesis.

Firm size as measured by market capitalisation is positively related to DYLD with marginal effects of 0.480 percent. If for example a firm’s market capitalisation increases from JD 10 million to JD 15 million, the expected increase in its DYLD would be 0.195 percent\textsuperscript{153}. In relation to a firm’s capital structures, financial leverage (DER) is negatively related to dividend yield. If a firm’s financial leverage increases by 1 percent, the estimated decrease in dividend yield will be 0.066. Contrary to expectation, the profitability variable does not seem to have large economic importance. An increase in earnings per share of 1 percent would lead to an increase in dividend yield of only 0.167 percent.

5.4.3. Robustness Checks

Several robustness checks are performed to confirm the main results of the previous analysis. Firstly, the regressions from Table 5-6 are re-estimated by substituting the dependent variable dividend yield with other measures of dividend policy. The first measure is the natural log of aggregate cash dividends (LNDIV), and the second measure is the dividend-to-total assets ratio (DIV/TA). This will enable us to check whether the results are sensitive to the measure of dividend policy. Moreover, this should help to avoid the shortcomings associated with using dividend yield as a measure of dividend policy (see

\textsuperscript{153} [(LN 15,000,000 – LN 10,000,000) * 0.480], see Washer and Casey (2004) for similar calculation.
Fama and French, 2002, p.15). Secondly, alternative proxies are used for some of the explanatory variables such as LNTA instead of MCAP, and PER instead of MBR, as discussed earlier. The emphasis here is on Model 3 that is generated from the general-to-specific procedures since it includes all the variables that seem to have a significant impact on corporate dividend policy in Jordan.

The results presented in Table 5-8 below are generally consistent with the original findings when dividend yield (DYLD) is used as a dependent variable. The overall explanatory power of both models either when LNDIV or DIV/TA are used as a dependent variable is significant. The $\chi^2$ statistic of the Wald test for LINDIV model is 99.53 (P-value = 0.000) and 170.23 (P-value = 0.000) for DIV/TA model. Thus, in both models, one is able to reject the null hypothesis that the explanatory variables jointly are equal to zero at less than the 1 percent level.

The results of Table 5-8 show that dividends are positively related to STATE, AGE, MCAP, and EPS. In both models, the coefficients on those variables are significant at the 1 percent level, with the exception of STATE at the 10 percent level in LNDIV model. This indicates that large, profitable, and mature firms with low growth options tend to pay higher levels of dividends. Also, it indicates that state-controlled firms tend to have higher payout ratios. It also observed a negative relationship between dividends and insider holding (INSD), AGESQ, and DER. The variable INSD is significant at the 5 and 10 percent levels in LNDIV and DIV/TA models, respectively. The variables AGESQ and DER are also significant at the 1 percent level in both models. In sum, from the findings
obtained here one can conclude that our earlier results (reported in Table 5-6) are reliable and robust.

Table 5-8 MLE Results for Random Effects Tobit Model (Further Check)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable LNDIV</th>
<th>Dependent Variable DIV/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-95.0100*** (-7.12)</td>
<td>-0.3602*** (-11.03)</td>
</tr>
<tr>
<td>INSD</td>
<td>-10.4464** (-2.46)</td>
<td>-0.0204* (-1.90)</td>
</tr>
<tr>
<td>STATE</td>
<td>5.4676* (1.66)</td>
<td>0.0175*** (2.94)</td>
</tr>
<tr>
<td>AGE</td>
<td>0.8755*** (4.53)</td>
<td>0.0031*** (5.25)</td>
</tr>
<tr>
<td>AGESQ</td>
<td>-0.0150*** (-4.60)</td>
<td>-0.0001*** (-6.40)</td>
</tr>
<tr>
<td>DER</td>
<td>-0.3987*** (-2.63)</td>
<td>-0.0026*** (-4.15)</td>
</tr>
<tr>
<td>MCAP</td>
<td>5.4844*** (6.62)</td>
<td>0.0208*** (10.29)</td>
</tr>
<tr>
<td>EPS</td>
<td>1.3784*** (4.12)</td>
<td>0.0036*** (3.56)</td>
</tr>
<tr>
<td>Rho (ρ)</td>
<td>0.5904*** (7.80)</td>
<td>0.7456*** (28.23)</td>
</tr>
</tbody>
</table>

| No. of observations   | 760                      |
| Log Likelihood        | -1331.38                 |
| Wald test             | χ² (7)=99.53             |
| P-value                | 0.000                    |
| LR test**             | 168.20                   |
| P-value                | 0.000                    |

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. First value for each estimate is the coefficient and t-statistics are in the parentheses. See Table 5-1 for variable definitions. * The proportion of the total variance contributed by panel-level variance component. ** As defined in Table 5-6.

5.4.4. Testing for the Decision to Pay Dividends: Probit Analysis

The preceding analysis examined the determinants of dividend policy using Tobit specifications, which are basically testing for the determinants of the amount of dividends paid. This section presents a Probit analysis to examine whether the factors that determine the amount of dividends paid also influence the decision to pay dividends. In other words, for example, does firm size increase the likelihood of paying dividends? In the Probit
model, the dependent variable (PAYDIV) is dichotomous taking a value of 1 if the company pays dividends, and zero otherwise.

Similar to the method used in the Tobit analysis, the general-to-specific modelling approach is adopted here. Table 5-9 presents the results from estimation of random effects Probit models for the decision to pay dividends or the probability that a firm will pay dividends. It reports the statistical significance of each variable along with economic significance (marginal effects)\textsuperscript{154}. The Wald test statistics reject the null hypothesis that the parameters in the regression equations are jointly equal to zero (models P1 - P3)\textsuperscript{155}.

From Mode Pl (the general model) of Table 5-9, the results of the Probit estimation are comparable to those obtained previously using Tobit specifications. In other words, the determinants affecting the firm’s decision to pay dividends seem similar to those conditioning the level of dividends paid once the decision has been taken. The results of Model P1 show that five variables are statistically different from zero (AGE, AGESQ, MBR, MCAP, and EPS), out of which four variables are consistent with the previous results of the Tobit model, with the exception of MBR. The general model is tested down to a more parsimonious model (Model P 2). In this process six variables (STOCK, INSD, FAML, STATE, INST and MULT) are dropped from the general model since the null hypothesis that those variables are jointly insignificant cannot be rejected [$\chi^2 (6) = 3.05; \text{P-value} = 0.8022$]. In testing Model P2 (restricted) against Model P1 (unrestricted), the null model (Model P2) is not rejected (LRT statistic = 3.20, critical value with 6 degrees of freedom, = 12.59). Similarly, three variables are dropped from Model P2, which produces

\textsuperscript{154} For computing the marginal effects see, for example, Arulampalam (1999) and Greene (2003).

\textsuperscript{155} P here stands for Probit.
Model P3 where all the variables are statistically significant. Again, the null model (Model P3) is not rejected when tested against Model P2 (LRT statistic = 2.30, critical value with 3 degrees of freedom, = 7.82).

Surprisingly, the coefficient on MBR is consistently positive and statistically significant at the 5 percent level (models P1 – P3). Recall that MBR, among other proxies, is designed to test the relationship between a firm’s investment opportunities and dividends, and the hypothesised sign is negative. The coefficient sign of MBR is consistent with the result obtained from the Tobit model, but here it is statistically significant\(^\text{156}\). This indicates that firms with more investment opportunities are more likely to pay dividends while, at the same time, the amount of dividends paid is likely to be lower if the firm has larger investment opportunities. Although it sounds puzzling, this result may be interpreted as being consistent with the signalling hypothesis. That is, firms want to send a signal to the market about their future prospects to bring the market value of the share to its real value. To confirm, Model P1 is re-estimated using an alternative proxy for investment opportunities, that is, the price-earning ratio (PER), to see whether it has the same effects on the dividend decision as MBR\(^\text{157}\). In contrast, the coefficient on PER was negative and statistically insignificant, consistent with the results of the Tobit model. Therefore the signalling interpretation should be treated with caution.

Factors including taxes (DTAX) and industry effects (NONFIN) seem to have no influence on the probability to pay dividends, consistent with the earlier results from the Tobit analysis (models 1 and 2). In relation to the tax effect, therefore, the observed decline in

\(^{156}\) Recall that Aivazian et al. (2003a) obtained a positive and statistically significant coefficient on MBR for Jordanian firms.

\(^{157}\) See Appendix D for the full model.
dividend payouts after the implementation of the 10 percent tax rate on dividends (1996-
2000 period) appears to be related to exogenous factors other than taxes. Resolving this
apparent paradox deserves further investigation, but is beyond the scope of the present
thesis.

The ownership structure variables (FAML, STATE, INST, and MULT) also do not have
an impact on the decision to pay dividends (statistically insignificant). These results are
consistent with the earlier findings with the exception of STATE. Government ownership
(STATE) seems to be an important factor in determining the level of dividends, but not
necessarily on the decision to pay dividends.

