The Effect of Board Structures on Dividend Payout Policy

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Abstract

There are two different options to reduce the agency cost for the companies; active monitoring the board structure which can be accomplished by the outsider directors, and dividend payout policy. Efficient monitoring and controlling board of directors might decrease the dividend payout ratio. Therefore, the two-tier board structure might have a different effect on dividend payout policy than the other form of board structures. In this study, the relationship between the board structure and dividend payout policy is investigated. For this purpose, a sample of 5821 listed financial and non-financial companies from 18 countries including the USA and Europe nations are grouped according to their board structure types; unitary and dual board structure and the data includes information related with CEOs, board structures and compositions, and financial indicators are collected for a period, from 1999 to 2016 and tested using panel data regression model. The major contribution of the study indicates that two-tier board structure has an adverse effect on dividend payout policy as expected. As the supervisory board performs to monitor and control the board of directors and CEOs, the need of distributing dividend payout disappears for those companies that have a supervisory board. Lastly, the powerful CEOs affect dividend payout policy in a direct way; more deeply, the longer the CEO tenure and the higher CEO ownership have a positive impact on dividend policy which is consistent with previous studies.

Keywords: dividend payout policy, board structures, ceo power, agency theory

Contents

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1. Introduction

Jensen and Meckling (1976) point the benefits of paying dividend payout policy. Accordingly, dividend payments could be seen as a tool to decrease the agency problems by reducing the moral hazard and adverse selection. Therefore, dividend policy provides beneficial outcomes for both investors and the company itself as it minimises the need and the cost of monitoring activities. Miller and Modigliani (1961) argue that the firms' value and shareholders' wealth do not show an increase or a decrease according to dividend policy in their seminal paper. Black (1976) supports the idea of that distributing dividends causes a reduction in capital gains. In return, the shareholders do not profit from the dividend payout as much as the capital gain provides. Further, Bhattacharya (1979) proposes a theory known as "birds-in-the-hand", implies how today's income is more valuable for investors rather than the income in the future as a result of being risk-averse. Thereby, dividend policy has the power to shape investors' decision on investment plan as offering a stable investment income.

Rozeff (1982) state that there are two ways to reduce agency cost occurs because of agency problem; efficient monitoring of board directors and dividend policy. The efficient tracking by non-executive directors on board directors reduces the need for dividend payments to diminish agency cost. On the same grounds, the structure and composition of the board have a direct effect on the decision of dividend payout policy. Board of directors is the part of a company which makes operational and strategical decisions, thus being extremely important for every company (Baysinger and Butler, 1985). When the interests of the board of directors and shareholders conflicts, in the literature, it is called as "agency problem" (Schellenger et al., 1989). In other words, the agency problem occurs if the board of directors does not aim to maximise shareholders benefits, than instead, are persuing they own goals.

In 2005, the Commission of the European Communities recommended listed companies in member states to foster a supervisory board who are responsible for the nomination of directors, the remuneration of directors, and audit. The presence of non-executive or supervisory directors in the companies restores confidence in the financial markets[1]. Nevertheless, various corporate governance systems can be observed as a result of various legal systems, corporate traditions, and cultures allowing the countries to establish their own corporate law systems.

[1] Recommendations of the European Commission of 15 February 2005 on the Role of Non-Executive or Supervisory Directors of Listed Companies and on the Committees of the (Supervisory) Board, Official Journal of the European Union L 52 (25 February 2005) 51.

One of the critical positions which are shaped according to the legal system is the board structure of the companies (Gerner-Beuerle et al. 2013). In Europe, the legal systems of the countries offer mainly three suggestions to the businesses related to board structure; one-tier, two-tier or leaving the choice to the company. As an example, in Germany, the two-tier board structure is an obligation for corporations while the firms must set up one-tier board structure in the UK. On the other hand, the businesses in France may choose one-tier or two-tier board structure. The main difference between one-tier and two-tier board structure is that one-tier board structure has only one board comprised by the executive and non-executive directors while two-tier board structure has an additional board named as supervisory board, beside board of directors. The primary duty of the supervisory board is to monitor and control the actions and the decisions of the board of directors.

Short et al. (2001) investigate the relationship between ownership structure of the firms and dividend policy, while Rozeff (1982) and Baker et al. (1985) analyse determinants of the dividend payout policy. Furthermore, La Porta et al. (2000) and Graff (2006) try to compare different dividend policies from different countries separated by origins of their legal system; common law and civil law. This points out how the relationship among corporate governance and dividend policy is a favourable topic in the literature. Despite the rich literature on dividend policy, the connection between board structures and dividend policy has never been analysed.

The main importance of having a supervisory board, as European Union Commission stated, is the assurance to the investors of overseeing the board of directors and dealing with situations involving conflicts and interests. As the two-tier board structure seems a vital organ by the Commission, the impacts of two-tier boards are also crucial for corporate finance. Notwithstanding the importance, the effects of board structure are hardly approved by the majority of commentators. Thus, the primary goal of the study is to analyse the relationship between the board structures and dividend payout ratio and to fill the gap in the literature.

As Jensen and Meckling (1976) state, the dividend policy might be seen as a tool to control and monitor board of directors and CEO actions. In the same vein, in two-tier board structure, the supervisory board also has the same duty. Hence, in two-tier structured companies, the aim of the dividend policy and the supervisory board intersect in the case of monitoring and controlling the board of director's actions and decision as well as the CEOs' actions and decisions. In this case, the dividend policy of the companies that have two-tier corporations might show differences from the companies that have an only board of directors. In this regard,

the companies are grouped according to their board structures as one-tier or two-tier, and the connection between board structure and dividend policy is tested. Moreover, the interaction term of CEO power proxies; CEO tenure and CEO ownership, and two-tier board structure is also analysed. For this purpose, 5821 financial and non-financial listed firms from 17 different European countries and the USA are chosen to be examined, and the study covers a period from 1999 to 2016.

There are four sections in this study. In the first chapter, a comprehensive theoretical background related to dividend theories and board structures is discussed. The most controversial dividend theories are explained, and also the studies are referred which either support or reject the hypotheses. The second section involves the methodology part which provides information related to models and variables used. This section also includes the information about data sample and data collection. The third chapter of the study provides the descriptive statistics associated with data and also the empirical results are interpreted considering the information presented in the theoretical background and the literature review. The final part demonstrates the conclusion of the study with the limitation of the research and suggestion for further studies.

Finally, the main contribution of the study suggests that the two-tier board structure has an adverse influence on dividend payout policy. Having a supervisory board in addition to the board of directors reduces the dividend payout ratio. The explanation of this relationship is that dividend policy is one way of controlling and monitoring board of directors' and CEOs' activities in the companies. However, as the firms with two-tier board structure have already a unique layer to controlling and monitoring, the dividend distribution is not required for them as much as the other companies which do not have a supervisory board. The estimates of the study are in line with the recommendation of the European Union Commission in 2005. The finding of a relationship between CEO power variables and dividend payout policy shows an estimation in line with the previous literature; there is a strong positive relationship between CEO power and dividend payout policy. In addition, dividend payout policy across industries are inconsistent with the study of Grullon et al. (2002). Accordingly, the negative correlation is found between dividend payout policy and the sectors in which the mature firms operate such as resource-based, traditional manufacturing, and financial industry.

2. Theoretical Background

2.1. Dividend Theories

Different dividend theories have been purposed by the researchers to explain the advantages and disadvantages of the dividend policy for firms and investors. It is hardly said that there is an agreement on the outcome of paying dividends for corporations or receiving dividends for investors. Black (1976) mentions this lack of consensus with saying that there is no a clear answer which explains preferring paying or receiving dividends for both corporations and investors.

Black (1976) claims dividend mechanism as a puzzle which it is hard to fit pieces together and refers some dividend policies in his seminal paper such as the Miller-Modigliani theorem which argues that the dividend policy has no impact on the value of firms, tax effect hypothesis which says that capital gains would be more profitable than receiving dividend for investors, or information signalling theory that means that dividend payout might pursue to give good impression to investors. In the literature, three different thoughts can be observed on the effect of dividend policy. First, the group is led by Miller and Modigliani (1958) believe that the stock prices are irrelevant to dividend policy. The second group argues that the dividend policy has the power to increase firms' value for the reasons such as decreasing agency problems (Easterbrook, 1984 and Jensen, 1986). The last group including Farrar and Selwyn (1967) and Watts (1973), suggests that dividends cause a decrease in firms' value for the reasons such as different tax rates or transaction costs.

In this chapter, theoretical background on dividend theories are presented. Moreover, the empirical studies which support or reject the related dividend theories are also included. The information in this chapter is supposed to provide help while interpreting the results of this study.

2.1.1. Dividend Irrelevance Theory

This theory was first introduced by Miller and Modigliani (1961). They concluded that in the environment under perfect market conditions which means in the absence of market imperfections[2], a firm value is independent of the dividend policy of the firm. Therefore, in the

[2] Allen and Michaely (2002) defines five different imperfection; taxes, information asymmetry, incomplete contracts, institutional constraints, and transaction cost.

markets where the equal and costless information is accessible for every investor (perfect capital markets), all investors act for their best as they always prefer more gain to less (rational behaviour), and the lack of uncertainty (perfect certainty), the share prices do not gain or lose value according to dividend payments of corporations; more likely the rates are affected by the level of investment and the level of return.

Together with these assumptions, to show the rate of return, they created following formula which demonstrates the rate of return in a specific period of t:

$$\frac{d_j(t) + p_j(t+1) - p_j(t)}{p_j(t)}$$

$$= \rho(t) \text{ independent of } j;$$

Where $d_j(t)$ implies the dividends payment per share for firm j during period t, $p_j(t)$ shows the price of a share in firm j at the start of period t. This formula can also be shown as following by solving for $p_j(t)$:

$$\frac{1}{1 + \rho(t)} [d_j(t) + p_j(t+1)]$$

$$= p_j(t)$$

This equation suggests that the price of per-share which can be found at the sum of dividends and the amount in the future must be equal to the rate of return for every share in the market. Thus, the costs of stocks always are in equilibrium. That means in this market; investor prefers to sell their over-priced (low-return) shares and to buy under-priced (high-return) shares. This process adjusts the prices of stocks by decreasing the low-return stocks and increasing the price of high-return shares until the rate of returns is in the balance as every investor wants to profit from this arbitrage opportunity.

They also apply this equation, which illustrates the value of each share, to measure the value of corporates:

$$V(t) = \frac{1}{1 + \rho(t)} [D(t) + n(t)p(t+1)]$$

Where $V(t)$ equals to total value of the firm at the start of t, $D(t)$ is the total dividends at the start of t, $n(t)$ is the number of shares of record at the start of t. Furthermore, this formula can be written as following:

$$V(t) = \frac{1}{1+\rho(t)}\,[D(t) + V(t+1) - m(t+1)p(t+1)]$$

Where $m(t+1)$ states that the number of new shares sold at the period of t. They suggest that the dividend policy, value of firm in future period, and value of the new shares sold at the period of t are the variables that have a power on current firm value. Miller and Modigliani (1961) concluded that as a firm pays more dividend payout in the period of t, the firm must increase its shares outstanding to meet capital needs in order to continue its investment plans. Hence, either increasing or decreasing the level of dividend payment do not affect the price. They defined this process with following formula:

$$m(t+1)p(t+1) = I(t) - [X(t) - D(t)]$$

Where $I(t)$ is the level of investment or physical asset, and $X(t)$ is the total net profit of the firm in given period of t. By substituting the equation, they reach the ultimate step:

$$V(t) = \frac{1}{1+\rho(t)}\,[X(t) - I(t) + V(t+1)]$$

According to this final equation, while the factors that affect the value of firm are the level of investment and total net profit in the future, the dividend payments do not have any effect on the amount.

In short, because a corporation has already set the levels of investment and debt which they are constant, the company repurchases the shares from shareholders if it is decided to increase dividend payment or the corporation issues shares if it is agreed that to decrease dividend payment. Finally, these actions are not related to firm value.

The theory was presented a half-century ago, and many empirical works have focused it. One of the initial steps is taken by Lintner (1956). Lintner (1956) argues that paying dividend payout associates more likely to managerial view rather than the performance of the company. The findings suggest that firms only prefer to alter dividend policy as long as the earnings level of the firm becomes stable and confident. Therefore, companies have a willing to distribute dividend payment stably or increasingly. This result shows that managers believe the signalling power of dividend payout policy. Black and Scholes (1974) constructed the 25 intermediate

portfolios that have at least five years history to investigate the effect of dividend yield on stock returns. They find that a change in dividend policy has a short-term and temporary impact on the stock prices. They conclude that the reason for the short and temporary effects might occur because of that the change in dividend policy might be seen as a hint for the future earnings. However, after this misprediction comes out, the effect which makes prices changed would disappear. Increasing or decreasing the dividend payment of a corporation does not have a long and permanent, in their terms; "definite", the effect on its stock prices.

More current study about the relationship between dividend policy and price of the stock is done by Bernstein (1996). He concludes that dividend yields might have the only minor level effect on the subsequent rate of returns. He also suggests that there are other factors which have an influence on the rate of return rather than dividend yields, that is why, the dividend yield is not a correct tool for the prediction about the future situation on the stock market. Conroy et al. (2000) studied the correlation between the simultaneous announcement by Japanese management of current dividends, current earnings, and forecasts of next year's dividends and changes in stock prices in Japan. The findings are not different from other studies mentioned. While dividend effect has no a significant impact on stock prices movement, management's forecast of subsequent dividend affects stock prices at the small amount but significantly and lastly aside from others, earning announcements is the most effective variables on the movement of stock prices. Apart from these, Hamza and Hassan (2017) find that while dividend payments do not affect the stock gains, not paying dividends influences the share price positively and significantly.

