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DIVIDEND POLICY: EVIDENCE FROM TURKISH FIRMS

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DECLARATION

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Sefa TAKMAZ

ABSTRACT

Doctoral Thesis

Doctor of Philosophy (PhD)

Dividend Policy: Evidence from Turkish Firms

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The main aims and objectives of this study are to analyse the determinants of dividend policy and to test the validity of dividend payment explanations in the literature by focusing specifically on the catering theory in an emerging market. The role of profitability, size, leverage, investment opportunities, life-cycle, risk, liquidity, ownership structure and industry variables are examined in the dividend payment probability of Turkish firms. Moreover, the explanatory power of catering incentives on the variability of propensity to pay dividends is tested.

Univariate analysis and multivariate analysis are applied to assess the impact of specific factors on the dividend payment decisions of Turkish firms. Two different samples are used; the whole-sample and the sub-sample. Two samples exist because ownership structure variables used in the study are only available after the year 2003 and application of International Financial Reporting Standards have become mandatory for listed firms in Turkey after the year 2005. The whole-sample covers publicly traded firms for the years between 1999 and 2015 and the sub-sample covers publicly traded firms for the years between 2005 and 2015.

The analyses reveal that profitability, size, leverage, life-cycle, quick ratio, risk, market liquidity and ownership structure are the determinants that influence the probability of dividend payment of Turkish firms. Investment

opportunities and industry of the firm have been found not to be significantly linked with dividend policy. The findings of the study confirm the claims of catering theory, that is, when investors in Turkey opt for dividends, firms cater them and distribute dividends, and vice versa.

Keywords: Dividends, Determinants, Catering, Risk, Liquidity, Ownership.



ÖZET

Doktora Tezi

Temettü Politikası: Türk Firmaları Örnekleme

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Bu çalışma temettü politikasını belirleyen faktörleri analiz etmeyi ve literatürde temettü politikasını açıklamayı amaçlayan teorileri, gelişmekte olan bir ülkede test etmeyi hedeflemektedir. Bu teorilerden biri olan servis teorisinin geçerliliği de ayrıca incelenmektedir. Karlılık, büyüklük, kaldıraç, yatırım fırsatları, yaşam döngüsü, risk, likidite, ortaklık yapısı ve endüstri faktörlerinin Türk şirketlerinin temettü ödeme olasılığını açıklamadaki rolü araştırılmıştır. Ayrıca, servis teşviki değişkeninin, şirketlerin temettü ödeme eğilimlerindeki değişimleri açıklama gücü test edilmiştir.

Belirlenen bağımsız değişkenlerin Türk şirketlerinin temettü ödeme kararı üzerindeki etkisini ölçmek için tek değişkenli ve çok değişkenli analizler kullanılmıştır. Firmaya özgü değişkenlerin temettü politikasına olan etkileri iki farklı örneklem kullanılarak araştırılmıştır. Tam-örneklem ve alt-örneklem olmak üzere iki ayrı periyod belirlenmiştir çünkü ortaklık yapısı değişkenleri 2003 yılından itibaren erişilebilir durumdadır. Ayrıca Uluslararası Finansal Raporlama Standartları Türkiye’de halka açık şirketlerde 2005 yılından itibaren uygulanmaktadır. Tam-örneklem 1999 ve 2015 yılları arasında halka açık olan şirketleri ve alt-örneklem ise 2005 ve 2015 yılları arasında halka açık olan şirketleri kapsamaktadır.

Tek değişkenli ve çok değişkenli analizler karlılık, büyüklük, kaldıraç, yaşam döngüsü, asit test oranı, risk, piyasa likiditesi ve ortaklık yapısı faktörlerinin, Türk şirketlerinin temettü ödeme olasılığını etkileyen faktörler

olduğunu ortaya koymaktadır. Yatırım fırsatları ve endüstri değişkenlerinin ise temettü ödeme politikası ile arasında anlamlı bir bağlantı bulunmamaktadır. Ayrıca, bu çalışmanın bulguları servis teorisinin öne sürdüğü iddiaları desteklemektedir, yani, Türkiye’deki yatırımcılar temettü talep ettikleri zaman, firmalar karşılık olarak onlara temettü dağıtırken, temettü talebinin olmadığı zamanlarda ise şirketler temettü dağıtmamayı tercih etmektedirler.

Anahtar Kelimeler: Temettü, Belirleyiciler, Servis, Risk, Likidite, Ortaklık.



DIVIDEND POLICY: EVIDENCE FROM TURKISH FIRMS

TABLE OF CONTENTS

DECLARATION	iii
ABSTRACT	iv
ÖZET	vi
TABLE OF CONTENTS	viii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF APPENDICES	xiii

INTRODUCTION	1
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CHAPTER ONE

THEORIES ON DIVIDEND POLICY

1.1. DIVIDEND IRRELEVANCE THEORY	7
1.2. BIRD IN-THE-HAND THEORY	8
1.3. TAXES AND TAX CLIENTELES THEORY	9
1.4. ASYMMETRIC INFORMATION AND SIGNALING THEORY	10
1.5. AGENCY COST THEORY	11
1.6. BEHAVIORAL THEORY	12
1.7. FIRM LIFE-CYCLE THEORY	14
1.8. CATERING THEORY	16

CHAPTER TWO

TURKISH CAPITAL MARKETS AND REGULATIONS ON DIVIDEND POLICY

2.1. TURKISH CAPITAL MARKETS	21
2.1.1 The 1980-2002 Period	21
2.1.2 The post 2003 Period	23

2.2. REGULATIONS ON DIVIDEND POLICY	27
2.2.1 Profit Distribution Process	27
2.2.2 Regulations on First Dividend Payment	28
2.2.3 Taxation	31

CHAPTER THREE

DETERMINANTS OF DIVIDEND POLICY

3.1. DETERMINANTS OF DIVIDEND POLICY LITERATURE	33
3.1.1. Developed Markets	33
3.1.2. Emerging Markets	37
3.1.3. Turkey	38
3.2. DETERMINANTS OF DIVIDEND POLICY AND RESEARCH HYPOTHESES	39
3.2.1. Profitability	39
3.2.2. Investment Opportunities	40
3.2.3. Size	40
3.2.4. Leverage	41
3.2.5. Life-Cycle	41
3.2.6. Risk	42
3.2.7. Liquidity	43
3.2.8. Ownership	44
3.2.9. Industry	45
3.3. SAMPLE SELECTION	46
3.4. VARIABLES AND SUMMARY STATISTICS	49
3.4.1. Variables	49
3.4.1. Summary Statistics	50
3.5. METHODOLOGY AND MODELS	53
3.5.1. Univariate Analysis	53
3.5.2. Multivariate Analyses	53
3.6. EMPIRICAL RESULTS	55
3.6.1. Results of Univariate Analysis	55
3.6.2. Results of Multivariate Analysis	59

CHAPTER FOUR
CATERING INCENTIVES AND DIVIDEND POLICY

4.1. CATERING THEORY OF DIVIDENDS LITERATURE	66
4.1.1 Developed Markets	66
4.1.2. Emerging Markets	68
4.2. PROPENSITY TO PAY DIVIDENDS	69
4.3. CATERING INCENTIVES	71
4.4. EMPIRICAL RESULTS	73
CONCLUSION	77
REFERENCES	81
APPENDICES	

LIST OF TABLES

Table 1: Profit Distribution Process of BIST firms	p. 29
Table 2: Tax Treatment of Dividends and Capital Gains in Turkey	p. 32
Table 3: Number of Firms in Total and Across Industries	p. 48
Table 4: Variables and Definitions	p. 51
Table 5: Summary Statistics	p. 52
Table 6: Correlation Matrix of Variables	p. 57
Table 7: T-stat Differences in Means of Dividend Payers and Nonpayers	p. 59
Table 8: Fama-Macbeth Estimation Results	p. 60
Table 9: Fama-Macbeth Estimation Results for Base Periods	p. 70
Table 10: Estimated Propensity to Pay Dividends for Forecast Periods	p. 71
Table 11: Dividend Premium	p. 73
Table 12: Estimation Results for Catering Effect	p. 76
Table 13: Panel Logit Regression Results	appendix p.2

LIST OF FIGURES

Figure 1: Dividend Premium and Change in PTP, whole-sample	p. 74
Figure 2: Dividend Premium and Change in PTP, sub-sample	p. 74



LIST OF APPENDICES

Appendix 1: Panel Logit Regression Results

appendix p.1



INTRODUCTION

Why do some firms pay dividends and why others do not? Black (1976: 8) states that as one looks deeper into the dividend picture, one sees a puzzle, which has pieces that are incompatible with each other. An extensive body of research has been carried out over the last decades to answer the dividend payment question, but the puzzle stated in Black (1976: 8) has not been solved yet. The importance of the factors determining corporate dividend policy still remains a subject open to debate.

In their pioneer study, Modigliani and Miller (1961: 414) (hereafter MM) claim that under specific conditions dividend policy has no relationship with the value of a firm. They argue that distribution of dividends is essentially a financing decision that affects only the right-hand side of the balance sheet of a firm, that is the capital structure. Capital structure does not matter because how you finance the firm does not impact firm value. Thus, dividend is irrelevant, because how you deliver value does not matter. It is the investment policy that matters to determine the value of a firm in a trading environment, where there are no taxes, no transaction costs, no conflicts between managers and investors, no information asymmetry, or no institutional constraints. Basically, MM (1961: 414) state that dividend payment does not affect the maximization of the wealth of shareholders because individuals can make their own mix of cash flows, dividends or retained earnings, easily at home under perfect capital market conditions. However, what if perfect capital market conditions do not exist? From this point of view, the theory of MM (1961) implies that dividends are relevant for firm value. Put differently, it can be argued that, dividend policy matters and information asymmetry, agency costs, taxation, the preference of investors towards dividends affect dividend policy.

In fact, subsequent studies in dividend policy literature find evidence that dividend policy matters for managers of the firms and for investors, as a result dividend payment has an impact on the firm value. Therefore, contrary to the claims of MM (1961), a number of theories that assert dividends are relevant are developed. These theories can be named as bird in-the-hand, tax clienteles, signaling, agency cost, behavioral theories, life-cycle and catering.

For a valid explanation to dividend puzzle, research has attempted to find different solutions. Among these explanations, agency cost theory of dividends mostly inspires the others. For instance, dividend policy literature documents the

importance of leverage and dividends as a tool to control agency-cost. Debt policy of a firm is accepted as a factor that affects dividend policy of firms. To some researchers, debt is a solution to agency costs between investors and managers in the free cash flow issue. Jensen and Meckling (1976: 349) and Jensen (1986: 323) state that high level of debt or high level of dividends can control this issue. These tools have an inverse relationship. Jensen et al. (1992: 256) find that debt and dividends move together, and they have a negative association.

Based on dividend policy literature, profit is an important determinant that affects dividend policy of firms. Lintner (1956) surveys a sample of firms to observe their dividend payout decisions. Results of this survey reveal that managers of the firms give importance to the existing rate of dividends before deciding the new dividend rate. They are reluctant to significantly change the existing dividends because they think that stockholders prefer stable dividends. Hence, firms choose to maintain stable dividends. To maintain the dividend rate, key factor is the earnings. As an inevitable result, dividend payment and firm's profitability should have a positive association (Lintner, 1956: 102).

Firm size is considered to be an important determinant in the dividend policy literature that has an impact on dividend policy of firms. Fama and French (2001), DeAngelo et al. (2006) and Denis and Osobov (2008) present evidence of the importance of firm size as a factor affecting dividend payment positively.

Fama and French (2001) show that dividends are decreasing in the recent era, in their paper analyzing the dividend payment behavior of US firms for a relatively long period, the years between 1926 and 1999. They state that proliferation in the number of small firms in this period may be a possible explanation for this phenomenon, because, small firms have low profitability and high growth opportunity (Fama and French, 2001:19). Even after controlling firm characteristics; size, profitability and growth opportunities, they still observe that there is a decreasing pattern in the payment of dividends in the US firms. This phenomenon is called as disappearing dividend puzzle (Hoberg and Prabhala, 2008: 91).

One of the possible solutions to disappearing dividend puzzle of Fama and French (2001), is suggested by DeAngelo et al. (2006). Their study examines the validity of life-cycle theory for the firms in the US between the years 1973 and 2002. By using firm size, profitability, growth, total capital, cash balances and paid dividends as control factors, they find that retained earnings to total equity ratio

affects propensity to pay dividends positively. Retained earnings/total equity ratio is used as a proxy for the life-cycle stage of the firm and life-cycle is found to be an important factor of dividend payments for the US firms (DeAngelo, 2006: 227).

Liquidity and risk are two other factors presented in the dividend policy literature as possible explanations for the dividend puzzle. Gullon et al. (2002: 390) show that maturity is an important determinant of dividend policy. Risk is used as a proxy for firm maturity. They study dividend announcements of listed firms from the US stock markets. With the examination of 7642 dividend-change announcements between the years 1967-1993, their results indicate that there is a negative association between dividend and risk (Gullon et al., 2002: 390). In another study, Hoberg and Prabhala (2009:80) question the role of risk in the Fama and French (2001) disappearing dividends puzzle. They find similar results with Fama and French (2001). However, when they insert risk into the model, they find that risk is an important factor to explain disappearing dividends (Hoberg and Prabhala, 2009: 80).

With the burden of transaction costs, investors are not free to create home-made dividends. Dividends as a liquidity source serve as a protection tool for investors to overcome the problem emerging from this market friction. Thus, it can be expected that dividend payment of firms with less liquid shares are higher than firms with more liquid shares. Banerjee et al. (2007: 370) name this explanation as liquidity hypothesis of dividends. By controlling size, profitability and investment opportunities, they test liquidity hypothesis in the US market for a sample of firms between the years 1963-2003. The results of their study claim that a link between market liquidity of a firm's stock and its dividend policy exists. Further, they find that less liquidity leads to more dividend initiation or continuation (Banerjee et al., 2007: 371).

As another possible solution, financial literature documents that ownership structure is a determinant of dividend policy of firms. Ownership structure is accepted as a factor related with agency theory. Shleifer and Vishny (1997: 478) state that large shareholders, i.e. institutional and foreign owners, may lessen the agency problems through dividend payment. Grinstein and Michaely (2005: 1390) provide evidence revealing the relationship between institutional ownership and dividend payment in a study examining US firms. Their evidence shows that institutions prefer to own shares of companies that pay higher dividends (Grinstein and Michaely, 2005: 1390).

Industry is considered as another determinant in dividend policy literature (Michel, 1979; Baker, 1988; Ho, 2003). For the Turkish capital market, Yilmaz (2003: 28) puts forward that industry is an important indicator to determine the dividend policy of firms by analyzing the years between 1990-2002.

Finally, Baker and Wurgler (2004a) claim that unexplained part of the decreasing rates in dividends presented by Fama and French (2001), can be clarified by a behavioral explanation, which is called catering theory. This theory takes its roots from investment sentiment theory and claims that managers follow the demand of irrational investors in the decision to pay or not to pay dividends (Baker and Wurgler, 2004a: 1125). That is, if investors demand dividends, managers cater them and pay dividends but if the opposite is valid than managers omit dividends. The demand of investors for dividends is measured by dividend premium. Dividend premium is the value-difference between dividend paying firms and non-paying firms. Recent studies (Li and Lie, 2006; Ferris et al., 2006; Denis and Osobov, 2008; Lin et al., 2012; Kuo et al., 2013; Chen, 2015) reveal the rising interest in catering theory. Research on catering theory suggests that investors' sentiments can be an explanation to solve the dividend puzzle.

With the previously stated arguments and considerations, this study is carried out with the intention of contributing to the dividend policy literature by revealing the importance of determinants and clarifying the impact of catering incentives to explain the unexplained part of dividend payment behaviour of Turkish firms. Accordingly, two main aims of this study can be stated as follows;

1. To analyse the determining factors of dividend policy and to test the validity of dividend theories in the literature in an emerging market; Dividend policy studies are very limited in Turkey. Adaoglu (2000), Aivazian et al. (2003), Kirkulak and Kurt (2010), and Al-Najjar and Kilincarslan (2016) are the main examples for these studies. Among these studies, this study covers a more recent period for Turkish stock market, 1999 and 2015, and a more comprehensive set of determinants affecting dividend policy. This period of Turkish capital market includes changes in dividend regulations and implementation of major reforms, especially after 2001 crisis. In addition, the sample period covers 2008 global financial crisis, which may have a possible impact on dividend policy of Turkish firms.

2. To examine the validity of catering theory in an emerging market; Previous research is not so extensive regarding the impact of catering incentives on the dividend policy of firms especially in emerging markets. The extant literature mainly

covers developed markets, the US and European markets, as in Baker and Wurgler (2004b), Li and Lie (2006), Lin et al. (2012) and Kuo et al. (2013). LaPorta et al. (2000) state that in common law countries investor preferences affect dividend policy of firms. Kuo et al. (2013) examine an extensive sample of countries both from common law and civil law origins. Turkey is originally a civil law country, but major reforms took place especially after the 2001 crisis which brought Turkey closer to common law (Al-Najjar and Kilincarslan, 2016: 139). Thus, it is meaningful to test the validity of the catering theory in a country like Turkey in the transition process from civil law to common law. Few studies exist analysing emerging markets in terms of catering incentives on dividend policy. In fact, as far as is known, this study is the first to test catering theory in the Turkish capital market.

This study presents new evidence for investors and for managers of the firms, whose aims are value-maximization of their wealth and value-maximization of the firm, respectively. Investors can make decisions by utilizing the results of this study and managers can decide their firms' dividend policy accordingly. Results provide new information for regulators, who try to regulate the capital markets effectively, and for academics who try to solve the dividend puzzle. It extends explanatory factors of dividend payment literature for an emerging market, where major changes occurred in regulations and macroeconomic situation during the sample period of the study. In addition, results strengthen the international findings on the catering theory of dividends. The analysis of the impact of catering incentives on dividend policy can be useful for managers because catering theory claims that investors value firms' stocks according to their dividend policy.

The rest of the study progresses as follows. Chapter 1 exhibits the main theories that the existing literature developed to explain the driving power of firms to initiate dividends instead of retaining the earnings. The theories presented are named as; dividend irrelevance, bird in-the-hand, taxes and tax clienteles, asymmetric information and signaling, agency cost, behavioral explanations, firm life-cycle and catering. They are classified as in the study of Baker and Weigand (2015). Main relevant empirical studies testing the theories are also presented.

In Chapter 2, the regulation history regarding dividend policy of listed firms and developments in Turkish capital markets are introduced. Regulations, macro-economic trends and financial crises may influence dividend policy of firms as stated in Kirkulak and Kurt (2010: 39). In other words, firms do not always have the freedom of determining their dividend policy. There are some regulations and

legislations bounding the decisions of firms regarding dividend policy. Countries regulate the dividend policy of firms differently throughout the world (Adaoglu, 1999:1). As an emerging market, in Turkey, dividend payments have been heavily regulated, and regulations went through some major changes since the debut of operations in Borsa Istanbul.

The determinants of dividend policy are examined in Chapter 3. Univariate and multivariate analysis are used to measure the impact of specific factors on the dividend policy of Turkish firms. Two different samples are constructed to examine that impact; the whole-sample and the sub-sample because ownership structure variables used in the study are only available after the year 2003 and International Financial Reporting Standards (IFRS) are applied after the year 2005 in Turkey. The whole-sample covers the years between 1999-2015 and the sub-sample covers the years between 2005-2015. The whole-sample includes 24380 firm-year data for 224 firms listed in Borsa Istanbul excluding financial, utility firms as well as firms without complete data. Financial and utility firms are omitted because these firms are regulated differently regarding earnings (Kirkulak and Kurt, 2010: 41). The sub-sample has 21600 firm-year observations again for 224 firms. Annual firm-level financial information is collected from Thomson Reuters DataStream and Public Disclosure Platform but for the consistency of the analysis, only one source is used for financial information, which is DataStream. The Turkish firm-level data exists from the year 1996 in DataStream. Thus, the analysis begins with the year 1996. However, the first three years, namely 1996, 1997 and 1998, cover only a limited number of firms so the final sample period used in the analysis begins in 1999.

Chapter 4 examines the validity of catering theory after taking into consideration the effects of determinants analyzed in Chapter 3. To test the catering theory, firstly the propensity to pay dividends is calculated. It is the difference between actual percentage and expected percentage of dividend payers. Expected percentage of dividend payers is estimated from the logistics regression model with dividend payment as the dependent variable and the firm-specific control factors as explanatory variables. Dividend premium is then presented as the difference between value-weighted market to-book-ratio of dividend payers and nonpayers. In the final stage, change in propensity to pay is regressed on dividend premium to test if catering theory explains Turkish firms' dividend payment decisions. Final section concludes the study.

CHAPTER ONE

THEORIES ON DIVIDEND POLICY

Research has suggested many explanations why some firms initiate dividends and why others do not. Despite many solid theories, there is no consensus on this debate in the extant literature. In this chapter, major theories regarding this phenomenon are reviewed. Theories are classified as in the study of Baker and Weigand (2015).

1.1. DIVIDEND IRRELEVANCE THEORY

MM (1958: 271) prove that capital structure, i.e., combination of debt and equity, has no relationship with the value of a firm. They state that how a firm finances its assets is not important, which is called “capital structure irrelevance” (MM, 1958: 271). MM (1958: 269) rely on arbitrage arguments and some certain assumptions (e.g., perfect capital markets, rational behavior) while presenting their argument. The opportunity of “homemade leverage” (MM, 1958: 270) enables investors to mimic the firm’s capital structure. Therefore, they can create cash flow streams by themselves eliminating the relevancy of capital structure.