Consistent with our prediction, the coefficient on INSD, the proportion held by insiders, is
negative. However, the coefficient is not statistically different from zero indicating that
insider’s holdings do not affect the decision to pay dividends, while it has a significant and
negative impact on the amount of dividends. The coefficient on STOCK is not significant,
indicating that ownership dispersion is related neither to the amount of dividends nor to the
decision to pay dividends.
### Table 5-9 Random Effects Probit Models for Dividend Decision

Dependent Variable = PYDIV

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model (P1)</th>
<th>Model (P2)</th>
<th>Model (P3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient Estimates</td>
<td>Marginal Effects</td>
<td>Coefficient Estimates</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.24699***</td>
<td>-7.28073***</td>
<td>-7.18800***</td>
</tr>
<tr>
<td>(0.46)</td>
<td>(-4.54)</td>
<td>(-4.50)</td>
<td></td>
</tr>
<tr>
<td>STOCK</td>
<td>-0.07408</td>
<td>-0.0228</td>
<td></td>
</tr>
<tr>
<td>(-0.45)</td>
<td>(-0.45)</td>
<td>(-0.45)</td>
<td></td>
</tr>
<tr>
<td>INSD</td>
<td>-0.68135</td>
<td>-0.2100</td>
<td></td>
</tr>
<tr>
<td>(-1.24)</td>
<td>(-1.24)</td>
<td>(-1.24)</td>
<td></td>
</tr>
<tr>
<td>FAML</td>
<td>0.03863</td>
<td>0.0118</td>
<td></td>
</tr>
<tr>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.16)</td>
<td></td>
</tr>
<tr>
<td>STATE</td>
<td>-0.02182</td>
<td>-0.0068</td>
<td></td>
</tr>
<tr>
<td>(-0.07)</td>
<td>(-0.07)</td>
<td>(-0.07)</td>
<td></td>
</tr>
<tr>
<td>INST</td>
<td>-0.08888</td>
<td>-0.0273</td>
<td></td>
</tr>
<tr>
<td>(-0.32)</td>
<td>(-0.32)</td>
<td>(-0.32)</td>
<td></td>
</tr>
<tr>
<td>MULT</td>
<td>0.27189</td>
<td>0.0818</td>
<td></td>
</tr>
<tr>
<td>(0.98)</td>
<td>(0.98)</td>
<td>(0.98)</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>0.08877***</td>
<td>0.0274</td>
<td>0.0252</td>
</tr>
<tr>
<td>(3.05)</td>
<td>(3.05)</td>
<td>(3.05)</td>
<td>(3.05)</td>
</tr>
<tr>
<td>AGESQ</td>
<td>-0.00156***</td>
<td>-0.0005</td>
<td>-0.0004</td>
</tr>
<tr>
<td>(-2.68)</td>
<td>(-2.68)</td>
<td>(-2.68)</td>
<td>(-2.68)</td>
</tr>
<tr>
<td>MBR</td>
<td>0.30809**</td>
<td>0.0950</td>
<td>0.0868</td>
</tr>
<tr>
<td>(2.57)</td>
<td>(2.57)</td>
<td>(2.57)</td>
<td>(2.57)</td>
</tr>
<tr>
<td>DER</td>
<td>-0.04072</td>
<td>-0.0126</td>
<td>-0.0145</td>
</tr>
<tr>
<td>(-1.46)</td>
<td>(-1.46)</td>
<td>(-1.46)</td>
<td>(-1.46)</td>
</tr>
<tr>
<td>TURN</td>
<td>-0.24918</td>
<td>-0.0768</td>
<td>-0.0599</td>
</tr>
<tr>
<td>(-0.82)</td>
<td>(-0.82)</td>
<td>(-0.82)</td>
<td>(-0.82)</td>
</tr>
<tr>
<td>DTX</td>
<td>0.07903</td>
<td>0.0246</td>
<td>0.0238</td>
</tr>
<tr>
<td>(0.47)</td>
<td>(0.47)</td>
<td>(0.47)</td>
<td>(0.47)</td>
</tr>
<tr>
<td>MCAP</td>
<td>0.32272***</td>
<td>0.0995</td>
<td>0.0945</td>
</tr>
<tr>
<td>(3.23)</td>
<td>(3.23)</td>
<td>(3.23)</td>
<td>(3.23)</td>
</tr>
<tr>
<td>EPS</td>
<td>7.28973***</td>
<td>2.2468</td>
<td>2.2435</td>
</tr>
<tr>
<td>(9.80)</td>
<td>(9.80)</td>
<td>(9.80)</td>
<td>(9.80)</td>
</tr>
<tr>
<td>NONFIN</td>
<td>0.38620</td>
<td>0.1259</td>
<td>0.1016</td>
</tr>
<tr>
<td>(1.48)</td>
<td>(1.48)</td>
<td>(1.48)</td>
<td>(1.48)</td>
</tr>
<tr>
<td>Rho (p)*</td>
<td>0.31912***</td>
<td></td>
<td>0.31604***</td>
</tr>
<tr>
<td>(3.56)</td>
<td>(3.56)</td>
<td>(3.56)</td>
<td>(3.56)</td>
</tr>
</tbody>
</table>

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. First value for each estimate is the coefficient and t-statistics are in the parentheses. See Table 5-1 for variable definitions. * The proportion of the total variance contributed by panel-level variance component. ** LR test denotes the likelihood-ratio test, which provides a test for pooled (Probit) estimator against the random effects panel estimator.
Like size, profitability as measured by EPS seems to have a strong influence on the decision to pay dividends. The coefficients of EPS are highly significant for all regressions, with high marginal effects. A 10 percentage point increase in EPS results in an approximately 23 percentage point increase in the likelihood of paying dividends, ceteris paribus. Note that, as shown by the marginal effects, the variable EPS is economically more important in determining the decision to pay dividends than the amount of dividends (Tobit results). Financial leverage is also negatively related to dividend decision. The coefficients on debt-to-equity ratio are negative and significant in models P2 and P3, indicating that a higher level of financial leverage reduces the likelihood to pay dividends. For a 10 percentage point increase in leverage (DER) the probability that a firm will pay dividends decreases by about 0.19 percentage points (Model P3), all other factors being equal.

In summary, the firm’s decision to pay a dividend is positively correlated with age, size, and profitability. That is, larger, more profitable, and mature firms with few investment opportunities are much more likely to pay dividends. These findings are consistent with prior research including Barclay et al. (1995), Fama and French (2001), among others. The dividend decision is negatively related to the level of financial leverage.

5.4.5. The Effect of Assets Structure on Dividend Policy (H9)

The purpose of this section is to provide evidence as to whether the firm’s asset structure (tangibility of the assets, TANG) influences dividend policy (Hypothesis 9) of Jordanian firms. In this case financial companies are eliminated from the sample, since the tangible assets of financial companies are not regarded as operating assets. Recall that the general-
to-specific method adopted in this study required that all models should come from the same sample. The exclusion of the financial companies results in the generation of a different sample. Therefore, the variable TANG could not be incorporated in the previous analysis and should be tested separately. Note that the emphasis here is not to examine dividend policy for a sector per se. As shown earlier, a control variable for the industry effects (NONFIN) was included in the regressions, but the variable NONFIN was insignificant, and these results were consistent in both the Tobit and the Probit analyses.

The Tangibility Model is developed adding the variable TANG to Model 3 of Table 5-6. Table 5-10 shows the results of the MLE of the random effects Tobit and Probit models using the non-financial companies sample only. The table presents the estimated coefficients and marginal effects for both specifications. In both cases, the number of firm-years observations is 547 since only the non-financial companies are included. The overall explanatory power of both Tobit and Probit models is significant. The Wald test rejects the null hypothesis that the parameters in the regression equations are jointly zero at the 1 percent level of significance or better. The $\chi^2$ statistics for the Tobit and Probit models are 128.49 and 245.92, respectively.

As predicted, asset structure is found to be an important determinant of corporate dividend policy for non-financial firms in Jordan. The results of the Tobit specifications show that the coefficient on TANG is negative and highly significant ($t$-statistic = -5.40), indicating that a greater proportion of tangible assets in a firm asset structure tend to reduce the level of dividends. The effect of tangibility on the level of dividends is also economically
important. Based on the marginal effects, as the asset tangibility increases by 1 percent, the DYLD is expected to drop by approximately 2.5 percent, ceteris paribus.

### Table 5-10 Random Effects Tobit and Probit Models (Tangibility Model)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Tobit Model</th>
<th>Probit Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient Estimates</td>
<td>Marginal Effects</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>-0.26901*** (-4.98)</td>
<td>—</td>
</tr>
<tr>
<td><strong>INSD</strong></td>
<td>0.05333*** (-2.99)</td>
<td>0.01463</td>
</tr>
<tr>
<td><strong>STATE</strong></td>
<td>0.02421** (2.28)</td>
<td>0.00707</td>
</tr>
<tr>
<td><strong>AGE</strong></td>
<td>0.00305*** (3.57)</td>
<td>0.00084</td>
</tr>
<tr>
<td><strong>AGESQ</strong></td>
<td>-0.00005*** (-3.06)</td>
<td>-0.00001</td>
</tr>
<tr>
<td><strong>DER</strong></td>
<td>0.00079 (0.60)</td>
<td>0.0022</td>
</tr>
<tr>
<td><strong>MCAP</strong></td>
<td>0.01677*** (5.26)</td>
<td>0.00460</td>
</tr>
<tr>
<td><strong>EPS</strong></td>
<td>0.05290*** (5.98)</td>
<td>0.01451</td>
</tr>
<tr>
<td><strong>TANG</strong></td>
<td>-0.09110*** (-5.40)</td>
<td>-0.02499</td>
</tr>
<tr>
<td><strong>Rho (ρ)</strong>*</td>
<td>0.62935*** (11.48)</td>
<td>—</td>
</tr>
<tr>
<td><strong>No. observations</strong></td>
<td>547</td>
<td>547</td>
</tr>
<tr>
<td><strong>Log Likelihood</strong></td>
<td>220.87</td>
<td>-129.42</td>
</tr>
<tr>
<td><strong>Wald test</strong></td>
<td>$\chi^2(8)=128.49$</td>
<td>$\chi^2(8)=245.92$</td>
</tr>
<tr>
<td><strong>P-value</strong></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>LR test</strong></td>
<td>109.65</td>
<td>13.51</td>
</tr>
<tr>
<td><strong>P-value</strong></td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. First value for each estimate is the coefficient and t-statistics are in the parentheses. See Table 5-1 for variable definitions. * The proportion of the total variance contributed by panel-level variance component ** LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit/Probit) estimator against the random effects panel estimator.