On the other hand, there are numerous studies which contradict with dividend irrelevance theory. Ball et al. (1979) conclude that there is a definite relationship between dividend policy and subsequent rates of return. Karpavicius (2014) shows that payout policy has a significant effect on firm value. It is claimed that a firm's value tends to increase as the business pays more stable dividends. Chenchehene and Mensah (2015) studied 25 UK firms from retail industry to find out how current and subsequent dividend payout policy can change the market value. The results show that it cannot be mentioned about a relation between current dividend payouts and market price, while following year's dividend payouts have a significant positive influence on market price. Furthermore, Faraz et al. (2017) investigate that the effect of dividend policy on the market price per share. The finding contains the fact that dividend policy has a significant positive impact on share prices.

DeAngelo and DeAngelo (2006) propose controversial findings under the theory. According to them, the dividend policy is not irrelevant, and investment policy is not one of the significant variables to determine the value in perfect markets. They conclude that the Miller and Modigliani's theory requires firms to pay %100 of free cash flow payout. This process does not allow retention for companies. It is claimed that in the case of the businesses have an opportunity to keep retention, even in perfect markets, dividend policy would not be irrelevant. Whereas Berlingeri (2006) has the same opinion with DeAngelo and DeAngelo (2006) regarding the weakness of dividend irrelevance theory, he refuses their conclusion because free cash flow retention cannot decrease the market value, in another case, risk-free arbitrage opportunity emerges. Moreover, Handley (2007) also disagrees with DeAngelo and DeAngelo (2006), arguing that a firm can reduce its payout below 100% of free cash flow by substituting a stock repurchase of equal magnitude for cash dividends, and still hold investment policy fixed as Miller and Modigliani's model requires.

2.1.2. Residual Dividend Policy

The main concept of residual dividend policy is that the cash flow should be distributed as dividends after seising the opportunity of high return investment. In theory, the managers might only invest if the investment return provides positive net present value and after investment, the remaining amount should be paid to the shareholders as dividends. The reason of that why firms should distribute the cash flow is that the cash may result in agency cost or some unprofitable investment decisions (Jensen, 1986).

In literature, the idea of residual dividend theory was first described by Preinreich (1932) and Sage (1937) without giving this phenomenon a name. Preinreich (1932, p. 284) claims that the ideal form of firm dividend policy for investors is that receiving dividend which is parallel with the earnings of the firm at regular payments and which cannot be reinvested, while Sage (1937, p. 245-246) assert that "`middle- of-the-roaders` [are] those managements that [follow a] policy that best avoids the extremes of `plowing back` and of `paying out` all earnings and adopt a `middle course` in combining the better elements of each" (Baker, 2009).

Easterbrook (1984) and Jensen (1986) are the supporters of residual dividend theory who argue that residual approach could be a solution for agency cost problem. Easterbrook (1984) points out that having a dividend policy which requires regular and frequent payments increases the funding needs of firms and this demand for external funds makes monitoring activities better in the markets. With the parallel with this idea, Jensen (1986) suggests that if the managers do

not receive the amount of return they expected from profitable investment, they intend to risk the shareholder's wealth in some project which has negative net present value or use it for consuming excessive perquisites. Jensen (1986) claims that this can be prevented by paying all extra cash flow as dividends.

One of the primary research about the topic was done by G.H. Partington (1985) which aim to find the possible relationships between dividend and investment policies. For the 93 Australian companies he investigated, dividend policies were set up without consideration of residual. Furthermore, the result does not present any relation between dividend policies and investment strategies. The finding also shows that for the firms the level of investment and dividend policy is already known, thereby managers try to manage to accomplish their targets. However, if the internal funds are not sufficient for the desired level for these needs, then the firm usually compensates this unbalance with external funding sources. In some rare situations, this type of funding cannot be adequate to close the gap; then the firm might deduct to amount of dividend and investment policy or prefer to distribute dividends while balancing the shortfall through adjusting investment plans. Moreover, Alli et al. (1993) found that there is a strong negative relationship between dividend policy and factors such as issuance cost, pecking order, investment, and financial looseness. Finally, Baker and Smith (2006) reach the result of that residual dividend policy provides a more stable financial position for the firms which become larger, faster growing, more profitable, and less highly leveraged thanks to this policy.

On the contrary, there are studies which result in the opposite conclusion with residual dividend theory. Elston (1996) find that fragile relationship between investment decision to liquidity constraints and dividend policy. Brav et al. (2005) concluded that according to managers there is no enormous difference between the importance of dividend of policy and investment choice, that means dividends are not a residual of investment decision.

Lease et al. (2000) provide significant examples of the contrast residual and managed dividend policy. The findings illustrate that residual dividend policy offers more volatile dividend payment while managed dividend policy seems to produce more predictable and regular payments. Therefore, controlled dividend policy can be seen less risky compared to residual dividend policy for the investors. However, the other side of the picture, residual dividend policy might offer a higher amount of total dividend payments comparing to managed dividend policy.

2.1.3. Tax Effect Hypothesis

Although Miller and Modigliani (1961) suggest that dividend policy cannot affect the investor's wealth or firm's value in the perfect financial market, in the real world the governments commonly impose taxes on both personal wealth and capital gains. Investors' decisions are shaped regarding the rate of these charges.

Farrar and Selwyn (1967) exemplify the different alternatives including dividend payment and share repurchases for the shareholders who are in the distinct after-tax income groups. According to them, if the personal tax rate is higher than the tax rate of capital gains, then the rational investors prefer to the concept of capital gains. This capital gains take the form of share purchases. On the contrary, if the personal tax rate is lower than the tax rate of capital gains, then the rational investors tend to choose dividends instead of capital gains. In other situation, when the taxes on personal wealth and capital gains are the equal, investors receive the same return from both forms. Feenberg (1981), Peterson et al. (1985), and Saadi and Chkir (2011) find the consistent results with this argument. However, Miller and Scholes (1978) describe that investors might ignore the after-tax income because they can recover the loss occurs from tax policies by investing or borrowing the funds in tax-deferred insurance annuities.

Apart from these, there are numerous studies which investigate the effect of tax policy changes to dividend policy. In literature, researchers use different tax policy reforms such as 1986 The Tax Reform Act (TRA) and 2003 The Jobs and Growth Tax Relief Reconciliation Act (JGTRRA). After TRA the taxes on personal wealth and capital gains were levelled to the same percentage (28%) which had been 50% for dividend payments and 20% for capital gains. Bolster and Janjigian (1991), Papaioannou and Savarese (1994), and Casey et al. (1999) do not reach any critical relationship between before and after TRA. Nonetheless, Means et al. (1992) find that TRA causes different tendency on firms' dividend policy as dividend yields demonstrate before act while the trend of yields starts to increase after the act. Moreover, JGTRRA agreement declined the personal tax rate to 15 percent which makes taxes on dividend and capital gains the similar. The findings pointed that there is an increase on dividend payments after the act (Chetty and Saez, 2005; Auerbach and Hassett, 2006; Brav et al. 2008; and Hanlon and Hoopes, 2013).

2.1.4. Clientele Effect

Clientele effect for dividend policy corresponds to the idea of every group -*clientele*- of investors has different types of preferences, expectations, objectives, or attitudes and the

investors prefer stocks of different firms which match with their needs. These differences might arise from many various attributes and characteristics such as; investor's age, family size, education, expenses, career, employment package and other features. These are important variables which dominate the personal anticipations such as high growth, capital preservation, income generation, or any other types of strategies. Therefore, different stocks which offer separate dividend policy attracts various investors. For example, when the age is considered as a variable which has an impact on the preference of the stocks; relatively older investors generally prefer dividend payments since the tax for them is levied at lower rates, while relatively younger investors generally prefer to reinvest dividends because they do not need dividend income in this period of their life (Brigham and Daves, 2007).

As every stock attracts a different kind of investors, when a category of stock or the characteristic of the corporation is changed, it is expected that whereas some of the investors quit the investment as selling the stock, some of them find this stock more attractive than that it was before. This phenomenon is described as substitution effect (Baker et al., 2006). Miller and Modigliani (1961) assert that this effect does not have a negative or positive result for the firms. According to them, there are no significant differences between the different type of investors; "one clientele would be entirely as good as another regarding valuation it would imply for the firm." Hence, if the firm loses one set of clienteles while gaining another set of them, this does not mean that latter or former dividend policy is more efficient.

Pettit (1977) investigates the portfolio position of individual accounts, and the findings point that there is a significant dividend clientele effect. The evidence shows that a 10-year increase in the age causes an increase in the dividend yield. Contrary, an increase in the differential tax rate causes a decrease in the dividend yield. These results support the Elton and Gruber (1970) conclusion which is that high tax payments make investors move to low dividend yields and low tax payments make investors move to high dividend yields. Graham and Kumar (2006) prove that the dividend yield has a positive relationship with age and a negative relation with the income. Becker et al. (2011) suggest that older investors prefer dividend-paying stocks. Therefore, the tendency of the firms set up in the environment where elderly population ratio is higher is to pay a higher level of dividends. Lastly, Munoz and Rodriguez (2017) test the effect of tax reduction on dividend yield. They find that the dividend yield is significantly more significant in the tax reduction period.

2.1.5. Information Signalling Theory

The one of most crucial assumption of Miller and Modigliani regarding perfect market condition is that free, equal, and available information for every person in the market. However, in the real world, this availability sounds utopic. Although, the regulators try to prevent information asymmetry occurs due to the insider flow of information, managers, directors, and even employees have superior knowledge about the current situation, more realistic expectations and plans for the future, and they are one step ahead for any other information is not revealed to the shareholders.

Miller and Modigliani also disagree with the idea of investors generally prefer dividend payments to capital gains as a result of that an increase in the dividend payout creates an increase in the stock value as well as a decrease in the dividend causes a reduction in the stock value. According to them, the effect of changes dividend policy to stock price is related to the expectation of prudential investors rather than the preferred distribution method of investors. In this sense, it is argued that, an increase in dividend payouts which is higher than investors' expectations means a good signal for shareholders that implying higher future earnings while dividend cuts or a small increase in dividend payouts which falls behind of investors' expectation means a bad signal for shareholders that implying lower future earnings. Miller and Modigliani claim that dividend announcements include vital information which signals to and leads the shareholders' expectations and predictions.

The information signalling theory was initially introduced by Ross (1977). The Ross one-period incentive-signalling model is geared toward changes in capital structure. By using debt, management signals an increased capacity to cover the debt service obligations through increased cash flow (Baker et al., 2009). Pettit (1972) is one of the early researchers who finds that announcements of changes dividend payment have a significant effect on the value of securities on both sides positively or negatively. However, one year later, Watts (1973) tests the idea of signalling information hypothesis. Although, he finds a positive relation between future earnings changes and current unexpected dividend changes which show a consistency with the information signalling theory, the test also gives the result of that the effect of unexpected dividend changes to average absolute size of the future earnings is trivial, because transaction cost can make the profit useless from that information for investors.

Moreover, Healy and Palepu (1988) find a positive relationship between initiate dividend payment and earning changes, whereas there is a negative correlation between omitting

dividend payments and earning changes. Dyl and Weigand (1988) suggest consistent results with Healy and Palepu (1988). Initiation of cash dividend makes firms less risky regarding firms' earnings and cash flows. Furthermore, the findings Benartzi et al. (1997) claim that increases in dividend payments cause a high rise in earnings for the previous and same year, but it does not affect the unexpected earnings. In the following year. On the other hand, decreasing dividend payments results with a decline in revenues for the previous and same year, but a significant increase happens in earning in the following year. Forti and Schiozer (2015) find that Brazilian banks used dividends to signal their financial position to the investor during the crisis period.

Apart from these supportive studies, there are also some researchers who find against evidence for information signalling. Tse (2005) suggests that there is no universal dividend signalling theory which works for the all firms. Khang and King (2006) point that there is a reverse correlation between dividends and returns to insider trades across firms. That means firms pay a relatively higher dividend when they have a lower level of information asymmetry than the firms have a higher degree of information asymmetry. Finally, Gunasekarage and Power (2006) claim that while share values move in the same direction with the dividend and earnings of companies; while companies increase (decrease) the dividends or earnings, the share returns also increase (decrease). However, the announcement of dividends or earnings does not have a long-term impact on share returns.

2.1.6. Agency Cost Theory

Agency problems occur when the benefits of shareholders and the managers conflict each other (Jensen, 1986). Managers, sometime, might not act to raise the shareholder's wealth but to gain profit himself as having more bonuses or incentives etc. Therefore, the personal interest of managers might prevent them to operate according to shareholders benefit maximisation. There are different methods to avoid to this kind of problems such as managerial compensation plans, direct intervention by shareholders, the threat of firing, and the threat of takeovers (Brigham and Daves, 2007).

As it is partly mentioned in Residual Dividend Policy, dividends can also be used as a tool to reduce the level of agency problem by limiting managerial access to cash for the negative present value investments. Managers might misuse and excess the residual cash in the firms; if they do not receive the amount of return they expect from the investments, they might try lousy investment opportunity to compensate undesirable return from previous investments which

increases the risk level of the firms and decreases the value of companies. Richardson (2006) argues that companies prefer to keep free cash flow for themselves instead of distributing it to shareholders. Hence, this non-distributed cash flow may cause over-investment problems in the future. His conclusion is parallel with the results of Easterbrook (1984), Jensen (1986), and Blanchard et al. (1994).

Lang and Litzenberger (1989) investigate the relationship between the share prices and overinvestment potential. They denote to Tobin's Q as a signal of the measurement of attitudes of firms. According to this, if the value of Q is bigger than one; this means the firms are value-maximising, while if the value of Q is less than one; this means the corporations are over-investors. The findings support the agency cost theory as well as cash flow signalling theory. The announcements of increasing dividend cause higher average return for the firms which have Q value less than one than the businesses which have Q value more than unity. As companies signal to decrease the level of agency cost, they attract more and more people's attention than the companies which have already had a low level of agency cost. However, Howe et al. (1992) and Yoon and Starks (1995) do not find any correlation between dividend policy changes and price reaction for firms which have low and high Q values.

2.1.7. Behavioural Finance in Dividend Policy

The theory tries to answer the reasons for why people want to receive dividend payouts. Depending on individual preferences, investors might prefer stocks which offer dividend payment rather than capital gains even though the presence of high-income taxes.