Distribution of dividends is essentially a financing decision. Thus, it is closely related with capital structure. A firm paying dividends will need more external financing and will have less internal financing opportunities. In other words, if capital structure is irrelevant, by extension dividend policy should have no impact on the firm value. Capital structure irrelevancy means how the creation of value is financed does not matter and dividend irrelevancy means how the value is delivered does not matter.

In this regard, in their subsequent study, MM (1961) provide a weighty argument for the fact that dividend policy has no impact on the firm value. They make the following assumptions (MM, 1961: 412):

1. No one, investor or firm, has the power to change the market price.
2. Information is readily available and costless to all investors.
3. Transaction costs do not exist while trading, there are no issuance and bankruptcy costs.
4. There are no taxes.

5. Investors are rational, i.e., more is preferable to less, and dividend and capital gains are the same.

6. Information is symmetric between investors and managers. All future cash flow streams and future income are known by investors. With this, stocks do not differ from bonds. There is no obstacle to assuming that stock is the only tool for external financing.

Under these assumptions, MM (1961: 414) illustrate that a firm's market value has no relationship with the dividend payment decision. With the help of external financing, firm can determine dividend policy without affecting its value and with selling a portion of its assets, investors can finance their consumption without needing dividends (MM, 1961: 416). Investments determine the delivery of future cash flows. Thus, firm value is only affected by investments (MM, 1961: 414). If firm chooses to distribute dividends that exceeds the earnings left over after layouts for investment, then external financing can be used. That is, firm can attain the desired level of dividends independent from investment decisions (MM, 1961: 414).

1.2. BIRD IN-THE-HAND THEORY

Investors choose to get dividends right away is the line of argument that bird-in-the-hand theory grounds on. According to the theory, investors do not prefer a higher but uncertain future return, which is a result of cash retention to finance investments. They think that a bird in-the-hand is better than two in the bush. In other words, this theory claims that higher dividend payments or stable dividend payments increase firm value because of certainty (Baker, 2009: 102). On the contrary, future share price appreciation, capital gain, is uncertain.

Two studies set ground for this theory. Lintner (1956) surveys a sample of 28 carefully selected firms to investigate their dividend policy. The survey suggests some stylized facts about dividend policy. First, managers of the firms give importance to the existing rate of dividends while deciding the new dividend rate (Lintner, 1956: 99). They are reluctant to significantly change the existing dividends because they think that stockholders prefer stable dividends. Second, dividend decision is based mostly on major changes in earnings incompatible with existing dividends (Lintner, 1956: 103). Investment requirements do not significantly affect dividend policy. Third, firms target payout ratio for long term. In the short term, they change dividends accordingly (Lintner, 1956: 103).

Gordon (1959: 99) states that shareholders like dividends. Investors buy the stock of a firm in the expectation of receiving dividend payments. Gordon (1959: 101) formulates a model for valuing stocks. The model consists only dividends and discount rates as variables. The formula is known as Gordon growth model. Based on that model, there is a positive association between dividends and the value of the firm. The higher the dividend, the higher the share price.

1.3. TAXES AND TAX CLIENTELES THEORY

In general, dividends and capital gains are taxed differently. In addition, rates change from investor to investor, which results in different after-tax returns for the investors. Therefore, a rational investor should prefer capital gains and invest in stock of firms that pay low dividends if the capital gains tax rate is less than the personal dividend income tax. Conversely, if the rate of tax on personal income is less than the rate of tax on capital gains, investors should favor dividends and invest in stock of firms that pay high dividends.

MM (1961) are the first among others terming that clustering of investors in firms with their preferred dividend policy as “dividend clientele effect”. They state (MM, 1961:431):

If, for example, the frequency distribution of corporate payout ratios happened to correspond exactly with the distribution of investor preferences for pay-out ratios, then the existence of these preferences would clearly lead ultimately to a situation whose implications were different in no fundamental respect from the perfect market case. Each corporation would tend to attract to itself a "clientele" consisting of those preferring its particular payout ratio, but one clientele would be entirely as good as another in terms of the valuation it would imply for the firm.

Two approaches to test clientele effect exist in the literature. One approach uses an adjusted version of Capital Asset Pricing Model (CAPM) including dividend return as a variable. The other approach analyzes ex-dividend stock price behavior.

Pettit (1977) uses the regression technique to investigate the clientele effect on investors' portfolios as one of the early examples to the first approach. Pettit (1977: 420) finds that younger investors, wealthier investors and investors facing their ordinary income taxed higher than capital gains tend to hold stocks of firms that pay more dividends. The results support the clientele effect.

In their study to measure the clientele effect according to the second approach, Elton and Gruber (1970) analyze ex-dividend day stock price movements.

To measure the impact of the tax rate differential between capital gains and dividends on investors' preference, the ex-dividend day return is compared with the actual paid-dividend. The decrease in price on the ex-dividend day should be equal to paid-dividend. In fact, different tax rates on different types of returns make this expectation questionable (Elton and Gruber, 1970).

In their model, Elton and Gruber (1970: 69) claim that the ratio of price drop in the share that paid dividend must be equal to the ratio of tax differential. On the other hand, for instance, if the tax rate on dividend income is higher than capital gains rate, then ex-dividend price decrease should be smaller than the paid-dividend. The empirical evidence of Elton and Gruber (1970: 73) examining US firms between 1966 and 1969 shows that tax on dividend is higher than tax on capital gains because the price decrease on ex-dividend day was smaller than dividend payment. Their findings reveal that, consistent with clientele effect, individuals in lower tax brackets prefer high dividends, whereas investors in higher tax brackets prefer low dividends (Elton and Gruber, 1970: 73).

1.4. ASYMMETRIC INFORMATION AND SIGNALING THEORY

The model developed by Miller and Rock (1985: 1031) assumes that managers of the firms know more than outside investors. Based on this assumption, an information asymmetry exists between managers and outside investors and market reacts to firm's announcements such as changes in dividend policy. Change in dividend policy is a financial policy decision (Ofer and Siegel, 1987). As firms are reluctant to change dividend payments, investors perceive an unexpected change in dividend policy as a strong signal of long run financial situation of the firm (Ofer and Siegel, 1987: 890).

Motivated by MM (1961: 430) statement on possible signaling, Ross (1977) models the signaling argument. MM (1961: 430) state that although firm value depends on future cash flows, investors' perception of a change in dividend policy may affect the value of the stock price. Consistent with MM (1961) framework, Ross (1977: 39) by his incentive-signaling model shows that managers use capital structure to signal increased cash flows. In the Ross (1977: 25) model, there are two types of firms; type A and type B. Type A firms have a return of " a " greater than type B firms' return " b ". The market cannot distinguish these firms. If a firm is more valuable, managers get higher compensations. Consequently, managers aim to signal that their firm is worthy of higher valuation and type A firms' managers

increase the dividend payments. On the other hand, even though they desire, type B firms' managers cannot increase the dividend payments because of bankruptcy costs. Here, the assumption is that if a firm goes bankrupt managers will be penalized (Ross, 1977: 28).

Kalay (1980: 856) extends Ross (1977) model to dividend policy. He applies Ross (1977) incentive-signaling model by showing that managerial reluctance to decrease dividend payments is a tool to convey information.

Bhattacharya (1979) builds a model like Ross (1977). He shows that despite the tax disadvantage, managers prefer to pay dividends. Outsiders of the firm have limited information about the firm's profitability (Bhattacharya, 1979: 259). Because of this information asymmetry, cash dividends are used by managers as a signal of the firms' expected cash flows. Investors value the benefit from the increased dividends higher than the cost of the tax because the horizon of the return from the assets of the firm is longer than investors' planning horizons for realizing wealth (Bhattacharya, 1979: 260).

1.5. AGENCY COST THEORY

Agency cost theory argues that managers have the potential to invest excess free cash flows to projects with negative net present value, a phenomenon which is called as overinvestment problem (D'Mello and Miranda, 2010: 324). Dividends impose managers to distribute excess free cash. As a result, overinvestment and agency cost problems are reduced.

The agency cost theory takes its root from the agency problem stated in Jensen and Meckling (1976: 308). Investors and managers of a publicly owned firm may have divergent interests. Investors desire the value maximization of the firm whereas managers desire the maximization of their own income. Paying dividends decreases the excess cash disposable to the misuse of managers and makes the company more open to external control (Jensen, 1986: 324). The reduced excess cash will make the firm to use external financing, i.e. debt, while making new investments. Firm will be more open to monitoring and managers will be engaging in activities in the best interest of investors, which will add value to the firm. Therefore, market will give positive reaction to dividend initiations and dividend increases. On the other hand, implying the rise of the overinvestment problem, market will react negatively to a decrease in the dividend payout (Jensen, 1986: 324).

Noronha et al. (1996) use firms from the US to test the role of agency costs in determining capital structure and dividend policy. The results of their study show that agency costs are diminished with the help of dividends. Dividends, consistent with the theory, serve as a controlling and monitoring mechanism. Dividends influence the capital structure of firms, which contributes to monitoring (Noronha et al., 1996: 440).

In a study conducted by Yoon and Starks (1995), agency cost explanation for dividends is not supported. They use a sample of US firms for the period 1969-1988. Tobin's Q is used to differentiate the firms having overinvestment behavior from others. Their analysis reveals that variability in dividends does not match with the variability in the misuse of cash flow by managers. The results obtained do not show any differences in the extent of price reactions to dividend changes between overinvesting firms and other firms. Instead of agency cost theory, their results give support to signaling theory. Dividend changes are associated with the variability of expected future cash flows (Yoon and Starks, 1995: 995).

1.6. BEHAVIORAL THEORY

Neoclassical theories such as asymmetric information theory, tax clienteles theory and agency cost theory on dividend policy assume rational individuals and do not concern behavioral components of individual decision making. They usually deal with taxes, transaction costs and asymmetric information when explaining dividend policy contrary to MM (1961) assumptions. On the other hand, behavioral dividend theory acknowledges that individuals are affected by certain psychological factors when making decisions including dividend decisions.

Behavioral theory underlies three psychological factors that affect investors when approaching dividends, which are; behavioral life-cycle hypothesis, hedonic editing and regret (Baker, 2009: 180). The formal model has five stages to explain the effect of dividends on individuals' consumption decisions and portfolio selection (Baker, 2009: 181). The first three stages aim to present neoclassical structure. The last two stages integrate the three psychological factors into the neoclassical structure.

Basically, in the neoclassical framework, individuals try to maximize their utility with consumption and portfolio choices limited with budget. Based on this framework, life time consumption and portfolio choice of an individual must be equal or lower than the budget of the individual which comprises the price of the security

hold, dividend income, labor income and tax payment (Baker, 2009). Under MM (1961: 416) argument, an individual can make dividends at home to finance its consumptions by selling a portion of its assets so receiving dividends or not is irrelevant. A rational individual in the neoclassical framework chooses between the tax payment of dividends and transaction cost of selling securities. The individual freely chooses (i.e. without internal conflict) a combination of consumption and leisure to maximize its utility function (Baker, 2009: 182).

Based on the behavioral life cycle model (hereafter BLC) developed by Shefrin and Thaler (1988), older people are reluctant to sell security holdings. In other words, some individuals cannot control themselves to postpone consumption that will maximize their utility function. They experience an internal conflict. To overcome that internal conflict, individuals use mental accounting, explained by Shefrin and Thaler (1988: 610). Mental accounts are categories used to categorize information and make decisions regarding consumption, leisure and portfolio choices. Under the BLC framework individuals have four distinct mental accounts that are related with current income, liquid assets, home equity and future income (Shefrin and Thaler, 1988: 615). Labor income and dividend income is placed in the current income category as a mental account. Securities are placed in liquid assets and future incomes coming from retirement accounts are in future income mental accounts. Current income is ranked first in the decision-making order of individuals. That is, when an individual prefers consumption, the choice is current income as a fund. If the current income is not enough than other mental accounts are chosen. This structure presents a pecking order (Baker, 2009: 184).

Behavioral theory of dividends builds on BLC structure. Shefrin and Statman (1984: 257) state that individuals refrain to use liquid assets, that is they do not dip into capital. Dividend income is ranked first among others in the BLC heuristics. Shefrin and Statman (1984: 257) suggest that individuals use dividend income as a source of funding for consumption.

The second behavioral factor that affects dividend decisions is hedonic editing. Hedonic editing means that individuals segregate the outcomes of an event (Baker, 2009: 189). The hedonic editing theory of Thaler and Johnson (1990) is related with dividends in the way that individuals segregate total return from a stock into two parts as capital gains and dividends. Hence, dividends and capital gains contribute to an individual's utility function separately.

Individuals assess the gains and losses differently as the prospect theory of Kahneman and Tversky (1979: 263) presents. A loss affects individuals much more intensely than a gain with the same magnitude. Therefore, when there is a dividend cut or omission, investors react more than a comparable dividend increase (Ghosh and Woolridge, 1988: 281).

The last psychological factor that affects dividend decisions is regret. Individuals feel regret when they realize that their decision was not the best one. Shefrin and Statman (1984: 268) posit that selling a stock as a source of consumption may cause regret, if the stock value goes up after selling it. That is why individuals generally choose dividends to finance their consumption and avoid selling stock not to experience regret (Shefrin, 1984: 271).

In their study, Baker et al. (2006) prove that the relationship between consumption and dividends is strong. By using 1988-2001 Consumer Expenditure Survey (CEX) and brokerage account data, they provide evidence that individuals prefer to use dividend income rather than capital gains when making consumption (Baker et al. 2006: 32). Graham and Kumar (2006) also support the behavioral theory of dividends. By using portfolio dividend yield, the authors investigate the preference for dividends. They find that older individuals choose dividend payers over nonpayers and their choice is stable. The portfolios of older investors change slowly over time. Conversely, younger investors choose dividend payment when their income is low. That is, high-income younger investors prefer dividend paying stock less than low-income younger investors (Graham and Kumar, 2006: 1307).

1.7. FIRM LIFE-CYCLE THEORY

As a firm ages, the cash it makes exceeds the profitable investment opportunities. Firm life cycle theory of dividends stems from this fact. In the maturity stage, distributing free cash flow to investors becomes the optimal choice. Firm life cycle theory of dividends points out that a newly initiated, i.e. young, firm has relatively more investment opportunities with less internal cash. It is costlier to find external funding for young firms. Therefore, these firms must rely on internal funding and must pass dividend payments over. However, when the firm grows, it becomes a cash generator with less investment opportunities and tend to pay extra cash to investors as dividends (DeAngelo et al., 2006: 228).

Life cycle theory of dividends claims that a firm initiates dividend when it slows down in growth and when profitability rate begins to decrease (DeAngelo et

al., 2006: 228). This notion is contrary to signaling theory of dividends. Signaling theory considers dividend as a medium for managers to convey information about firm's long run strong financial situation.

Mueller (1972) introduces the firm life cycle theory. According to him, a firm has a S-shaped growth trend. In the initial stage, before a firm gains market share, it has a slow growth. In the following stage, the firm grows rapidly because of its innovative product. In the final stage, the firm faces tough competition and growth slows down. The life cycle theory of Mueller (1972) has implications for dividend policy of firms. Optimally, a firm in rapid growth stage should retain all earnings. However, as a firm matures, and growth slows down, it should distribute all its earnings. Formally, when return on equity (ROE) is higher than a firm's cost of capital (k), the firm should retain all the earnings to maximize its value. On the other hand, when ROE is less than k , firm should distribute all earnings to maximize its value (Baker, 2009: 204).

The evidence by Grullon et al. (2002) supports the life cycle theory of dividends. Grullon et al. (2002: 388) find that systematic risk of firms decreases around increases in dividends. They also show that increases in dividends is a characteristic of firms transforming from being a young firm to a mature firm.

De Angelo et al. (2006: 230) analyze US firms between the years 1972-2002 to test the life cycle theory of dividends. They use the ratio of retained earnings to total equity or to total assets as a proxy for life cycle stage of a firm. These ratios capture the dependency of a firm to internal and external funding. If a firm is young (i.e. growth stage), it needs more external funding. On the contrary, if a firm is mature, it does not need that much external funding. It can fund itself by internal funding. Therefore, for young firms, life cycle proxy ratio will be low, and that ratio will be high for mature firms (De Angelo et al., 2006: 228)

The results of De Angelo et al. (2006: 228) study show a positive relationship between dividend payments and retained earnings/total equity or total assets ratio. The dividend payments are measured as propensity to pay because firm variables like growth, profitability, size, debt, cash and past dividends are controlled. Therefore, internally funded firms, that is mature firms, distribute earnings to investors more than externally funded, younger firms (De Angelo et al., 2006: 229).

1.8. CATERING THEORY

Baker and Wurgler (2004a) advance the catering theory of dividends. Catering theory explains the dividend payment decision based on irrational investor demand. It claims that investor demand for the shares of firms that pay dividends is an uninformed and variable demand (Baker and Wurgler, 2004a: 1125). The assumption is that MM type arbitrage is not able to prevent the price differences in dividend payers' and nonpayers' shares. The theory asserts that when investors demand dividend, companies cater them and distribute dividends. On the contrary, when investors do not demand dividends, firms omit dividend payment (Baker and Wurgler, 2004a: 1125).

Investor demand for dividends is proxied by comparing the share prices of dividend payers and nonpayers. Specifically, the difference between the log of the market-to-book ratio of dividend payers and nonpayers, which is called as "dividend premium" by Baker and Wurgler (2004a: 1126), represents the investor demand for dividends. In Baker and Wurgler (2004a: 1126), dividend payment of firms is measured by aggregate rates of dividend initiations and omissions. The catering theory of dividends is tested by regressing these rates on dividend premium. The results reveal that most part of the changes in dividend initiation is explained by dividend premium. Therefore, they conclude that catering is a natural explanation for dividend policy of firms (Baker and Wurgler, 2004a: 1160).

The model presented by Baker and Wurgler (2004a) is as follows. A firm has Q shares traded publicly. The firm value at the terminal date $t = 1$ is $V = F + \varepsilon$. F is the expected firm value and ε is a standard normal random variable with zero mean. At $t = 0$, executive of the firm decides to pay an interim per share dividend of $d \in \{0,1\}$. The cost of issuing dividend is, c , and it reduces the terminal value of the firm by $d(1 + c)$. Category investors, as one type of investors, are interested in if they collect dividends or not. Those investors categorize firms as payers and nonpayers. They do not know the cost, c , of a dividend, which makes them uninformed. Their aggregate risk tolerance per period is $\gamma^C = \gamma$. They do not correctly estimate the mean of the terminal value of payers and nonpayers. This is not the case for arbitrageurs, the other type of investors. Their aggregate risk tolerance per period is $\gamma^A = \gamma$. For category investors, V^D is the terminal distribution of payers and V^G is the terminal distribution of nonpayers. Because of category investors' misestimation,

the prices of payers and nonpayers (growth-firms) fall on the other sides of F (Baker and Wurgler, 2004a: 1128).

The demand of investor group k is $D_0^k = \gamma^k (E^k(V) - P_0)$. K becomes C for category investors and A for arbitrageurs. Then, $E^C(V) = V(d; D)$ and $E^A(V) = F - cd$ (Li and Lie, 2006: 296). Naturally, $D_0^C + D_0^A = Q$. Thus, the price of dividend payers P_0^D and nonpayers P_0^G are $P_0^D \equiv \frac{\gamma}{\gamma + \gamma^A} V^D + \frac{\gamma^A}{\gamma + \gamma^A} (F - c) - \frac{Q}{\gamma + \gamma^A}$ and $P_0^G \equiv \frac{\gamma}{\gamma + \gamma^A} V^G + \frac{\gamma}{\gamma + \gamma} F - \frac{Q}{\gamma + \gamma^A}$, respectively (Baker and Wurgler, 2004a: 1129). With these prices in hand, a firm manager decides whether to pay dividends or not. The manager is risk neutral and considers both the current stock price and terminal value of distributions (Baker and Wurgler, 2004a: 1129). The manager, who can influence the terminal value only by c , has two options available; maximize the short-run price in an inefficient-market driven by irrational category investors and obtained through catering or maximize long-run terminal value determined by investment policy. The relative weight on these options is measured by λ . The decision depends on λ and the real trade-off between these two objectives. The objective function is; $\max_d (1 - \lambda)P_0 + \lambda(-dc)$. If the dividend premium, $P_0^D - P_0^G$, is higher than the long-run cost of paying dividend, the manager decides to pay. That is, if; $P_0^D - P_0^G \equiv \frac{\gamma}{\gamma + \gamma^A} (V^D - V^G) - \frac{\gamma^A}{\gamma + \gamma^A} c \geq (\frac{\lambda}{\gamma + \gamma^A})c$ is positive, the manager pays dividend. $\frac{\gamma}{\gamma + \gamma^A} (V^D - V^G)$ is the term that represents the immediate positive price impact of switching categories. $\frac{\gamma^A}{\gamma + \gamma^A} c$ is the term that represents negative price impact of the arbitrageurs' recognition of the cost c . If the difference of these two terms is bigger than $(\frac{\lambda}{\gamma + \gamma^A})c$, the long-run cost, paying dividend is the optimal choice. Dividend premium increases propensity to pay, whereas c (dividend cost), prevalence of arbitrageurs and λ decreases it. Dividend initiations have positive announcement effects, that is increasing in the dividend premium (Baker and Wurgler, 2004a: 1130).

This model can be extended with a third category, *former* payers. This third category captures the negative announcement effect of omission, that is introduced by Healy and Palepu (1998) and Michaely, Thaler and Womack (1995), among others. Category investors are not attracted by former payers because they do not pay any dividends and they have negative earnings growth. Thus, only arbitrageurs are interested in the former payers (Baker and Wurgler, 2004a: 1130). The price of

former payers is $P_0^{FD} = F - \frac{Q}{\gamma^A}$. The decision to continue can be expressed as $P_0^D - P_0^{FD} \equiv \frac{\gamma}{\gamma + \gamma^A} (V^D (F - \frac{Q}{\gamma^A})) - \frac{\gamma^A}{\gamma + \gamma^A} c \geq (\frac{\lambda}{\gamma + \gamma^A}) c$.