Similar results are obtained even when an alternative measure of tangibility is used, that is fixed assets to total assets (FATA)\(^{158}\). The coefficient on FATA is found to be negative and significant ($t$-statistic = -5.66), not reported in Table 5-10\(^{159}\). The coefficients obtained

\(^{158}\text{See, for example, Rajan and Zingales (1995) and Bevan and Danbolt (2004).}\)

\(^{159}\text{Appendix E provides the full estimated model.}\)
for the other explanatory variables were comparable. Likewise, the results of Probit estimation show that the coefficient on TANG is negative and statistically significant at the 1 percent level ($t$-statistic = -3.46), indicating that the more tangible the assets in a firm’s asset structure the lower the probability of paying dividends. The effect is also economically significant. A 10 percentage point increase in the asset tangibility will decrease the likelihood of paying dividends by about 9 percentage points, other things being equal.

These results, reported in Table 5-10, provide support for the contention of Aivazian et al. (2003a) that more tangible assets impose financial constraints on firms operating in emerging markets, where short-term bank debt is predominant. In their study, Aivazian et al. found that tangibility is negatively related to dividends in most emerging markets tested, including Jordan. The definition of tangibility used in this study is similar to that used by Aivazian et al. (2003a), but their dependent variable was dividends to total assets. To be compatible, The Tangibility Model (Tobit specifications) is re-estimated using the dividends-to-total assets ratio as a dependent variable (not reported)\(^{160}\). The estimated coefficient on TANG is –0.10954 with $t$-statistic of –9.46. This result is also similar to the finding of other studies based on emerging markets. For instance, Omran and Pointon (2004) found a significant negative relationship between tangibility and dividend payout ratio for the Egyptian stock exchange.

\(^{160}\) Appendix F provides the full estimated model.
5.4.6. The Lintner Model

Recall from Chapter 4 (H₃) that the reason for introducing the Lintner model in the analysis is to test whether Jordanian companies smooth their dividends, and therefore provide evidence to what extent the signalling hypothesis can explain corporate dividend policy in Jordan. If the model performs well and Jordanian companies seem to follow stable dividend policy one can interpret this result as consistent with the signalling hypothesis.

To recapitulate briefly, in his study of dividend behaviour of US firms, Lintner (1956) observed that dividends are sticky and firms are largely concerned with the stability of dividends. He also found that managers are reluctant to cut dividends because they believe that dividend cuts would send a negative signal to investors. Firms maintain a long-run target payout ratio and, if they experience an unexpected increase in earnings, firms adjust their dividends gradually taking into account the target payout ratio. In other words, firms do not make a substantial increase in the level of dividends following the sudden increase in earnings unless they believe that dividends can be sustained at that level. This suggests that dividend increases may be considered as a signal of a permanent rightward shift in the distribution of earnings. Lintner found that current earnings were the critical determinant of any change in dividends. In short, the Lintner model relates a firm’s current dividends to lagged dividends and current earnings. Formally, the model takes the following form;

\[
D_t = \alpha_i + c_i r_t E_t + (1 - c_i) D_{(t-1)} + u_t
\]

(5.5)

where for firm \(i\), \(D_t\) is the actual dividend payments in period \(t\); \(\alpha_i\) is the intercept term; \(E_t\) is the earnings in period \(t\); \(D_{(t-1)}\) is the dividend payment in period \(t-1\); \(c_i\) is the
speed of adjustment coefficient \( (0 < c_i \leq 1) \); \( r_i \) is the target payout ratio; and \( u_i \) is the error term.

Table 5-11 presents the results of the Lintner model estimation for the sample of Jordanian companies. The dependent variable is dividend per share (DPS) and the explanatory variables are earnings per share (EPS) and lagged dividend per share (LDPS). The regression estimates are obtained using the random effects Tobit model. For comparison purposes, two versions of the Lintner models are estimated. First, the Lintner model is estimated with the constant term, as in Model L1\(^{161}\). Second, following Fama and Babiak (1968), the constant is suppressed in the estimating equation (Model L2). Both regressions are highly significant at the 1 percent level or better, indicating that the null hypothesis of joint insignificance of the coefficients can be easily rejected. In testing Model L2 (restricted) against Model L1 (unrestricted), the result of the likelihood ratio test rejected the null hypothesis that both models have the same explanatory power. That is, Model L1 does fit the data significantly better than Model L2 since it provides a significant increase in the likelihood \([LR \text{ statistic} = 60.66, \text{critical value with 1 degree of freedom} = 3.841, (P = 0.05)]\). Therefore, adding the constant seems to provide the model with more predictive power\(^{162}\). As stated earlier, the constant-suppressed model is provided for comparison purpose only, and since it has been proved that the model with a constant term has more prediction power, the analysis then will be based on Model L1.

\(^{161}\) L here stands for Lintner.

\(^{162}\) Fama and Babiak (1968) found that suppressing the constant and adding a lagged earnings term provided best prediction of dividends.
Table 5-11 Lintner Model Estimates (Random Effects Tobit Model)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model (L 1)</th>
<th>Model (L 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>(-0.10977^{***})</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>(-7.47)</td>
<td>—</td>
</tr>
<tr>
<td>EPS</td>
<td>(0.09901^{***})</td>
<td>(0.10064^{***})</td>
</tr>
<tr>
<td></td>
<td>(15.72)</td>
<td>(17.68)</td>
</tr>
<tr>
<td>LDPS</td>
<td>(0.51864^{***})</td>
<td>(0.43254^{***})</td>
</tr>
<tr>
<td></td>
<td>(15.50)</td>
<td>(7.58)</td>
</tr>
<tr>
<td>Rho ((\rho))</td>
<td>(0.44107^{***})</td>
<td>(0.54822^{***})</td>
</tr>
<tr>
<td></td>
<td>(10.63)</td>
<td>(17.44)</td>
</tr>
<tr>
<td>Adjustment factor ((c))</td>
<td>0.481</td>
<td>0.567</td>
</tr>
<tr>
<td>Target payout ratio ((r))</td>
<td>0.206</td>
<td>0.177</td>
</tr>
<tr>
<td>No. of observations</td>
<td>1344</td>
<td>1344</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>-53.15</td>
<td>-83.48</td>
</tr>
<tr>
<td>Wald test</td>
<td>(\chi^2 (2)=4673.57^{***})</td>
<td>(\chi^2 (2)=5583.66^{***})</td>
</tr>
<tr>
<td>P-value</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>LR test(***)</td>
<td>185.18^{***}</td>
<td>321.99^{***}</td>
</tr>
<tr>
<td>P-value</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. First value for each estimate is the coefficient and \(t\)-statistics are in the parentheses. DPS = dividend per share, LDPS = lagged dividend per share, EPS = earnings per share. \(^a\) The constant is suppressed from the model. \(\bullet\) \(c = 1 - \) the coefficient on LDPS. \(\bullet\) \(r = \) the coefficient on EPS / \(c\). \(\bullet\) \(r = \) the coefficient on EPS / \(c\). \(\bullet\) As defined in Table 5-6.

From Model L1 of Table 5-11, the coefficients of both EPS and LDPS are positive and highly significant at less than the 1 percent level of significance (\(t\)-statistics of 15.72 and 15.50, respectively). These results suggest that current earnings and past dividends are important factors for dividend decision in Jordan, consistent with the Lintner model of dividend smoothing. The constant term reported in Model L1 is also significant (\(t\)-statistic = -7.47) but with negative sign\(^{163}\), which is not consistent with the Lintner prediction that “the constant \(a\) … will be generally positive to reflect the greater reluctance to reduce than to raise dividends” (Lintner, 1956, p.107). Note that the assumption of a positive sign of the constant is somewhat arbitrary (see, for example, Green, Pogue and Watson, 1993).

\(^{163}\) Several studies using the Tobit specification to estimate the Lintner model obtained a negative constant (see, e.g. Kim and Maddala, 1992, and Huang, 2001a, 2001b)
Having established that the Lintner model has some empirical support, we then sought to test the strength of the Lintner parameters. The parameters of interest are the speed of adjustment factor \( c \) (hereafter SOA) and the implicit target payout ratio \( r \) (hereafter ITPR). From Model L1, the estimated SOA is 0.48 and the ITPR is 21 percent\(^{164}\). According to Lintner (1986), firms establish long-term target payout ratios, and move gradually toward the target. However, for the Jordanian firms this seems to be not supported since the ITPR is considerably lower than the observed (actual mean) payout ratio in the sample. Based on Model L1, the ITPR is 21 percent, which is significantly lower than the observed payout ratio of 39 percent \((\text{DPS/EPS} = 0.11/0.28, \text{see Table 5-2})\). This, therefore, suggests that Jordanian companies do not set binding long-run target payout ratios, inconsistent with Lintner’s prediction. This conclusion is similar to that reached by Goergen, Renneboog and Correia da Silva (2004) for German firms.

Recall that the SOA shows how quickly a firm adjusts its dividends towards the target payout ratio. The value of SOA lies between 0 and 1 \((0 < c \leq 1)\), a higher value of \( c \) indicates less smoothing in dividends; that is, less stability in dividend policy. To provide evidence as to whether Jordanian companies smooth their dividends, one must compare the results obtained in Table 5-11 with those reported in other studies for different markets. For US studies, Lintner (1956) estimated the SOA at 0.30 with a target payout ratio of 0.50. As compared to Lintner’s results, Fama and Babiak (1968) obtained slightly higher SOA \((c = 0.366)\) and lower target payout ratio \((r = 0.459)\). More recently, Dewenter and Warther (1998) reported median SOA estimates of 0.055 for US firms and 0.094 for Japanese firms.