Long (1978) finds that investors choose to have cash dividends although the return on stock dividends is higher. According to Long, this result conflicts with the joint hypothesis, hence it must be either that an imperfection which ruins the information flow exists in the economy. Thus investors cannot reach available information or "investors are not indifferent to the form (cash and capital gains) of the after-tax returns on their investment portfolios" to the contrary what Black (1976) proposes. Shefrin and Statman (1984) suggest a theory to explain why investors prefer to receive cash dividends. This approach argues that investors might prefer to low after-tax return as paying a premium for cash dividends because of reasons such as self-control problems, segregation, and avoidance of regret.

Furthermore, Dong et al. (2005) find that shareholders' first preference is to receive dividends, but if cash dividend is not available, then they accept to receive stock dividends rather than not receiving the dividends. While these findings consistent with the theory of Long (1978), the

result does not strongly support the behavioural explanation of Shefrin and Statman (1984). On the other hand, Baker et al. (2007) and Breuer et al. (2014) reach the supportive result for a behavioural explanation of dividends.

2.1.8. Life Cycle Theory of Dividends

In the basis of the life cycle, there is an idea of that the longer the firms exist and have more experience, the firms become more stable regarding the financial position, and thereby these firms start to pay dividends more than they do in their early stages. The level of systemic risk the companies have is closely related to dividend policy. In this matter, Grullon et al. (2002) present an explanation named as the *maturity hypothesis*. In detail, this theory argues that the availability of positive net present value investment for the firms is ampler. Following this, the firms might easily experience high profit and growth, but also high capital expenditures and low free cash flows. However, as the firms become more mature, the rate of profits and growth start to decrease while the need for capital expenditures decrease and the amount of free cash flow increase. These results could happen because different situations and events, such as the number competitors increases, or the firms get specialised in a particular field as they become mature. With this hypothesis, Grullon at al. (2002) suggest that maturity is a sign of dividend changes; the older and experienced firms tend to pay dividends more likely rather than the firms with their early stages.

Moreover, DeAngelo et al. (2006) find a consistent result with the life-circle theory of dividends; the firms which pay dividends have a higher rate of earned equity relative to contribute capital while the firms do not pay dividends to show opposite result of this. Bulan et al. (2007) also suggest that the companies prefer to pay dividends, are relatively large, stable and mature, and so also the ratio of profits and cash balance are higher while the proportion of growth is lower for them. On the other hand, Ishikawa (2011) argue that the firms perform higher growth prefer to increase dividend payments higher than the companies are mature. The idea is that it is seen more valuable by the investors when the younger companies decide to increase dividends than the companies are mature.

2.1.9. The Catering Theory

This theory is proposed by Baker and Wurgler (2003), and it merely implies that the decision of whether paying dividends or not is shaped according to attitudes of investors. "*In the setting of dividends, catering implies that managers will tend to initiate dividends when investors put a relatively high stock price on dividend payers, and tend to omit dividends when investors*

prefer nonpayers (Baker and Wurgler, 2003, pp. 41)*"*. According to this definition, the catering and clientele theories seem similar, but there are some important points make them different. First, the sentiment of investors is one factor which has an impact on the demand for the dividend. Secondly, "*catering view focuses more on demand for shares that pay dividends, whereas the determinate supply response in a clientele equilibrium view is the overall level of dividends*(Baker and Wurgler, 2003, pp. 2)". Lastly, "*catering takes a less extreme view on how fast managers or arbitrageurs eliminate an emerging dividend premium or discount*" (Baker and Wurgler, 2003, pp. 2).

In detail, catering theory has three different components; for either psychological or institutional reason, some investors have an uninformed and perhaps time-varying demand for dividend-paying stocks; arbitrage fails to prevent this demand from driving apart the prices of payers and nonpayers; managers rationally *cater to investor demand*—they pay dividends when investors put higher prices on payers, and they do not pay when investors prefer nonpayers. (Baker and Wurgler, 2004)

The empirical result of Baker and Wurgler (2003, pp. 1161) suggests that;

> "*… investor sentiment appears to affect the demand for dividends. This is suggested in the connection between the closed-end fund discount and the dividend premium, and in instrumental variables estimates of the effect of the dividend premium on dividend payment."*

Moreover, Li and Lie (2006) extend the model of Baker and Wurgler (2004) and find that the dividend premium plays a significant role in dividends. Accordingly, the high dividend premium causes the firms raise dividends while low dividend premium results the companies decrease the dividends as they buy back the shares. These dividend increases and decreases occur in importance levels and the market reaction to these changes is more favourable. Further, managers should take these differences seriously while deciding dividend policy to gain benefit and not to fall behind. Ferris et al. (2009) support this as they find that the more dividend premium, the more the firms pay a dividend. Additionally, Kulchania (2013) suggest that "*the market reaction to dividend changes is more favourable when firms act in accordance with the catering hypothesis"*. Finally, Jiang et al. (2013) find that both dividend and buyback premiums correlate negatively with the choices of these two types of distributions.

2.2. Board Structures Models

Around the globe, the companies from different countries can choose different board structures which are shaped accordingly laws, corporate customs and traditions in the community, and other factors. Companies must consider these factors while structuring the boards. Commonly, there are two different board structures called as unitary (one-tier) and dual (two-tier) board structure[3].

2.2.1. Unitary Board Structure

In this structure, there is only one top layer which is composed of the directors who are both executive and non-executive (Mallin, 2013). These members elected by the shareholders, and also the shareholders have the power to take the directors out (Jungmann, 2006). While the executive directors are the employee of the company, non-executive directors do not have an active duty in the daily business in the company. In other words, non-executive directors only concern about the strategic issues which board of directors are related (Jungmann, 2006). Furthermore, the leader of the board could be any member of the board. Because of this, the chairman of the board and CEO might be different members of the board. In the case of that, the CEO holds the leader position of the board, this is called as CEO-duality (Maassen, 1999).

This system is accepted widely by Anglo-Saxons countries such as the UK, the USA, Canada and Commonwealth countries as well as some European continent countries including Belgium, Cyprus, Greece, Ireland, Malta, Spain, Sweden and the UK (Gerner-Beuerle et al. 2013). Furthermore, among some European countries which allow firms to choose between unitary and dual boards; Bulgaria, Denmark, Finland, France, Italy, Lithuania, Luxemburg and Portugal are also one-tier dominant countries.

2.2.2. Dual Board Structure

This model includes two different layers; a supervisory board as an upper layer in addition to an executive board. The primary duty of the supervisory board is to appoint people who take a position in management board and to monitor the activities of the management board, while executive board in dual board system has similar duties with the board of directors in the unitary system; management board concerns with the managerial, operational, strategical, and business issues. However, selection of the board members takes a different shape in this model. The shareholders select supervisory board members, and all members of this board are non-

[3] Some countries' regulations produce different board structure rather than one-tier or two-tier. In this study, the main point to distinguish companies as one-tier or two-tier is obtaining supervisory whether board or not. For details of these countries and board structure; see Appendix A.

executive, so they are from outside of the company who are shareholders, labours or government representatives, whereas supervisory board members appoint the executive board of directors members. In this model, there must be a full distinction between supervisory board and executive board members as the member of one of the board cannot be a member of other board.

The two-tier board system is used widely in the continental European country. The dual board structure is mandatory in some European countries; Austria, Czech Republic, Estonia, Germany, Latvia, Poland, and Slovakia. Apart from that in Croatia, Hungary, the Netherlands, Romania, and Slovenia, the dual board system is widely accepted by the firms (Gerner-Beuerle et al. 2013).

2.3. Summary

In this chapter, the theoretical information related to some of the dividend payout policy theories as well as board structures is presented. The first part of the section provides different dividend theories which explain the dividend policies of the firms and investors' preferences on it. There are numerous determinants which influence the dividend decision of both firms and investors. Theories and the information is given in this chapter is referred in the rest of this study such as creating the model for the study and, mainly, this section set light to explain the results of the study. The second part of the section addresses the board structures in Europe and the USA. The part assists the grouping the countries according to their legal system on corporate governance. This chapter is followed by the methodology and the data section which provides information on research question and hypotheses, model and variables which used in the model, the gap in the literature, and the data.

3. Methodology and Data

3.1. Introduction

As stated in the first chapter, there are different dividend theories which argue the various outcomes of dividend policies for the corporations and investors. That is because numerous variables have a vital role in dividend policy. Hence, companies must take into account those variables while deciding the dividend policy. In this section, in addition to information about the research question, hypotheses, and the data; the variables which determinate the dividend policy are defined, and empirical studies related to those are presented along with the model.

3.2. Research Question and Hypotheses

In this study, the main aim is to investigate the relationship between corporate board structures and dividend policy. For this purpose, the relationship between different board systems and dividend policy is tested.

The research question is as follows;

"Do a different type of board systems affect to decision on the policy of dividend?"

The research hypothesis which is answered in this study are as follows;

H_1: "The ratio of dividend payout shows differences regarding the management board structure."

$H_{A.1.}$: "Corporations pay a higher level of dividends if they have two-tier board structure."

Apart from these, the relationship between CEO power and different board types is investigated. Another research hypothesis is as follows;

H_2: "CEOs have a various level of power in different board structures."

$H_{A.2.}$: "Two-tier board structure provides CEOs more entrenchment opportunity."

3.3. The Research Methodology

The goal of the research is to analyse the effect of board structure on dividend policy. Thus, the data of 5821 companies from 18 countries are collected and the period is decided to be 18 years from 1999 to 2016.

As a result of that the data set consists of cross-sectional and time series components, it has been organised for panel data analysis. Gujarati (2004, pp. 636) define the panel data as follows; "*a panel data combines features of both time series and cross-section data. In panel data, the same cross-sectional unit (say a family or a firm or a state) is surveyed over time. In short, panel data have space as well as time dimensions*". Therefore, the most suitable model for this study is panel data regression model.

The dependent variable of the model is dividend payout ratio. CEO tenure and CEO ownership variables are chosen as the proxy of CEO power as well as some CEO demographics such as CEO age, gender, and qualification are employed as CEO characteristic control variables. Also, the firms' financial ratios such as profitability, leverage, growth, size, liquidity, performance are chosen as the firm's control variables. Besides, board characteristics are shown with the

variables such as board size, board independence, and CEO duality, together with board structures of the firms. The companies which are structured as one-tier are used as control variables, so two-tier board structured firms are placed to the model to check the relationship between dividend policy. Lastly, growth in GDP per capita is put in the model as a country control variable.

3.3.1. Dependent Variable

In this study, dividend payout policy of the companies is selected as a dependent variable. There are more than one ways to measure dividend policy of the firms in the literature. The method which is used most is named as ***dividend payout ratio,*** and it shows the proportion of earning which paid as dividend payout. This equation more likely focuses on to investigate the future trend of dividends rather than future trends of earnings. Furthermore, receiving the retention ratio helps the investor to estimate revenues in the future; while higher retention ratios (lower dividend payouts) means higher earning growths. Lastly, the dividend payout ratio might give the investor some clues about the maturity of the firms. The firms with early stages have higher growth rate and relatively lower dividend payout ratio during the time as companies get mature, the growth rate starts to decrease while dividend payout ratio tends to elevate (Damodaran, 2004).

Dividend payout ratio is widely used in the literature to measure dividend policy (Rozeff, 1982; Jensen et al., 1992; Moh'd et al., 1995; Farinha, 2003). In this study, dividend payout ratio was decided as a proxy to dividend policy. The dividend payout ratio equation is as following;

$$Dividend\ Payout\ Ratio = \frac{Dividends}{Net\ Income\ (Earnings, Equity)}$$

3.3.2. Explanatory Variables

3.3.2.1. CEO Power

Ceo Power is chosen as an independent variable to show the level of influence that CEOs have on taking decisions in the firms. In this study, CEO tenure and CEO ownership are considered as the measurement of CEO power.

CEO tenure is widely used in the literature as a proxy for the CEO power. CEO tenure shows that the time of the CEO in that position (Adams et al., 2005), hence CEO tenure is illustrated by year CEOs spend in the position. Hambrick and Fukutomi (1991) discuss that some attributes of CEOs change over their tenures such as CEOs' commitment to their own paradigm, task knowledge, information diversity, task interest and power. For example, they

become more close-minded as they stay as CEO or although the knowledge of CEO tends to increase during the time, the task knowledge decelerates as the tenure increase and the information sources become narrower and restricted by time (Hambrick and Fukutomi, 1991). Fisher and Dowling (1999) assert that CEO tenure level can be a useful tool to measure CEOs' knowledge of the policies and processes in the firm. Therefore, as long as the CEOs keep the position in the company, the CEO power also increase because they have more ability to influence decision-making process (Tien et al., 2014). Onali et al. (2016) also support the idea of that the longer the CEO holds the chair, the CEO becomes more authoritarian and makes his/her position stronger for the last words on decisions. Over and above CEOs with longer tenure might create a work environment where the decisions of CEO are unquestionable (Hambrick and Fukutomi, 1991) or a place where the CEO might easily manipulate the monitoring power of the board, shortly CEO might have more power than the board (Phan and Lee, 1998). This negativeness eventually causes an inverse relationship between CEO tenure and firm performance. In this sense, Onali et al. (2016) find a negative correlation between both CEO tenure and firm performance and CEO tenure and dividend payout ratio. On the other hand, there are a significant amount of studies which claims that a positive correlation between both CEO tenure and dividend policy and CEO tenure and firms' performance. Adams et al. (2005) point out that CEO tenure impacts the firms' performance positively. Hu and Kumar (2004) assert that CEOs stay in the position more extended period in the dividend payer firms comparing the non-payer firms. Caliskan and Doukas (2015) find a result with the same direction as those studies; long-tenured CEOs tend to distribute higher rate of dividend payouts. The explanation of the positive correlation between CEO tenure and dividend policy is that the longer CEO stay in the position, CEO become more risk-averse (Coles et al., 2006). Thereby, in this study, a positive relationship is expected between CEO tenure and dividend policy.