The propensity to continue like the propensity to initiate has a positive relationship with dividend premium and a negative one with cost, c . The new implication is that the decision to continue can be desirable when the decision to initiate is not (Baker and Wurgler, 2004a: 1130). Despite initiating is unattractive, current payers may continue paying dividends if the cost of omitting is large. The category of former payers is an explanation for why some firms initiate (reinitiate) dividends when dividend premium is negative and why that kind of initiations are still perceived positively (Baker and Wurgler, 2004a: 1131).

Another function of this category is to explain the negative announcement effect of dividend omissions (Baker and Wurgler, 2004a: 1131). Between $t = 0$ and $t = 1$, a neglected former payer may face a positive probability of being defined as a growth firm again. In this framework, dividend payers may choose not to pay at $t = 0$ even when $P_0^D - P_0^{FD}$ is smaller than $(\frac{\lambda}{\gamma + \gamma^A}) c$. A negative announcement effect will occur in short run for these firms, but it is worthwhile for them to be recategorized as a growth firm (Baker and Wurgler, 2004a: 1131).

In Baker and Wurgler (2004a: 1135), dividend premium is mainly proxied by the market valuations of dividend payers and nonpayers. Specifically, market to book ratios are used. Ratios are value weighted or equally weighted ratios across payers and nonpayers. The dividend premium, P_t^{D-ND} , is the difference between the log of the average market to book ratio of dividend payers and nonpayers; $P^{D-ND} = \ln \left(\sum_i w_{ti}^d \frac{V_{ti}^d}{A_{ti}^d} \right) - \ln \left(\sum_i w_{ti}^{nd} \frac{V_{ti}^{nd}}{A_{ti}^{nd}} \right)$. Here, w_{ti}^d is the weight of the firm i among payers in year t , V_{ti}^d is the market value of firm i among payers in year t , A_{ti}^d is the book value of firm i among payers in year t , w_{ti}^{nd} is the weight of the firm i among nonpayers in year t , V_{ti}^{nd} is the market value of firm i among nonpayers in year t and finally A_{ti}^{nd} is the book value of firm i among nonpayers in year t (Baker and Wurgler, 2004a: 1135).

Baker and Wurgler (2004a: 1161) claim that investor sentiment is the main driving factor for dividend premium. If, for a certain year, investors are optimistic about growth opportunities, they prefer nonpayers and stock prices of nonpayers are affected positively. On the other hand, if investors are pessimistic about growth opportunities, they prefer payers as safe haven and this time stock prices of payers

are affected positively. Dividend payment dynamics are captured by three variables in Baker and Wurgler (2004a: 1133); initiate, continue and listpay. These variables do not determine how much to pay. They only show if a firm is a payer or nonpayer. There are two main reasons for taking this approach. The payout ratio is dependent on profitability, whereas decision to initiate or omit, in contrast, is always a policy decision and investors classify firms by their dividend payments, being a payer or nonpayer (Baker and Wurgler, 2004a).

Baker and Wurgler (2004a: 1142) regress dividend initiations and continuations on dividend premium variable to test their catering theory of dividends. They use data of US firms between the years 1962 and 2000 as in Fama and French (2001). Their results show that dividend premium is significantly correlated with the initiation rate both in univariate and multivariate frameworks. Continuation rates are also found to be statistically related with the dividend premium. The relationship suggests that when dividend premium is positive, firms tend to continue to pay dividends, and vice versa. Firms decide to omit dividend payment, when the dividend premium is negative (Baker and Wurgler, 2004a: 1145).

When Baker and Wurgler (2004a) control for time trend, time varying investment opportunities, repurchases, cross-sectional firm characteristics like size and profitability, dividend premium still explains the initiation rates, continuation rates and dividend payments by newly listed firms. Other sources of time varying demand for dividend payments are also considered. Tax, transaction costs and institutional constraints related dividend clienteles, as suggested by Black and Scholes (1974), do not change the results. Sentiment-based explanation for investor demand for dividends gets support from the evidence suggesting a positive relationship between dividend premium and closed-end fund discount, a proxy for investor sentiment proposed by Zweig (1973) and Lee, Shleifer and Thaler (1991).

Baker and Wurgler (2004b) use Fama and French (2001) methodology to report the trends in propensity to pay dividends between the years 1963 and 2000. The propensity to pay dividends in Fama and French (2001) is defined as the difference between actual fraction and expected fraction of dividend paying firms. A firm is accepted as a dividend payer if it has a positive dividend for a given year. The expected fraction is based on firm-level logistics regressions. Size, profitability and investment opportunities are the firm specific variables that are used to find the likelihood that a firm is payer (Baker and Wurgler, 2004b: 274).

In Baker and Wurgler (2004b: 273), four trends in the sample period are observed regarding the propensity to pay dividends. The period 1963-1967 shows an increase in propensity to pay. A decrease is observed between 1968-1974. Again, an increase occurs between 1975-1977. Finally, propensity to pay shows a decrease from 1978 onward. Baker and Wurgler (2004b: 277) present that the four trends in propensity to pay dividends and four broad changes in dividend premium have roughly synchronous movements. In all four trends, dividend premium moves together with propensity to pay but the fit in the post 1977 period, disappearing dividends era, is almost perfect. Dividend premium enters in the negative territory exactly in 1978 and stays negative together with the propensity to pay until the end of the sample period. These results recommend that dividend premium (i.e. catering incentives) may have a significant effect on the propensity to pay (Baker and Wurgler, 2004b: 280).

Finally, Baker and Wurgler (2004b: 281) provide evidence from stock return analysis to support catering theory. Aggregate dividend initiations and omissions can predict the relative stock returns of payers and nonpayers as documented by Baker and Wurgler (2004a: 283). If the initiations are higher than the omissions, it is observed that dividend payer stocks gain lesser returns than nonpayers in the succeeding one-to-three years and vice versa. This result is consistent with catering theory and the medium range reversal of mispricing due to investor demand. Baker and Wurgler (2004b: 281) find empirical evidence supporting this observation by using propensity to pay. In addition, they investigate the demand side by analyzing newspaper articles related with dividends. They detect that when investor sentiment favors growth stocks, dividend premium becomes negative and firms omit dividends. However, when sentiment does not favor growth stocks, dividend premium increases symboling the investors' search for safety. These results show that investor sentiment may be the main motive that drive investor demand on dividend paying and nonpaying stocks (Baker and Wurgler, 2004b: 287).

CHAPTER TWO

TURKISH CAPITAL MARKETS AND REGULATIONS ON DIVIDEND POLICY

Firms do not always have the freedom of determining their dividend policy. There are some factors such as macro-economic indicators, financial crises, and regulations and legislations that affect and bound the decisions of firms regarding dividend policy (Kirkulak and Kurt, 2010: 39). Countries regulate the dividend policy of firms differently throughout the world (Adaoglu, 1999: 253). La Porta et al. (2000) classify countries mainly into two groups regarding their dividend policy regulations; civil law countries and common law countries. Civil law countries, where there is weak investor protection, tend to mandate dividend payment. Glen et al. (1995: 9) observe that dividend payments are more volatile in emerging markets. They specify that developing countries set limitations on the dividend payment of firms for protecting minority shareholders.

In Turkey, as an emerging market, capital markets have lived through many important developments with the start of liberalization acts in 1980. Major reforms have been made in capital markets since then. Dividend payments have been heavily regulated, and regulations for dividend policy of firms have gone through some major changes since the debut of operations in Borsa Istanbul (hereafter BIST). In the following two sections, 2.1 and 2.2, developments in Turkish capital markets and regulations on dividends are presented, respectively.

2.1. TURKISH CAPITAL MARKETS

The developments in Turkish Capital Markets can be divided into two main periods since the introduction of financial liberalization; 1980-2002 and post 2003. 1980 was the year that financial liberalization began in Turkey and 2003 was the first year of the recovery from financial crisis and the start of a new era in terms of capital market regulations (Kilincarslan, 2015: 3).

2.1.1 The 1980-2002 Period

1980s was a very fruitful decade for Turkish Capital Markets. A financial liberalization program including the foreign exchange regime liberalization, deregulation in interest rates and the formation of the financial markets was presented during these ten years (Odabaşı et al., 2004: 510). Significant

developments in the years following 1980 up until 2002 are presented below as stated in Odabaşı et al. (2004: 511) and Kilincarslan (2015: 20);

- 1980-1985: New Banks Acts and Securities Market Law are employed.
- 1986-1987: Treasury issued first bonds, Interbank market was established, and Central Bank began open market operations.
- 1988-1990: SWIFT membership was actualized, Lira became convertible, capital flows were unrestricted, first American Depository Receipt was issued in New York Stock Exchange and Borsa Istanbul Clearing House was formed.
- 1991-1992: Bond market and repo market were established in BIST, Electronic Funds Transfer system was implemented, Insider Trading Law was enacted, BIST joined World Federation of Exchanges.
- 1993-1994: Rights market in BIST was formed, overseas listing materialized, SEC recognized BIST, computerized trading began.
- 1995-1996: Customs Unions was formed with the EU, short sales regulation was enacted, insider trading prosecution for the first time took place, Futures Market was formed in BIST, BIST joined Federation of Euro-Asian Stock Exchanges.
- 1997-1998: New sub-markets were opened under BIST, BIST became project leader in Southeast European Exchanges.
- 1999-2000: Free float regime was adapted, Banking Law based on Bank for International Settlements criteria was put in effect.
- 2001-2002: The Association of Capital Market Intermediary Institutions of Turkey was formed, Investors' Protection Fund and Central Registry Agency was established, Remote trading was initiated, and pension system regulation was developed.

Capital markets in Turkey are regulated and supervised by Capital Markets Board of Turkey (CMB). Capital Market Law (CML) enacted in 1981 authorizes the CMB. CMB puts effort to organize and develop the capital markets since the very beginning of its operations. Good functioning markets and investor protection are the two main responsibilities of CMB. In addition to these, CMB tries to enhance the efficiency of capital markets in Turkey by taking necessary actions (CMB, 2003: 9).

In line with the financial liberalization program, BIST was established in 1985 and began its operations in 1986. From the very beginning of its formation, BIST has been open to growth and it has been an emerging market with high growth rate

(Odabaşı et al., 2004: 510). In 1986, the number firms listed on BIST was 80 with US\$ 0.9 billion of value. With a significant increase, 319 firms became listed in 1999 with US\$ 114 billion of value. 2000 and 2001 were the years of economic crises in Turkey. A systemic banking crisis occurred in 2000, which was followed by a political crisis and a currency crisis in 2001. The number of listed firms decreased to 288 in 2002 and the value of firms melted down to US\$ 34 billion (Odabaşı et al., 2004: 510).

2.1.2 The post 2003 Period

Financial markets in Turkey showed significant growth in the preceding years of 2001 financial crisis but there had been still some factors preventing the markets to reach their potential. High public deficit, high real interest rates, political instability and high inflation rates were the main obstacles (Kilincarslan, 2015: 21). As stated in Ararat and Ugur (2003) and Aksu and Kosedag (2006), Turkey's civil law tradition, inefficient and inconsistent regulatory framework and in particular poor culture of corporate governance, transparency and disclosure practices were the challenges of the development in financial markets.

Turkey is a country of civil law origin as Turkish Commercial Code is adopted from Continental European Business Law. It was originally taken from French Commercial Code in 1850 and amended in 1956 with clauses from German, Swiss and Italian law (Ararat and Ugur, 2003: 64). La Porta et al. (1997: 14) classify Turkey as a civil law country. The study of La Porta et al. (1997: 10) shows that civil law countries, including Turkey, have weaker investor protection than common law countries. Common law countries enforce high-quality financial reporting standards as compulsory and require shareholder protection more than civil law countries. Mitton (2004: 409) claims that good practices in corporate governance increases dividend payout of firms. Rambaccussing and Power (2018: 11) also argue that stock markets in countries that have high scores in factors such as protection of shareholder rights, creditor rights and legal protection are driven by dividend growth.

Aydogan and Gursoy (1999) report that listed Turkish firms are owned mostly by families. Yurtoglu (2003: 204) reveals that 54% of listed firms in Turkey is owned by families, which may lead to weak control on the firm, information asymmetry and agency costs between controlling shareholders and minority shareholders. Cash flow rights, including dividend payments, are mostly controlled by majority shareholders under this kind of ownership structure.

At the macro level, capital markets and economic growth are affected by concentrated ownership negatively (Ararat and Orbay, 2006: 1). Aksu and Kosedag (2006: 277) state that good corporate governance, and transparency and disclosure practices are very essential for Turkish capital markets which need external capital to sustain its growth. As a matter of fact, in their study examining a sample of listed firms in BIST for the year 2003, Aksu and Kosedag (2006) claim that Turkish firms do not show enough competence in terms of shareholder's rights, disclosure, and board and management processes. The main reason for this result is that BIST's financial reporting standards depend only on generally accepted accounting and auditing principles and it is not powerful enough to enforce Turkish firms to make reliable disclosures.

Ararat and Ugur (2003) reveal the problems of Turkish firms in corporate governance, transparency and disclosure areas. First of all, Turkish firms have concentrated and pyramidal ownership structures which lead to lower return on assets, lower market to book ratios and lower dividends. Secondly, Turkey's legal infrastructure for financial markets is complicated, slow and costly. Furthermore, Ararat and Ugur (2003: 69) state that accounting system of Turkey is not compatible with International Accounting Standards (IAS). Generally accepted accounting standards are not applied equally to all firms. As a result, investors in Turkey cannot make informed decisions. Finally, Ararat and Ugur (2003: 63) suggest that Turkey is weak in terms of shareholder rights. Despite preventive measures by 1999 amendments to CML, insider trading and tunneling are still common in Turkish capital markets because Turkey's civil law tradition makes it difficult to detect unlawful acts (Ararat and Ugur, 2003).

In the aftermath of 2001 financial crisis, Turkey implemented far-reaching reforms and policy initiatives to overcome the obstacles sourcing from its civil law origin and its culture to have efficient capital markets. These reforms and initiatives cover an IMF stand-by agreement, the EU-standards adoption, best-practice international regulations for an efficient free market and globalization (Kilincarslan, 2015: 32). Specifically, privatization of State Economic Enterprises accelerated, private pension funds as institutional investors were formed to control public firms and Turkish Accounting Standards Board was established to converge local accounting standards to IFRS as stated in Aksu and Kosedag (2006: 281). CMB, at the beginning of 2003, committed to improve regulatory framework. It conducted activities for safer, more transparent and more efficient markets. By means of these

activities, it aimed regulations to be more compatible with international norms and developments (CMB, 2003: 9). In this context, Communiqué on Principles in Relation to Accounting Standards in Capital Markets that is compatible with IFRS was issued by CMB in 2003. The application of inflation-adjusted accounting was also enforced by CMB in the same year.

Among other actions taken, Corporate Governance Principles issued by CMB, was one of the most significant developments for capital markets in Turkey after the 2001 crisis. Corporate Governance Principles cover four main areas; shareholders, public disclosure and transparency, stakeholders, and board of directors (Nilsson, 2007: 198). The principles regarding shareholders cover the right to secure methods of ownership registration, right to convey or transfer shares, right to obtain relevant and material information, right to participate in and vote at general shareholder meetings, right to elect and remove members of the board, right to share in the profits of the corporation and equal treatment of shareholders (equal treatment of all shareholders of the same class, protection of minority shareholders and prohibition of insider trading and abusive self-dealing). The principles regarding stakeholders present the interests of persons other than shareholders, such as employees, customers, consumers and suppliers. Public disclosure should be made on time, information must be accurate, complete and it should be presented clearly in a comprehensible and construable manner according to principles. It must be equally and cost-efficiently accessible and should help people in their decision-making process. Financial reporting, audit and accounting standards are also covered by the Corporate Governance Principles of Turkey. The final area is board of directors. This section of the principles prescribes that corporate governance should guide the company strategically, board should control the management and board should be accountable to the company and shareholders.

With these actions taken, there has been an improvement in Turkey in the regulatory environment for corporate governance, transparency and disclosure practices (IIF, 2005). Aksu and Espahbodi (2015) examine the effects of Corporate Governance and voluntary and mandatory adoptions of IFRS on transparency and disclosure measures of listed Turkish firms on BIST. To them, three reforms; the voluntary adoption of IFRS by firms between the years 2002-2004, the issuance of Corporate Governance Principles in 2004 and the mandatory adoption of IFRS in 2005 are expected to directly affect the transparency and disclosure quality of firms (Aksu and Espahbodi, 2015: 1015). By testing the data of 51 firms, Aksu and

Espahbodi (2015: 1014) conclude that reforms have a significant positive impact on firms' transparency and disclosure scores, which reinforce the information environment in Turkey.

Other major developments in Turkish Capital Markets after 2003 are presented below in a timeline (CMB, 2013; CMB, 2014; CMB, 2015, Kilincarslan, 2015);

- 2003-2004: Corporate Governance Principles were issued. First private pension funds and first exchange traded fund are established.
- 2005-2006: IFRS was implemented, Turkish Derivates Exchange was established, Corporate Tax Law was revised, equities, corporate funds and mutual funds are dematerialized.
- 2007-2008: Opening auction was initiated in BIST, Mortgage law was enacted, Eurobond Market in BIST is established, Anti-money laundering regulations were passed in accordance with Financial Action Task Force.
- 2009-2010: Automated disclosure platform (KAP) was formed, Emerging Companies Market and Collective Product Markets in BIST were established, Initial Public Offering were made easier by new regulations, warrants and ETFs markets were initiated, disclosure of insider and continuous information was obligated.
- 2011-2012: First Islamic bonds were issued, FOREX regulations were introduced, new Turkish Code of Commerce was issued and has been effective, new Capital Market Law (CML) entered in force.
- 2013-2015: Turkish Electronic Fund Distribution Platform (TEFAS) was established, Financial Access, Financial Education and Financial Consumer Protection Strategies and Action Plans have become effective, CMB has become a member of Mediterranean Partnership of Securities Regulators, European Securities and Markets Authority (ESMA) accepted the prospectus of firms approved by CMB while making IPO in a European Union country.

The capital market reforms, applied right after the financial crisis and continued in the following years, affected the indicators of Turkish economy positively. Between 2002 and 2007, Turkish economy realized an uninterrupted growth for 24 quarters (CMB, 2007: 15). The inflation rates eased, and the short-term policy interest rates decreased. In addition, there was a smooth recovery in terms of the number of firms and total capitalization in BIST. The number of listed

firms passed over 300 once again and the market capitalization reached to 290 billion in 2007 (CMB, 2007: 18). 2008 global financial crisis halted the growth of BIST (CMB, 2008: 30). Again it recovered in the following years. Compared with the end of 2008 global financial crisis, BIST has grown nearly 59% up to 2015. By the end of 2015, the market cap of BIST is about 189 billion USD and the number of listed firms is over 400, but it is still a small market compared with GDP, with a 0,21 ratio (CMB, 2015: 63).

2.2. REGULATIONS ON DIVIDEND POLICY

Listed firms on BIST are subject to the provisions of Turkish Commercial Code (1956) amended in 2011, Capital Market Law (1981) amended in 2012, Corporate Tax Law and Income Tax Law in terms of dividend policy (Cizre, 2013: 41). The following sections; 2.2.1, 2.2.2 and 2.2.3 present the profit distribution process, changes in the first dividend payment requirements and taxation rules in Turkey under related laws.

2.2.1 Profit Distribution Process

Turkish Commercial Code (hereafter TCC) and Capital Market Law (hereafter CML) regulate the profit distribution process of publicly traded Turkish firms. TCC states that annual profit is calculated according to annual balance sheet. According to article 509/2 of TCC, dividends can only be distributed from net profit and free reserve funds. Article 507/1 of TCC declares that each shareholder has the right to participate in the profit distribution, according to the provisions of the law and the articles of association, with respect to percentage of share owned. However, before distributing dividends, a firm must first put aside legal reserves. Legal reserves are retained by the firm as 5% of the net profit until legal reserves reach to 20% of paid-in share capital. The code also requires a first dividend payment at least 5% of paid-in share capital to shareholders. After legal reserves and first dividend payment, firms retain a secondary reserve, which is equal to 10% of remaining amount found after subtracting 5% of the paid-in share capital from all dividends distributed. Article 608/1 of TCC directs that dividend distribution can only be made after legal reserves in accordance with law and legal reserves stipulated in the corporate chapter are retained.

Article 19/1 of CML states that listed firms should distribute dividends determined by their general assembly and in accordance with the provisions of the related law. Article 19/2 stipulates that unless the legal reserves and dividends determined in the articles of association are retained, no other reserves can be allocated, and no other dividend payment can be made to stakeholders other than shareholders. The article requires that all shareholders should receive equal amount of dividends without consideration of the issue or acquisition date of the shares.

CMB regulates the calculation of net distributable profits based on the financial statements of the firm. If a firm decides not to distribute first dividend, all of the net distributable profits are retained as secondary reserve. At the other extreme, if a firm decides to pay all of the net distributable profits as dividends to shareholders then secondary reserve must equal to one-eleventh of the net distributable profits. Table 2.1 presents profit distribution process of BIST firms in accordance with CMB Dividend Guide (2009: 3). It summarizes the profit distribution process of firms listed on BIST as stipulated by the related articles of TTC and CML.