\(^{164}\) Note that when the constant is omitted from the regression the SOA rises to 0.57 and the target ratio falls to 18 percent. Including the constant term in the estimating equation seems to overestimate the coefficient on LDPS, which goes from 0.43254 (Model L2) to 0.51864 (Model L1). The effect on the coefficient of EPS is only marginal.
firms. The results of Table 5-11 clearly show that Jordanian companies have much higher speed of adjustment factor and lower target payout ratio as compared to those found for U.S. and Japanese firms.

In relation to studies based on Jordanian data, Omet (2004) reported a SOA of 0.52, which is comparable to the results obtained in the present study, despite differences in methodology and sample used. However, the ITPR estimated by Omet was only 0.08, which is significantly lower than the observed (mean) payout ratio of 0.35 (in Omet’s study) and, of course, lower than the target payout ratio estimated here. This reinforces the above conclusion that Jordanian companies do not seem to base their dividend decision on long-run target dividend payout ratios. Furthermore, Aivazian et al. (2003b) reported two different results for Jordan. When their pooled time-series cross-sectional estimates incorporated all observations (including zero dividend observations) they obtained an adjustment factor \( c \) of 0.39, but when zero observations were removed the SOA was 0.51, comparable to the results presented in this study. The implicit target payout ratios obtained by Aivazian et al. for both samples were 0.12 and 0.50, respectively. Again, the observed (mean) payout ratio (EPS/DPS) for Jordanian firms in Aivazian et al.’s study was 0.41 (the sample including zero dividend observations), which is considerably larger than the ITPR of 0.12, consistent with the finding presented here. A low target payout ratio indicates that firms have more financing constraints (see Fazzari et al., 1988)\(^{165}\). This is consistent with what has been observed in Chapter 3, that Jordanian companies may have more financing constraints because of the firm-bank relation in Jordan where most of the debt financing is short-term in nature.

\(^{165}\) Fazzari et al. (1988, p.158) classified firms according to their payout ratios. A firm with low payout ratio was considered as experiencing more financing constraints, and vice versa.
Table 5-12 presents the estimated speed of adjustment coefficients and the target payout ratios for a number of selected markets from different studies. Like the present work, these studies are based on panel data analysis. From Table 5-12 one can see that the estimated SOA of 0.48 in the present study for Jordanian firms is significantly higher than the SOA reported for German firms (0.25). However, when compared with firms operating in emerging markets, it is substantially lower than those reported for Indian, Thai and Turkish firms, at 0.71, 0.65 and 1.00 respectively. It is worthwhile noting that the estimated SOA and ITPR vary with estimation methods used.

Table 5-12 Speed of Adjustment Factor and Target Payout Ratio for Selected Markets

<table>
<thead>
<tr>
<th>Author(s) of Study</th>
<th>Market</th>
<th>Sample Size (Firms)</th>
<th>Sample Period</th>
<th>Method of Estimation</th>
<th>SOA</th>
<th>ITPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goergen et al. (2004)*</td>
<td>Germany</td>
<td>221</td>
<td>1984-1993</td>
<td>GMM</td>
<td>0.25</td>
<td>0.28</td>
</tr>
<tr>
<td>Pandey and Bhat (2004)*</td>
<td>India</td>
<td>571</td>
<td>1989-1997</td>
<td>GMM</td>
<td>0.71</td>
<td>0.25</td>
</tr>
<tr>
<td>Omet (2004)*</td>
<td>Jordan</td>
<td>44</td>
<td>1985-1999</td>
<td>FE</td>
<td>0.52</td>
<td>0.08</td>
</tr>
<tr>
<td>Adaoglu (2000)*</td>
<td>Turkey</td>
<td>76</td>
<td>1985-1997</td>
<td>RE</td>
<td>1.00</td>
<td>0.52</td>
</tr>
<tr>
<td>Aivazian et al. (2003b)**</td>
<td>Korea</td>
<td>936</td>
<td>1980-1990</td>
<td>OLS</td>
<td>0.50</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>Malaysia</td>
<td>641</td>
<td></td>
<td></td>
<td>0.65</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
<td>530</td>
<td></td>
<td></td>
<td>0.65</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>Zimbabwe</td>
<td>384</td>
<td></td>
<td></td>
<td>0.39</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Notes: * the study is based on panel data. ** the corresponding sample size for each market in Aivazian et al.'s study is the number of firm-year observations. SOA= speed of adjustment factor. ITPR= implicit target payout ratio. GMM= generalised method of moments. FE = fixed effects model. RE = random effects model. OLS = ordinary least square.

It appears that two inferences may be drawn from this analysis. Firstly, the results provide empirical evidence supporting the validity of the Lintner model in Jordan. Secondly, and more importantly, Jordanian companies seem to move toward the target payout ratio at a moderate rate of adjustment. Generally speaking, Jordanian companies do not adjust their payout ratios for a number of selected markets from different studies. Like the present work, these studies are based on panel data analysis. From Table 5-12 one can see that the estimated SOA of 0.48 in the present study for Jordanian firms is significantly higher than the SOA reported for German firms (0.25). However, when compared with firms operating in emerging markets, it is substantially lower than those reported for Indian, Thai and Turkish firms, at 0.71, 0.65 and 1.00 respectively. It is worthwhile noting that the estimated SOA and ITPR vary with estimation methods used.

It appears that two inferences may be drawn from this analysis. Firstly, the results provide empirical evidence supporting the validity of the Lintner model in Jordan. Secondly, and more importantly, Jordanian companies seem to move toward the target payout ratio at a moderate rate of adjustment. Generally speaking, Jordanian companies do not adjust their

166 Note that Turkish firms are subject to mandatory cash dividends of at least 50 percent (1985-1994).
dividends as slowly as other companies, especially those in developed markets, i.e. they exhibit less smoothing. However, when compared to emerging markets, Jordanian companies seem to follow a similar pattern. Furthermore, based on the sample used, the implied target payout ratio varies substantially from the observed payout ratio.

As a result, there is only limited evidence to support the signalling hypothesis, consistent with the findings in Section 5.4.1.3. This result is consistent with the view that in a bank-based system with high concentration of ownership (like Jordan), firms do not set higher weight on dividend stability to signal future earnings. Glen et al. (1995, p.24) concluded that “emerging market firms…are generally less concerned with volatility in dividends over time and, consequently, dividend smoothing over time is less important”. Aivazian et al. (2003b) reach a similar conclusion that signalling is less important in emerging markets. Furthermore, our conclusion is supported by prior research on the signalling hypothesis conducted by El-Khoury and Almwalla (1997). The authors found that stock prices do not react (significantly) to the announcement of dividend changes, indicating that dividend changes have little or no information effect. Indeed, there is a lack of empirical research on how the market reacts to dividend announcements in the Jordanian context, an issue which could be taken into consideration in future research.

5.5 Summary

This chapter has examined the main determinants of corporate dividend policy in Jordan. In the first stage, Tobit specifications were used to examine the determinants of the level or the amount of dividends paid. Then, Probit estimations were used to examine the determinants of the decision to pay dividends. The results were obtained using the
maximum likelihood estimations of the random effects Tobit and Probit regressions. The chapter provided some important descriptive statistics on dividend policy and the variables used in the analysis. Nested procedures were followed to arrive at the best-fitted model. In order to ensure that our results are robust, several diagnostic tests were performed. In attempting to detect multicollinearity, the calculated VIFs suggested no reason to suspect that the problem exists. In comparing the pooled (Tobit/Probit) estimator with the random effects panel estimator, the likelihood ratio test favoured the panel estimator (used here). A two-stage procedure was followed to detect heteroskedasticity. The regressions did not suffer from any serious heteroskedasticity problems.

The data shows that ownership dispersion as measured by the natural log of the number of stockholders (STOCK) seems to not be related to dividend policy in Jordan since it was insignificant in both analyses, Tobit and Probit. That is, it has no effect either on the level of dividends or on the decision to pay dividends. The fraction held by insiders (INSD), the second proxy for the agency costs hypothesis, has negative impact on the level of dividends paid but not on the decision to pay dividends. Similarly, the existence of government or its agencies in a firm’s ownership structure (controlling shareholder) affects the amount of dividends (positively) but not the likelihood to pay dividends. Other variables of ownership structure seem to have no influence on dividend policy. By and large, the evidence is consistent with the agency costs explanation.

The firm’s age, size, and profitability positively and significantly affect its dividend policy. These variables are important determinants of the decision to pay dividends as well as the amount of dividends paid. These results are generally consistent with the agency
costs hypothesis and lend support to the pecking order hypothesis. The firm’s asset and capital structures were found to affect dividend policy. Asset tangibility and financial leverage negatively affect both the decision to pay and the amount of dividends.

The data does not provide strong support for the signalling hypothesis, since our proxy variable for information asymmetry was statistically insignificant in both Tobit and Probit analyses. Moreover, the results of the Lintner model could not provide strong evidence to support the signalling hypothesis. The low implicit target payout ratio and the relatively higher speed of adjustment factor suggest that Jordanian firms do not have binding long-run target payout ratios and exhibit low smoothing of dividends.

The data also shows that dividend policy in Jordan is not affected by taxes. Although we observed that there are differences in the dividend payout ratios pre-and-after-tax periods, the regression results from Tobit and Probit estimations do not support our observation. This may suggest the existence of exogenous factors other than taxes.