The other variables used to measure CEO power is CEO ownership. CEO ownership occurs when the CEO holds a proportion of outstanding shares of the firms. CEO ownership is denoted by a dummy variable which is valued as 1 when the CEO is the owner of the company and as 0 otherwise. CEO ownership is one of the crucial factors of CEO entrenchment, as the CEO has more shares of the firms, the power CEO obtains increase. Onali et al. (2016) argue that just like the advantages of the CEO tenure, CEO ownership ensures the position of the CEOs and increases their power to involve decision-making process. Bhagat et al. (2010) propose that the as the CEO obtain a more considerable amount of stock of the company, it becomes less likely to leave. CEO ownership decreases the possibility to be dismissed for CEOs (Onali

et al., 2016). Morck et al. (1988) find an inconsistent relationship between firms' values and managerial ownership. Accordingly, the value of the firms tends to increase while the ownership of the board increases to a point. The explanation of the positive correlation between firm value and board ownership is that the interests of shareholders and directors do not differ from each other. However, at some point, this increase starts to cause a decrease in the firms' value. Nevertheless, beyond that point, CEO ownership again increases the firms' value positively but more slowly. On the other hand, the occurrence of the CEO ownership plays a negative role in the agency problem, in this kind of companies do not need to distribute payout to reduce agency problem. Consequently, it is experienced that a decrease in the dividend payout ratios (Schooley and Barney, 1994). However, just like Morck et al. (1988), Schooley and Barney (1994) draw a line and argue that beyond that line CEO ownership starts to affect dividend yield positively. In the lights of these arguments, positive relationship between CEO ownership and dividend payout ratio is expected. Apart from that, Maury and Pajuste (2002), Wen and Jia (2010), Haye (2013) are the other researchers who conclude a negative correlation between dividend policy and CEO ownership. Lastly, similarly, with these studies, Onali et al. (2016) point out that CEO ownership affects the firms' performance negatively and, thus it causes a decrease in dividend payout ratios.

3.3.2.2. CEO Characteristics

Moreover, some CEO characteristics are employed in the regression model as control variables. These are CEO age, CEO gender, and CEO qualification. CEO age has the almost same perspective with CEO tenure. It is natural to expect the comparable results for the CEO age and CEO tenure. On the other hand, Jurkus et al. (2011) investigate the effect of female percentage in the board to agency cost. The outcome of the study suggests that the number females officer decreases the agency cost. Similarly, Khan and Vieito (2013) find that female CEOs are more risk-averse than the male CEOs. The firms where the CEO is female are less risky than the companies where the CEO is male. Finally, Pucheta-Martinez and Bel-Oms (2015) analyse the impact of directors' gender to dividend policy. The findings point out that the higher proportion of female directors relates the dividend policy positively, while a higher percentage of female institutional directors inversely affects dividend policy. However, the ratio of independent or executive female in the firms does not have a significant role in dividend payout ratios. The other CEO characteristics placed in the model is the CEO qualification. Bhagat et al. (2010) search the correlation between CEO education level and long-term performance of the firms. Although, the graduation diploma helps the CEO while the process

of hiring; it does not save the CEO from being replaced in the case of poor performing or it does not increase the long-term firm performance.

3.3.2.3. Board Characteristics

Four board characteristics are decided to be added the regression model, namely board size, board independence, CEO duality and board structure of the company. In the literature, there are limited studies which aim to find a relation between board size, board independence and dividend policy. Lipton and Lorsch (1992) and Jensen (1993) suggest optimal numbers of the board members. According to Lipton and Lorsch (1992), this number should be around eight, while Jensen (1993) remarks that a board with more than seven or eight members eventually loses its efficiency. Guest (2009) summarises the probable disadvantages that appear because of large boards; the cost of disorganisation, the dissonance of the board cohesiveness and free rider problems. In the literature, the favourite topic researchers who have involved are the board characteristics and firm performance rather than dividend policy. In this sense, Yermack (1996) prove the firms with smaller board size generate better financial outcomes. With the same direction, Onali et al. (2016) reveal that board size plays a negative role in the current and future performance of firms. Bhagat and Bolton (2013) examine the effect of board independence on operating performance of companies in two different periods, pre-2002 and post-2002. Although, the result shows that a critical negative relationship between board independence and performance in the former period, this effect turns opposite way during the latter period. Conversely, Riaz et al. (2016) find a significant positive relevance of board size and board independence on dividend payout decision. The last board control variable is decided as the board structure of the firms. In some countries, the only board of director is enough for the companies which named as one-tier board structure, while in some countries companies must create a supervisory board in addition to the board of director which called as two-tier board structure. However, it can also be seen that some countries' regulations leave the choice of having a supervisory board or not to companies. This study is the first in the literature with the aim of investigating the relationship between board type of the firms and dividend payout policy.

CEO duality or dual board leadership structure occurs when the CEO holds the position of chairman of the board of directors (Daily and Johnson, 1997). CEO duality is indicated as a dummy variable in this study; 1 donates the CEO also has chairman duty on the board, and 0 donates the absence of this situation. In the literature, many researchers believe that CEO duality brings some disadvantages together. As CEO leading the board of directors, it becomes

easier for CEO to dominates the board (Fistenberg and Malkiel, 1994). This allows CEOs to control board and even to manipulate the agenda of the board. Jensen (1993) asserts that CEO duality might cause ineffectiveness and harm the dependence of the board while it contributes the power of CEO. Moreover, because CEO duality might diminish the monitoring ability of the board of directors, this concept might play a negative role in firm performance (Jensen and Meckling, 1976). Therefore, CEO duality could create an agency problem in the firms. Related to this side of CEO duality, Rechner and Dalton (1991) reach the result of the businesses with CEO duality underperform the businesses which the chairman of the board is a different person than CEO. Moreover, Chen et al. (2005) find a negative relationship between CEO duality and performance. This result is approved by Bhagat and Bolton (2008) who conclude that non-duality positively relates to better operating performance. On the other hand, CEO duality might result in some positive effects in the firms. For example, the unity of the leadership may conclude a harmony around the companies, and the outcome of this synergy might increase the firms' performance (Harjoto and Jo, 2009). In this sense, Obradovich and Gill (2012) find a positive relationship between CEO duality and the performance of the firms, and so the dividend payout policy. However, and Hu and Kumar (2004) are the examples of the researchers who do not find any meaningful relationship between dividend payout decision and CEO duality.

3.3.2.4. Firms Specific Variables

The model includes different firm-specific variables which are profitability, leverage, size, growth, liquidity, Tobin's Q and market-to-book value. Partington (1985), Aivazian et al. (2003), and Brav et al. (2005) prove that profitability of the firm is one of the major factors on dividend as the profitability goes up, companies more likely pay more dividends. As Miller and Modigliani (1961) stress out that dividend announcement also plays a pivotal role in signalling shareholders and investor and having the power to manipulate their expectations and predictions. In this sense, for distributing dividends leads investors' thoughts on a positive way as a result of payout allocation means obtaining higher profitability ratios for companies. In this regard, the signalling theory of Bhattacharya (1979) points that higher profitability firms prefer to distribute dividends to assure their financial position. Apart from that, Easterbrook (1984) and Jensen (1986) explain that paying residual cash flows as dividend payout prevent firms from the bad investment decisions. Paying dividend could decrease the degree of agency problems in the companies. Corporations prefer distributing profit as dividends to minimise the possibility of investing in low net present value projects. Fama and French (2001) show

that the level of profitability of the companies has a direct impact on the dividend policy. Thus, in this study, a positive relationship is expected between profitability and dividend payout ratio.

The other independent firm-specific variable is the leverage ratio. The leverage ratio is measured as the total debt of firms at the end of year divided by the total capital of the companies in the same period. Jensen et al. (1992) point that there is a negative relationship between the level of leverage and dividend payouts just as that Aivazian et al. (2003) argue that higher debt ratios cause a higher level of financial constraints and this affects dividend policy negatively. De Angelo and De Angelo (1990) prove that this phenomenon, while the amount of debt firms' own increases, the ratio of they pay as dividend payout decreases. On the other hand, Myers and Bacon (2004) find a positive relationship between the debt ratio and dividend policy contrary to the literature. However, they explain the result with the idea of the companies with high reputation choose to pay dividends to keep their position for the investors. This finding supports the dividend signalling theory. Furthermore, Faccio et al. (2001) explain why debt structure is vital for dividend policy. His proposition is that debt structure has the same results on agency problems, in other words, "*debt and dividends are substitutes in controlling agency problems"* (Faccio et al., 2001); an increase in the leverage ratio causes a decrease in the agency problems. Thus, the corporations could see the leverage ratio as a barrier to prevent lousy investment choices, and so the necessity of distributing dividends to reduce agency problem disappears. In the lights of these facts, in this study, it is assumed that the relationship between these two variables occurs opposite direction.

In many works in the literature, the size of the firms is taken because of the impact of the dividend policy decision such as the study of Rozeff (1982). In this work, the size of the firms is calculated by the natural logarithm of total asset. Fama and French (2001) suggest that a positive relationship between the size of companies and the ratio of dividend payouts; the larger firms tend to pay higher dividend payouts. Later, this claim was supported by Denis and Osobov (2008). Besides, Ferris et al. (2006) find the same result which is the dividend payer companies are bigger than nonpayer companies. On the other hand, there are other studies which prove that insignificant or inverse relationship between firms' size and dividend policy. For example, Aivazian et al. (2003) reveal that only a little proof can be seen between size and dividend policy on the contrary of expectations. Beyond that Smith and Watts (1992) demonstrate that the relationship of size and dividend policy does not show any significance while Keim (1985) and Allen and Michaely (1995) find a negative correlation between these variables (Farinha, 2003).

The growth trend of the firms is another critical variable which influences dividend policy. The two different measurements are used for the growth variables of the firms; the growth in total asset and the growth in revenue. The increase in total asset implies that annual change in a total asset; the difference between the total asset of the current year and previous year divided by the total asset of the last year while the growth in revenue shows the same calculation for revenue. Through many studies such as Rozeff (1982), Lloyd et al. (1985), Fama and French (2001) and DeAngelo et al. (2006); it is proved that there is a negative correlation between firms' growth rate and dividend policy. This is because the companies perform higher growth pay lower rate of dividend as a result of diverse investment opportunities. Grullon et al. (2002) present a theory named as the *maturity hypothesis*. According to that, the companies in early stages obtain higher profit and growth rate, and those companies do not specialise in a particular area conversely mature firms. While the businesses are becoming grown, the rate of growth and profitability decreases but the amount of cash flow increases. Younger companies which achieve higher growth prefer channelling the surplus funds into new investment areas to find out the best field to invest rather than paying dividends when the mature firms which specialised in a particular field find paying dividend more attractive. In this work, a similar result is expected, a negative correlation between growth rate and dividend payout ratio.

The liquidity ratio of the firms is used as the last firm control variable in this study. In this study, the liquidity ratio is measured by the ratio of a current asset to current liabilities. Deniz Igan et al. (2006) point that liquidity level of the firms plays a supportive role in the dividend decision. However, Myers and Bacon (2004) suggest that expecting a negative relation between liquidity and dividend payout ratio is rational because distributing the cash as a dividend occurs as a decreasing effect on liquidity ratio of firms. In the same way, lowering the dividend payout ratio allows the companies to hold the retaining cash and strengthens liquidity while the need for outside financing also decreases (Myers and Bacon, 2004). In this study, a negative correlation is expected between current ratio and dividend payout ratio.

As the proxies of the performance of the firms, Tobin's Q and market-to-book value of the businesses are used in the model. Lang and Litzenberger (1988) point out that Tobin's Q ratio gives the information of average return from investment to the investors. In detail, the average yield is expected to be bigger for the firms which have Tobin's Q ratio less than 1 comparing the companies which have Tobin's Q ratio greater than 1. In this case, announcing dividend distributing for a company which has a Tobin's Q ratio greater than 1 signals to investors that the company tends to decrease overinvestment tendency. Naturally, however, other companies

which have Tobin's Q less than 1 continue to investment rather than deciding to distribute dividend as the returns of investments are relatively higher. In this spirit, a positive correlation between Tobin's Q and dividend payout policy is expected. Another performance indicator is the market-to-book value of the firms. The higher market-to-book value indicates the companies have the opportunity to invest in a project with positive net present value. Companies with higher market-to-book value prefer to benefit those high return investment opportunity rather than distributing the cash dividends (Onali, 2016). Thus, a negative relationship between market-to-book value and dividend payout policy is expected.

3.3.2.5. Country Control Variables

As a country-specific control variable, growth on the gross domestic product (GDP) per capita is added the model. In the literature, there are limited works which investigate the effect of GDP on dividend policy. The expected relationship occurs as the GDP of economy increases, the performance of the firms in the economy increase as well. Therefore, growth in the earnings of companies is expected. An increase in the earnings has a direct positive effect on the dividends payments. In short, a positive correlation between GDP and dividend payout policy is assumed to occur. On the other hand, Hauser (2013) and Williams and Miller (2013) investigate the reaction of dividend policy during recession periods. Hauser (2013) find that increase is experienced on dividend policy during the financial crisis, while Williams and Miller (2013) conclude that dividend payment stocks present a better performance than other stock during recession periods.

3.3.2.6. Other Control Variables

Two extreme crises which have influenced all over the financial sectors around the globe originates USA and Europe, and tragic terrorist attack to the World Trade Centre in New York on 11 September 2001 will be interpreted in the perspective of dividend payout policy of firms. Moreover, the effect of some financial regulations such as Sarbanes-Oxley Act (2002), Jobs and Growth Tax Relief Reconciliation Act (2003), Dodd-Frank Wall Street Reform and Consumer Protection Act (2010), and IFRS adaptation in the European Union (2005) are investigated in this study. The content of the Sarbanes-Oxley Act requires companies to have an audit committee which is composed of independent directors (Bertus et al., 2008). The main aim of the act is to increase monitoring activities and to make firms more disciplined. Moreover, JGTRRA aims to bring taxes on dividend and capital gains to the similar level by decreasing the personal tax rate to 15 percent (Brown et al., 2007). Additionally, Dodd-Frank Act is signed to protect investors, consumer and taxpayer by restricting to bailouts banks and

financial institutions using public funds. Furthermore, this act purposes to end corruptions in financial environment emerged from a mentality of "too big to fail" (Coffee, 2011). Lastly, by adopting IFRS, European Union try to standardise the countries' accounting systems. IFRS offer more precise and transparent accounting standards and so aims to decrease asymmetric information problems. In this point, both concepts; dividend payout policy and IFRS share the similar aim; fading the information asymmetry problem away (Harakeh, 2017).