2.2.2 Regulations on First Dividend Payment

The years 1985 - 2015 can be divided into four phases in terms of changes in dividend policy regulations; 1985 – 1994, 1995 – 2002, 2003 – 2008 and 2009 – 2015. For the period 1985 - 1994, firms listed on BIST were tied to the first mandatory dividend regulation. According to this regulation, firms had to pay at least 50% of their distributable income as cash dividend to shareholders within 9 months after the end of the financial calendar. Other payments or keeping it as retained earnings were not legally allowed (Adaoglu, 1999: 1). Turkish stock market became operational in 1986. During the first years, stock market lacked liquidity, so mandatory first dividend policy regulation was in favor of investors to be a source of income (Adaoglu, 2000: 3). Contrary to this, some firms used rights issues to collect back the mandatorily distributed cash dividends in this period, which resulted a decrease in net real dividend payments (Kirkulak and Kurt, 2010: 50).

In 1995, CMB made a notable change in dividend policy regulation¹. CMB abolished the mandatory first dividend payment regulation and firms became freer to choose the dividend payment. In addition, firms could choose the payment method with this regulation, if they decide to pay. Cash dividends and stock dividends

¹ For the fiscal year 1994, decree issued and published by CMB: Serial 4, No:9 and No: 22154 on 27/12/1994.

became the payment methods for the firms². Firms could pay the dividend in any combination between these two payment methods. CMB stated that this regulatory changes on dividend policy aim to allow investors to make more efficient interpretations on the dividend policy changes of firms (Adaoglu, 1999: 3).

Table 1: Profit Distribution Process of BIST firms

	Account	Definition
1.	Profit of the period	
2.	Taxes (-)	
3.	Net profit of the period (=)	(1-2)
4.	Losses of past years (-)	
5.	First general legal reserve (-)	[(3-4) * 0.05]
6.	Net distributable profit of period (=)	(3-4-5)
7.	Donations made during the relevant accounting period (+)	
8.	Net distributable profit of period with donations added	(6+7)
9.	First dividend	[(8) * Rate of distribution determined by general assembly of shareholders]
10.	Dividend to privileged shareholders	According to articles of association after legal reserves and first dividend
11.	Other dividends distributed to stakeholders	Directors, Employees, Other non-shareholders
12.	Dividend to beneficial interest certificate holders	
13.	Second dividend	
14.	Secondary general legal reserve	[(9+10+11+12+13) – (paid-in-capital*0.05)] * 0.10
15.	Statuary reserves	According to articles of association after legal reserves and first dividend
16.	Special reserves	
17.	Extraordinary Reserve	(6) – (9+10+11+12+13+14+15+16)

Source: CMB (2009: 3).

Adaoglu (1999: 7) finds that the new regulatory environment brought out the differences in firms, such as industrial differences regarding dividend policy, which

² For the fiscal year 1994, decree issued and published by CMB: Serial 4, No:10 on 27/12/1994.

were not visible during the mandatory first dividend payment era. Firms tended to retain earnings instead of paying dividends after the regulation change. In addition, firms notably started to distribute stock dividends after 1995. Aydogan and Muradoglu (1998: 42) concludes that the distribution of stock dividends is due to the motivation of firms to protect stable debt to capital ratios because Turkish firms' debt is allowed to exceed their paid-in-capital 6 times at that time.

Financial crisis hit the Turkish economy in 2001. As a leading indicator, Turkish stock index lost most of its value and the wealth of investors went down. After the crisis, with the help of IMF support and major reforms, Turkish economy and the stock market recovered. Again, to support especially small shareholders, CMB obliged listed firms to pay out dividends (Adaoglu, 2008: 114). As Kirkulak and Kurt (2010: 40) state, Turkish firms are usually owned by families. With this, the dominant partner utilizes a pyramidal structure or dual class share to intensify firm control. To protect minority shareholders, mandatory dividend distribution once again started with the fiscal year 2003³. According to this, firms became obligated to pay 20% of their profits as dividends but cash dividend was not an obligation. Firms had the chance to distribute dividends as cash and/or as stock⁴. Until the year 2009, mandatory dividend distribution continued with some minor changes in the percentage to be paid. In 2004 and 2005, the percentage became 30%⁵. In 2006, the percentage to be paid decreased to 20% from 30%. For the years 2007 and 2008, it was kept at the same rate by 20%.

In 2001, CMB allowed firms to make advance, i.e. interim, dividend payments on a quarterly basis during the year (Adaoglu, 2008: 118). While there is no regulatory restraint to pay, most of the time financial administration of Turkey was applying value added tax on interim dividends (Adaoglu, 2008: 118). Thus, interim dividends are not usually observable in practice.

Finally, for the fiscal year 2009⁶ and the remaining years (2010 to 2015) the CMB decided to abrogate the mandatory dividend distribution. Firms are not obliged to pay a minimum percentage of distributable profits as dividend. With the beginning of fiscal year 2009, firms are totally free to determine their own dividend policy in Turkey.

³ For the fiscal year 2003, decree issued and published by CMB: No: 16535 on 30/12/2003.

⁴ Capital Markets Board Weekly Announcement Bulletin No: 2003/63 on 30/12/2003.

⁵ Capital Markets Board Weekly Announcement Bulletin No: 2004/54 on 30/12/2004 and Capital Markets Board Weekly Announcement Bulletin No: 2006/3 on 27/01/2006.

⁶ For the fiscal year 2009, decree issued and published by CMB: No: 02/51 on 27/01/2010.

2.2.3 Taxation

Taxation is expected to be an important factor for firms when determining their dividend policy as tax clientele theory of dividends asserts. Different taxation of cash dividends and capital gains and different taxation for different investor types may affect the attitudes of managers while deciding to pay dividends or not. For Turkish capital markets, before 2006, there were no differences of tax treatment on investment instruments (bonds, equities, deposits and mutual funds) and on investor types (resident/non-resident and individual/firm). All of them were taxed with a 15% withholding tax (TSPAKB, 2007: 10). However, since 2006, tax law (TSPAKB, 2007: 10) in Turkey treats dividend income and capital gains differently. Taxation is also different for individuals and firms, as individuals are separated into two; resident individuals and non-resident individuals, and firms are separated into two; resident firms and foreign firms. Table 2 summarizes the taxation of dividend and capital gains for different investor types in Turkey in accordance with Corporate Tax Law 5520 in effect since 2006 and Income Tax Law.

As Table 2 presents, individuals, both resident and non-resident, and foreign firms are subject to a 15% tax rate, conversely, resident firms have no tax liability when they receive or pay dividends. Non-resident individuals and foreign firms do not pay taxes when they have capital gains from a listed BIST firm. Resident individuals and firms have also no tax obligation on their capital gains. The exception for this non-liability is the capital gains from investment trusts and exchange traded funds. If resident individuals and resident firms hold these kinds of shares for less than one year, their capital gains are subject to 10% withholding tax.

Table 2: Tax Treatment of Dividends and Capital Gains in Turkey

This table summarizes the taxation of dividends and capital gains for different investor types since 2006.

	Individuals		Firms	
	Resident	Non-Resident	Resident	Foreign
Taxation of Dividends	Subject to withholding tax by the rate of 15%.	Subject to withholding tax by the rate of 15%.	No dividend withholding tax. No corporate tax on dividends received from resident firm.	Subject to withholding tax by the rate of 15%.
Taxation of Capital Gains	No withholding tax on capital gains. Except the gains from investment trusts and exchange traded funds if held less than one year, which has a 10% rate.	No withholding tax on capital gains.	No withholding tax on capital gains. Except the gains from investment trusts and exchange traded funds if held less than one year, which has a 10% rate.	No withholding tax on capital gains.

Source: TSPAKB (2007; 2008; 2012), Kilincarslan (2015: 266).

CHAPTER THREE

DETERMINANTS OF DIVIDEND POLICY

Chapter 1 reviewed the theoretical framework and Chapter 2 presented the capital markets and legal environment regarding dividend policy in Turkey. In light of Chapter 1 and Chapter 2, this chapter investigates the factors affecting dividend policy in Turkey. In section 3.1 past studies are presented. Section 3.2 introduces the determinants and related research hypothesis that affects the dividend policy of Turkish firms. Section 3.3 presents the sample selection procedure and the study's samples. Section 3.4 summarizes the data and presents the methods applied in the analyses. Finally, Section 3.5 reveals the empirical results.

3.1. DETERMINANTS OF DIVIDEND POLICY LITERATURE

Determinants of dividend policy literature is presented in three parts in this section; studies in developed markets, studies in emerging markets and studies in Turkey.

3.1.1. Developed Markets

Since the seminal work of MM (1961), researchers try to assess the importance of determinants in dividend payment behavior of firms. Under the ideal conditions, i.e. no taxes, no transaction costs, no asymmetric information, firm value is unaffected by dividend policy. However, the relaxation of these perfect market assumptions leads to the relevance of dividend payments on the value of the firm. Extant literature on the determinants of dividend policy in developed markets is extensive. Firm characteristics and market specific variables are the main indicators that researchers particularly focus on.

Several lines of evidence suggest that firm specific variables that are related to dividend policy of firms include; profitability, size, investment opportunities, leverage, maturity of the firm, liquidity, risk, ownership and regulation.

Fama and French (2001) investigate the impact of firm characteristics on probability of dividend payment. They use listed firms from US stock exchange markets. The sample period is the years between 1926 and 1999 and the estimation methodology is logistics regression. Dividend payment is the dependent variable and it is one if a firm distributes dividend in a given year, otherwise, it is zero. The

predictors are firm characteristics including profitability, size and investment opportunities. The results of Fama and French (2001: 4) study reveal that profitable and bigger firms distribute dividends, whereas firms with higher investments pay less dividends.

DeAngelo et al. (2006: 228) investigate the existence of life-cycle theory for the firms in the US between the years 1973-2002. After controlling for firm size, current and lagged profitability, growth, total equity, cash balances and past dividends, they find that ratio of retained earnings to the book value of equity (RE/BE) affects propensity to pay dividends positively (DeAngelo et al., 2006: 227). RE/BE ratio is used as a proxy for the life-cycle stage of the firm. They define this ratio as earned/contributed capital mix (DeAngelo et al., 2006: 228). In other words, RE/BE is the ratio of internally generated proportion of firm's equity. DeAngelo et al. (2006: 229) determine that earned/contributed equity is an important factor of dividend payments for US firms. They also verify the results of Fama and French (2001) regarding the influences of firm size, profitability and investment opportunities.

In a comprehensive study of dividend policy in developed markets, Dennis and Osobov (2008) examine United States, Canada, UK, Germany, France and Japan. Similar results are observed for all countries. They find that firm maturity, size and profitability are important factors affecting dividend payment behavior of firms. On the other hand, investment opportunities are found to be insignificant (Dennis and Osobov, 2008: 80).

Leverage and dividend payment relationship is also studied in the literature. Contrary to expectations, Smith and Watts (1992: 264) show that a relationship exists between leverage and dividend payment in a positive way. They explain this result as managers decide on dividend and debt policies together based on the investment decisions of the firm. Kuo et al. (2013: 3507) report that leverage affects dividend policy of a firm. In their extensive study analyzing 18 developed markets, they find mixed results of the effect of leverage on dividend policy. In some countries the effect is positive, in some others the association is negative (Kuo et al., 2013: 3507).

Research reveals other firm characteristics that influence dividend policy of firms from developed countries. One of those characteristics is firm risk. In their survey study, Brav et al. (2005: 512) show that firm managers consider risk as a factor that has an impact on dividend policy. Grullon et al. (2002: 390) state that firm

maturity is an important independent variable on dividend payment. Risk is accepted as a proxy for firm maturity. They study dividend announcements of listed firms from US stock markets. By examining 7642 dividend-change announcements between the years 1967-1993, Grullon et al. (2002: 387) show that risk and dividend payments move oppositely.

In another study, Hoberg and Prabhala (2009) attempt to explain disappearing dividends result of Fama and French (2001) with risk indicator. They find similar results with Fama and French (2001). In addition, when they insert risk into the model, results show that risk is a factor to explain disappearing dividends (Hoberg and Prabhala, 2009: 79).

MM (1961: 412) assume that markets are frictionless, so investors can create home-made dividends without cost, which leads to the irrelevance theory of dividends. In fact, markets are not frictionless. Dividends as a liquidity source serve as a protection for investors to overcome this friction. As a result, it can be expected that dividend payment of firms, whose stocks are less liquid, are higher than firms with more liquid stocks. Banerjee et al. (2007) test liquidity factor by controlling firm size, profitability and investment opportunities in the US market for a sample of firms between 1963 and 2003. The results of their study reveal a significant correlation between market liquidity of a stock and dividend payment. Further, they find that less liquidity leads to more dividend initiation or continuation.

Finally, among firm characteristics, the influence of ownership structure of a firm on the dividend policy is studied in the literature. In one of the earliest studies, Short et al. (2002: 113) investigate for the existence of a relationship between dividend policy and institutional ownership by using a sample that consists of firms traded on London Stock Exchange for the years between 1988 and 1992. Their results reveal that there is a significant positive correlation between dividend payment and institutional ownership. In contrast, a negative relation exists between dividend payment and managerial ownership (Short et al., 2002: 116).

Grinstein and Michaely (2005) study the link between institutional ownership and dividend policy of US firms. They find that institutions choose the shares of firms with higher dividends, but results do not indicate that institutional ownership increases dividend payment of firms. That is, institutional ownership is not a control mechanism in the dividend policy of firms (Grinstein and Michaely, 2005: 1389).

The second group of indicators that affect dividend policy are based on market characteristics, namely taxes, regulations to protect investors and investor

sentiment (Baker, 2009: 59). Tax is the one of most studied market factors in the determinants of dividend policy literature. Several empirical studies are conducted to test the effect of taxation policy on dividend policy. Since dividend is taxed differently than capital gains, it is expected that tax has an impact on dividend policy (Elton and Gruber, 1970: 39).

One of the earliest evidences on whether or not tax has an impact on individual investors' portfolios is from the study of Pettit (1977). Pettit (1977: 419) finds that tax rates can explain the variability in the dividend yields of individual investors' portfolios. Chetty and Saez (2005: 793) focus on the effect of taxes on dividend decisions of firms rather than individuals' behavior. By analyzing the effect of tax cut on individual dividend income enacted in 2003, they find a significant increase in dividend payment of firms in US (Chetty and Saez, 2005: 793).

Dividend policy is an element of agency problems between managers and investors (LaPorta et al., 2000: 2). Agency view of dividends claims that countries should regulate dividend payment decision of firms to avoid problems and to protect shareholders (LaPorta et al., 2000: 5). In their comprehensive study, La Porta et al. (2000) examine dividend policy of firms from various countries, where they find two significant results. First, firms pay more dividends in countries where minority shareholders are protected with law and second, because minority shareholders know that they are protected by law, they tolerate less dividends from high-growth firms.

Finally, as a market characteristic, investor sentiment plays an effective role in dividend policy (Baker, 2009). Baker and Wurgler (2004a: 1125) establish a proposition called catering, which claims that investor demand for dividends shapes the dividend policy of firms. In order to test the validity of this theory, Baker and Wurgler (2004b: 272) examine the association between investor demand for dividends and changes in propensity to pay. They find that investor sentiment has a part in the explanation of declining propensity to pay dividends revealed in the study of Fama and French (2001). Li and Lie (2006) adapt Baker and Wurgler (2004a) theory to cover dividend changes, i.e. initiations and omissions. Testing over 20,000 dividend changes between the years 1963 and 2000, they find support to catering theory of dividends for firms in the US. Ferris et al. (2006: 1151) examine UK firms' dividend behavior between the years 1988 and 2002, where catering is found to have a relationship with dividend policy.

To summarize, dividend policy literature documents several firm specific characteristics and market level determinants that have effect on dividend policy of firms in developed markets. Firm specific characteristics include firm size, investment opportunities, profitability, maturity, leverage, liquidity, risk and ownership, whereas market characteristics are taxes, regulations and investor sentiment.

3.1.2. Emerging Markets

Determinants of dividend policy are similar with developed countries in emerging markets (Baker, 2009: 507). Despite that similarity, emerging markets are faced with many unique factors (Baker, 2009: 499). Thus, emerging market firms approach dividend policy decisions to some extent differently from developed market firms (Glen et al., 1995). Emerging markets have lived through liberalization periods of privatization and capitalism in recent years and they are more vulnerable to external factors than developed countries (Baker, 2009: 499). More financial crises have been observed in developing countries than in developed countries (Baker, 2009: 500). With the existence of these differences, there are some specific factors that impact dividend policy in emerging markets; legal environment regarding dividend policy, corporate governance, ownership structures and macroeconomic factors (Baker, 2009: 500).

Mandatory dividend policy is a phenomenon specific to emerging markets in general, as countries like Turkey, Brazil, Greece and Chile applied mandatory dividend policy rules to firms (Baker, 2009: 500). Dasilas and Leventis (2011: 302) investigate the market reaction to dividend announcements in Greece where there is a minimum amount rule for dividend distribution and where firms generally possess high ownership concentration. They find strong reaction to dividend announcement; a result that supports signaling theory of dividends. Martins and Novaes (2012) analyse the impact of mandatory dividend rule in Brazilian capital market. The findings of the study show that mandatory dividend rules function as a protection for minority shareholders. They further find that mandatory dividend policy increases the payout ratio of profitable firms in Brazil.

Family ownership and high ownership concentration is common in emerging markets (Baker, 2009: 502). The relationship between ownership structure and dividend payment is analyzed by a number of studies in emerging markets. Among them the study of Faccio et al. (2001) analyzes East Asian countries. East Asian

firms are generally owned and managed by family members, so conflicts between dominant and minority shareholders are possible to arise. Faccio et al. (2001: 54) find that East Asian firms pay less dividend than their counterparts in Western Europe. This shows that family ownership affects dividend payout ratios negatively. Reyna (2015: 1) examines the influence of ownership structure on Mexican firms' dividend payout behavior. His research focus on the ownership structure of firms from three types; family, institutional and small block ownership. The results state that high family ownership leads to lower dividend payment, while institutional ownership affects the dividend payment positively.

Corporate governance is another factor that influence emerging market firms' dividend behavior. Mitton (2004: 409) shows that better corporate governance ratings mean more dividend payouts. Results of the analysis with an extensive sample including various countries reveal that investor protection and corporate governance have a positive relationship. A recent study by Mehdi et al. (2017: 275) examines whether corporate governance and ownership structure have an effect on dividend policy in emerging markets. East Asian firms and firms from Gulf Cooperation Council (GCC) countries are studied. According to the results, institutional ownership affects dividend payments positively. In contrast, ownership concentration affects dividend policy of firms in East Asia and GCC countries negatively.

3.1.3. Turkey

The empirical literature on dividend policy of Turkish firms is not extensive. As one of the earliest studies, Adaoglu (2000: 253) shows that Turkish firms have unstable dividend payment behaviour. The later study of Adaoglu (2008: 113) demonstrates that the number cash dividend payers decreases in Turkey between the years 1985 and 2006, whereas level of earnings and dividend payment show no significant change. An observable pattern on the dividend payment of Turkish firms is the size effect. As size of a firm gets bigger, dividend payout ratio of that firm also grows (Adaoglu, 2008: 133).

Yurtoglu (2000: 193) analyses the effect of ownership structure on dividend payout ratio. He finds that conflict of interest between shareholders leads to lower dividend payment. In a recent study on the effect of ownership structure on dividend policy, Al-Najjar and Kilincarslan (2016: 135) find that foreign ownership and state ownership influence dividend payment decision of Turkish firms. Their analyses

reveal that family involvement, domestic financial institutions and minority shareholders have an insignificant effect on dividend policy of Turkish firms.

Kirkulak and Kurt (2010: 40) examine the dividend policy of Turkish firms for the years between 1991 and 2006. The main result of their analyses is that dividend payment is significantly related with current earnings of firms. The level of debt has no effect on the dividend policy, whereas high growth potential affects dividend decisions.

In their study comparing dividend policies in emerging markets with United States, Aivazian et al. (2003: 378) state that Turkish firms pay much more dividend than other emerging markets.

Finally, Kuzucu (2015) examines the determinants of dividend policy for Turkish firms by using panel data methodology. Contrary to most of the studies, he finds that profitability has a negative impact on dividend payment. He states that firm characteristics like size, age and PE ratio have a positive impact on dividend payout ratios of Turkish firms.

3.2. DETERMINANTS OF DIVIDEND POLICY AND RESEARCH HYPOTHESES

In the light of the determinants of dividend policy literature in developed markets, emerging markets and in Turkey, this study uses several variables to reveal the factors that influence dividend policy of Turkish firms. Following parts of section 3.2 present the determinants of dividend policy and research hypotheses regarding those determinants. Determinants explained in this section are the firm-specific determinants used in the analysis to test the dividend payment probability of Turkish firms.

3.2.1. Profitability

It is widely accepted in the literature that profitability is a significant factor affecting dividend payment decisions. Dividends are distributed mainly from profits, so the expectation is that there is positive relationship between profitability and dividend policy. Fama and French (2001: 4) and Jensen et al. (1992: 259) report that dividend paying firms are much more profitable than non-paying firms. For Turkey, Adaoglu (2000), and Kirkulak and Kurt (2010: 44) show that profitability is one of the main determinants in dividend payment decision. As a result, profitability is included in the analysis as a determinant. This study uses earnings-to-asset ratio

(E/A) as a proxy for profitability, which is expected to have a positive impact on dividend payment.

H1: Profitability has a positive impact on dividend policy of Turkish firms.

3.2.2. Investment Opportunities

Baker et al. (2008: 183) show that decisions on investment, financing and dividends should be considered together in their survey study conducted to managers in Canada. Smith and Watts (1992: 273) state investment opportunities as a substitute to dividend payment when using the free cash flow that a firm generates. According to Fama and French (2001: 4) results, investment opportunities affect dividend payment negatively. Gaver and Gaver (1993: 125) and DeAngelo et al. (2006: 230) support this notion; firms with higher growth opportunities generally do not pay dividends. Furthermore, Mitton (2004: 411) finds that a stronger negative association between dividend payment and investment opportunities exists when there is a strong protection for investors. If investors do not believe that future profits of the firm will be shared with them, they will not wait for it. Their choice is to receive the earnings as soon as possible with dividend payment (LaPorta et al., 2000: 6). To put it differently, investors do not tolerate to gather less dividends from high-growth firms, if they feel insecure.