Following the discussion above, our principal conclusion is that corporate dividend policy in Jordan can be partly explained by the agency costs theory. These findings are somewhat puzzling at first glance. Recall that the financial system in Jordan is bank-based, so one would expect the agency cost to be less severe since banks can play an important role in monitoring firms. That is, in bank-based systems with ownership concentration, using dividends as a monitoring device is often less important. The next chapter will place more emphasis on the implications of the results obtained here. Also, it will put forward the recommendations for future research.
6. Chapter 6: Summary and Concluding Remarks

6.1 Introduction

The main objective of this thesis has been to examine corporate dividend policy of publicly traded companies in emerging markets, using the case of Jordan for analysis. The topic of dividend policy is one of the most enduring issues in modern corporate finance. This has led to the emergence of a number of competing theoretical explanations for dividend policy. No consensus has emerged about the rival theoretical approaches to dividend policy despite several decades of research. A range of firm and market characteristics have been proposed as potentially important in determining dividend policy. The attempt to test these competing models and refine them has in turn spawned a vast empirical literature. The empirical work on dividend policy has, however, generally been focussed on developed stock markets such as the UK and US.

The examination of dividend policy in emerging stock markets has, until recently, been much more limited. Yet the sorts of firm and market characteristics that may influence dividend policy may in fact be more likely to be present in developing markets in an exaggerated fashion than in developed markets. This provided a central motivation for the present study. This study seeks to add to that literature by providing a detailed analysis of dividend policy in Jordan, an emerging market that has been particularly poorly analysed to date. By and large, emerging stock markets have several similar characteristics so, to some extent, corporate dividend behaviour in Jordan may share
some important similarities with other emerging equity markets. Consequently, the findings of such a detailed country case study could form the basis of future comparative research into other emerging markets. Such findings may also provide the basis for reflection on empirical research in developed markets.

The aim of this chapter is to summarise the main findings of the study, to discuss some of their possible implications for dividend policy research and identify areas for further research. The remainder of the chapter is structured as follows. Section 2 presents a brief overview of the chapters produced in the thesis. Section 3 provides a discussion of the results and some of their possible implications. This followed in Section 4 by a discussion of the limitations of the study. Finally, the chapter offers some recommendations for further research.

6.2 Overview of the Thesis

Chapter 1 provided a general introduction about the topic of dividend policy and the motivation for the thesis. It established that the thesis was motivated by (1) the importance of, and the ongoing debate about, dividend policy within corporate finance research, (2) a lack of detailed evidence about, and analysis of, the determinants of corporate dividend policy in emerging markets, and (3) the particular scarcity of studies on the Jordanian capital market. The chapter also discussed the objectives and possible significance of the study.

Chapter 2 provided an overview and analysis of the evolution of theoretical paradigms of corporate dividend policy. It established that the development of dividend policy has
been tied up with the long evolution of the corporate form itself, and the way the corporation has mediated relations with shareholders and capital markets more generally over that time. In its modern form, however, dividend policy theory is closely tied to the work of Miller and Modigliani (1961) (M&M) and their dividend policy irrelevance thesis. M&M’s irrelevance proposition is based on certain binding assumptions about rational investors and perfect capital markets. In actual market practices however, it has been found that dividend policy does seem to matter, and relaxing one or more of M&M’s perfect capital market assumptions has often formed the basis for the emergence of rival theories of dividend policy.

To recapitulate, the bird-in-hand theory (a pre-M&M theory) posits, in modern financial terminology that, in a world of uncertainty and information asymmetry, dividends are valued differently to retained earnings (capital gains). Because of uncertainty of future cash flow, investors will often tend to prefer dividends over retained earnings. As a result, a higher payout ratio will reduce the required rate of return (cost of capital), and hence increase the value of the firm. While the theory makes some intuitive sense, it has been criticised because retained earnings may be no more risky than existing investments in a firm. That is, what determines a firm’s value (and its risk) is the capitalised value of expected future cash flows, not its dividend policy. And, as M&M also pointed out, investors can in any case construct their own dividends by selling stock (homemade dividends).

The tax-preference theory, on the other hand, argues that higher dividend payments will tend to reduce the value of the firm. This notion is based on the (often) differential tax
treatment between dividends and capital gains. The relative tax disadvantages of dividends over capital gains will tend to increase the required rate of return of high-dividend paying stocks. The empirical testing of the tax-effect hypothesis was largely based on the relationship between stock returns and dividend yields. Investors are thought to require higher pre-tax risk-adjusted returns on stocks with higher yields to compensate for the disadvantages associated with dividend income. However, one may argue that investors are not taxed at the same rate. For example, tax-exempt investors would have the same preferences for capital gains and dividends, and therefore have no reason to pay a premium for low-dividend yield stocks. The tax-effect theory has been subject to extensive empirical testing and the results are mixed.

The clientele effects hypothesis of dividends suggests that, for example, the differential tax rates of dividends and capital gains and transaction costs may create different clienteles for firms with different dividend policy. Based on their situations, investors will therefore prefer a certain dividend policy over another. For instance, investors in high tax brackets who do not rely on dividend income to meet their liquidity needs will prefer to invest in low-dividend stocks. However, investors may prefer high-dividend stocks for reasons other than taxes or transaction costs such as information asymmetry and agency costs. For instance, because of conflicts of interests between managers (or dominant owners) and (outsiders or minority) owners, shareholders may require higher dividends as a way of controlling managerial activities. Also dividends may provide information about a company that cannot be readily conveyed (or credibly believed) in any other form. Furthermore, investors may prefer cash flow in the form of dividends for psychological reasons.
The information content of dividends (signalling) hypothesis is based on a purported information asymmetry between insiders (managers) and outside investors. Managers are said to have more information about the firm’s current status and future prospects and they have incentives to communicate their private knowledge to the market. In this case dividends can be used as a signalling device to convey the undisclosed information about the firm’s future prospects. However, Chapter 2 showed that a dividend change may be an imprecise signal of current performance and future prospects. Moreover, using dividends as a signalling device involves dissipative costs. Firms could use other cheaper means of signalling such as share repurchases to signal their prospects (Allen and Michaely, 2002). Finally, managers’ and owners’ interests may not always be aligned, so that managers may not have the incentive to convey all their private information about the company.

The separation of ownership and control may also produce an information asymmetry between insiders and outsiders, but without necessarily providing the incentive to disclose that information. That is, managers may need to be forced (or provided with an incentive) to disclose their private information. This hypothesis has been developed under the rubric of the agency costs theory of dividend policy. Generally, managers are understood to have costly conflicts of interest with shareholders. Dividends can reduce the agency problems (costs) and provide one mechanism for better aligning the interests of managers and shareholders. In particular also, dividend payments can reduce the discretionary or free cash flow under managers’ control. Reducing the free cash flow, therefore, can reduce a potential overinvestment problem. This prediction challenges M&M’s argument that dividend and investment decisions are independent. The notion
that dividends can be used as a monitoring device and to reduce agency problems between managers and shareholders has received significant empirical support. However, alternative mechanisms can also be used in serving the same purpose, for example, debt (Jensen, 1986), and the presence of large shareholders (Allen, Bernardo and Welch, 2000).

Chapter 2 then concluded that, to date, the controversy surrounding the issue of dividend policy remains unresolved. Despite extensive research on these theories, consensus is still lacking about which theory best explains dividend policy. The chapter also noted the lack of empirical work on emerging stock markets, particularly in Jordan, motivating the use of Jordan as the case study for this research.

The chapter suggested that a range of possible factors have been proposed as playing a role in determining dividend policy. Because of this, and as a way of informing the empirical testing to be conducted, the chapter concluded that some understanding of the nature of the particular capital market (Jordan) being investigated was important.

Chapter 3 highlighted the main characteristics of the Jordanian economy and its capital market. It outlined the key structural features of the economy, and the financial system in particular, especially those that have been suggested as influencing firm decision-making, including dividend policy. The chapter showed that Jordan is a small, open economy with a scarcity of natural resources and that the economy is vulnerable to exogenous shocks in the region. This exposure has affected the growth of the economy and the performance of public shareholding companies. The chapter also established
that the financial system in Jordan is best classified as bank-based, which suggests that banks may play an important role in corporate funding (and possibly decision making). The banking system in Jordan is quite well developed, efficient, and profitable. However, credit is relatively expensive, and lending policies of Jordanian banks are focussed mostly for short-term purposes. Banks therefore tend to look for liquid assets for security for such lending. As a consequence of the financial policies of banks in Jordan, credit is directed mainly to firms in the services sector that do not have a big demand for fixed capital.

The chapter went on to discuss the ASE, a relatively small equity market (measured by market capitalisation), but one that plays an increasingly significant role in the national economy. By regional standards, and indeed compared to many other emerging markets, the ASE is considered to be a developed and active market. However, the stock market in Jordan is not a significant source of new investment capital, and Jordanian companies therefore tend to rely on short-term bank debt and retained earnings in financing their business activities. The chapter also established that the corporate governance system in Jordan is considered adequate (although it is governed by civil-law) for an emerging capital market.

In terms of market capitalisation and trading volume, the ASE is a highly concentrated market. For example, the largest ten companies account for about 67 percent of the total market capitalisation and more than 60 percent of total traded value. In a market characterised by concentrated ownership and a bank-based system, it may be that dividends are a less important mechanism for either signalling or to alleviate agency
costs. One reason for such a proposition is that insider ownership may substitute for dividends in minimising agency costs. Similarly, banks may resolve information asymmetries via relationship banking practices. However, the concentration of ownership generally leads to a concentration of control, which may create another conflict between controlling and minority shareholders.

Chapter 3 also showed that the amount of cash dividends distributed by publicly traded companies in Jordan has increased significantly over time, but from a low base. The ratio of cash dividends to the number of subscribed shares (cash dividend per share) for the entire market generally has, however, not changed dramatically over time. During the study period (1989-2000), the cash dividend per share fluctuated in the first six years (1989-1994) and reached its highest level of JD 0.18 in 1992. During the second half of the study period (1995-2000) the ratio was more stable but in 2000 the ratio reached to its lowest level of JD 0.07. Importantly for this study, the ratio of cash dividend to market capitalisation or dividend yield has been relatively low and stable over the whole study period, especially when compared to other emerging markets.