In the lights of that information, the regression model employed in this study is as followed;

$$\boldsymbol{DPR_{it} = \alpha + \beta CEOP_{it} + \gamma CEOC_{it} + \psi BOARDC_{it} + \lambda FIRMS_{it} + \phi MACRO_{it} + \varepsilon_{it}}$$

Where;

CEOP = Vectors of CEO Power

CEOC = Vectors of CEO Characteristics

BOARDC = Vectors of Board Characteristics

FIRMS = Vectors of Firms Specific Variables

MACRO = Vectors of Growth on GDP per Capita

ε = Error terms of the regression model

CEOP denotes as CEO power. The variables which are used to measure the CEO power are CEO tenure and CEO ownership. *CEOC* shows the CEO characteristic which represents the variables of CEO age, CEO gender, and CEO qualification. Furthermore, board characteristics; board size, board independence, board structure and CEO duality are the compound of the *BOARDC* while *FIRMS* denotes the firms' specific variables in the model which are profitability, leverage, growth, and liquidity ratios in addition to firm's size, Tobin's Q and market-to-book value ratio of the firms. Finally, *MACRO* points the annual growth in GDP per capita of the countries.

3.4. The Gap in the Literature

Dividend policy is one of the most debatable topics in the finance literature; the researchers have been trying find out the determinants of the dividend policy as well as the importance of paying dividends for more than half a century. Nevertheless, every answer results in a new question and dividend policy keeps being a heated debate title.

This study covers a topic which has never been discussed, that a comparison of the companies based on their board structure. Although there are numerous works which compare the dividend policy on the base of countries, the coverages of the studies generally concentrate on the foundation of the law. For example, La Porta et al. (2000) compare the dividend decisions in the different countries separated by the source of their legal system; civil or common law countries, followed by Graff (2006) who submits an article which aims to find differences on shareholder protection for civil and common law countries. Later, Denis and Osobov (2008) make a comparison of dividend policies of companies from US, Canada, UK, Germany, France and Japan. Although this study has similar perspective with those works as aiming the comparison of companies from countries, the comparison tool makes it first in the field. The goal of the study is to fill this gap in the literature.

3.5. Data

The data which used for research model were taken from various databases. The data related to CEO information and board structure of the companies came from the BoardEx database. The data provide details about personal information about CEOs and board members, but also job-related information such as compensation of CEOs and a board member or the status of the CEOs and board members. On the other hand, the DataStream was employed to collect the data related to firm-specific variables for all firms from all countries. After receiving data from these databases, the ISIN of the companies was pointed as a primary tool to match the firms' data and CEO information. Finally, the data related to country-specific variable came from the DataBank database of the World Bank.

The companies from the USA and 17 different European countries are selected as a focus of this study. The states are divided into three sections according to accepted board structure; mandatory one-tier board structure; Belgium, Greece, Ireland, Spain, Sweden, the UK, and the USA, mandatory two-tier board structure; Austria, Czech Republic, Germany, and Poland, and the countries where there is no binding system allow companies to choose board structure; Denmark, Finland, France, Italy, Luxembourg, the Netherlands, and Portugal. Next the companies from these countries are grouped regarding board structure they have; one-tier board structure and two-tier board structure. In this context, in total, 5821 listed financial and non-financial companies were selected as a sample from those 18 countries and the period covers over 18 years from 1999 to 2016. As a consequence, the empirical research includes 104778 observations.

4. Result and Discussion

After methodology and data part is analysed in more detail, the subsequent part of the study gives insight in descriptive statistics, while also discussing the estimations of regression model and the robustness test.

4.1. Descriptive Statistics

The data was collected from firms set up and run in 18 different countries around the globe. The companies chosen for the analysis carry their operations on 44 different sectors. *Table 1* and *Table 2* provide information related to countries and industries.

Table 1

Distribution of the Sample by Countries

Country	Country Code	Board Structure	Number of the Firms	% of the Firms	% Market Capitalization
Austria	AT	Two-Tier	33	0.57	0.35
Belgium	BE	One-Tier	65	1.12	1.00
Czech Republic	CZ	Two-Tier	3	0.05	0.10
Denmark	DK	Choice	28	0.48	0.39
Finland	FI	Choice	19	0.33	0.80
France	FR	Choice	301	5.17	6.50
Germany	DE	Two-Tier	294	5.05	5.09
Greece	GR	One-Tier	22	0.38	0.35
Italy	IT	Choice	107	1.84	2.41
Luxembourg	LU	Choice	22	0.38	0.23
Netherlands	NL	Choice	96	1.65	2.34
Poland	PL	Two-Tier	16	0.27	0.42
Portugal	PT	One-Tier	25	0.43	0.26
Republic of Ireland	IE	One-Tier	67	1.15	0.37
Spain	ES	One-Tier	81	1.39	3.38
Sweden	SE	One-Tier	111	1.91	1.02
UK	GB	One-Tier	1330	22.85	9.91
USA	US	One-Tier	3201	54.99	65.07
Total			5821		

In the process of deciding the number of firms from countries, the market capitalisations of the listed companies in the countries are taken as guidance[4]. The USA is the origin of the majority of the companies in the sample by 55%. Furthermore, the USA is leading the one-tier board structure board countries with the UK. 5% of the total companies come from Germany, which means that the majority of the two-tier companies originate in Germany. Lastly, among the countries which allow the companies to choose their own board structure type, French enterprises compound the 5% of the total sample[5]. On the other hand, there are seven main sector titles which the firms are distributed according to their operation fields[6].

Table 2

Distribution of the Sample by Industries

Sector	Number of the Firms	% of the Firms
Resource Based	440	7.55
Traditional Manufacturing	676	11.61
Utilities	222	3.82
Construction and Transportation	376	6.46
Trade and Services	1403	24.11
Information and Communication	2012	34.56
Financial Activities	692	11.89
Total	5821	

Descriptive statistics of the variables which are employed in the model can be found in *Table 3*. According to result, the dividend payout ratio of the whole data set is 0.32% while it is 0.33% for the countries which accept one-tier board structure, 0.44% and 0.41% for the countries which recognise two-tier board structure, and allow the companies to choose one-tier or two-tier board structure, respectively[7]. With the parallel with this fact, the average dividend payout ratio the corporations have one-tier board structure pay is 0.31% whereas this figure for two-tier board structure companies is 0.43%.

[4] The World Bank Data was used to reach the market capitalization of listed domestic companies (% of GDP). The numbers represent the slice of the country in the total market capitalization of the countries in the sample from 1999 to 2016.

[5] The number of the firms from countries is decided as the market capitalization ratio of the countries between those countries. For market capitalization data, see Appendix C.

[6] For the lists of the sectors, see Appendix D.

[7] The graphs that show the countries' and board structures' average dividend payout ratio during the period are placed Appendix E.

On the other hand, comparing firms which have one-tier and two-tier board structure, it can be concluded that the average board size, CEO duality, profitability, leverage ratios, and size of the firms are slightly more prominent for two-tier companies while one-tier firms give bigger numbers in growth rate, current ratio, Tobin's Q, and Market-to-Book value than two-tier companies. In the sample, the growth of GDP per capita of the countries has the similar results, while it is 1.06 for countries where one-tier board structure is accepted, it is 1.04 for countries which companies set up two-tier board structure. On the other hand, there is a vast difference between these two board structures in respect of board independence. In the one-tier board, more than the half of the member are the non-executive directors, but this ratio decreases beyond 1 out of 3 in two-tier board structure companies. Notably, the number of female CEOs for both structure is deficient. In one-tier companies, only 25 of 1000 CEOs' gender is female whereas, in two-tier structure, the female CEOs' populations compound just 0.015 of the CEOs. Lastly, CEO tenure is almost the same in these different board structured firms while CEOs tend to have more shares of the company in one-tier companies rather than two-tier companies.

4.2. Results

The panel data regression methods are decided to perform on the model which consists two different methods; random effect and fixed effect methods. To find out a best suitable method for the model, Hausman test was performed[8]. According to result, random effect method is decided as more ideal for the model.

The result of the regression model in *Table 5* shows that there is a positively meaningful relationship between CEO power variables and dividend payout ratio. The impact of CEO power variables to dividend payout ratio does not alter the board structure dummy variables are added to the model. The findings are consistent with the fact that long-tenured CEOs become more risk-averse and thus rather than investing new and risky fields, distributing dividends seems preferable for them (Coles et al., 2006). Moreover, CEO ownership brings the benefits of CEOs and shareholder in the same direction. The personal interest of CEO does not differ from the interest of the company, rather than obtaining the elevated level of bonuses, the initial motivation of the CEO becomes to increase the value of the share he/she has. Consequently, the result supports the hypothesis which Morck et al. (1988) and Schooley and Barney (1994) argue that CEO ownership has a positive correlation on both firms' value and dividend payout policy. Dividend policy is one way to control and monitor the powerful CEO

[8] For the result of Hausman Test, see Appendix F.

Table 3
Descriptive Statistics of Variables, 1999-2016

Variable	Definition	Mean	S.D.	Min	Max
Dividend Payout Ratio	Paid dividends divided by net earnings	0.326	1.656	-1.005	40.8
CEO Power Variables					
CEO Tenure	The time (year) CEO holds the position	4.328	0.907	0.101	61.699
CEO Ownership	Dummy variable; 1 if the CEO is the shareholder of the firm, and 0 otherwise	0.229	0.420	0	1
CEO Characteristics					
CEO Age	Age of CEO	54.201	0.139	25	95
CEO Gender	Dummy variable; 1 if the CEO is female, and 0 otherwise	0.023	0.151	0	1
CEO Qualification	Dummy variable: 1 if the CEO has an upper award after bachelor's degree, and 0 otherwise	0.890	0.312	0	1
Board Characteristics					
Board Size	Number of board members	8.962	3.043	3	36
Board Independence	Independent members of the board to total board members	0.631	0.231	0	1
Board Structure	Dummy variable; 1 if one-tier board structure, and 0 if two-tier board structure	0.905	0.293	0	1
CEO Duality	Dummy variable; 1 if the CEO is the chairman of the board, and 0 otherwise	0.516	0.499	0	1
Firm-Specific Variables					
Profitability Ratio	Return on invested capital	3.473	25.368	-188	70
Leverage Ratio	Total debt to total capital	34.420	28.488	-20	176
Revenue Growth	Annual change on revenue	0.158	0.589	-0.9	4.902
Asset Growth	Annual change on total assets	0.160	0.540	-0.9	4.91
Asset Size	Natural logarithm of total assets	13.769	2.117	0	21.679
Liquidity Ratio	Current assets to current liabilities	2.528	2.480	0.001	25
Tobin's Q	Market value of equity plus face value of debt to book value of equity plus face value of debt	1.484	1.180	0.008	7.998
Market-to-Book Value	Market value of equity dividend by book value of equity	2.669	2.939	-5	15
Country Control Variables					
GDP Growth	Annual change on GDP per capita	1.060	1.935	-8.998	24.667
Other Variables					
Sarbanes-Oxley Act		0.037	0.190	0	1
JGTRRA		0.043	0.203	0	1
Dodd-Frank Act		0.063	0.244	0	1
IFRS adaptation in EU		0.051	0.219	0	1
US Crisis		0.183	0.386	0	1
Euro Crisis		0.199	0.399	0	1
9/11 Terrorist Attack		0.065	0.247	0	1

JGTRRA: Jobs and Growth Tax Relief Reconciliation Act

Table 4
Descriptive Statistics by Board Structure, 1999-2016

	One-Tier Board Structure				Two-Tier Board Structure			
Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Dividend Payout Ratio	0.315	1.655	-1.004	40.8	0.433	1.662	-1.004	40.8
CEO Power Variables								
CEO Tenure	4.341	0.905	0.101	61.700	4.197	0.938	0.101	45.799
CEO Ownership	0.242	0.428	0	1	0.101	0.3	0	1
CEO Characteristics								
CEO Age	54.381	0.138	25	95	52.438	0.145	29	83
CEO Gender	0.024	0.153	0	1	0.015	0.121	0	1
CEO Qualification	0.892	0.312	0	1	0.891	0.311	0	1
Board Characteristics								
Board Size	8.739	2.644	3	34	11.198	5.140	3	36
Board Independence	0.664	0.198	0	1	0.298	0.269	0	0.909
CEO Duality	0.501	0.501	0	1	0.67	0.47	0	1
Firm-Specific Variables								
Profitability Ratio	3.334	25.661	-188	70	4.487	22.183	-188	70
Leverage Ratio	34.311	28.821	-20	176	35.506	24.884	-20	176
Revenue Growth	0.162	0.595	-0.9	4.902	0.122	0.524	-0.9	4.902
Asset Growth	0.163	0.544	-0.9	4.909	0.126	0.496	-0.9	4.909
Asset Size	13.734	2.12	0	21.678	14.122	2.052	4.317	19.902
Liquidity Ratio	2.590	2.536	0.001	25	1.9	1.719	0.15	25
Tobin's Q	1.498	1.19	0.008	7.999	1.34	1.065	0.06	7.963
Market-to-Book Value	2.692	2.982	-5	15	2.43	2.463	-5	15
Country Control Variables								
GDP Growth	1.062	1.911	-8.997	24.666	1.042	2.16	-5.383	7.092
Other Variables								
Sarbanes-Oxley Act	0.039	0.194	0	1	0.024	0.154	0	1
JGTRRA	0.045	0.207	0	1	0.025	0.158	0	1
Dodd-Frank Act	0.062	0.242	0	1	0.074	0.261	0	1
IFRS adaptation in EU	0.052	0.222	0	1	0.039	0.194	0	1
US Crisis	0.182	0.386	0	1	0.189	0.391	0	1
Euro Crisis	0.196	0.397	0	1	0.230	0.422	0	1
9/11 Terrorist Attack	0.067	0.25	0	1	0.046	0.21	0	1

JGTRRA: Jobs and Growth Tax Relief Reconciliation Act

in the companies. The expectation of the correlation between CEO power and dividend payout policy is positive. The findings confirm the expectations. The test indicates that CEO age also has a positive impact on dividend policy like CEO tenure. However, when the board structures involve to model, this relation becomes insignificant but still positive just like CEO gender.