Investment opportunities as another determinant are tested for Turkish firms' dividend payment decisions and expected to affect dividend payment negatively. Fixed asset growth (dFA/FA) stands for investment opportunities in this study.

H2: Investment opportunities have a negative impact on dividend policy of Turkish firms.

3.2.3. Size

Size of a firm is one of the most important factors in the dividend policy literature that affects dividend policy of firms. Fama and French (2001: 4), DeAngelo et al. (2006: 229) and Denis and Osobov (2008: 63) all show that size is a factor that affects dividend payment positively. These empirical studies among others reveal that bigger firms pay more dividends than smaller firms.

Jensen and Meckling (1976: 348) assert that large firms have more agency problems than smaller firms because managers have more power as ownership is not concentrated and shareholders have less control on the management. To solve

this problem, dividend payment can be used as a signal of good performance (Lloyd et al., 1985: 19). High dividend payment leads to high external financing and as a result higher control from outside the firm (Mitton, 2004: 410). Again, agency problems between investors and managers will be less with this external monitoring. Alternatively, since smaller firms do not have the ability to reach external financing as cheap as bigger firms, they retain earnings instead of paying dividends (Holder et al., 1998: 79).

Consistent with the literature, size (SIZE) is measured as the percentile of firms equal or smaller to the subject firm in terms of market capitalization. It is expected that size affects the dividend payment positively.

H3: Firm size has a positive impact on dividend policy of Turkish firms.

3.2.4. Leverage

In the extant literature, debt policy of a firm is documented as a factor that affects dividend policy of firms. According to some researchers, debt is another solution to agency costs between investors and managers in the free cash flow problem. Jensen and Meckling (1979: 349) and Jensen (1986: 323) state that high level of debt or high level of dividends can control this issue. Jensen et al. (1992: 256) find that debt and dividends are determined together, and they have a negative relationship.

Faccio et al. (2001: 60) argue that if a firm has a high level of debt, dividend payment will become less preferable because of the obligations to debt holders. Higher level of debt increases the risk of the firm, and the cost of external financing. Thus, firms with high level of debt would prefer to retain earnings to control the riskiness and the costs, which lead to less dividend payment (Manos, 2003: 286). Kirkulak and Kurt (2010: 45) claim that debt is a main factor for dividend reductions in Turkey.

Leverage is included into analysis in this study and it is measured as the debt-to-asset (D/A) ratio. Consistent with the literature, leverage is expected to have a negative effect on dividend payments.

H4: Leverage has a negative impact on dividend policy of Turkish firms.

3.2.5. Life-Cycle

Life-cycle theory of dividends states that a newly formed firm has more investment opportunities with less internally generated cash, which leads to higher

external financing costs, so dividend payment is not preferable. As the firm grows, it begins to generate more cash and investment opportunities decrease. As a result, it is expected that mature firms distribute more dividends than young firms.

De Angelo et al. (2006: 228) use ratio of retained earnings to total equity or ratio of retained earnings to total assets as the proxies for life cycle stage of the firm, which are called as earned to contributed capital mix. They find that there is a positive association between dividend policy and the ratio of retained earnings to total equity or total assets. In a following study, Dennis and Osobov (2008: 62) show that the probability of dividend payment increases as a firm gets mature, where they use data of developed markets namely, US, Canada, UK, Germany, France and Japan. Thanatawee (2011: 53) studies the relation between life-cycle theory and dividend policy in an emerging market, Thailand. Results of the study report that firms with higher free cash flow and higher retained earnings to equity ratio pay more dividends.

This study uses earned to contributed capital mix, i.e. ratio of retained earnings to book value of equity (RE/BE) as a proxy to capture the maturity of a firm. The expectation is that RE/BE is linked with dividend payment positively.

H5: Maturity has a positive impact on dividend policy of Turkish firms.

3.2.6. Risk

One of the early studies, Venkatesh (1989: 178), states that higher level of risk decreases the desire of a firm to distribute dividend as cash. In the survey analysis of Brav et al. (2005: 511), managers consider risk as a key factor to determine their dividend policy. Grullon et al. (2002: 390) state that maturity affects dividend policy of a firm. Risk of a firm decreases when firm matures, and it is expected that less risk leads to more dividend payment. Hoberg and Prabhala (2008: 79) claim that risk is a significant factor to explain the dividend policy of firms by analyzing US sample. They use two measures for risk; idiosyncratic risk and systematic risk. By using the methodology of Fama and French (2001a), they reveal that risk is a factor that affects dividend policy of firms even after controlling for Fama and French (2001a) variables. Specifically, results show that risk has a negative influence on dividend payment (Hoberg and Prabhala, 2008: 88).

The risk measures used in this study are the Hoberg and Prabhala (2008) measures of risk. As in Hoberg and Prabhala (2008), two risk measures are used; idiosyncratic risk and systematic risk. Idiosyncratic risk (ID) is defined as standard

deviation of residuals from a CAPM regression and systematic risk (SYS) is the standard deviation of predicted value from that regression. For a firm i for a year, a regression is applied by using one year daily excess returns and market factor to compute the risk measures. Consistent with the literature on risk and dividend relationship, the hypothesis is that risk is negatively related to dividend payment.

H6: Risk has a negative impact on dividend policy of Turkish firms.

3.2.7. Liquidity

In terms of dividend policy, liquidity of a firm represents two different measures. On the one hand, it represents quick ratio of a firm, that is the availability of cash, on the other hand, it represents market liquidity of a firm's stock, that is the easiness of buying and selling.

Ho (2003: 96) states that working capital ratio, which shows the available cash for a firm, is a factor that determines dividend policy of firms in his study examining the markets of Australia and Japan. He finds that liquidity has a positive impact on dividend payment, that is more liquid firms pay more dividends. Baker et al. (2006: 169) show that cash availability is a significant determinant of dividend policy if it is stable. Firms should have available cash to pay dividends because they generally do not consider dividend payment via borrowing, which would increase the risk of the firm.

For market liquidity as a determinant of dividend policy, Banerjee et al. (2006) use four proxies; three for trading activity and one for depth of the market. Annual share turnover is the first one to measure trading activity. It is calculated as the ratio of traded shares for a year to the outstanding shares. The other trading activity measures are annual traded dollar volume and the ratio of days with zero traded volume. The measure for depth of the market is illiquidity ratio as in Amihud (2002: 32). This ratio is calculated by dividing the average ratio of the absolute daily return to daily dollar volume.

Another recent study in an emerging market on market liquidity and dividend policy is by Jiang et al. (2017). They use Chinese sample to test the relationship between market liquidity of a stock and its dividend policy. The main liquidity measure used in their study is Amihud (2002) illiquidity measure. They use two other measures for liquidity for the sake of robust results. Contrary to Banerjee et al. (2007), they find that market liquidity of a stock affects dividend payout positively. The explanation for this result is based on the informational content of stock liquidity.

Since more liquid firms provide more information about the stock, insiders tend to pay more dividends.

Two different ratios are used in the analysis of this study for liquidity; quick ratio for availability of cash and turnover ratio for market liquidity. Quick ratio (LIQ) is the ratio of (current assets – inventory) to current liabilities. Turnover ratio (TOR) is measured like Datar et al. (1998: 205); every year average trading volume of a firm is divided by the number of outstanding shares.

H7: Liquidity (cash availability) has a positive impact on dividend policy of Turkish firms.

H8: Market liquidity has a negative impact on dividend policy of Turkish firms.

3.2.8. Ownership

In the extant literature, ownership structure is indicated as a factor affecting dividend policy of firms. As stated in Shleifer and Vishny (1997: 478), large shareholders, i.e. institutional and foreign owners, may lessen the agency problems through dividend policy. Grinstein and Michaely (2005: 1389) examine the association between institutional ownership and dividend policy for US firms and Eckbo and Verma (1994: 44) for Canadian firms, and report that institutions opt to own firms that pay higher dividends.

For emerging markets, Manos (2003: 275) shows that there is a positive relationship between institutional holdings and dividend payments of Indian firms but Kouki and Guizani (2009: 42) report a negative relationship between institutional ownership and dividend payment rates for a sample of Tunisian firms.

As another type of large shareholder, foreign owners may have a monitoring effect on the firm. Glen et al. (1995: 12) claim that there should be a negative relationship between foreign ownership and dividend payment policy because foreign owners search for capital gains not dividend yields when they invest in a firm. Manos (2003: 275) finds that foreign ownership increases the dividend payment of Indian firms contrary to the view of Glen et al. (1995). In a study analyzing the association between foreign ownership and dividend policy, Jeon et al. (2011: 344) find that foreign shareholders choose firms with high dividend payment. They examine listed Korean firms for the years between 1994 and 2004 and find a positive association between foreign ownership and dividend payment since foreign investors in Korea are mostly institutional investors which have the monitoring power

on the firms. Furthermore, Warrad et al. (2012: 191) find a positive linkage between foreign ownership and the dividend policy of Jordanian firms.

Al-Najjar and Kilincarslan (2016) analyze the effect of ownership structure on dividend policy of Turkish firms. Turkish tax regime treats capital gains and cash dividends differently as it provides tax advantage to foreign owners for capital gains over dividends (Al-Najjar and Kilincarslan, 2016: 147). In this respect, foreign owners may prefer less dividend and more capital gains. With the efforts of CMB to improve corporate governance of public firms by forming private pension and mutual funds, institutional owners may have a role in monitoring Turkish firms and may decrease the need for dividends (Al-Najjar and Kilincarslan, 2016: 148). Among other factors, Al-Najjar and Kilincarslan (2016) assess the effect of foreign ownership and institutional ownership on dividend payment behaviour and find that foreign ownership has a negative effect on dividend payment whereas institutional ownership does not have an impact on Turkish firms' dividend policy.

Ownership structure of Turkish firms is included into the analysis as a factor of dividend policy. Institutional ownership (INS) and foreign ownership (FOR) are the variables for ownership structure. INS is the ownership percentage of institutions and FOR is the ownership percentage of foreign investors in a firm. Both foreign ownership and institutional ownership are expected to have a negative impact on dividend policy as stated in Al-Najjar and Kilincarslan (2016: 147, 148).

H9: Institutional ownership has a negative impact on dividend policy of Turkish firms.

H10: Foreign ownership has a negative impact on dividend policy of Turkish firms.

3.2.9. Industry

Michel (1979: 24), Baker (1988: 1) and Ho (2003: 91) in their studies find that industry of a firm affects its dividend policy. For the Turkish context, Yilmaz (2003: 29) shows that industry is a factor that determines the dividend policy of firms for the years between 1990-2002.

This study considers the industry effect on the dividend policy of Turkish firms in addition to other control variables. Excluding financial and utility firms, sample of this study covers 15 different industries namely; textile, wearing apparel and leather; education, health, sports and other social services; construction and public works; food, beverage and tobacco; paper and paper products, printing and

publishing; chemicals, petroleum rubber and plastic products; mining; basic metal industries; fabricated metal products, machinery and equipment; wood products including furniture; agriculture, forestry and fishing; non-metallic mineral products; technology; wholesale and retail trade, hotels and restaurants; and transportation, telecommunications and storage. Industry classification is obtained from KAP⁷. It is expected that industry has an influence on dividend policy of Turkish firms.

H11: Industry of the firm has an impact on dividend policy of Turkish firms.

3.3. SAMPLE SELECTION

The sample of this study comprises listed firms on Turkish stock exchange, BIST, for the period between 1996 and 2015. All annual firm-level financial information is collected mainly from Thomson Reuters DataStream. Public Disclosure Platform (KAP) is used as a backup and complementary source. Financial information covers dividends per share, market capitalization, current assets, total assets, current liabilities, long term liabilities, total liabilities, income and other balance sheet items. Since change in fixed assets is calculated, fixed assets figure must exist for both current year and the preceding year for a firm to be included in the sample. Daily information on stock price, volume and shares outstanding are also retrieved.

In total, there are 536 firms listed on the stock exchange of Turkey between the years 1996 and 2015. The first three years (1996, 1997 and 1998) include a small number of firms compared to the following years so the sample excludes them and represents the years 1999 to 2015.

To assure that the data is suitable for empirical analysis, some exclusions are made in the construction of the final sample. First, as in Fama and French (2001: 41), Denis and Osobov (2008: 64) and Kuo et al. (2013: 3501), financial and utility firms are excluded. Specifically, these industries are classified as financial institutions and electricity, gas and water by KAP. Financial and utility firms are regulated differently regarding earnings (Kirkulak and Kurt, 2010: 41). Secondly, any firm without appropriate data or information with error is excluded from the sample. Thirdly, the sample includes both active and unlisted firms to overcome survivorship bias (Kuo et al., 2013: 3501). Fourthly, since ownership data (foreign ownership and institutional ownership) is available from Central Securities Depository (MKG) of Turkey only after 2003, and International Financial Reporting Standards are applied

⁷ <https://www.kap.org.tr/tr/Sektorler>.

in Turkey after 2005, two samples are constructed separately for the analyses; one for the years between 1999 and 2015 (hereafter the whole-sample) and one for the years between 2005 and 2015 (hereafter the sub-sample). As Balsari and Varan (2014: 391) state, implementation of IFRS may have a potential impact on financial statement items and financial ratios. Finally, outlier firms in the sample are detected by using the methodology of Weber (2010) because the existence of outliers in a sample may result in biased results. Before outliers are excluded, extreme values were observed in the data by monitoring descriptive statistics of the variables, in fact, the blocked adaptive computationally efficient outlier nominators (bacon) algorithm developed by Weber (2010) confirms the existence of extreme values in the data. After excluding outliers in the final step, the sampling procedure results in total of 224 different firms both for the whole-sample and the sub-sample.

Table 3 presents the number of firms after the sample selection procedure. The table comprises the number of firms for the years and the distribution of firms across industries. Number of firms in the sample begins with 85. Since Turkey is an emerging market, the number of firms listed in Turkish stock exchange increases smoothly throughout the years in the sample period. The number of firms is over 200 in 2014. It is observed that most of the firms in the sample are classified as textile, wearing apparel and leather; construction and public works; chemicals, petroleum rubber and plastic products; fabricated metal products, machinery and equipment; non-metallic mineral products; and wholesale and retail trade, hotels and restaurants. On average, 70% of firms in the sample belongs to those industries and remaining industries constitute 30% of firms in the sample.

Table 3: Number of Firms in Total and Across Industries

This table provides the number of firms in total and the number of firms across industries for the sample period 1999-2015. The number of firms in this table presents the remaining firms after sample selection procedure. There are 224 different firms in total for the whole- sample and the sub-sample. The industry classification is from KAP.

Year	Indu	stry	Textil	Educ	ation	Const	h	Food	Paper	Chem	icals	Minin	g	Basic	Fabri	Cated	Wood	Agric	Non-	Technolog	Whol	Trade	Transportation	Total
1999			11	0	9			2	7	12	1	1		11	12	1	1	0	13	2	4	0		85
2000			11	0	9			2	8	12	1	1		11	13	1	1	0	13	2	6	0		89
2001			13	0	11			2	10	12	1	1		11	14	1	1	0	13	4	9	1		102
2002			13	0	11			2	10	12	1	1		11	14	1	1	0	14	4	9	2		104
2003			15	1	14			2	10	18	1	1		12	16	1	1	0	19	4	10	3		126
2004			15	1	14			3	10	18	1	1		12	17	1	1	0	22	5	10	3		132
2005			16	2	15			3	11	18	1	1		12	18	1	1	0	22	6	10	3		138
2006			15	2	15			3	12	18	1	1		12	18	1	1	0	22	7	11	4		141
2007			16	2	16			2	12	18	1	1		13	19	1	1	0	22	9	12	14		147
2008			15	2	16			3	12	18	0			14	19	1	1	2	22	9	13	4		148
2009			15	2	16			3	12	18	0			14	19	1	1	0	22	10	14	5		151
2010			16	2	16			3	12	18	0			14	19	1	1	0	22	10	14	5		152
2011			16	2	17			5	13	18	1			15	20	1	1	0	22	11	15	5		161
2012			19	3	18			5	14	18	1			15	18	1	1	1	22	13	20	6		174
2013			19	4	21			8	15	22	1			15	20	2	2	1	23	13	23	8		195
2014			22	6	18			9	15	23	1			15	20	2	2	3	23	13	23	10		203
2015			22	6	18			8	15	22	0			14	20	2	2	3	20	13	19	9		191

3.4. VARIABLES AND SUMMARY STATISTICS

3.4.1. Variables

The independent variables used in this study are the determinants chosen for examining the dividend policy of Turkish firms. Independent variables can be categorized into two groups; firm characteristic variables and other variables. Firm characteristic variables are profitability, investment opportunities, size and leverage and other variables are life-cycle, risk, liquidity, ownership and industry.

The independent variables are used to reveal the probability of dividend payment of Turkish firms. In this respect, the dependent variable is a binary variable, which takes the value of one if a firm pays dividends in a given year and takes the value of zero if it does not.

The dependent and independent variables used in this study are defined as follows:

1. PAY is the dependent variable, which shows dividend payment situation of a firm. If a firm pays dividend in a given year, PAY takes the value of one, otherwise it is zero.
2. Earnings-to-asset ratio (E/A) represents the profitability of the firm.
3. To capture investment opportunities, fixed asset growth (dFA/FA) is used.
4. SIZE refers to the percentile of firms equal or smaller to the subject firm in terms of market capitalization. It is calculated each year for every firm.
5. Leverage is the proxy for debt ratio and it is calculated as debt-to-asset (D/A) ratio.
6. For life-cycle of the firm, ratio of retained earnings to the book value of equity (RE/BE) is used.
7. Risk of a firm is measured with two variables; idiosyncratic risk and systematic risk. Idiosyncratic risk (ID) is measured as the standard deviation of residuals from a CAPM regression and systematic risk (SYS) is the standard deviation of predicted value from that regression. For a firm i for a specific year, a regression is applied by using one year daily excess returns and market factor to compute these two risk measures. To compute the excess returns and market factor, riskless rate is subtracted from raw returns and return of the market index, respectively.
8. Quick ratio (LIQ) and turnover ratio (TOR) are the ratios representing the liquidity of a firm. Quick ratio is for availability of cash and turnover ratio is for market

liquidity. Quick ratio is current assets minus inventory, divided by current liabilities. Daily average trading volume of a firm is divided by the number of outstanding shares for each year to calculate turnover ratio.

9. INS and FOR refer to institutional ownership and foreign ownership, respectively. INS is the ownership percentage of institutions and FOR is the ownership percentage of foreign investors in a firm.

10. IND refers to the industry the firm belongs to. It is a dummy variable to measure the industry effect on the dividend policy of firms. To the classification of KAP, there are 15 industries; textile, wearing apparel and leather; education, health, sports and other social services; construction and public works; food, beverage and tobacco; paper and paper products, printing and publishing; chemicals, petroleum rubber and plastic products; mining; basic metal industries; fabricated metal products, machinery and equipment; wood products including furniture; agriculture, forestry and fishing; non-metallic mineral products; technology; wholesale and retail trade, hotels and restaurants; and transportation, telecommunications and storage.

Table 4 summarizes the dependent variable and independent variables used in this study to determine the factors that affect propensity to pay dividends of Turkish firms.

3.4.1. Summary Statistics

Summary statistics of the variables for the two samples (whole-sample and sub-sample) are reported in Table 5. Mean, median, standard deviation, kurtosis, skewness, minimum and maximum values are the statistics presented. Statistics are reported in two panels because ownership variables are included only in the sub-sample. The whole-sample includes 24380 firm-year observations with 10 variables and the sub-sample includes 21600 firm-year observations with 12 variables. Both samples comprise 224 different firms in total with an unbalanced panel dataset.

PAY variable has a mean of 0.39 for the whole-sample and 0.42 for the sub-sample, that is, on average approximately 40% Turkish firms pay dividends and the rest do not pay. Turkish firms have the ability to convert nearly 6% of their assets into earnings. By using different sources of financing, they manage to grow their fixed assets by 20% and 10% every year on average for the whole-sample and for the sub-sample, respectively.

Table 4: Variables and Definitions

This table summarizes the dependent variable and independent variables used in this study to determine the factors that affect dividend policy of Turkish firms.

Variable	Symbol	Definition
Dividend payment	PAY	If a firm pays dividend PAY takes the value of one, otherwise it is zero for year t .
Profitability	E/A	Earnings-to-asset ratio of a firm for year t .
Investment opportunities	dFA/FA	The change in fixed assets of a firm as a percentage for year t .
Size	SIZE	The percentile of firms equal or smaller to the subject firm in terms of market capitalization for year t .
Leverage	D/A	Debt-to-asset ratio of a firm for year t .
Life-Cycle	RE/BE	Ratio of retained earnings to the book value of equity of a firm for year t .
Risk	ID	The standard deviation of residuals from a yearly regression of excess return of the firm's stock on excess return of market return.
	SYS	The standard deviation of the predicted value from the regression to calculate ID.
Liquidity	LIQ	Quick ratio of a firm for year t .
	TOR	Daily average trading volume of a firm divided by the number of outstanding shares for year t .
Ownership	INS	The ownership percentage of institutions in a firm for year t .
	FOR	The ownership percentage of foreign investors in a firm for year t .
Industry	IND	A dummy variable that represents fifteen industries of listed firms on BIST.