Chapter 4 provided a detailed description of the data used in the study. The sample comprises 160 firms across all sectors of the ASE covering the period from 1989 to 2000. The analysis is based on a panel data set. Unlike most dividend studies, especially those that have used Jordanian data, this study included both dividend-paying and non-dividend-paying firms, since exclusion of the non-dividend paying firms from the analysis may lead to a selection bias.
The chapter then developed nine testable research hypotheses, reflecting the main theories of dividend policy determination discussed in Chapter 2. The chapter then presented the proxy variables used to test the research hypotheses, and defended their choice in theoretical and empirical terms. Finally, the chapter established the expected sign for the variables in relation to the relevant dividend policy theory and the particular characteristics of the Jordanian capital market established in Chapter 3.

Chapter 4 then described the general-to-specific method employed to select between the competing hypotheses. Based on this approach, the analysis started with a ‘general’ unrestricted model, which included all the variables that were identified and supported by theories of dividend policy. The chapter then followed a testing down procedure from the general model by eliminating variables that are not found to be statistically significant, leading to more parsimonious models. The likelihood-ratio test was used to choose between rival models.

The chapter also presented the estimation method. The analysis examines both the determinants of the amount or the level of dividends paid by the firms and the decision to pay dividends. To examine the amount of dividends paid, a Tobit specification is used. The choice of Tobit estimation was justified by the nature of the dependent variable. Since some companies pay dividends and others do not, there is likely to be a censoring problem. Tobit models are an appropriate method to model censored data. The chapter also described the general form of the random effects Tobit model. In testing for the decision to pay dividends, a random effects Probit model is used. In this case, the aim is to examine the factors that affect the probability of a firm to pay
dividends. Both Tobit and Probit models are estimated using maximum likelihood estimation. Finally, the chapter explained the Lintner model, which has been used to test the stability of corporate dividend policy in Jordan.

Chapter 5 presented the results of the empirical testing of the determinants of corporate dividend policy in Jordan. The chapter began by providing some important descriptive statistics on dividend policy and the variables used in the analysis. For all variables used in the analysis, the chapter showed their mean, standard deviation, minimum, maximum, and the coefficient of variation. The chapter also provided a summary statistic on the number of frequencies of cash dividends by year. For the overall sample, the frequency of zero dividends was 56.6 percent. The chapter also showed that there were statistically significant differences between payout ratios for the two periods, pre-tax and post-tax changes.

Nested procedures were followed to arrive at the best-fitted model. In order to ensure that the results were robust and the models well specified, several diagnostic tests were then performed and reported in the chapter. In attempting to detect multicollinearity, the calculated VIFs suggested no reason to suspect that such a problem exists. In comparing the pooled (Tobit/Probit) estimator with the random effects panel estimator, the likelihood ratio test favoured the panel estimator. A two-stage procedure was followed to detect heteroskedasticity. The regressions were not found to suffer from any serious heteroskedasticity problems.
The chapter then reported the regression results of the Probit and Tobit analyses. The results suggested that ownership dispersion, as measured by the natural log of the number of stockholders, seems to not be related to dividend policy in Jordan, since the variable was insignificant in both Tobit and Probit analyses. That is, the degree of ownership dispersion was not found to affect either the level of dividends or the decision to pay dividends. This is not a surprising result, because Chapter 3 established that firms in Jordan tend to have high levels of ownership concentration. Research has established elsewhere that in such markets, corporate governance tends to be dominated by a few key inside owners. In these cases of ‘insider control’, minority shareholders will not be able to exert much influence on dividend policy, and the degree of outside ownership will often therefore not be of much significance.

The results also showed that the proportion of total shares held by insiders, the second proxy for the agency costs hypothesis, has a negative impact on the level of dividends paid but not on the decision to pay dividends. That is, insider ownership seems to have an impact on the size of dividends, but not necessarily on the decision to pay them. In other words, it seems that once firms decide to pay dividends, agency cost issues then play a role in determining the amount of dividends. Similarly, the existence of government, or its agencies, in a firm’s ownership structure (controlling shareholder) was found to affect the amount of dividends (positively) but not the likelihood to pay dividends. This is also consistent with the ‘double agency costs’ notion of government ownership, where the state is also the agent for citizens/taxpayers. Other variables of ownership structure seem to have no significant influence on dividend policy. Taken
together with ownership dispersion, these results provide mixed support for the agency costs hypothesis of dividend policy.

The results showed that the firm’s age is positively related to its dividend policy. The age of the firm was found to be an important determinant of the decision to pay dividends as well as the amount of dividends paid. These results demonstrated that mature firms with less growth and investment opportunities are more likely to pay dividends, which is consistent with the “maturity” hypothesis, and consistent with the free cash flow hypothesis.

However, the results also showed that the coefficient for age squared was negative and significant. The relationship between firm age and dividends appears, therefore, to be non-linear. That is, the younger a firm is (growth phase) the lower the dividends it will pay. As the firm becomes older, growth opportunities diminish and, all other things being equal, it will have a greater capacity to pay dividends. However, this relationship does not necessarily continue to hold forever. When a firm’s life cycle changes from a lower growth phase to a higher growth phase, the relationship between age and dividends will turn negative (i.e., age then becomes negatively related to dividends). This is again consistent with both the maturity hypothesis and free cash flow hypothesis. The use of age, and especially age squared as proxies for growth has not been used in empirical testing of dividend policy to the best of the author’s knowledge, and these results therefore suggest interesting avenues for future research.
Firm size and profitability are also found to be positively and significantly related to dividend policy in both the Tobit and Probit models. In sum, large, profitable and long established firms are more likely to pay dividends and, when they do, tend to pay a higher level of dividends. These results are generally consistent with the agency costs hypothesis and also consistent with the pecking order hypothesis.

The analysis also found that a firm’s financial leverage is significantly and negatively related to its dividend policy. This effect is present in both the decision to pay (Probit), and the amount of dividends (Tobit). This finding indicates that the level of financial leverage inversely affects the dividend decision. The chapter also presents results showing that in Jordan a firm’s asset mix significantly affects dividend policy. In particular, asset tangibility was found to be negatively related to both the decision to pay, and the amount of dividends. The findings challenge the notion that there should be a positive relationship between levels of tangible assets and dividend policy. The intuition here is that high levels of tangible assets in a firm’s asset structure will increase debt capacity and therefore allow them to rely less heavily on retained earnings.

While the negative result is therefore somewhat surprising at first sight, it is however, consistent with findings of previous research by Aivazian et al (2003a). They found that firms in many emerging capital markets with a higher proportion of tangible assets are often more credit constrained, because bank lending tends to be more short-term. In such situations, banks are likely to require more liquid assets as security for lending. Chapter 3 established that Jordan is characterised by a bank-based financial system, and that bank financing in Jordan is mostly short-term. The results therefore lend support to
Aivazian et al’s conclusion, and the analysis of the Jordanian capital market. Together they suggest that in such situations, firms with high tangibility are therefore likely to rely more heavily on retained earnings to fund fixed asset accumulation, and that this in turn may affect their dividend policy. This suggests that either the pecking order hypothesis does not apply or that firms in such markets face a different sort of pecking order.

The chapter presented results that are inconsistent with the signalling hypothesis. The proxy variable for information asymmetry (share turnover ratio) was statistically insignificant in both Tobit and Probit analyses. The rationale behind using share turnover as a proxy for information asymmetry is that firms with higher share turnover tend to have more information about them in the market, and therefore have less need to provide extra information about a firm’s future performance via dividends. This proxy may have limitations (turnover may, for instance, be due to contradictory information), so the thesis also tested the signalling hypothesis through the Lintner model. The results of the Lintner model did not provide strong evidence to support the signalling hypothesis either. The low implicit target payout ratio compared to the observed payout ratio suggests, contra Lintner, that Jordanian firms do not seem to establish binding long-term target payout ratios. The results also show that Jordanian firms have relatively higher speed of adjustment factor (to changes in earnings) compared to those in developed countries, suggesting that there is relatively little smoothing of dividends in Jordan. These results are, however, in line with those reported for other emerging markets.
6.3 Implications of the Results

Based on the analysis of the theoretical discourse and findings presented in this study, several implications can be drawn about dividend policy research.

Firstly, the study demonstrated that much of the existing theoretical literature on dividend policy can be applied to an emerging capital market such as Jordan. Many of the factors that were found to be significant in the determination of dividend policy are the same as those found in developed capital markets. One important qualification to this general point, however, was that the particularities of the capital market matter. Chapter 3 helped to identify many of those peculiarities and this assisted greatly in motivating expected signs for the various proxies used in empirical testing. Beyond this, the chapter also showed how dividend policy might be interrelated to other aspects of corporate asset and financial structure and the particular ways agency issues have been structured in Jordan.

For example, it was found that the proxy for fixed assets (tangibility) in Jordan is negatively related to dividends. On the face of it, this result is inconsistent with findings for developed capital markets, where fixed assets might be expected to provide collateral for new lending. But Chapter 3 identified that, while Jordan can be characterised as a bank-based system, credit markets in Jordan are dominated by short-term credit. Consequently, fixed assets are of little value for securing short-term credit, and thus firms in capital-intensive industries may be at a disadvantage in such markets. Interestingly also, this may create a structural feature whereby firms in industries which
have low fixed capital requirements get most of the bank credit. Firms in capital-intensive industries will therefore have to rely on either new equity or retained earnings.