Furthermore, CEO qualification and CEO duality have a statistically significant negative coefficient. That means, having a higher degree of education for CEOs and the CEO who also hold the chairman title of the board impacts the dividend policy of the firms negatively.

The findings exhibit that a significant negative correlation between two-tier board structure types and dividend payout ratio of the firms. Accordingly, two-tier board structure has a negative impact on dividend decision of the firms, while the control group; the one-tier board structure affects dividend payout policy positively. After adding two-tier dummy variable to the model, it can be seen that the coefficients of the CEO power proxies keep positive and significant. The one of the outcome of the dividend distribution is to control the directors and the CEO in the company. However, as two-tier companies have a board called supervisory board for controlling and monitoring activities, the shareholders do not see the dividend payout as essential to controlling the directors and the CEO like in the other companies where there is no a layer to do that. Furthermore, *Table 6* shows the interaction term between CEO power proxies and two-tier board structure dummy variables. The result suggests that the interaction term is negative implying that two-tier boar structure reduces the dividend payout ratio. While there is a significant adverse impact of interaction term of CEO ownership and two-tier board structure on dividend payout ratio, the same direction can be seen the interaction term of another CEO power proxies which is CEO tenure and two-tier board structure, however, the significant level does not remain still. Based on the previous statement, it can be concluded that two-tier board structure allows CEOs less entrenchment opportunity. In other words, the dual board system eventually restricts CEOs ability and independence in taking decisions regarding dividend payout ratio. Consequently, this causes an adverse outcome for dividend payout ratio in the two-tier structured companies.

Apart from that, the average number of board size is 8.4 in one-tier structured companies while this amount is more than 11 in the companies with supervisory board. Lipton and Lorsch (1992) argue that optimum number the members of the board should not be more than nine. Parallelly, Jensen (1993) state that smaller boards benefit the companies more; board which has members more than seven or eight might quickly lose its efficiency. These figures might also play a role in this relationship.

Taking into account of firms' specific variables, the results are consistent with the expectations. A significant positive relationship between firms' profitability ratio and size while a strong

Table 5
Panel Data Regression Model, Random Effect Method, 1999-2016

Dependent Variable: Dividend Payout Ratio						
Variable	(1)	(2)	(3)	(4)	(5)	(6)
CEO Tenure	0.189***		0.213***	0.190**		0.213***
	(0.068)		(0.071)	(0.075)		(0.080)
CEO Ownership		1.591***	1.608***		1.523***	1.540***
		(0.044)	(0.049)		(0.094)	(0.100)
Two-Tier Board Structure				-6.462***	-6.212***	-6.207***
				(1.760)	(1.714)	(1.739)
CEO Age	0.205***	0.844***	0.293***	0.105	0.746**	0.197
	(0.033)	(0.213)	(0.050)	(0.113)	(0.318)	(0.142)
CEO Gender	-0.035	0.025*	0.031**	-0.043***	0.014	0.020
	(0.024)	(0.014)	(0.014)	(0.013)	(0.010)	(0.015)
CEO Qualification	-0.651***	-0.777***	-0.748***	-0.631***	-0.745***	-0.717***
	(0.189)	(0.217)	(0.210)	(0.211)	(0.241)	(0.232)
CEO Duality	-0.686***	-0.773***	-0.770***	-0.665***	-0.735***	-0.731***
	(0.080)	(0.105)	(0.098)	(0.122)	(0.146)	(0.139)
Board Size	-0.010	-0.035	-0.032	0.009	-0.011	-0.009
	(0.036)	(0.027)	(0.031)	(0.024)	(0.013)	(0.018)
Board Independence	-1.607	-1.865	-1.833	-2.242	-2.494	-2.461
	(1.890)	(2.019)	(2.043)	(1.645)	(1.736)	(1.759)
Tobin's Q	0.039**	0.040**	0.035*	0.036*	0.037	0.032
	(0.016)	(0.020)	(0.018)	(0.020)	(0.024)	(0.022)
Market-to-Book Value	-0.004	-0.004	-0.005	-0.003	-0.004	-0.004
	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Profitability Ratio	0.020***	0.022***	0.022***	0.021***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Leverage Ratio	-0.014***	-0.014***	-0.014***	-0.014***	-0.014***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Revenue Growth	-0.203***	-0.215***	-0.212***	-0.210***	-0.220***	-0.218***
	(0.054)	(0.057)	(0.056)	(0.052)	(0.055)	(0.054)
Asset Growth	-0.179***	-0.181***	-0.178***	-0.192***	-0.194***	-0.191***
	(0.066)	(0.068)	(0.068)	(0.061)	(0.063)	(0.063)
Firms' Size	0.408**	0.387**	0.374**	0.444***	0.428**	0.415**
	(0.179)	(0.188)	(0.184)	(0.161)	(0.169)	(0.165)
Liquidity Ratio	-0.087***	-0.091***	-0.091***	-0.094***	-0.097***	-0.097***
	(0.022)	(0.023)	(0.023)	(0.018)	(0.019)	(0.018)
GDP Growth	0.091***	0.090***	0.091***	0.088***	0.087***	0.088***
	(0.017)	(0.017)	(0.017)	(0.018)	(0.019)	(0.019)
Constant	1.454***	-0.395	1.604***	2.257***	0.268	2.258***
	(0.242)	(0.540)	(0.210)	(0.596)	(1.291)	(0.688)
Observations	51,746	51,746	51,746	51,746	51,746	51,746
Number of company	5,247	5,247	5,247	5,247	5,247	5,247

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6

Interaction with Board Type and Financial and Political Crises, 1999-2016

Dependent Variable: Dividend Payout Ratio Variables	(1)	(2)	(3)	(4)
CEO Tenure	0.251***	0.212***	0.252***	0.220***
	(0.057)	(0.080)	(0.056)	(0.080)
CEO Ownership	1.543***	1.603***	1.608***	1.559***
	(0.097)	(0.018)	(0.014)	(0.109)
Two-Tier Board Structure	-5.624***	-6.072***	-5.467***	-6.132***
	(1.410)	(1.746)	(1.418)	(1.678)
Two-Tier Board Structure*CEO Tenure	-0.442		-0.455	
	(0.279)		(0.277)	
Two-Tier Board Structure*CEO Ownership		-1.749***	-1.809***	
		(0.071)	(0.098)	
CEO Age	0.214	0.201	0.219*	0.205
	(0.133)	(0.134)	(0.123)	(0.142)
CEO Gender	0.030***	0.023*	0.034***	0.034
	(0.008)	(0.012)	(0.006)	(0.022)
CEO Qualification	-0.717***	-0.718***	-0.718***	-0.751***
	(0.232)	(0.232)	(0.231)	(0.244)
CEO Duality	-0.732***	-0.734***	-0.735***	-0.759***
	(0.138)	(0.137)	(0.137)	(0.137)
Board Size	-0.004	-0.008	-0.004	-0.016
	(0.016)	(0.018)	(0.016)	(0.015)
Board Independence	-2.519	-2.466	-2.526	-2.275
	(1.746)	(1.763)	(1.749)	(1.689)
Tobin's Q	0.032	0.032	0.032	0.025
	(0.022)	(0.021)	(0.021)	(0.021)
Market-to-Book Value	-0.004	-0.004	-0.004	-0.005
	(0.004)	(0.004)	(0.004)	(0.003)
Profitability Ratio	0.022***	0.022***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)
Leverage Ratio	-0.014***	-0.014***	-0.014***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)
Revenue Growth	-0.217***	-0.217***	-0.217***	-0.219***
	(0.054)	(0.054)	(0.054)	(0.053)
Asset Growth	-0.192***	-0.191***	-0.193***	-0.195***
	(0.062)	(0.063)	(0.062)	(0.061)
Firms' Size	0.414**	0.416**	0.415**	0.443***
	(0.166)	(0.163)	(0.164)	(0.159)
Liquidity Ratio	-0.097***	-0.097***	-0.097***	-0.099***
	(0.018)	(0.019)	(0.019)	(0.019)
GDP Growth	0.088***	0.088***	0.088***	0.037***
	(0.019)	(0.019)	(0.019)	(0.011)
Subprime Mortgage Crisis				-0.244**
				(0.110)
Eurozone Crisis				-0.257***
				(0.089)
9/11 Terrorist Attack				0.423***
				(0.011)
Observations	51,746	51,746	51,746	51,746
Number of company	5,247	5,247	5,247	5,247

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

negative relation between firms' leverage, growth and liquidity ratios and dividend payout policy can be seen. The coefficient of profitability, growth and size is consistent with what Fama and French (2001) found. Accordingly, the main reason for paying dividends for the firms with higher profitability is to signal their stable financial situation (Denis and Osobov, 2008). Additionally, Benito and Young (2001) state that the tendency of paying dividend seem indispensable for larger firms than the smaller firms with the aim of decreasing agency cost and give information about the financial position to the investors. The finding on the leverage ratio and dividend policy is consistent with what DeAngelo and DeAngelo (1990) find that the debt agreement of the companies pushes the managers to reduce dividend payout ratio. Faccio et al. (2001) explain this negative relationship as implying that dividend and debt act the same role on decreasing agency problem. On the other hand, a negative correlation between the growth rate of the firms and dividend payout rate is reached as expected. The result supports the maturity hypothesis of Grullon et al. (2002). This theory argues an opposite direction between growth rate and dividend policy because the growth rate of mature companies is slower than relatively younger companies which have a lower level of free cash flow and a higher level of return. Companies which have a lower level of free cash flow and a higher level of profit. That is why the younger companies with higher growth rate prefer to invest the surplus rather than distributing dividends. Finally, liquidity ratio affects dividend payout ratio negatively as a result of distrusting dividends decrease the amount of liquid asset in the companies (Myers and Bacon, 2004). All those five firm-specific variables do not change their significant level or the direction of correlation after adding the two-tier board structure to the model.

However, the result does not suggest any statistically meaningful relationship between market-to-book value and dividend policy whereas there is a little negative correlation between Tobin's Q ratio of the firms and dividend payout policy. Lang and Litzenberger (1989) suggest that the average return for the firms which have a Tobin's Q ratio lower than 1 is higher than the firms which have a Tobin's Q ratio more than 1. Therefore, the companies choose to continue their investment plan as long as they have lower Tobin's Q ratio while distributing dividend might benefit better for the companies with higher Tobin's Q as signalling hypothesis proposes. Nevertheless, the importance of the relationship between Tobin's Q disappears after adding board structures to the model. The coefficients value of these two variables match the expectations.

Moreover, it is mentioned that growth in GDP is a consequence of growth in the economy. Following this, the firms in a country which has an extension on GDP also show positive earnings. An increase in earnings results in an increase in dividend payout policy. The result is consistent with this idea and provides a positive relationship at 1% significance level between GDP growth and dividend payments. On the other hand, the result illustrates a negative impact of financial crises both subprime mortgage crisis and Eurozone crisis to dividend payout policy of the companies while companies increase the dividend payout ratio after 9/11 terrorist attack.

4.3. Robustness Test

Lu and White (2014) express the robustness test as a tool that allows the researchers to see the change in the "certain 'core' regression coefficient" after modifying the model as adding or removing variables. This section presents the robustness test which demonstrates the relationship between other variables which are considered as affecting dividend payout ratio but not included in regression model and dividend payout policy.

Table 7

Descriptive Statistics by Industries, 1999-2016

Industries	Mean	Std. Dev.	Freq.
Resource Based	0.614	2.812	3,073
Traditional Manufacturing	0.355	1.605	7,093
Utilities	0.443	0.863	2,355
Construction and Transportation	0.256	1.509	4,101
Trade and Services	0.411	2.039	12,573
Information and Communication	0.192	1.262	17,616
Financial Activities	0.361	1.353	6,922
Total	0.326	1.656	53,733

First, the sectoral difference on dividend payout policy is discussed. In the literature, although there is a consensus among researchers (Fama and French, 2001; Julio and Ikenberry, 2004). In this matter, Michel (1979) observes the impact of sector classification on the level of dividends, and the findings suggest that the dividend policy show differences according to a class of industry. In this study, the operation fields of companies are pooled under seven different industry titles; resource based, traditional manufacturing, utilities, construction and transportation, trade and services, information and communication, and financial sectors[9]. The

[9] For coverage of the industries, see Appendix D.