Debt financing of Turkish firms is nearly 54% on average measured by debt-to-asset ratio, which means that firms are financing their investments with nearly 54% of debt and 46% owners' equity. The variable RE/BE is 0.14 for the whole-sample and 0.133 for the sub-sample. That is, for the whole-sample and the sub-sample, Turkish firms retain 14% of their earnings in proportion to their book value of equity. The other two variables reported in summary statistics are related with the risk of Turkish firms; idiosyncratic risk and systematic risk. Idiosyncratic and systematic risk variables have means of 2.9% and 0.4%, respectively for the whole-sample, which shows the average daily variability of stock returns. Standard

deviations of these variables are 1.1% and 0.5%. The measures regarding risk are similar for the sub-sample. Furthermore, the two variables related with liquidity are represented in the table. Finally, ownership statistics are presented for the sub-sample only. INS variable is 16% on average and FOR variable is 24%, in other words, 16% of firms in Turkey is owned by institutions and 24% of firms is owned by foreigners for the sample period 2005 and 2015.

Table 5: Summary Statistics

This table reports summary statistics of dependent and independent variables used in this study. The whole-sample, Panel A, includes 24380 firm-year observations with 10 variables and the sub-sample, Panel B, includes 21600 firm-year observations with 12 variables. Statistics are the means of annual statistics. The dependent variable is dividend payment, PAY, takes the value of one if a firm pays dividend that year, otherwise it is zero. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) and ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages).

Panel A: 1999-2015							
	Mean	Median	S.D.	Kurtosis	Skewness	Min.	Max.
PAY	0.399	0.000	0.489	1.166	0.408	0.000	1.000
E/A	0.067	0.061	0.185	1332	31.31	-0.844	7.940
dFA/FA	0.208	0.067	0.487	14.40	2.817	-0.996	3.414
SIZE	0.542	0.541	0.278	1.843	-0.083	0.003	0.996
D/A	0.536	0.496	0.456	90.75	7.738	0.007	8.674
RE/BE	0.140	0.281	0.760	10.56	-1.936	-4.767	3.927
ID	0.029	0.026	0.011	8.074	1.275	0.005	0.146
SYS	0.004	0.002	0.005	11.66	2.573	0.000	0.042
LIQ	1.316	1.045	1.019	10.28	2.309	0.020	7.780
TOR	1.251	0.720	1.498	9.057	2.269	0.0004	10.42
Panel B: 2005-2015							
	Mean	Median	S.D.	Kurtosis	Skewness	Min.	Max.
PAY	0.420	0.000	0.493	1.105	0.324	0.000	1.000
E/A	0.062	0.056	0.204	1220	31.66	-0.600	7.949
dFA/FA	0.104	0.029	0.341	17.78	2.731	-0.996	2.998
SIZE	0.545	0.545	0.278	1.849	-0.097	0.003	0.996
D/A	0.531	0.503	0.445	114.5	8.744	0.007	8.674
RE/BE	0.133	0.268	0.687	11.60	-2.239	-4.767	2.969
ID	0.025	0.024	0.008	4.611	0.947	0.005	0.069
SYS	0.004	0.002	0.004	5.079	1.512	0.000	0.034
LIQ	1.358	1.050	1.090	9.740	2.296	0.020	7.780
TOR	1.244	0.706	1.533	9.569	2.358	0.001	10.42
INS	0.163	0.065	0.215	5.274	1.721	0.000	0.985
FOR	0.243	0.084	0.297	2.724	1.043	0.000	0.978

3.5. METHODOLOGY AND MODELS

3.5.1. Univariate Analysis

Univariate analysis basically presents the Pearson correlation of variables and the comparison of variables according to means between two main groups of firms; dividend payers and nonpayers. T-statistics of the differences in means are reported to compare two groups of firms. The calculation of t-statistics is as follows;

$$t = \frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \quad (1)$$

In Equation 1, m_1 and m_2 are the means of determinant variables for two groups of firms, payers and nonpayers, σ_1^2 and σ_2^2 are variances and n_1 and n_2 are number of observations.

3.5.2. Multivariate Analysis

For multivariate analysis, Fama and French (2001) methodology is used. Denis and Osobov (2008) and Kuo et al. (2013) are also followed as they elaborate the control variables used in Fama and French (2001). To measure the marginal effects of the independent variables on the dependent variable, i.e. the probability to pay dividends, annual cross-sectional logit regressions are applied. The logit regression is formulized as;

$$\log \left(\frac{p(y_i = 1 | x_i)}{p(y_i = 0 | x_i)} \right) = \beta_0 + \beta_i x_i \quad (2)$$

Y_i is the dependent variable in this formulation of logit regression. It is a binary variable and it can take only two values; 1 and 0. If a certain event happens it takes the value of 1. In contrast, if it does not happen it is 0. In this study, that event is the payment of dividends for a certain year. A binary model estimates the probability of a dependent variable to be equal to 1, i.e. $y = 1$ as a function of independent variables.

$$p = pr(y = 1 | x) = F(x' \beta)$$

where;

$$F(x'\beta) = \frac{\exp(x'\beta)}{1 + \exp(x'\beta)}$$

The estimated probability will be between 0 and 1.

The logit models used in this study are;

$$\text{Model-I: } \text{PAY}_{it} = \text{logit}(c + a_1 \frac{E}{A_{it}} + a_2 \frac{dFA}{FA_{it}} + a_3 \text{SIZE}_{it} + a_4 \frac{D}{A_{it}} + a_5 \frac{RE}{BE_{it}} + a_6 \text{SYS}_{it} + a_7 \text{ID}_{it} + a_8 \text{LIQ}_{it} + a_9 \text{TOR}_{it} + \sum_{j=1}^n a_j \text{IND}_{jit}) + \varepsilon_{it}$$

$$\text{Model-II: } \text{PAY}_{it} = \text{logit}(c + a_1 \frac{E}{A_{it}} + a_2 \frac{dFA}{FA_{it}} + a_3 \text{SIZE}_{it} + a_4 \frac{D}{A_{it}} + a_5 \frac{RE}{BE_{it}} + a_6 \text{SYS}_{it} + a_7 \text{ID}_{it} + a_8 \text{LIQ}_{it} + a_9 \text{TOR}_{it} + a_{10} \text{INS}_{it} + a_{11} \text{FOR}_{it} + \sum_{j=1}^n a_j \text{IND}_{jit}) + \varepsilon_{it}$$

The first model, Model-I, is for the whole-sample and the second one, Model-II is for the sub-sample. There are two models because ownership data is available after 2003 and IFRS is implemented after 2005 in Turkey.

The dependent variable PAY_{it} represents dividend payment decision. If a firm i decides to pay dividends in year t , then this value is one. Otherwise, it is zero. The independent factors for the analysis are profitability, investment opportunities, size, leverage, life-cycle, risk, liquidity, and ownership. Specifically, determinants for dividend payment decision are earnings-to-asset ratio (E/A) for profitability, fixed asset growth (dFA/A) for investment opportunities, size percentile (SIZE) for size, debt-to-asset ratio (D/A) for leverage, the ratio of retained earnings to the book value of equity (RE/BE) for life cycle, systematic risk (SYS) and idiosyncratic risk (ID) for risk, quick ratio (LIQ) and turnover ratio (TOR) for liquidity, and finally institutional (INS) and foreign (FOR) ownership ratios for ownership status. For leverage debt-to-asset ratio is used instead of debt-to-equity ratio since some firms have negative equity in their balance sheet for some years. A negative debt-to-equity ratio is not a suitable indicator for leverage (Guzhva and Pagiavlas, 2003: 372). In addition to firm-specific characteristics and other variables, industry dummy variables (IND) are added into the model to control for industry-effect.

For the estimation of coefficients except for industry dummy variables, Fama and Macbeth (1973) methodology is used as in Fama and French (2001), Denis and Osobov (2008) and Kuo et al. (2013).

A panel data has the form as following;

$$y_{it} = a + bx_{it} + \varepsilon_{it}$$

where i is for cross-section variables and t is for time. In this setting, error terms of the cross-section variables may be dependent of each other. In fact, generally in financial data, it is expected that error terms are not independent. Fama-Macbeth (1973) methodology makes a correction for this cross-sectional correlation of the error terms. For the time series part, the data may also be autocorrelated, which is a common observation for financial data. Fama-Macbeth (1973) procedure ignores that autocorrelation. To adjust for autocorrelation Newey-West (1987) procedure is used in this study. The method was developed by Newey and West (1987) to account for autocorrelations in single time-series but later it is adapted for the use of panel data (Petersen, 2009: 437).

Annual cross-sectional regressions with Newey-West t-statistics are applied for the sample periods 1999-2015 and 2005-2015. The coefficients are time-series averages of these yearly regressions. Time-series standard deviations of estimated coefficients are standard errors and the t-statistics are means divided by standard errors. Standard errors are autocorrelation adjusted standard errors up to maximum lags because Fama and Macbeth (1973) underestimate standard errors when firm-effect and time-effect both exist in panel data (Denis and Osobov, 2008: 66). Finally, R^2 is the average R^2 of the cross-sectional regressions of every year in the sample period.

For testing industry effect, random effects panel logit regressions are applied. The two models above; Model-I and Model-II are tested with and without the industry dummies to observe if the inclusion of industry dummies affects the statistical significance of other independent variables.

3.6. EMPIRICAL RESULTS

This section presents the empirical results of univariate analysis and multivariate analysis. First, the results of univariate analysis are introduced and then the results of multivariate analysis are presented.

3.6.1. Results of Univariate Analysis

Table 6 shows Pearson correlations between all variables. For the whole-sample, the dependent variable, dividend payment (PAY), is significantly correlated with the independent variables, profitability (E/A), size (SIZE), leverage (D/A), life-cycle (RE/BE), idiosyncratic risk (ID), systematic risk (SYS) and liquidity measures, quick ratio (LIQ) and turnover ratio (TOR). The direction of the correlation is positive

for profitability, size, life-cycle, systematic risk, quick ratio and negative for leverage, idiosyncratic risk and turnover ratio. There is no significant correlation between dividend payment and investment opportunities (dFA/FA).

For the sub-sample, the correlations between dividend payment and independent variables are not different than the whole-sample. The foreign ownership variable for the sub-sample period is correlated with dividend payment significantly and positively. The correlation coefficient between institutional ownership (INS) and dividend payment is negative but insignificant.

The correlations between independent variables show that multicollinearity is not an issue for the analysis. Most of the correlations are insignificant and weak or significant but weak. The highest correlation is between size and foreign ownership with 0.63 in magnitude.

Table 7 presents the means and t-statistics of differences between means of independent variables of dividend payers and nonpayers. In the first step, for each variable, as in DeAngelo et al. (2006: 231), annual (cross-sectional) means are calculated for dividend payers and nonpayers for each year. In the second step, means of those means are calculated over the years 1999-2015 as time-series for the whole-sample. Same calculations are made for the sub-sample that presents years between 2005 and 2015.

Table 7 shows that except for only three explanatory variables there are statistically significant differences between dividend payers and nonpayers. In accordance with Fama and French (2001: 4), Kuo et al. (2013: 3506) and Kirkulak and Kurt (2010: 40), dividend payers have a greater amount of earnings-to-asset ratio than nonpayers and the difference is statistically significant. In other words, the higher the profitability the higher the probability of dividend payment. Dividend payers tend to be bigger in size compared with nonpayers as expected. Consistent with the results of Faccio et al. (2001: 62), Manos (2003: 294) and Kirkulak and Kurt (2010: 50), debt affects the dividend payment of Turkish firms negatively. Nonpayers have 20% more leverage than payers on average and the difference is statistically significant at 1% level.

Table 6: Correlation Matrix of Variables

This table reports Pearson correlations between all variables. The whole-sample, Panel A, includes 24380 firm-year observations with 10 variables and the sub-sample, Panel B, includes 21600 firm-year observations with 12 variables. The dependent variable is dividend payment, PAY, takes the value of one if a firm pays dividend that year, otherwise it is zero. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) and ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages). *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

Panel A: 1999-2015										
	PAY	E/A	dFA/FA	SIZE	D/A	RE/BE	ID	SYS	LIQ	TOR
PAY	1									
E/A	0.18***	1								
dFA/FA	-0.00	0.00	1							
SIZE	0.37***	0.10**	0.05***	1						
D/A	-0.20***	0.10***	-0.00	-0.13***	1					
RE/BE	0.37***	0.19***	-0.00	0.27***	0.05***	1				
ID	-0.25***	-0.01	0.20***	-0.22***	0.18***	-0.03*	1			
SYS	0.08***	0.05**	0.03	0.09***	-0.01	0.10***	-0.10***	1		
LIQ	0.28***	0.10***	-0.08***	0.13***	-0.35***	0.16***	-0.14***	-0.02	1	
TOR	-0.27***	-0.09***	-0.03*	-0.40***	0.09***	-0.18***	0.28***	-0.04**	-0.09***	1

Panel B: 2005-2015												
	PAY	E/A	dFA/FA	SIZE	D/A	RE/BE	ID	SYS	LIQ	TOR	INS	FOR
PAY	1											
E/A	0.17** *	1										
dFA/FA	0.02	-0.01	1									
SIZE	0.41** *	0.11** *	0.07** *	1								
D/A	-0.20** *	0.17** *	-0.00	0.12** *	1							
RE/BE	0.43** *	0.20** *	0.00	0.38** *	-0.00	1						
ID	-0.27** *	-0.05**	-0.03	0.26** *	0.16** *	-0.22** *	1					
SYS	0.09** *	0.02	0.02	0.08** *	-0.00	0.10** *	0.12** *	1				
LIQ	0.28** *	0.09** *	-0.07** *	0.10** *	-0.36** *	0.22** *	0.07** *	-0.03*	1			
TOR	-0.29** *	0.10** *	-0.04**	0.42** *	0.08** *	-0.20** *	0.37** *	-0.02	0.08** *	1		
INS	-0.01	0.01	0.00** *	0.08** *	-0.05**	-0.03	0.10** *	0.01	0.11** *	0.13** *	1	
FOR	0.29** *	0.08** *	0.07** *	0.63** *	-0.03*	0.29** *	0.17** *	0.01	-0.00	0.29** *	0.26** *	1

Consistent with Hoberg and Prabhala (2008: 88), univariate analysis shows that, idiosyncratic risk decreases the probability of paying dividends. Even though systematic risk is reported as an increasing factor of dividend payment, the difference in means of payers and nonpayers is statistically significant only at 10% for the whole-sample and not significant for the sub-sample.

In terms of the first liquidity measure, which measures the cash availability, there is a statistically significant difference between dividend-payers and nonpayers at 1% level. As expected, more liquid firms tend to pay more dividends. The other liquidity measure, which present the market liquidity of the firms' stocks, is share turnover (TOR). It is observed that dividend nonpayers are more liquid than dividend payers in terms of turnover ratio. The result suggests a significant difference, so, it can be said that stock market liquidity decreases the probability of dividend payment.

Table 7 presents that foreign ownership is a determinant differentiating dividend payers and nonpayers but inconsistent with the results of Al-Najjar and Kilincarslan (2016: 154) as it increases the dividend payment probability. Institutional ownership does not show a significant difference between dividend payers and nonpayers.

The difference in means of earned-to-contributed capital mix variable (RE/BE) is statistically significant and shows that dividend payers are more mature than nonpayers in terms life-cycle introduced by DeAngelo et al. (2006: 228).

Finally, fixed asset growth (dFA/FA) variable indicates no difference between payers and nonpayers. Inconsistent with Fama and French (2001), results of univariate analysis reveal that investment opportunities have no impact on the dividend policy of Turkish firms.

Table 7: T-stat Differences in Means of Dividend Payers and Nonpayers

This table presents t-stat differences of mean values for all independent variables between dividend payers and nonpayers. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) and ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages). Panel A of the table is for the whole-sample, years between 1999 and 2015 and Panel B of the table is for the sub-sample, years between 2005-2015. For each year between 1999 and 2015 for the whole-sample, mean values are calculated for each independent variable for two group of firms, dividend payers and nonpayers. In the second step, time-series averages are calculated over the years 1999 and 2015. Same calculations are made for the sub-sample. T-statistics of the differences in means are also reported to compare two groups of firms. *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

Panel A: 1999-2015			
	Payers Mean	Nonpayers Mean	T-stat Differences in Means
E/A	0.11	0.04	-7.35***
dFA/FA	0.27	0.23	-0.33
SIZE	0.66	0.46	-19.77***
D/A	0.42	0.61	8.45***
RE/BE	0.49	-0.05	-7.01***
ID	0.02	0.03	1.80**
SYS	0.05 ⁻¹	0.03 ⁻¹	-1.63*
LIQ	1.65	1.06	-11.25***
TOR	0.77	1.59	8.79***
Panel B: 2005-2015			
	Payers Mean	Nonpayers Mean	T-stat Differences in Means
E/A	0.10	0.02	-10.49***
dFA/FA	0.11	0.09	-0.88
SIZE	0.68	0.44	-28.90***
D/A	0.42	0.60	9.72***
RE/BE	0.48	-0.12	-22.05***
ID	0.02	0.03	2.85***
SYS	0.04 ⁻¹	0.03 ⁻¹	-0.94
LIQ	1.74	1.09	-12.63***
TOR	0.72	1.65	6.76***
INS	0.15	0.16	0.17
FOR	0.34	0.17	-13.21***

3.6.2. Results of Multivariate Analysis

To test the determinants that affect dividend policy of Turkish firms, multivariate logit regression is used, which is Fama-Macbeth (1973) style regression

as in Fama and French (2001: 19). There are 9 explanatory variables for the whole-sample and 11 explanatory variables for the sub-sample because sub-sample includes two ownership variables in addition to the variables in the whole-sample. Since there are two sample periods with different variables, two different models are tested for revealing the impact of variables on the probability of dividend payment.

Specifically, Model-I covers the variables for the whole-sample that include all independent variables used in the study except the ownership variables. Model-II includes all independent variables used in the study for the sub-sample.

Table 8: Fama-Macbeth Estimation Results

This table presents estimation results of logit regressions, which are Fama and Macbeth (1973) style regressions. T-statistics are Newey-West t-statistics with values for all independent variables used in this study to examine the dividend policy of Turkish firms. The dependent variable is dividend payment, PAY, takes the value of one if a firm pays dividend that year, otherwise it is zero. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) and ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages). Model-I is for the whole-sample, the years between 1999 and 2015 and Model-II is for the sub-sample, the years between 2005-2015. *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

	Model-I		Model-II	
	Coef.	t-stat	Coef.	t-stat
Constant	-0.23	-0.67	-0.61	-2.29**
E/A	9.96	13.42***	12.24	6.81***
dFA/FA	0.43	1.59	0.07	0.32
SIZE	0.88	3.78***	1.66	7.47***
D/A	-2.73	-7.65***	-2.20	-8.90***
RE/BE	2.72	21.99***	2.98	30.10**
ID	-45.20	-6.38***	-44.82	-4.22***
SYS	32.72	2.23**	60.29	5.48***
LIQ	0.27	2.50**	0.187	2.04*
TOR	-0.26	-5.99***	-0.31	-7.42***
INS	-	-	-1.13	-3.27***
FOR	-	-	-0.84	-4.60***
R ²	41.9%		45.5%	
F	91.9***		111***	
Number of obs.	2438		1800	

Table 8 reveals the results of logit regression models estimated. It reports the estimated coefficients and Newey-West t-statistics from the first regression for the years between 1999 and 2015, which is Model-I and the second regression for the years between 2005 and 2015, which is Model-II.

As a summary, in both models, similar results are observed with univariate analysis except for two differences. As in univariate analysis, more profitable, bigger, more mature, having higher quick ratio, less indebted, less liquid in the market, less idiosyncratic risky and more systematic risky firms are more probable to pay dividends. Investment opportunities do not have an impact on dividend payment decision of Turkish listed firms. Nonetheless, there are different results in ownership variables. For the ownership variables, univariate analysis show that institutional ownership has no impact on dividend policy and foreign ownership increase the probability of dividend payment. According to the logit regressions, both foreign ownership and institutional ownership affect dividend payment significantly negative.