Since not much new share issuance occurs in emerging markets, this means an almost total reliance on retained earnings (placing significant pressure on dividend policy). This in turn may feed into ever more concentrated conglomerate firms, whereby by their ‘internal’ capital markets may substitute for a situation where external markets are effectively lacking. For policy makers interested in the financing of economic growth this structural feature may be the basis of government policy initiatives. For instance, Herring and Chatusripitak (2000) have suggested that a well functioning bond market is important for financial development in emerging markets. Right now, however, this structural gap seems to be having an effect on corporations, partly through dividend policy.

In a similar way, agency costs were found to be an important determinant of dividend policy in Jordan. But this is in some respects surprising because, typical of emerging capital markets, Jordan has a very highly concentrated capital market in terms of both ownership and trading volume. It is understood that the creation of ‘inside’ ownership is a common response to particular agency cost problems. But the development of insiders may also set up another agency cost, that between inside owners and minority shareholders (or outsiders). This explanation helps to make sense of the finding that agency cost variables are important in other emerging markets as well. So agency cost theory may be important in both emerging and developed capital markets, but the nature of the agency problem may be different in each case.
Finally, and on a more grand speculative level, the evidence derived from the literature suggests that dividend policy matters in developed markets, such as the UK and US. In our case study of Jordan, dividend policy is still important, but it seems to be so on a smaller scale than for the US and UK. This is in some ways a paradoxical result. After all, the developed markets are more efficient (having less market imperfections) than those of the emerging markets. It might have been expected therefore that the more efficient the capital market the less important should dividend policy be. This intuition is to some extent, consistent not only with Miller and Modigliani\textsuperscript{167}, and many of the rival theories of dividend policy. That is, one would expect there to be a direct relation between the amount and size of market imperfections and the relevance of dividend policy. Our findings, however, are broadly consistent with other studies of dividend policy in emerging markets. While it is understood that firms in such markets are generally more credit constrained, the finding that dividend policy in emerging capital markets may be less important than in developed markets is a paradox that deserves further research.

6.4 Limitations of the Study

Like all other studies on dividend policy, and more generally, this study has some limitations. The main limitations to be addressed here are related to the case study approach in general and to the data set in particular. While case studies of US and UK markets have formed the basis for general models of dividend policy determination, this

\textsuperscript{167} It will be recalled that while in perfect capital markets dividend policy should be irrelevant, they conceded that some market imperfections may make dividend policy matter. For example, market imperfections may create clienteles, that taxes may make dividend policy matter and there may be information content in dividends.
study has not attempted to generalise from the particular case study. There are obvious limitations of any single country-specific analysis. Instead, the thesis has attempted to test how well the general models were able to explain the particular case of Jordan. The previous section emphasised some of the particularities of the capital market in Jordan.

It should be reiterated that Jordan is not considered to be the basis of a general model of an emerging market dividend policy. The results are specific to Jordan, but they do shed light on the generality of the rival models of dividend policy. Many of the structural characteristics of the capital market in Jordan are, however, also present in other emerging markets. The results from this study may therefore help to provide the basis for comparative research both in the region and in other emerging markets.

The study is based on the data set that is constructed from the publications of the ASE. The reliability and accuracy of that data will therefore, affect the robustness of the results of the present study. All efforts have been made to ensure the accuracy of the data, but this potential data problem remains. The problem is, however, not limited to Jordan, or even to developing capital markets. Some data was not available, especially that concerning cash flow and business risk, which prevented the researcher from incorporating other potential determinants of corporate dividend policy in Jordan.

Another limitation is related to the various proxy variables used. Although the proxy variables used in this study were defended empirically and theoretically, they remain proxies and may not perfectly represent the theoretical propositions. Once again, the proxy variable issue is a problem common to all empirical testing in dividend policy, and more generally.
6.5 Areas for Future Research

The present study has examined the determinants of corporate dividend policy in emerging markets using Jordan as a case study. The analysis has produced some interesting results and one avenue for future research is to extend the investigation to other emerging markets, especially those in the Middle East and North Africa (MENA) region. The incentives for further research on other emerging markets come from the contradictory results and the limitations of those studies that currently exist. Most of the existing studies on emerging markets have sample selection problems since they rely on small samples, and even the leading studies have often used samples comprising only large companies in each market (for instance those that rely on IFC data). An immediate area of further research therefore would be to replicate these studies using more comprehensive and representative samples of firms from these countries. An additional merit of such a replication study would be the opportunity to use the most robust econometric testing procedures that were employed in this study.

In the Jordanian context, further research could be conducted to examine whether dividend policy has an influence on firm value. This aspect of dividend policy research has been very important in the theoretical and empirical literature, but was not the focus of the present study.

Also, research needs to be done to test share price reaction around ex-dividend days to make inferences about investor preferences for dividends and capital gains. Furthermore, the signalling hypothesis could be examined by observing the share price reaction to dividend change announcements. Finally, a potential research area in Jordan
is to study how investors view dividend policy, and to examine various investors’ portfolios and their demographic attributes.

The current study is the first attempt to examine empirically the determinants of dividend policy in Jordan tacking into account all companies listed on the ASE. It has employed a well-defended testing methodology and produced a set of results which are of interest in themselves. It has also provided the basis for testing the explanatory power of rival theories of dividend policy determination. Not surprisingly, given the lack of consensus in the theoretical discourse in general, the results were mixed. It has, however, provided a number of insights which could form the basis of both further research in Jordan, and comparative research in emerging equity markets. The literature on dividend policy is voluminous, and it remains a core issue of modern corporate finance. In examining this issue therefore, the thesis has helped to reveal much about the nature of corporate finance in Jordan, and potentially opened up wider issues of the role of dividend policy in emerging capital markets like Jordan.
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# 8. APPENDICES

## Appendix A: ASE Listed Firms Used in the Study

<table>
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<th>Company Name</th>
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El–Zay Ready Wear Manufacturing
National Textile & Plastic Industries
Ready Mix Concrete & Construction Supplies
Jordan Kuwait for Agriculture & Food Products
Jordan Steel
Arab Electrical Industries
Middle East Pharm. & Chemical Ind. & Medical Appliances
The Union Tobacco & Cigarette Industries
United Glass Industries
Al Razi Pharmaceutical Industries
United Engineering Industries
International Ceramic Industries
International Textile manufacturing
Advanced Pharmaceutical Industries
Pearl sanitary Paper Converting
National poultry
Glucose & Food Manufacturing
International for Optical & Hearing Aid Industries
Delta Food Industries
Jordan Dead Sea Industries
National Aluminium Industrial
Nutri Dar
Modern Food Industries & Vegetable Oil
Middle East Complex for Eng. Electronics & Heavy Industries
Al-Ekbal Printing & Packaging
Union Advanced Industries
Jordan Safi Salt
Jordan Tobacco & Cigarettes
Jordan Petroleum Refinery

Service Sector
Jordan Hotels & Tourism
Jordan Electric Power
Arab International Hotels
Irbid District Electricity
Vehicles Owners Federation
Jordan National Shipping Lines
Jordan Press Foundation / Al-Rai
Jordan Himeh Mineral
The United Middle East & Commodore Hotels
Real Estate Investment / AKARCO
National Portfolio Securities
Machinery Equipment Renting & Maintenance
Jordan International trading Centre
Central General Trading & Storage
Jordanian Expatriate Investment Holding
Jordan Marketing Corporation
Jordan Press & Publishing / (Ad-Dustour)
Middle East for Development & Trade
Al-Zarqa Educational & Investment
The Arab International for Education & Inv
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**Insurance Sector**

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</table>
Appendix B: Alternative to Model 1 (PER instead of MBR)
This model is a replicate for the general model (Model 1) in Chapter 5 but here the variable price-to-earning ration (PER) is used as an alternative proxy for investment opportunities in place of market-to-book ratio (MBR).

Dependent Variable = DYLD

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient Estimates</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.26721</td>
<td>-4.15***</td>
</tr>
<tr>
<td>STOCK</td>
<td>-0.00796</td>
<td>-1.01</td>
</tr>
<tr>
<td>INSD</td>
<td>-0.05978</td>
<td>-2.63***</td>
</tr>
<tr>
<td>FAML</td>
<td>-0.00428</td>
<td>-0.42</td>
</tr>
<tr>
<td>STATE</td>
<td>0.02395</td>
<td>1.92*</td>
</tr>
<tr>
<td>INST</td>
<td>0.00757</td>
<td>0.74</td>
</tr>
<tr>
<td>MULT</td>
<td>0.00413</td>
<td>0.39</td>
</tr>
<tr>
<td>AGE</td>
<td>0.00435</td>
<td>4.52***</td>
</tr>
<tr>
<td>AGESQ</td>
<td>-0.00006</td>
<td>-3.67***</td>
</tr>
<tr>
<td>PER</td>
<td>-0.00001</td>
<td>-0.49</td>
</tr>
<tr>
<td>DER</td>
<td>-0.00299</td>
<td>-2.52**</td>
</tr>
<tr>
<td>TURN</td>
<td>-0.00020</td>
<td>-0.02</td>
</tr>
<tr>
<td>DTAX</td>
<td>-0.00748</td>
<td>-1.61</td>
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<tr>
<td>MCAP</td>
<td>0.01620</td>
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<tr>
<td>EPS</td>
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<td>2.59***</td>
</tr>
<tr>
<td>NONFIN</td>
<td>-0.01701</td>
<td>-1.31</td>
</tr>
<tr>
<td>Rho (ρ)</td>
<td>0.59646</td>
<td>10.42***</td>
</tr>
</tbody>
</table>

No. of observations 759

Log Likelihood 272.47

Wald test $\chi^2$ (15)=85.58

P-value 0.000

LR test** 159.36

P-value 0.000

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. * The proportion of the total variance contributed by panel-level variance component. ** LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit) estimator against the random effects panel estimator.
Appendix C: Alternative to Model 3 [LNTA instead of MCAP]

This model is a replicate for Model 3 in Chapter 5 but here the variable natural log of total assets (LNTA) is used as an alternative proxy for size in place of natural log of market capitalisation (MCAP).