Table 8
Robustness Test, Industry Effect, 1999-2016

Dependent Variable: Dividend Payout Ratio							
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO Tenure	0.208***	0.212***	0.212***	0.213***	0.214***	0.212***	0.211***
	(0.079)	(0.080)	(0.080)	(0.079)	(0.080)	(0.078)	(0.079)
CEO Ownership	1.575***	1.542***	1.542***	1.540***	1.541***	1.540***	1.516***
	(0.104)	(0.099)	(0.101)	(0.095)	(0.100)	(0.100)	(0.083)
Two-Tier Board S.	-6.370***	-6.158***	-6.189***	-6.242***	-6.026***	-6.226***	-6.486***
	(1.864)	(1.755)	(1.717)	(1.751)	(1.689)	(1.795)	(1.934)
CEO Gender	-0.001	0.021	0.023	0.030	-0.019***	0.021	0.013
	(0.010)	(0.015)	(0.017)	(0.020)	(0.007)	(0.017)	(0.012)
CEO Qualification	-0.702***	-0.718***	-0.714***	-0.713***	-0.704***	-0.718***	-0.735***
	(0.224)	(0.231)	(0.231)	(0.229)	(0.232)	(0.236)	(0.242)
CEO Duality	-0.745***	-0.730***	-0.728***	-0.735***	-0.730***	-0.731***	-0.726***
	(0.140)	(0.140)	(0.138)	(0.138)	(0.142)	(0.136)	(0.132)
Board Size	-0.014	-0.008	-0.008	-0.010	-0.003	-0.008	-0.001
	(0.015)	(0.017)	(0.018)	(0.018)	(0.019)	(0.019)	(0.026)
B. Independence	-2.553	-2.465	-2.459	-2.443	-2.440	-2.465	-2.411
	(1.841)	(1.756)	(1.755)	(1.744)	(1.748)	(1.772)	(1.758)
Tobin's Q	0.030	0.032	0.030	0.036	0.028	0.030*	0.012
	(0.021)	(0.022)	(0.022)	(0.023)	(0.020)	(0.018)	(0.011)
Market to Book Value	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Profitability Ratio	0.022***	0.022***	0.022***	0.022***	0.021***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Leverage Ratio	-0.014***	-0.014***	-0.014***	-0.014***	-0.015***	-0.014***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Revenue Growth	-0.214***	-0.218***	-0.217***	-0.216***	-0.216***	-0.218***	-0.216***
	(0.052)	(0.053)	(0.054)	(0.053)	(0.053)	(0.054)	(0.053)
Asset Growth	-0.192***	-0.192***	-0.192***	-0.189***	-0.194***	-0.192***	-0.197***
	(0.063)	(0.062)	(0.063)	(0.061)	(0.062)	(0.065)	(0.067)
Firms' Size	0.414**	0.416**	0.420**	0.407**	0.415**	0.418**	0.431**
	(0.165)	(0.163)	(0.165)	(0.162)	(0.164)	(0.172)	(0.179)
Liquidity Ratio	-0.096***	-0.097***	-0.097***	-0.095***	-0.091***	-0.097***	-0.094***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.017)	(0.020)	(0.018)
GDP Growth	0.088***	0.088***	0.089***	0.088***	0.088***	0.089***	0.090***
	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Resource Based	-3.951***						
	(1.190)						
Traditional Manufacturing		-0.632**					
		(0.275)					
Utilities			-1.540***				
			(0.388)				
Financial Activities				-2.858**			
				(1.259)			
Trade and Services					2.768***		
					(0.474)		
Construction and Transportation						2.276	
						(1.447)	
Information and Communication							0.186
							(0.499)
Constant	2.495***	2.303***	2.242***	2.233***	1.417*	2.155**	2.342***
	(0.613)	(0.678)	(0.684)	(0.717)	(0.804)	(0.876)	(0.734)
Observations	51,746	51,746	51,746	51,746	51,746	51,746	51,746
Number of company	5,247	5,247	5,247	5,247	5,247	5,247	5,247

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9
Robustness Test, Regulation Effect, 1999-2016

Dependent Variable: Dividend Payout Ratio					
Variables	(1)	(2)	(3)	(4)	(5)
CEO Tenure	0.219***	0.215***	0.213***	0.213***	0.224***
	(0.080)	(0.0796)	(0.080)	(0.080)	(0.080)
CEO Ownership	1.540***	1.536***	1.542***	1.545***	1.543***
	(0.101)	(0.101)	(0.100)	(0.100)	(0.104)
Two-Tier Board Structure	-6.155***	-6.174***	-6.208***	-6.207***	-6.109***
	(1.703)	(1.718)	(1.740)	(1.739)	(1.680)
CEO Agee	0.235	0.256*	0.196	0.171	0.291**
	(0.144)	(0.154)	(0.141)	(0.136)	(0.147)
CEO Gender	0.043**	0.0442**	0.020	0.012	0.070***
	(0.018)	(0.0194)	(0.014)	(0.015)	(0.021)
CEO Qualification	-0.743***	-0.719***	-0.717***	-0.722***	-0.753***
	(0.240)	(0.235)	(0.233)	(0.234)	(0.246)
CEO Duality	-0.749***	-0.759***	-0.732***	-0.725***	-0.781***
	(0.141)	(0.145)	(0.138)	(0.137)	(0.147)
Board Size	-0.013	-0.0129	-0.009	-0.008	-0.019
	(0.015)	(0.0163)	(0.018)	(0.018)	(0.013)
Board Independence	-2.341	-2.405	-2.464	-2.456	-2.260
	(1.710)	(1.742)	(1.763)	(1.756)	(1.686)
Tobin's Q	0.035	0.0431*	0.032	0.031	0.047**
	(0.021)	(0.0237)	(0.022)	(0.022)	(0.024)
Market-to-Book Value	-0.003	-0.00613	-0.004	-0.004	-0.004
	(0.004)	(0.00394)	(0.004)	(0.004)	(0.004)
Profitability Ratio	0.022***	0.0220***	0.022***	0.022***	0.022***
	(0.003)	(0.00287)	(0.003)	(0.003)	(0.003)
Leverage Ratio	-0.014***	-0.0142***	-0.014***	-0.014***	-0.014***
	(0.002)	(0.00217)	(0.002)	(0.002)	(0.002)
Revenue Growth	-0.219***	-0.216***	-0.218***	-0.217***	-0.216***
	(0.052)	(0.0528)	(0.054)	(0.054)	(0.052)
Asset Growth	-0.191***	-0.190***	-0.191***	-0.190***	-0.190***
	(0.062)	(0.0622)	(0.062)	(0.063)	(0.061)
Firms' Size	0.434***	0.439***	0.414**	0.408**	0.461***
	(0.166)	(0.168)	(0.164)	(0.164)	(0.169)
Liquidity Ratio	-0.098***	-0.0975***	-0.097***	-0.097***	-0.100***
	(0.019)	(0.0185)	(0.018)	(0.018)	(0.019)
GDP Growth	0.093***	0.0896***	0.088***	0.093***	0.116***
	(0.021)	(0.0184)	(0.014)	(0.020)	(0.020)
Sarbanes-Oxley Act	0.614***				0.703***
	(0.079)				(0.090)
JGTRRA		0.611***			0.681***
		(0.0959)			(0.099)
Dodd-Frank ACT			-0.007		0.190***
			(0.094)		(0.054)
IFRS adaptation in the EU				-0.259***	-0.182***
				(0.029)	(0.023)
Constant	1.815**	1.687**	2.271***	2.446***	1.196
	(0.710)	(0.760)	(0.669)	(0.657)	(0.757)
Observations	51,746	51,746	51,746	51,746	51,746
Number of company	5,247	5,247	5,247	5,247	5,247

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
JGTRRA: Jobs and Growth Tax Relief Reconciliation Act

summary of dividend payout ratio for the base of industries shows that while the industry in which have been paid highest dividend payout ratio with 0.60 is the resource-based that involve companies operates on the natural sources such as mining or forestry. On the other hand, the companies which can be defined as high-tech have the lowest dividend payout ratio with 0.18. After adding the industrial effect to the regression model, it is experienced that while there is a statistically significant positive relation between companies operate in trade and services industry and dividend payout ratio.

Conversely, the outcome of the regression model suggests a negative correlation between companies operate in resource-based, utilities and finance industries, and dividend payout ratio. The companies set their business in traditional manufacturing also have a negative relationship, but this is not as big as the other companies mentioned the previous sentence, it is at 5% importance level. The companies that operate in those fields are relatively mature than the companies operating other fields such as high-tech firms. The observation demonstrates that mature firms have a lower level of dividend payout ratios than the younger firms. The findings on other fields support this argument, construction and transportation and information and communication in which generally new firms operate. Consequently, the result is inconsistent with the theory of Grullon et al. (2002)

In the robustness test, the effect of regulations on dividend policy is investigated. Apart from these variables related to CEOs, firms, and countries, some globally momentous events are added to dividend model. The model presents a positive relation between Sarbanes-Oxley, JGTRRA, and Dood-Frank Acts and dividend payout policy. Considering prior empirical studies related to these acts, the correlation of JGTRRA is consistent with what Auerbach and Hassett (2006) and Brav et al. (2008) find. Cohen et al. (2008) document that Sarbanes-Oxley Act causes a reduction in the risk-taking tendency of the directors and directors become more risk-averse. From this point, a positive relation between Sarbanes-Oxley and dividend payout ratio seems logical. Lastly, a negative correlation between IFRS adaptation in the European Union and dividend policy appears.

5. Conclusion

5.1. Summary and Conclusion

In this paper, the impact of different board structures on dividend payout policy in financial and non-financial listed companies from 18 countries is investigated. The dataset covers the information on CEOs, board compositions, firms' financial positions, for the companies from

1999 to 2016. First, the countries are divided according to their legal corporate governance system; one-tier, two-tier, and choice. The companies in the choice countries are separated regarding their board structure as one-tier or two-tier. Next, this data is merged with the one from BoardEx and DataStream, while estimation is done afterwards.

The previous academic literature has enormous gap since their primary focus was on the influence of the countries' legal origin and the level of shareholder' protection on dividend policy, while they constantly ignored one important aspect; how board structure affect dividend payout policy. Realising the significance of the correlation among previously mentioned variables, this study provides the first empirical evidence regarding the relationship between board structure and dividend payout ratios

In this study, the findings related to CEO power are consistent with the prior studies. Dividend payout ratios correlate positively with the CEO power because dividend payouts decrease the need for monitoring activity on the companies. As the level of CEO tenure and CEO ownership inflate, the dividend payout ratios tend to elevate. In addition, CEO qualification plays a negative role in dividend payout ratios while other CEO characteristics such as age or gender do not have a statistically significant impact on the dividend policy. Together with this, the aftermath indicates the same result with the literature; as the firms' profitability and size affect dividend policy positively, the other firms' specific variables influence dividend payout ratios on opposite way.

The most important contribution of the thesis reveals how the two-tier board structure makes dividend payout policy lower than the control group consisted of companies that have one-tier board structure. Moreover, the interaction of CEO power proxies and two-tier board structure leads to a significant negative coefficient for CEO ownership and a negative but not significant coefficient for CEO tenure. Consequently, supervisory boards have a negative impact on dividend payout policy of companies.

Jensen and Meckling (1976), Rozeff (1982), Easterbrook (1984), and Jensen (1986) argue that distributing a cash dividend has a negative impact on agency cost. This relation occurs due to higher dividend payout ratio that causes a reduction in the residual funds directors could exploit. However, as Rozeff (1982) advises, if the outsider director monitors and controls the board of directors efficiently, the need of the distributing cash dividend disappears. Findings of this paper are linear with the argument mentioned beforehand.

The link between industries and dividend policy is also documented. The industries in which mature firms operate; resource-based, traditional manufacturing, or finance, have a reducing effect on the dividend policy contrary to the argument of Grullon et al. (2002). In the industries where relatively new firms operate (i. e., high-tech sector), the relationship is positive but insignificant.

5.2. Limitations and Suggestions

One of the caveats of this study is the fact how only listed companies are addressed due to the difficulty of reaching data of non-listed companies. Similarly, companies from the countries which have relatively smaller financial markets are not included due to the data limitation. Further analysis of this topic could consist of non-listed companies and data panel with the longer time frame. This would be beneficial for additional expansion of this topic.

Moreover, this work uses only two proxies of CEO power; CEO tenure and CEO ownership. Taking into account of other CEO power proxies such as; CEO unforced turnover or CEO's pay slice which are not included because of the unreachable data, the CEO power might be investigated more deeply.

Following the fact how this is quite unexplored theme of research, gives the academics a fruitful area for further consideration. While in the US and Europe the one-tier and two-tier board structures are common, it can be seen another type of board structure in other countries. In Japan, the model called *keiretsu* allows a large board of directors and this board is the top layer of the hierarchy pyramid. In this model, despite an increase in the proportion, the outsider directors are not a usual mechanism for Japanese firms. The main distinction of the model of Japanese corporate governance is stakeholder oriented rather than shareholder (Tricker, 2012). Moreover, in this paper, some of the countries have different board structures rather than unitary and dual board structure, such as Denmark. Finland, Sweden, France, and Italy[10]. Therefore, defining different board structures in addition to unitary and dual board structure in further studies might enhance the frame of the interpretations. In the same vein, one recommendation could be to investigate the connection among board structures and other financial indicators of the companies.

Finally, this paper could help companies in better understanding on the importance of having a supervisory board as an additional monitoring and controlling mechanism as European Union

[10] See Appendix A.

Commission recommended in 2005. By doing this, the companies might increase the trust and assurance in the financial markets participants. The last important consideration is the pressure on dividend policy regarding being a monitoring and controlling tool on board of directors and CEOs might disappear.

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Appendices

Appendix A

In this study, the board structures of the companies are defined as one-tier or two-tier. However, the regulations allow companies to choose a board structure rather than one-tier and two-tier or they might produce a different kind of board structure. The following information is gathered from the inclusive study of Gerner-Beuerle et al. (2013, pp.4-7), for more, please see report mentioned.

Belgium: Corporates could choose a board structure which is a one-tier board or mixed structure. Under the mixed structure, the power of the board of directors can be channelled to a "director committee". Therefore, corporations from Belgium are put in the one-tier board structure category.

Denmark: Corporates could choose "Nordic model" or two-tier board structure. See below for an explanation of "Nordic model". The country is defined as a choice country.

Finland: Corporates could choose "Nordic model" or two-tier board structure. See below for an explanation of "Nordic model". The country is defined as a choice country

France: Companies in France have two options for deciding board structure; one-tier or two-tier. However, the companies have one-tier board structure might choose between the PDG - président-director general- model which combines the offices of the CEO and the chairman of the board. The country is defined as a choice country.

Italy: Italian companies might adopt three different board structures; one-tier, two-tier, and traditional model. Gerner-Beuerle et al. (2013, pp. 5) define a traditional model as a special form of a one-tier board structure. The country is defined as a choice country.