The results of the regressions can be detailed as following;

a. Model-I, for the whole-sample, is statistically significant at 1% level and has an R^2 value of 42%. Model-II, for the sub-sample, includes ownership variables and is overall statistically significant at 1% level with an R^2 value of 45.5%. This R^2 value is slightly higher than Model-I R^2 value, which means that adding ownership variables increases the explanation of variability in probability of dividend payment of Turkish firms.

b. The profitability of Turkish firms affects the probability of dividend payment positively. In both models the coefficient of profitability variable (E/A) is positive and statistically significant at 1% level. This result is consistent with other studies analyzing international firms and Turkish firms. Fama and French (2001: 12) and Jensen et al. (1992: 259) show that profitability increases dividend payments. For Turkey, Adaoglu (2000: 265) and Kirkulak and Kurt (2010: 50) find that profitable firms pay more dividend than non-profitable firms.

c. Results show that fixed asset growth, the variable that is a proxy for investment opportunities, does not affect the probability of dividend payment. The coefficient of fixed asset growth variable is positive, but it is statistically insignificant in even at 10% level. This result disagrees with the literature that shows investment opportunities have an impact on dividend policy (Fama and French, 2001: 15; DeAngelo et al., 2006: 228; Mitton, 2004: 411; LaPorta et al., 2000: 8) but it corroborates with Dennis and Osobov (2008: 64) evidence stating that investment opportunities have no relationship with dividend policy.

d. As expected, results indicate that SIZE affects the dividend payment probability of Turkish listed firms positively. In both models, SIZE has a positive coefficient and statistically significant at 1% level. This result is consistent with Fama

and French (2001: 17), DeAngelo et al. (2006: 235), Ferris et al. (2006: 1734) and Denis and Osobov (2008: 68), all show that size of a firm has a positive impact on dividend payment. As the agency cost theory of Jensen and Meckling (1976) and signaling theory of Lloyd et al. (1985) suggest, dividend payment is affected by the firm size. In addition, the results comply with Al-Najjar and Kilincarslan (2017: 328) representing Turkish evidence.

e. Leverage variable, D/A affects the dividend payment probability of Turkish firms both for the whole-sample and the sub-sample, since the coefficients of leverage variable are statistically significant at 1% level. The coefficients of leverage variable are negative, suggesting an inverse relationship between debt ratio and dividend payment. This result is consistent with the assertion of Jensen and Meckling (1979) and Jensen (1986) stating that debt is another solution to agency costs between investors and managers in the free cash flow problem. They say that high level of debt or high level of dividends can control this issue and those two are mutually exclusive. The evidence is also compatible with the study of Agrawal and Jayaraman (1994: 143) which suggests that highly indebted firms do not pay high dividends because higher level of debt augments the risk of the firm, and the cost of external financing. Thus, a firm with a high-level of debt would prefer to retain earnings to control the riskiness and the costs. Further, the result is similar with Kirkulak and Kurt (2010: 50) study that finds change in leverage is strongly linked to dividend reduction.

f. Turkish firms' probability of dividend payment is affected by the life-cycle variable, RE/BE, significantly. Results show that maturity of a firm is associated with dividend policy positively. The coefficients of RE/BE variable are statistically significant at 1% level in Model-I and 5% level in Model-II. This result is compatible with the life-cycle theory of De Angelo et al. (2006). Life-cycle theory suggests that firms in their growth stage need more external funding, in contrast, mature firms do not need that much external funding. As a result, internally funded firms, that is mature firms, have bigger probability to pay dividends to investors.

g. Turkish firms' probability of dividend payment is affected by the risk variables; idiosyncratic risk (ID) and systematic risk (SYS) since the coefficients of risk variables, both ID and SYS, are statistically significant. The direction of the effect is mixed for the risk variables. Results indicate that idiosyncratic risk is linked with dividend payment probability negatively, whereas systematic risk is related with dividend payment positively. On the one hand, as stated in Grullon et al. (2002: 387)

and found in Hoberg and Prabhala (2008: 88), idiosyncratic risk decreases the probability of dividend payment in Turkish firms. On the other hand, the probability of dividend payment in Turkish firms increases with systematic risk, which can also be called as market risk. Turkish firms pay more dividend as their market risk increases. This result is not consistent with Hoberg and Prabhala (2008).

h. Turkish firms' probability of dividend payment is affected by liquidity variables significantly. In the analysis, two types of variables are used as a proxy for liquidity; one is for availability of cash, quick ratio, shown as LIQ and the other is for market liquidity. Market liquidity is measured with turnover ratio, TOR. According to the results, quick ratio of a firm, LIQ and market liquidity, TOR affect dividend payment decision of a firm. Consistent with Ho (2003: 97) and Baker et al. (2006: 164) who find that availability of cash affects the dividend payment probability positively, results of this study reveal that liquidity has a positive relationship with dividend payment. TOR variable has a negative coefficient that is significant at 1% level. This is consistent with Banerjee et al. (2007: 379) study, which shows that there is a negative linkage between market liquidity and dividend payments. More market liquidity leads to less dividend, because investors are able to create their own cash flow through markets without bearing additional cost.

i. Turkish firms' probability of dividend payment is affected by institutional ownership and foreign ownership variables significantly. Since ownership variables are added into the analysis only in sub-sample, only Model-II in Table 8 reveals the results. Model-II results show that coefficient of institutional ownership and foreign ownership variables are statistically significant at %1 level. The direction of the effect of both ownership variables are negative as expected. This result is not consistent with Allen et al. (2000: 2501) and Grinstein and Michaely (2005: 1389) for developed markets and with Manos (2003: 279) for an emerging market, which show that there is a positive relationship between institutional holdings and dividend policy, however, results are similar with Kouki and Guizani (2009: 42) that analyze Tunisian firms and report a negative relationship between institutional ownership and dividend payment rates. A negative impact of institutional ownership on dividend policy implies that institutions have a monitoring role that decreases the need for dividends (Al-Najjar and Kilincarslan, 2016: 148). In addition, for Turkey, Al-Najjar and Kilincarslan (2016) examine the effect of foreign ownership on dividend policy and find that foreign ownership has a negative impact on dividend payment

similar to this study, which may be due to the tax advantage of capital gains over dividends for foreign owners.

j. Among others, the studies of Michel (1979: 24), Baker (1988: 1) and Ho (2003: 91) for international markets and Yilmaz (2003: 29) for Turkey show that industry is a factor that affects dividend payment decision. According to the classification of KAP, there are 15 industries in Turkish market. To test the effect of industries on the probability of dividend payment, industry dummy variables are used. Because of the nature of the data, it is not suitable to test industry effect with Fama and Macbeth (1973) style regressions. In order to solve this problem, panel logit regressions are used, and the results of these regressions are presented in Table 13 in Appendix 1. With an application of a likelihood-ratio test and by fitting the two models with and without industry dummies, it is found that industry has no impact on dividend policy of Turkish firms. Likelihood-ratio is insignificant even at 10% level for both models. Furthermore, Wald test of the joint significance for industry dummy variables is insignificant suggesting that industry of a firm has no significant impact on the probability of dividend payment. This result is inconsistent with Michel (1979), Baker (1988), Ho (2003) and Yilmaz (2003).

In summary, univariate and multivariate analysis applied in Chapter 3 reveal that profitability, size, leverage, life-cycle, quick ratio, risk, market liquidity and ownership structure are the determinants that influence the probability of dividend payment of Turkish firms. Investment opportunities have no significant relationship with dividend policy.

CHAPTER FOUR

CATERING INCENTIVES AND DIVIDEND POLICY

MM (1961) assert that dividend policy of a firm is unrelated with its market value and state that investment policy of a firm shapes firm value. The theory of MM (1961) is valid under certain assumptions. In other words, under perfect market conditions and with the existence of rational investors, paying dividend or not has no impact on the value of the firm. On the contrary, behavioral finance lays emphasize on irrational investors and irrational managers (Barberis and Thaler, 2003: 1055).

LaPorta et al. (2000) state that investor preferences do affect dividend payment policy of firms in common law countries. Common law countries are the best environment for small investors because law protects them against major owners. That kind of protection is very weak in civil law countries and as a result, dividend is an effective tool to form good relations with investors in civil law countries (LaPorta et al. 2000). Firms in these countries can protect its investors by paying dividends to them. Turkey is classified as a civil law country in LaPorta et al. (2000: 14) but with major economic and structural reforms, especially after 2001 financial crisis, Turkey is in a transition process from civil law to common law (Al-Najjar, B., and Kilincarslan, 2016: 139).

Since MM (1961), theories on dividend policy attempt to understand the motivation of firms while deciding dividend policy. From a behavioral finance approach, Baker and Wurgler (2004a) develop the catering theory of dividends to explain dividend payment policy of firms. Catering theory states that dividend payment decision is based on irrational investor demand. Baker and Wurgler (2004a: 1127) claim that investors have uninformed demand for dividend paying shares and assume that arbitrage cannot adjust the prices of dividend paying and non-paying firms. In summary, catering theory asserts that when investors demand dividends, firms cater them and distribute dividends. On the contrary, when there is no demand, firms prefer not to pay.

This chapter tests the catering theory of dividends in an emerging market, Turkey. First, catering theory literature is detailed in section 4.1. Section 4.2 presents propensity to pay in order to analyse the unexplained part of dividend policy of Turkish firms. In section 4.3, the effect of catering incentives on dividend payment decisions is tested and section 4.4 concludes the chapter.

4.1. CATERING THEORY OF DIVIDENDS LITERATURE

Catering theory of dividends literature is presented by two parts in this section; studies in developed markets and studies in emerging markets.

4.1.1 Developed Markets

Baker and Wurgler (2004a) introduce catering theory of dividends, which claims that changes in dividend premium can explain the changes in propensity to pay dividends. In their subsequent study, Baker and Wurgler (2004b) test for the effect of catering incentives in US firms' dividend policy. They find that catering theory explains the motivation of firms to pay less dividend stated in Fama and French (2001) and catering theory explains changes in propensity to pay significantly.

Li and Lie (2006) extend Baker and Wurgler (2004b) evidence by analyzing the relationship between changes in dividend payout ratios and catering incentives. By examining dividend decreases and increases between the years 1963 and 2000 for US firms, they report that dividend premium can explain dividend initiations, omissions and changes in dividend payout ratios. Lin et al. (2012) also use a sample of US firms between the years 1993 and 2006 to test the effect of catering incentives on the dividend change decisions. In support of Li and Lie (2006: 293) results, Lin et al. (2012: 1) find that managers change dividends when investors want a change, that is, firms cater to investor needs when changing dividends. Another study on dividend changes comparing signalling theory and catering theory is the study of Ali and Urcan (2012). Their analyses show that dividend premium is the dominant factor when deciding to change dividend payout. Signaling ranks number two as a factor when dividend premium is high. Liu and Chen (2015: 194) find evidence that supports catering theory in their study analysing US market. They state that one of the motivation of managers when changing dividends is catering investors' dividend demand.

Baker et al. (2013: 164) examine Canadian cash dividends and stock repurchases between 1988 and 2006 and find that catering incentive is a factor to explain declining dividend payment of firms in Canada. By using a sample of US firms between the years 1982 and 2010, Hauser and Thornton (2017: 663) find that catering influences dividend payment decision of firms, where they use profitability,

investment opportunities, size, leverage, cash to asset ratio and economic sector of a firm as control variables.

Ferris et al. (2006: 1149) show that, after controlling for firm size, profitability and investment opportunities, catering incentives have an influence on dividend policy of firms in UK market. In a following study, Ferris et al. (2009) investigate the effect of catering incentives on dividend policy for 23 developed and emerging markets. Their analyses reveal a significant difference between common law countries and civil law countries. According to the results, catering theory is applicable to firms in common law countries, but not valid in civil law countries (Ferris et al., 2009: 1730). In common law countries investors can enforce managers to pay dividends with the help of legislation. In addition, investors value dividend-paying firms higher than non-paying firms to affect managers' dividend decision indirectly. On the contrary, firms under civil law are not interested to react market overvaluation or undervaluation of their stocks so they do not cater.

Other studies examining the catering theory of dividends for developed markets include Anouar and Aubert (2016) for French market, Hartzmark and Solomon (2013) for US and Neves (2018) for 12 Eurozone countries, all in support of catering theory.

On the other hand, several studies do not support the catering theory of Baker and Wurgler (2004a). Hoberg and Prabhala (2008) report that catering incentives affect dividend payment decision of firms without using risk as a control variable. They use US data as in Baker and Wurgler (2004a, b) by adding four years; the years between 1963 and 2004. They show that coefficient of dividend premium variable is positive implying catering exists but when they add risk variable to the model the effect of dividend premium disappears.

Von Eije and Megginson (2008: 347) analyse dividend payments of firms from 15 European Union countries between the years 1989 and 2005. By using panel regressions, they do not find any evidence of catering theory in European firms' dividend payment policy. Denis and Osobov (2008: 62) examine the relationship between propensity to pay and catering incentives in six large economies of the world; US, Canada, UK, Germany, France and Japan. They use profitability, investment opportunities, firm size and earned equity to measure propensity to pay. The methodology is the same in Fama and French (2001), which is Fama-Macbeth (1973) style regression. According to the results, Denis and Osobov (2008: 62) report that firm size, profitability, investment opportunities and

earned equity affect dividend payment but catering theory fails to explain the changes in propensity to pay dividends in these countries.

Finally, in a very comprehensive study, Kuo et al. (2013: 3505) examine a large sample of countries both from common law and civil law origins by using the same methodology of Fama and French (2001). In addition to variables used by Fama and French (2001), the control variables they use include leverage, life-cycle, liquidity and risk. Logit regression analysis with Newey-West t-statistics and univariate analysis reveal that catering can explain the changes in propensity to pay dividends in common law countries but once risk is included into the analysis, the effect of catering incentives disappears.

In addition to the studies above, Savov and Weber (2006), Chay and Suh (2008) and Baxamusa (2011) find no evidence to support catering explanation of dividend policy of firms in developed markets.

4.1.2. Emerging Markets

Emerging markets' evidence regarding the catering theory of dividends is very limited. Only a few studies investigate the potential effect of catering incentives on dividend policy of firms in emerging markets. Wang et al. (2016) examine the influence of catering incentives on dividend policy of firms listed on Taiwan Stock Exchange. For the analysis, they use dividend premium measure as in Baker and Wurgler (2004b). Other than dividend premium, they also use control variables such as; total assets as the size measure, return on total assets as profitability and growth rate of total assets as investment opportunities. With the help of multivariate logistic regressions, they show that managers in Taiwan cater to investors' dividend demand.

Tangjitprom (2013) examines the validity of catering explanation of dividends in Thailand Stock Market for a sample period of 1992 to 2009. Control variables are size, profitability, asset growth and market-to-book ratio. Results of the study show that catering incentives influence dividend payment policy of listed firms in Thailand (Tangjitprom, 2013: 45). Twite et al. (2012) analyse dividend payment announcements of Chinese firms by applying event study methodology. They conclude that firms, which are young, profitable, less indebted, privately owned before listing, growing and possessing high levels of retained earnings, pay more dividends. Further, they state that stock dividends attract the attention of analysts and cash dividends are distributed to cater stockholder demands.

As far as is known, catering explanation of dividends has never been tested in Turkey, so this study extends dividend policy literature by examining the impact of catering incentives in an emerging market, Turkey.

4.2. PROPENSITY TO PAY DIVIDENDS

Chapter 3 uses explanatory variables to explain the probability of dividend payment of Turkish firms. Namely, profitability, size, investment opportunities, leverage, liquidity, life-cycle, risk and ownership structure are used as independent variables. To estimate the propensity to pay dividends (PTP_t), as in Fama and French (2001: 23) and Kuo et al. (2013: 3508), the difference between actual percentage of dividend payers and expected percentage of dividend payers is calculated in year t . Propensity to pay is the unexplained part of dividend payment behavior of firms by the logistics regression model. The expected percentages of dividend payers are estimated by using the coefficients of logistics regressions from the models presented in Chapter 3, i.e. Model-I to Model-II but logistic regressions are not applied for all the years in the sample, instead, as in Fama and French (2001: 23), Denis and Osobov (2008: 65), Kuo et al. (2013: 3508) a base period is chosen and used to estimate the coefficients.⁸ The base period estimates are then used to calculate the expected percentages of out-of-sample dividend payers. For the whole-sample base period is chosen as the years between 1999 and 2004. The years between 2005 and 2015 are used to estimate out-of-sample expected percentages. The sub-sample years for base period are the years between 2005 and 2009 and the years between 2010 and 2015 are used to estimate out-of-sample expected percentages.

Table 9 presents the estimates of logistic regressions for the base periods both for the whole-sample and the sub-sample. The estimates show similar results with the logit regressions applied in Chapter 3. The coefficients of profitability, size, leverage, idiosyncratic risk and institutional ownership are statistically significant for both models in the base periods. The coefficient of investment opportunities, life-cycle, liquidity and foreign ownership differs from main results in terms of significance levels. The direction of the impact only changes for systematic risk variable in Model-I but the coefficient is statistically insignificant.

⁸ As examples of base and out-of-sample period choices; Kuo et al. (2013) use 1989-2000 as base period and 2001-2010 as out-of-sample period and Denis and Osobov (2008) use 1989-1993 as base period and 1994-2002 as out-of-sample period.

Table 9: Fama-Macbeth Estimation Results for Base Periods

This table presents estimation results of logit regressions for base periods. Regressions are Fama and Macbeth (1973) style regressions. T-statistics are Newey-West t-statistics with values for all independent variables used in this study to examine the dividend policy of Turkish firms. The dependent variable is dividend payment, PAY, takes the value of one if a firm pays dividend that year, otherwise it is zero. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) and ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages). Model-I is for the whole-sample base period, the years between 1999 and 2004 and Model-II is for the sub-sample base period, the years between 2005-2009. *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

	Model-I		Model-II	
	Coef.	t-stat	Coef.	t-stat
Constant	0.58	0.92	-0.59	-0.68
E/A	7.20	11.40***	15.23	10.10***
dFA/FA	1.07	4.46***	0.40	2.15*
SIZE	0.45	2.14*	1.16	2.06
D/A	-3.62	-3.84**	-2.33	-4.22**
RE/BE	2.44	7.95	2.74	48.31***
ID	-54.43	-2.79**	-19.09	-1.03
SYS	-14.86	-1.35	53.94	1.53
LIQ	0.49	1.29	0.073	0.34
TOR	-0.22	-1.24	-0.43	-6.13***
INS	-	-	-1.40	-4.20**
FOR	-	-	-0.58	-1.25
R ²	37.5%		45.4%	
F	27.3***		229***	
Number of obs.	638		724	

Table 10 presents the actual percentage of dividend payers, expected percentage of payers and the error, which is propensity to pay dividends. Error is calculated as the difference between actual percentage of dividend payers and expected percentage of dividend payers. Since there are two samples, the table shows the forecasting errors for both samples. To calculate expected percentages, estimated coefficients of Model-I and Model-II in the base periods are used.

The main result from estimated propensity to pay table is that for the whole-sample positive forecast errors exist for all of the years in the forecast period. Sub-sample presents positive and negative errors for different years. A positive error means that the model estimates less firms to pay dividends than actual payment rate, and vice versa. The errors are smaller in average for sub-sample, which shows that sub-sample model estimates the payment rate better than the whole-sample model. The average error in the whole-sample is 0.07 and the average error in the sub-sample is 0.001. The standard deviations of the errors are similar in both of the

samples, which are nearly 0.03, which means that there is a steady change in propensity to pay of Turkish firms over the years. Finally, it is observed that actual dividend payment is less volatile than expected dividend payment, which is not consistent with Fama and French (2001: 25), which means firms' propensity to pay in Turkey is not changing so much in the sample period.

Table 10: Estimated Propensity to Pay Dividends for Forecast Periods

This table presents the propensity to pay dividends as proposed in Fama and French (2001). "Expected" is the percentage of dividend payers in year t , that is estimated by using base period's estimated coefficients of independent variables reported in Table 9. "Actual" is the actual percentage of dividend payers in year t . "Error" is the difference between "Actual" and "Expected"; "Actual – Expected".

Forecast Periods						
	Whole-sample (2005-2015)			Sub-sample (2010-2015)		
Year	Actual	Expected	Error	Actual	Expected	Error
2005	0.456	0.371	0.085	-	-	-
2006	0.468	0.382	0.085	-	-	-
2007	0.452	0.396	0.055	-	-	-
2008	0.344	0.250	0.094	-	-	-
2009	0.390	0.273	0.117	-	-	-
2010	0.427	0.312	0.115	0.427	0.374	0.053
2011	0.422	0.310	0.111	0.422	0.405	0.017
2012	0.431	0.404	0.026	0.431	0.412	0.018
2013	0.384	0.335	0.049	0.384	0.385	-0.001
2014	0.428	0.380	0.047	0.428	0.452	-0.023
2015	0.424	0.369	0.054	0.424	0.479	-0.055
Mean	0.420	0.344	0.076	0.419	0.418	0.001
Median	0.427	0.369	0.085	0.425	0.408	0.008
S.D.	0.035	0.051	0.029	0.017	0.040	0.034

4.3. CATERING INCENTIVES

This section analyses the effect of catering incentive on propensity to pay dividends, which is the unexplained part of dividend payment probability. Catering theory states that when investors' dividend demand change, market prices of dividend paying firms also change. The difference in firms' market value according to the choice of consumers for dividend payment is called dividend premium.

Dividend premium is proxied by market valuations of dividend payers and nonpayers, specifically market-to-book ratios are used. Ratios are book value weighted ratios across payers and nonpayers. The dividend premium, P_t^{D-ND} , is the difference between the log of the average market-to-book ratio of dividend payers and nonpayers;

$$P^{D-ND} = \ln \left(\sum_i w_{ti}^d \frac{V_{ti}^d}{A_{ti}^d} \right) - \ln \left(\sum_i w_{ti}^{nd} \frac{V_{ti}^{nd}}{A_{ti}^{nd}} \right) \quad (8)$$

Here, w_{ti}^d is the weight of the firm i among payers in year t , V_{ti}^d is the market value of firm i among payers in year t , A_{ti}^d is the book value of firm i among payers in year t , w_{ti}^{nd} is the weight of the firm i among nonpayers in year t , V_{ti}^{nd} is the market value of firm i among nonpayers in year t and finally A_{ti}^{nd} is the book value of firm i among nonpayers in year t .

Baker and Wurgler (2004a: 1158) state that investor sentiment is the main driving factor for dividend premium. If, for a certain year, investors are optimistic about growth opportunities, they prefer nonpayers and stock prices of nonpayers are affected positively. On the contrary, if investors are pessimistic about growth opportunities, they prefer payers as safe haven and this time stock prices of payers are affected positively.

The following model is for the formal confirmation of the relationship between dividend premium and propensity to pay for the whole-sample;

$$\Delta PTP_t = a + bP_{t-1}^{D-ND} + cCR_t + cMD_t + cTCC_t + e_t \quad (9)$$

Change in propensity to pay, ΔPTP_t , is regressed on the lagged dividend premium, P_{t-1}^{D-ND} , to analyze if firms cater to implied excess demand of investors for dividends. Three dummy variables are included into the Equation 9 for the whole-sample. Firstly, CR is included to control the effect of global financial crisis on Turkish economy, which is equal to one for the years 2008 and 2009 and zero otherwise. The years 2008 and 2009 are chosen as crisis years as Uygur (2010: 9), Rodrik (2012: 44, 45, 47), Kılınç et al. (2012: 21) and Cömert and Çolak (2014: 231) suggest. Secondly, MD stands for the abolition of mandatory dividend policy in 2009, which is equal to one for the years between 2009 and 2015, zero otherwise. Finally, TCC is included into the equation as a dummy variable to capture the potential impact of new Turkish Commercial Code issued in 2012, which is equal to one for the years between 2012 and 2015, zero otherwise.