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient Estimates</th>
<th>(t)-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.21102</td>
<td>-4.10***</td>
</tr>
<tr>
<td>INSD</td>
<td>-0.03674</td>
<td>-2.16**</td>
</tr>
<tr>
<td>STATE</td>
<td>0.01844</td>
<td>2.11**</td>
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<tr>
<td>AGES</td>
<td>0.00294</td>
<td>3.39***</td>
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<td>AGESQ</td>
<td>-0.00005</td>
<td>-3.72***</td>
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<tr>
<td>DER</td>
<td>0.00257</td>
<td>-2.67***</td>
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<tr>
<td>LNTA</td>
<td>0.01065</td>
<td>3.22***</td>
</tr>
<tr>
<td>EPS</td>
<td>0.00754</td>
<td>4.85***</td>
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</table>

\(\text{Rho (}\rho\text{)}\)  

<table>
<thead>
<tr>
<th>No. of observations</th>
<th>760</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Likelihood</td>
<td>261.10</td>
</tr>
<tr>
<td>Wald test</td>
<td>(\chi^2(7) = 71.23)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.000</td>
</tr>
<tr>
<td>LR test(^{**})</td>
<td>192.09</td>
</tr>
<tr>
<td>P-value</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. \(\dagger\) The proportion of the total variance contributed by panel-level variance component. \(\dagger\) LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit) estimator against the random effects panel estimator.
Appendix D: Alternative to Model P1 [PER instead of MBR]
This model is a replicate for Model P1 in Chapter 5 but here the variable PER is used as an alternative proxy for investment opportunities in place of MBR.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient Estimates</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
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<tr>
<td>STOCK</td>
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<td>-0.92</td>
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<tr>
<td>INSD</td>
<td>-0.45730</td>
<td>-0.88</td>
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<tr>
<td>FAML</td>
<td>-0.05610</td>
<td>-0.24</td>
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<td>STATE</td>
<td>-0.08166</td>
<td>-0.26</td>
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<tr>
<td>INST</td>
<td>-0.17217</td>
<td>-0.64</td>
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<tr>
<td>MULT</td>
<td>0.30553</td>
<td>1.14</td>
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<td>AGE</td>
<td>0.08434</td>
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<td>AGESQ</td>
<td>-0.00146</td>
<td>-2.63***</td>
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<tr>
<td>PER</td>
<td>-0.00009</td>
<td>-0.25</td>
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<td>DER</td>
<td>-0.05691</td>
<td>-2.13**</td>
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<tr>
<td>TURN</td>
<td>-0.29756</td>
<td>-0.96</td>
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<tr>
<td>DTAX</td>
<td>-0.05284</td>
<td>-0.33</td>
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<tr>
<td>MCAP</td>
<td>0.34899</td>
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<td>EPS</td>
<td>7.32874</td>
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<tr>
<td>NONFIN</td>
<td>0.36126</td>
<td>1.44</td>
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<tr>
<td>Rho (ρ) *</td>
<td>0.28557</td>
<td>3.26***</td>
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</tbody>
</table>

No. of observations: 759
Log Likelihood: -260.61
Wald test $\chi^2 (15)=258.98$
P-value: 0.000
L R test**: 14.38
P-value: 0.000

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. * The proportion of the total variance contributed by panel-level variance component. ** LR test denotes the likelihood-ratio test, which provides a test for pooled (Probit) estimator against the random effects panel estimator.
Appendix E: Alternative to Tangibility Model [FATA instead of TANG]

This model is a replicate for Tangibility Model in Chapter 5 but here the variable fixed to total assets ratio (FATA) is used as an alternative proxy for asset tangibility in place of tangibility ratio (current assets-total assets divided by total assets, TANG).

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient Estimates</th>
<th>$t$-statistic</th>
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</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.27412</td>
<td>-5.24***</td>
</tr>
<tr>
<td>INSD</td>
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<td>-3.59***</td>
</tr>
<tr>
<td>STATE</td>
<td>0.02358</td>
<td>2.53**</td>
</tr>
<tr>
<td>AGES</td>
<td>0.00321</td>
<td>3.97***</td>
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<td>-0.00005</td>
<td>-3.15***</td>
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<tr>
<td>DER</td>
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<td>0.47</td>
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<td>MCAP</td>
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<td>EPS</td>
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<td>5.98***</td>
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<td>FATA</td>
<td>-0.10054</td>
<td>-5.66***</td>
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<tr>
<td>Rho ($\rho$) $^*$</td>
<td>0.67109</td>
<td>14.00***</td>
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</tbody>
</table>

| No. of observations   | 547                   |
| Log Likelihood        | 220.70                |
| Wald test             | $\chi^2 (8)=137.94$   |
| P-value               | 0.000                 |
| LR test$^{**}$        | 114.64                |
| P-value               | 0.000                 |

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. $^*$ The proportion of the total variance contributed by panel-level variance component. $^{**}$ LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit) estimator against the random effects panel estimator.
Appendix F: Alternative to Tangibility Model [DIV/TA instead of DYLD]
This model is a replicate for Tangibility Model in Chapter 5 but here the dependent variable is dividend-to-total assets ratio (DIV/TA) instead of dividend yield (DYLD).

<table>
<thead>
<tr>
<th>Dependent Variable = DIV/TA</th>
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</thead>
<tbody>
<tr>
<td>Independent Variables</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>INSD</td>
</tr>
<tr>
<td>STATE</td>
</tr>
<tr>
<td>AGES</td>
</tr>
<tr>
<td>AGESQ</td>
</tr>
<tr>
<td>DER</td>
</tr>
<tr>
<td>MCAP</td>
</tr>
<tr>
<td>EPS</td>
</tr>
<tr>
<td>TANG</td>
</tr>
<tr>
<td>Rho (ρ)*</td>
</tr>
</tbody>
</table>

| No. of observations       | 548                    |
| Log Likelihood            | 274.53                 |
| Wald test                 | $\chi^2 (8)=277.28$    |
| P-value                   | 0.000                  |
| L R test**                | 214.30                 |
| P-value                   | 0.000                  |

Notes: *, **, *** Significant at the 10, 5, and 1 percent levels, respectively. * The proportion of the total variance contributed by panel-level variance component. ** LR test denotes the likelihood-ratio test, which provides a test for pooled (Tobit) estimator against the random effects panel estimator.
DIVIDEND POLICY OF PUBLICLY QUOTED COMPANIES IN EMERGING MARKETS-
THE CASE OF JORDAN

BY

HUSAM-ALDIN NIZAR Y. AL-MALKAWI

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS OF
THE DEGREE OF
DOCTOR OF PHILOSOPHY (FINANCE)

FEBRUARY 2005

SCHOOL OF ECONOMICS AND FINANCE
UNIVERSITY OF WESTERN SYDNEY
ABSTRACT

The determinants of corporate dividend policy remain controversial despite half a century of active research. Over that time, a number of competing theories of dividend policy have been proposed, but no consensus has been reached about their explanatory power. Empirical testing continues to produce mixed results. The determinants of dividend policy in emerging stock markets have received little attention.

This thesis examines the determinants of dividend policy of publicly quoted companies in Jordan as a case study of an emerging market. The study uses a firm-level panel data set of all publicly traded firms on the Amman Stock Exchange between 1989 and 2000. The study develops nine research hypotheses, which are used to represent the main theories of corporate dividends. A general-to-specific modelling approach is used to choose between the competing hypotheses. The study examines both the determinants of the amount of dividends as well as the decision to pay dividends using Tobit and Probit specifications. The models are estimated using the maximum likelihood method. The study also applies the Lintner model to test the stability of dividend policy.

The factors that affect dividend policy in developed stock markets seem to apply for this emerging market, but often in different ways and on a different scale. The results suggest that the proportion of stocks held by insiders and state ownership significantly affect the amount of dividends paid, but not the decision to pay dividends. Larger, mature, profitable firms with less investment opportunities are more likely to pay dividends. These factors are found to also positively affect the level of dividends. The findings provide strong support for the agency costs hypothesis and are broadly consistent with the pecking order hypothesis. The results also show that, for non-financial firms, asset tangibility has a negative impact on both the level of dividends and the likelihood to pay dividends. The results provide no support for the signalling hypothesis. Additionally, the results from the Lintner model suggest that Jordanian firms do not set a binding long-run target payout ratio and also that they adjust their dividends quite quickly to earnings changes. The thesis concludes with a discussion of some of the implications of these results and suggestions for further research.
STATEMENT OF AUTHENTICATION

This work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other institution.

-----------------------------------------

Signature
DEDICATION

This thesis is dedicated to my parents Nizan and Ibtisam, brothers Dia, Manar and Muhammad and sister Samah. I would like to thank them for their invariable care, love support and patience. They mean everything to me.
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This work would have never seen the light without my supervisors. First and foremost, I am forever indebted to my principal supervisor Dr. Michael Rafferty, who has been very supportive throughout. His keen mind, abilities and expert guidance put me on the right track and enabled me complete this research. I would like to thank him for his hard work and patience. I am also grateful to my co-supervisor, Dr. Stephane Mahuteau, for his support and encouragement. I would like to acknowledge his help when I most needed it. He provided me with invaluable advice especially in preparing my data set and other technical matters. A special thanks goes to my co-supervisor, Dr. Roger Ham, for his kindness and encouragement. His diligence and expertise was very critical in the closing stages of this thesis. Words cannot express my gratitude to you all. I would also like to acknowledge and thank Professor Tom Valentine, my supervisor during the early stages, for directing my attention to the research topic.

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The Amman Stock Exchange is also gratefully acknowledged for providing and compiling the data.
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