Portugal: Portuguese corporate law system offers different board structures to companies; one-tier, and two-tier besides a structure with a board of directors and an audit board. The country is defined as a choice country.

Sweden: Corporates could choose "Nordic model" or two-tier board structure. See below for an explanation of "Nordic model". The country is defined as a choice country.

Nordic Model: Gerner-Beuerle et al. (2013, pp. 7) describe the "Nordic model" as being closer to a "one-tier structure". The main difference is that Nordic model has an executive team which is elected by the shareholder-elected board. Although, Gerner-Beuerle et al. (2013) point that

Nordic model is likely the combination of one-tier and two-tier board structure; named hybrid form, the Nordic model still seems closer to the “monistic” model for them.

Appendix B

Variable	Source	Description	Expectation
Dividend Payout Ratio	Datastream and autor's calculation	Proportion of earning which paid as dividend payout. Dividend/Net Earnings.	
CEO Power Variables			
CEO Tenure	BoardEx	The period the CEO spends in the position.	+
CEO Ownership	BoardEx	Binary variable – 1 if the CEO has the shares of the company; 0 otherwise.	+
CEO Characteristics			
CEO Age	BoardEx	The age of CEO.	+
CEO Gender	BoardEx	Binary variable – 1 if the CEO is female; 0 otherwise.	+/-
CEO Qualification	BoardEx	Binary variable – 1 if the CEO has a higher degree from bachelor's; 0 otherwise.	+/-
Board Characteristics			
Board Size	BoardEx	The numbers of the members of the board of directors.	-
Board Independence	BoardEx	The proportion of the outsider director to the members of the board of directors.	-
Board Structure	BoardEx	Binary variable – 1 if the company has two-tier board structure; 0 otherwise.	-
CEO Duality	BoardEx	Binary variable – 1 if the CEO is the chairperson of the board of directors; 0 otherwise.	+
Firm-Specific Variables			
Profitability Ratio	DataStream	The annual return of invested of capital ratio.	+
Leverage Ratio	DataStream	The ratio of the total debts to total capital.	-
Revenue Growth	DataStream and autor's calculation	The proportion of the annual change on the revenue.	-
Asset Growth	DataStream and autor's calculation	The proportion of the annual change on the total assets.	-
Asset Size	DataStream	Natural logarithm of annual total assets	+
Liquidity Ratio	DataStream	The ratio of the current assets to current liablities.	-
Tobin's Q	DataStream	Market value of equity plus face value of debt to book value of equity plus face value of debt	+/-
Market-to-Book Value	DataStream	Market value of equity dividend by book value of equity	+/-
Country Control Variables			
GDP Growth	World Bank Data	The proportion of the annual change on the GDP per capita of the countries.	+
Other Variables			
Sarbanes-Oxley Act		Binary variable – 1 when the year of 2002; 0 otherwise.	+/-
JGTRRA		Binary variable – 1 when the year of 2003; 0 otherwise.	+/-
Dodd-Frank Act		Binary variable – 1 when the year of 2010; 0 otherwise.	+/-
IFRS adaptation in EU		Binary variable – 1 when the year of 2005; 0 otherwise.	+/-
US Crisis		Binary variable – 1 when the years of 2007, 2008, and 2009; 0 otherwise.	+/-
Euro Crisis		Binary variable – 1 when the years of 2010, 2011, and 2012; 0 otherwise.	+/-
9/11 Terrorist Attack		Binary variable – 1 when the year of 2002; 0 otherwise.	+/-

Appendix C

Market capitalization of listed domestic companies (current US$, million)

	AT	BE	CZ	DK	FI	FR	DE	GR	IT
1999	33,023	184,136	10,583	97,453	349,394	1,502,952	1,432,167		728,240
2000	29,935	182,481	9,746	111,819	293,634	1,446,634	1,270,243		768,363
2001	25,204	165,843	8,150	85,146	190,456	1,174,663	1,071,749	84,752	527,467
2002	33,578	127,557	10,256	76,750	138,832	967,015	686,014	67,061	477,075
2003	56,522	173,553	15,508	121,641	170,292	1,355,925	1,079,026	106,644	614,842
2004	87,776	273,247	26,891	151,350	183,765	1,559,110	1,194,517	125,242	789,563
2005	126,251	288,481	34,886			1,758,513	1,202,136	145,121	798,073
2006	192,770	396,168	44,372			2,428,252	1,637,610	200,696	1,026,504
2007	236,448	385,553	68,913			2,740,341	2,105,198	264,961	1,072,535
2008	76,289	167,218	40,912			1,472,407	1,110,580	90,200	522,088
2009	114,076	259,769				1,946,185	1,292,355	112,632	655,848
2010	126,032	268,726				1,911,515	1,429,719	67,586	535,059
2011	85,270	229,321				1,553,957	1,184,500	33,779	431,486
2012	106,037	299,517				1,808,189	1,486,315	44,877	481,827
2013	117,671	374,326				2,301,085	1,936,106	82,594	615,462
2014	96,790	378,526				2,085,896	1,738,539	55,154	587,312
2015	96,079	414,556				2,088,317	1,715,800	42,080	
2016	120,977	377,757				2,156,833	1,716,042	37,163	
Total	1,760,730	4,946,733	270,219	644,157	1,326,374	32,257,789	25,288,616	1,560,542	10,631,746
%	0.38%	1.06%	0.06%	0.14%	0.29%	6.93%	5.44%	0.34%	2.28%

	LU	NL	PL	PT	IE	ES	SE	GB	US
1999	35,939	694,055	29,577	68,148	68,773	430,900	373,278	2,954,815	14,777,387
2000	34,017	640,456	31,279	60,681	81,882	504,219	328,339	2,576,991	15,107,751
2001	22,710	503,023	26,017	46,338	75,298	468,203	236,514	2,149,501	13,983,666
2002	24,551	401,268	28,380	42,845	59,938	461,559	179,117	1,856,194	11,054,430
2003	37,333	488,647	37,020	58,285	85,070	726,243	289,877	2,425,822	14,266,266
2004	50,144	538,664	70,531	70,240	114,085	940,673		2,815,928	16,323,726
2005	51,248	592,836	94,029	66,973	114,086	959,910		3,058,182	17,000,864
2006	79,514	779,543	148,849	104,187	163,269	1,322,915		3,781,359	19,568,973
2007	166,078	956,158	211,620	132,239	143,905	1,799,834		3,846,462	19,922,280
2008	66,615	388,721	90,815	68,876	49,490	948,352		1,868,153	11,590,278
2009	105,048	559,195	150,962	98,247	61,291	1,434,540			15,077,286
2010	101,129	661,099	190,706	81,997	60,368	1,171,625			17,283,452
2011	67,627	594,637	138,244	61,690	108,393	1,030,988			15,640,707
2012	70,338	650,811	177,408	65,519	108,989	995,088			18,668,333
2013	78,641	817,840	204,543	79,178	170,123	1,116,561			24,034,854
2014	63,168	786,574	168,896	57,774	143,466	992,914			26,330,589
2015	47,131	728,486	137,770	59,837	128,009	787,192			25,067,540
2016	60,910	854,349	138,691	57,197	119,829	704,551			27,352,201
Total	1,162,140	11,636,361	2,075,336	1,280,251	1,856,265	16,796,270	1,407,126	27,333,408	323,050,582
%	0.30%	3.01%	0.54%	0.33%	0.48%	4.34%	0.36%	7.07%	83.56%

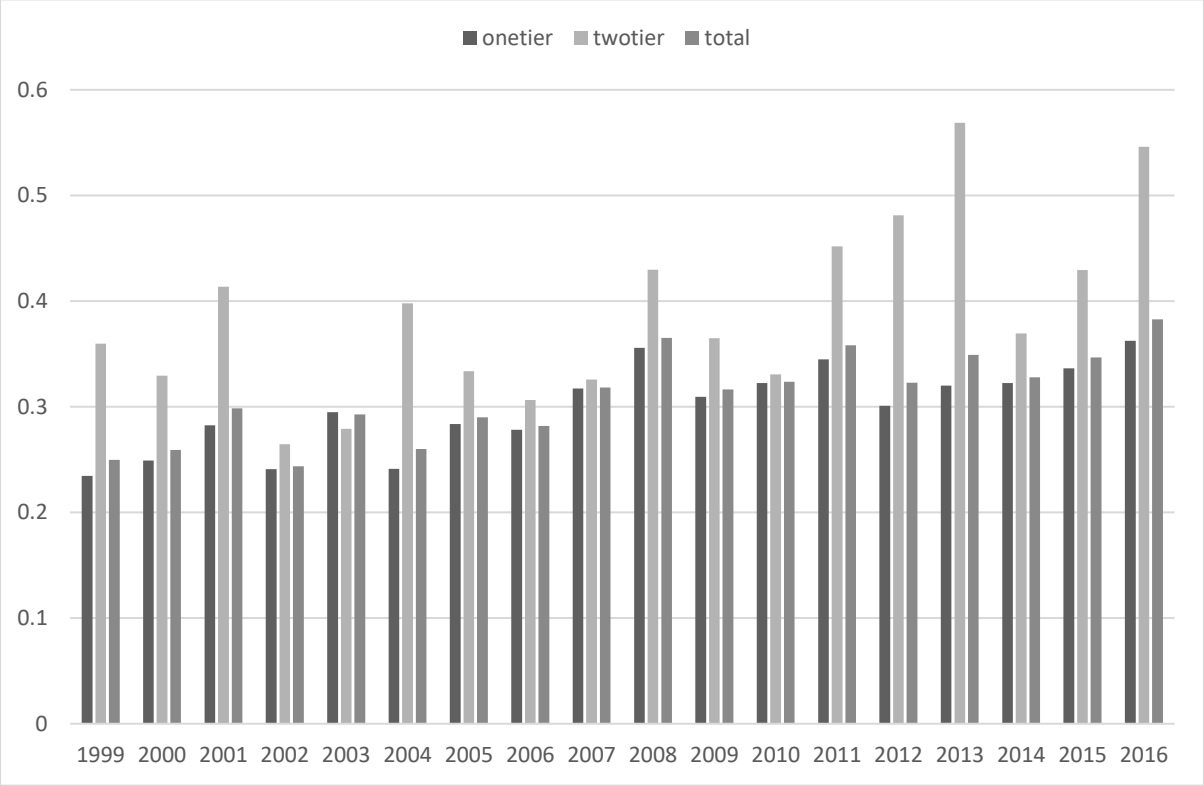
Appendix D

	Number of Companies	%
1. Resource Based		
Mining	112	1.91
Blank Check / Shell Companies	20	0.34
Forestry & Paper	37	0.64
	169	2.89
2. Traditional Manufacturing		
Beverages	35	0.60
Clothing, Leisure, and Personal Products	123	2.11
Food Producers & Processors	125	2.15
Household Products	58	1.00
Diversified Industrials	63	1.08
Publishing	25	0.43
Tobacco	9	0.15
Automobiles & Parts	74	1.27
Steel & Other Metals	54	0.93
Chemicals	110	1.89
	676	11.61
3. Utilities		
Electricity	51	0.88
Oil & Gas	271	4.66
Renewable Energy	70	1.20
Utilities - Other	101	1.74
	493	8.48
4. Construction and Transportation		
Construction & Building Materials	195	3.35
Transport	145	2.49
Containers & Packaging	36	0.62
	376	6.46

5. Trade and Services		
General Retailers	178	3.06
Wholesale Trade	24	0.41
Leisure & Hotels	207	3.56
Food & Drug Retailers	41	0.70
Legal	1	0.02
Business Services	288	4.95
Consumer Services	29	0.50
Education	12	0.21
Health	289	4.96
Real Estate	334	5.74
	1403	24.11
6. Information and Communication		
Information Technology Hardware	138	2.37
Software & Computer Services	441	7.58
Media & Entertainment	209	3.59
Telecommunication Services	145	2.49
Engineering & Machinery	251	4.31
Electronic & Electrical Equipment	301	5.17
Pharmaceuticals and Biotechnology	482	8.28
Aerospace & Defence	45	0.77
	2012	34.56
7. Financial Activities		
Banks	329	5.65
Investment Companies	37	0.64
Insurance	76	1.31
Life Assurance	7	0.12
Speciality & Other Finance	219	3.76
Private Equity	24	0.41
	692	11.89
TOTAL	5821	100%

Appendix E

Average Dividend Payout Ratios by Board Structures and Whole Sample by Years 1999-2016



Appendix F

Hausman Test

	-Coefficients-			
	(b) fixed	(B) random	(b-B) Difference	sqrt (diag (V_b - V_B)) S.E.
CEO Tenure	0.230184	0.303933	-0.07375	0.017946
CEO Owner	0.32069	2.262972	-1.94228	0.070242
CEO Age	1.114676	0.121758	0.992918	0.191521
CEO Gender	-0.10311	0.07531	-0.17842	0.142762
CEO Qualification	-0.0789	-0.73058	0.651674	0.083318
CEO Duality	-0.06572	-1.13282	1.067096	0.062464
Board Size	0.045556	-0.06485	0.110408	0.013486
Board Independence	-0.3868	-3.60448	3.217688	0.179299
Tobin's Q	0.212692	0.212468	0.000223	0.022351
Market-to-Book Value	0.016473	0.015959	0.000513	.
Profitability Ratio	0.018808	0.032992	-0.01418	0.000931
Leverage Ratio	-0.00977	-0.01077	0.000993	0.001045
Revenue Growth	-0.03625	-0.14594	0.109694	0.012939
Asset Growth	-0.20295	-0.22011	0.017158	0.018667
Firms' Size	0.252578	0.084386	0.168192	0.055454
Liquidity Ratio	-0.01322	-0.1325	0.119284	0.011069
GDP Growth	0.058139	0.047385	0.010754	0.001789

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(17) = (b-B) ' [(V_b - V_B) ^ (-1)] (b-B)

= 1313.02

Prob>chi2 = 0.0000

(V_b-V_B is not positive definite)