For the sub-sample analysis, dummy variables are omitted from the equation because sub-sample's out-of-sample period for change in propensity to pay variable, ΔPTP_t , begins with the year 2011.

4.4. EMPIRICAL RESULTS

Table 11 presents the calculated dividend premium for the years between 2004 and 2014. Dividend premium, P_t^{D-ND} , is the difference between log of the average market-to-book ratio of dividend payers and nonpayers. Dividend premium is positive for all years in the sample, except for 2004 and 2010, which shows that investors value dividend paying firms more than nonpayers in most of the years.

Before the application of the regression to determine the linkage between propensity to pay and dividend premium, Figure 1 and Figure 2 visually show that relationship for the samples; the whole-sample and the sub-sample, respectively. As Figure 1 depicts, the whole-sample, there is a similar but not perfect pattern between lagged dividend premium and changes in propensity to pay dividends, which reveals a possible relationship between catering incentives and dividend payment probability. Figure 2 does not demonstrate anything obvious about the relationship.

Table 11: Dividend Premium

This table presents the dividend premium as in Baker and Wurgler (2004b). VWmbP is value-weighted market-to-book ratio of dividend payers and VWmbNP is the value-weighted market-to-book ratio of dividend nonpayers. DP is the log difference between VWmbP and VWmbN.

Year	VWmbP	VWmbNP	Dividend Premium
2004	0.998	1.006	-0.007
2005	1.177	0.994	0.169
2006	1.168	0.965	0.191
2007	1.434	1.036	0.325
2008	1.065	0.784	0.306
2009	1.331	1.002	0.284
2010	1.309	1.525	-0.153
2011	1.247	1.168	0.065
2012	1.400	1.291	0.082
2013	1.407	1.128	0.221
2014	1.524	1.220	0.222

Figure 1: Dividend Premium and Change in PTP, whole-sample

This figure depicts the relationship between the lagged dividend premium and changes in propensity to pay dividends for the whole-sample. Dividend premium is the log difference between value-weighted market-to-book ratio of dividend payers and nonpayers. Propensity to pay is the difference between actual and expected percentage of dividend payers. Solid line shows the lagged dividend premium with values on the left axis and dashed line presents changes in propensity to pay dividends with values on the right axis.

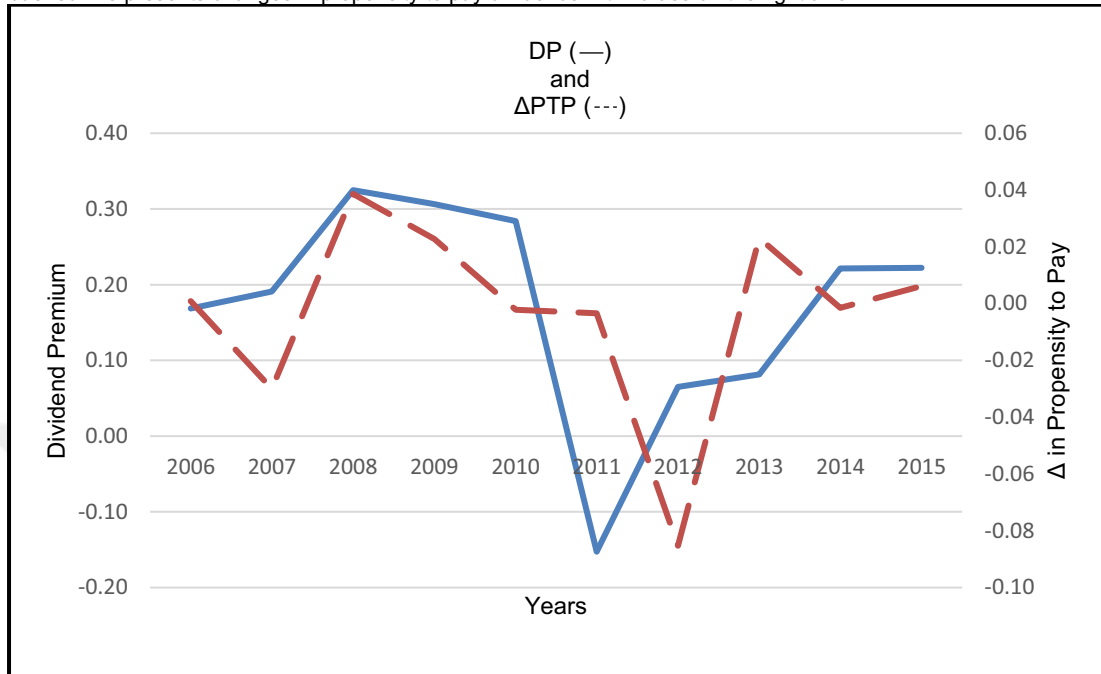
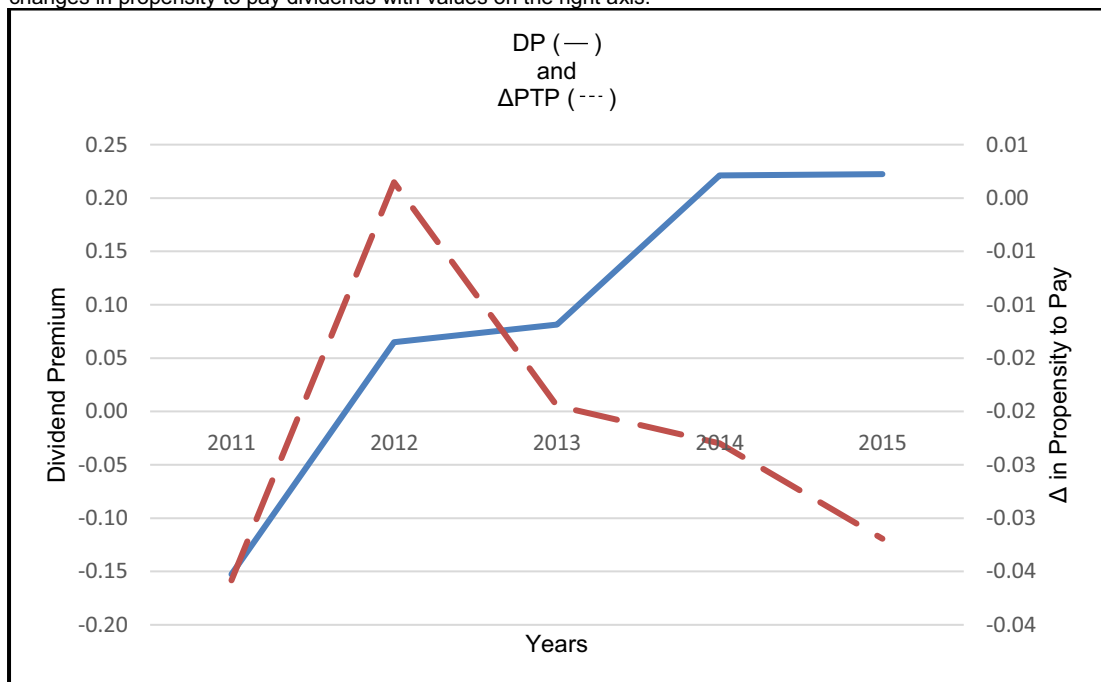


Figure 2: Dividend Premium and Change in PTP, sub-sample

This figure depicts the relationship between the lagged dividend premium and changes in propensity to pay dividends for the sub-sample. Dividend premium is the log difference between value-weighted market-to-book ratio of dividend payers and nonpayers. Propensity to pay is the difference between actual and expected percentage of dividend payers. Solid line shows the lagged dividend premium with values on the left axis and dashed line presents changes in propensity to pay dividends with values on the right axis.



Results of the regression analysis between change in propensity to pay dividends and dividend premium reveal a similar relationship. Table 12 reports the results of the regression Equation 9 only for the whole-sample because results of the analysis for the sub-sample show that F-test, overall significance of the model, is not statistically significant even at 10% level. For the whole sample, when not adjusted for autocorrelation, the coefficient of dividend premium is positive, but statistically insignificant. This result is not a valid result since Durbin-Watson (1950) d-statistic of the regression is 3.15 (highly above 2), which leads to conclude that residuals are serially correlated. Breusch-Godfrey LM test for autocorrelation and Durbin's alternative test for autocorrelation reveal similar results. These two tests have p-values smaller than 10% which means that disturbances are autocorrelated. Thus, in order to correct for autocorrelation, that is to find adjusted t-stats, Cochrane–Orcutt (1949) transformation is applied. After the correction for autocorrelation, Durbin-Watson (1950) d-statistic decreases to 2.70 and as shown in Table 12, coefficient of dividend premium is positive and becomes significant as well for the whole-sample. However, none of the dummy variables, which are crisis dummies, mandatory dummy and commercial code dummy, have significant relation with propensity to pay dividends. This result may be due to the small dataset used in the regression.

The evidence indicates that catering incentives have an impact on the unexplained part of dividend payment behavior of Turkish firms for the whole-sample. This result is consistent with Baker and Wurgler (2004b), Li and Lie (2006) and Ferris et al. (2006) where they find that catering incentives affect dividend payment behavior of firms in developed markets. Results also corroborate with studies of Wang et al. (2016) and Tangjitprom (2013) for two emerging markets, Taiwan and Thailand. Ferris et al. (2009) examine the effect of catering incentives on dividend policy for 23 countries. Their analyses reveal a significant difference between common law countries and civil law countries. In common law countries investors can enforce managers to pay dividends with the help of legislation. They value dividend-paying firms higher than non-paying firms to affect managers' dividend decisions indirectly. As a country transforming from a civil law county to a common law country in terms of investor protection, Turkey shows consistent results with Ferris et al. (2009).

Table 12: Estimation Results for Catering Effect

This table presents estimation results of time series regressions of catering effect in changes to propensity to pay between the years 2006-2015, the whole-sample. Since Cochrane-Orcutt transformation is used for correcting autocorrelation, number of observations is 9 instead of 10. The dependent variable is the change in propensity to pay dividends and the independent variables are lagged dividend premium, crisis dummies for the years 2008 and 2009, mandatory dividend dummy for the years between 2009-2015 and Turkish Commercial Code dummy for the years between 2012-2015. Dividend premium is calculated as the log difference between value-weighted market-to-book ratio of dividend payers and nonpayers and propensity to pay is calculated as the difference between actual and expected percentage of dividend payers. T-stats are autocorrelation adjusted. *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

	I	II	III	IV	V
	Coef. (t-stat)	Coef. (t-stat)	Coef. (t-stat)	Coef. (t-stat)	Coef. (t-stat)
Constant	- 0.03 (-3.81)***	-0.03 (-3.40)***	-0.03 (-3.30)**	-0.04 (-2.93)**	-0.03 (-2.72)**
DP	0.16 (4.03)***	0.15 (2.93)**	0.15 (2.99)**	0.17 (4.07)***	0.16 (3.49)**
CR ₂₀₀₈	-	0.01 (0.32)	-	-	-
CR ₂₀₀₉	-	-	0.01 (0.31)	-	-
MD	-	-	-	0.01 (0.91)	-
TCC	-	-	-	-	-0.01 (-0.01)
Adjusted-R ²	65.54%	60.00%	60.26%	65.67%	59.71%
F	16.21***	7.00**	7.07**	8.65**	6.93**
Durbin-Watson	2.70	2.58	2.78	3.18	2.69
Number of Obs.	9	9	9	9	9

CONCLUSION

The aim of this study is to contribute to the literature of dividend policy by providing empirical evidence from an emerging market, Turkey. Two empirical chapters, Chapter 3 and Chapter 4 examine the dividend policy of Turkish firms. Chapter 3 investigates the effects of firm specific characters on the dividend payment decisions and Chapter 4 investigates the validity of catering theory to explain the unexplained part of the changes in dividend payment decisions.

The empirical analyses in Chapter 3 investigates the determinants of dividend policy in Turkish firms. It aims to find an answer to the following question: "Why do Turkish firms pay dividends?". Although existing studies contribute to the determinants of dividend policy literature by documenting several firm specific characteristics and market level determinants that affect dividend policy of firms in developed markets and emerging markets, there is no consensus in the results.

The sample used in this study comprises 224 different firms listed in Borsa Istanbul between the years 1999 and 2015. In determining the factors that have possible impact on dividend payment decisions of Turkish firms, the theoretical literature is examined. As a result, testable hypotheses are formed regarding those factors. The study uses a comprehensive number of independent factors; profitability, investment opportunities, size, leverage, maturity, risk, liquidity, ownership structure and industry variables are used in the analyses. To examine the determinants of dividend policy, univariate and multivariate analysis are applied. Pearson correlation analysis and differences in means between dividend payers and nonpayers are the univariate analyses used in this study. Fama-Macbeth (1973) style cross-sectional logistic regression as multivariate analysis is utilized as in Fama and French (2001). For the sake of robustness, unbalanced panel logit regression is also applied.

The findings of Chapter 3 can be summarized as follows. Main factors in dividend policy literature affecting the decision to pay dividends or not, are also valid in Turkish firms. The results are consistent with signaling, agency and life-cycle theory of dividends. Consistent with agency cost theory of Jensen and Meckling (1976) and signaling theory of Lloyd et al. (1985), profitability, firm size and leverage have an impact on dividend policy of Turkish firms. As expected, profitability and size are associated with dividend payment probability positively and leverage is associated with dividend payment probability negatively.

Results indicate that Turkish firms' probability of dividend payment is affected by the life-cycle variable, which is a compatible result with life-cycle theory of De Angelo et al. (2006). Life-cycle theory asserts that immature firms, or in other words firms with high growth rates, need more external funding, inversely, mature firms do not need that much external funding. As a result, internally funded firms, that is mature firms, have higher probability to pay dividends. However, there is an exception in results of this study that is not compatible with life-cycle theory of dividends. Investment opportunities, proxied by the growth in fixed assets, do not influence the dividend payment probability of Turkish firms, which is not consistent with Fama and French (2001) and DeAngelo et al. (2006).

Risk is found to be a determinant affecting dividend payment policy of Turkish firms, but the direction of the effect is mixed in terms of risk type. There is a negative association between idiosyncratic risk and dividend payment probability, conversely there is a positive association between systematic risk and dividend payment. Hoberg and Prabhala (2008: 88) find that both idiosyncratic and systematic risk affect dividend payment negatively. The variables used in this study are the same with Hoberg and Prabhala (2008) but results are similar with them only in idiosyncratic part of the risk.

Empirical results state that liquidity is another firm specific variable that influences Turkish firms' dividend policy. Two variables are used as a proxy of firm liquidity; quick ratio for the liquidity of the firm and turnover ratio for the market liquidity of the firm. Both quick ratio and market liquidity measure, turnover ratio, affect dividend payment decision significantly. Similar with Ho (2003: 97) and Baker et al. (2006: 164) who find that availability of cash positively affects the dividend payment probability, results of this study reveal that liquidity has a positive impact on dividend policy. Findings in turnover ratio is consistent with Banerjee et al. (2007: 371) study, which presents that there is a negative relationship between market liquidity and dividend payments.

The findings of this study demonstrate that ownership structure affects dividend policy. Institutional ownership and foreign ownership affect dividend payment negatively. Shleifer and Vishny (1997: 478) claim that institutional and foreign owners, may lessen the agency problems through dividend policy. The evidence from Eckbo and Verma (1994: 44) and Grinstein and Michaely (2005: 1390) show that institutions choose to own shares of firms that pay high dividends. The evidence from analysis of this study do not comply with those studies. However,

results are similar with the study of Al-Najjar and Kilincarslan (2016), which also examines the impact of ownership on dividend policy of listed Turkish firms. Finally, it is shown that industry of a firm has no direct impact on the dividend payment decision of a firm. Panel logit regressions report evidence that is not consistent with Yilmaz (2003: 29) regarding the dividend policy of Turkish firms in terms of industry effect.

In the final empirical Chapter 4, the relationship between changes in propensity to pay dividends and catering incentives is investigated. Propensity to pay dividends is the unexplained part of dividend payment behaviour of firms. It is the difference between actual payment and the expected payment of dividends. Expected payment is estimated by the logistic regression using the determinants that have an influence on dividend payment probability. The results indicate that catering incentives have a positive relationship with the changes in propensity to pay dividends for the whole-sample. For the sub-sample no significant relationship is found. The result, for the whole-sample, is consistent with the catering theory of Baker and Wurgler (2004a). That is, when investors in Turkey demand dividend, firms cater them and distribute dividend, on the contrary, when there is no demand, firms prefer not to pay.

The findings of this study have implications for investors and for managers of the firms. Investors' main aim is to maximize the value of their wealth and managers' main aim is to maximize the value of the firm. Results provide information to investors while making decisions about their portfolios since they can make inferences about dividend payment preferences of managers by focusing on possible impacts of firm specific determinants. Findings from catering incentives' effect on dividend policy can be useful for managers, because catering theory claims that investors value the shares of the firms according to their dividend policy.

Results indicate that financial crisis do not have an impact on changes in propensity to pay dividends of Turkish firms. This finding can be helpful for investors with specific dividend preferences, as it is useful to know if firms change their dividend policy due to a crisis. It also contributes to academics' understanding of the effects of financial crises on dividend policy and can help legislators to make more informed decisions while trying to stabilize and reinvigorate the economy after a financial crisis. Furthermore, the abolition of mandatory dividend policy regulation in 2009 and the change in Turkish Commercial Code in 2012 are found to have no significant impact on propensity to pay dividends of Turkish firms. Regulators should

take these findings into consideration while enacting laws and regulations regarding dividend policy of Turkish firms in the future.

The literature is extensive on the determinants of dividend policy but yet there is no consensus on why firms pay dividends. This study contributes to the literature by extending the sample period for Turkish firms with a comprehensive set of factors that are underlined in the dividend policy literature. The sample period covers the years that consists dividend payment regulation changes in Turkey, Turkish financial crisis in 2001 and the global financial crisis in 2008. Moreover, as far as is known, this study is the first attempt in the literature to test the catering theory of dividends for Turkish firms. Despite the findings of this study, there are ways to develop the research on dividend policy of Turkish firms and contribute to the solution of dividend puzzle. Since this study uses cash dividends as dependent variable, further research may examine other dividend payment tools such as scrip dividend and share repurchase. Finally, in order to measure the stickiness of dividends, sample firms may be grouped as never paid, old payers and new payers in the analysis in future research.

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APPENDICES

APPENDIX 1: Panel Logit Regression Results

To test the impact of determinants on the probability of dividend payment decision of Turkish firms, Fama-Macbeth (1973) style logit-regressions are used in this study but for the sake of robustness, to confirm the results and check the similarity of results and finally to examine the industry-effect on dividend payment, panel logit regressions are applied. Table 13 presents the results of the panel logit regressions. Random effects panel logit regression coefficients and corresponding Z-values are shown in the table. The Hausmann test dictates random effects panel logit instead of pooled regression and fixed effects model for the sample data in this study.

The findings of the panel logit regression indicate comparable results with Fama-Macbeth (1973) regressions with slight differences. Profitability, size, investment opportunities, quick ratio and life-cycle affect dividend policy positively, whereas leverage, idiosyncratic risk, market liquidity, foreign and institutional ownership affect dividend policy negatively similar with the main analysis. The direction of the effect only changes in systematic risk and only for Model-I.

Furthermore, industry-effect is analysed by using panel logit regressions. By testing the joint significance of industry dummy variables, it is found that industry of a firm has no impact on dividend payment probability. The null hypothesis is that industry dummies are jointly equal to zero. Chi² values in Table 13 show that null hypothesis cannot be rejected even at 10% level and state that industry dummy variables are not jointly different than zero.

Table 13: Panel Logit Regression Results

This table presents estimation results of panel logit regressions. The dependent variable is dividend payment, PAY, takes the value of one if a firm pays dividend that year, otherwise it is zero. The independent variables are profitability (E/A, earnings-to-asset ratio), investment opportunities (dFA/FA, fixed asset growth), size (SIZE, percentage of equal or smaller firms in terms of market cap), leverage (D/A, debt-to-asset ratio), life-cycle (RE/BE, retained earnings-to-book value of equity ratio), risk (ID, idiosyncratic risk and SYS, systematic risk), liquidity (LIQ, quick ratio and TOR, trading volume divided by number of outstanding shares) ownership (INS, institutional ownership in percentages and FOR, foreign ownership in percentages) and industry (IND, industry of a firm as a dummy variable). Model-I is for the whole-sample, the years between 1999 and 2015 and Model-II is for the sub-sample, the years between 2005-2015. *** means significance at 1% level, ** means significance at 5% level and * means significance at 10% level.

	Model-I		Model-II	
	Coef.	Z-stat	Coef.	Z-stat
Constant	-0.71	-1.26	-0.51	-0.72
E/A	3.42	6.86***	3.66	5.92***
dFA/FA	0.32	2.17**	0.40	1.43
SIZE	3.56	6.32***	3.89	4.81***
D/A	-4.82	-7.99***	-5.52	-6.82***
RE/BE	2.43	10.62***	3.52	7.92***
ID	-42.51	-5.30***	-43.13	-3.34***
SYS	-12.58	-0.84	11.12	0.50
LIQ	0.33	2.86***	0.23	1.65
TOR	-0.03	-0.41	-0.07	0.459
INS	-	-	-0.78	-1.19
FOR	-	-	-0.29	-0.46
Wald Chi ²	260.46***		179.30***	
IND	Chi ² = 18.35		Chi ² = 16.35	
LR test	Chi ² = 18.63		Chi ² = 16.96	
# of Obs.	2438		1800	