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What Does the Board Say?

A Study of Board Influence on Dividend Payout Policy

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Abstract

Title	What Does the Board Say?
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Authors	Lucas Bengtsson Astrid Christensson Andreas Tysk
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Key Words	Dividend Policy, Dividend Payout Ratio, Board Quality, Board Characteristics, Corporate Governance, NYSE, NASDAQ
Purpose	To investigate the nexus between dividend payout policy and board quality, defined through different board characteristics
Methodology	A quantitative study with a deductive approach. Panel data are used in the multiple linear regression to analyse and investigate relationships between dividend payout ratio and the independent variables.
Theoretical Perspectives	Main theoretical frameworks of the study are the Outcome Hypothesis and Substitution Hypothesis. In addition, Agency Theory, Stewardship Theory, Stakeholder Theory, as well as traditional dividend hypotheses are discussed.
Empirical Foundation	The data consists of 803 dividend paying firms listed on NYSE and NASDAQ between 2015-2019. The data has been collected from Bloomberg Terminal.
Result	The empirical evidence documents that board director age, frequency of board meetings and CEO duality have a significant positive impact on the level of dividend payout ratio.
Conclusions	The analysis shows that high dividends are a substitute for weak governance, in accordance with the Substitution Hypothesis.

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Lucas Bengtsson | Astrid Christensson | Andreas Tysk

List of Abbreviations

DPR	Dividend Payout Ratio
NPV	Net Present Value
FCF	Free Cash Flow
REIT	Real Estate Investment Trust
ROA	Return on Assets
SEC	Securities and Exchange Commission
SME	Small- and Medium-Sized Enterprises

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1 Introduction

The following chapter is an introduction to the subject of choice where the background and problem discussion will be presented. Additionally, the chapter will cover research questions, purpose, limitations and scope along with the target group of the study.

1.1 Background

A dividend can be defined as the distribution of the earnings of a firm, to its shareholders (Jensen, 1986). The implications of dividend policy reach both the individual shareholder, the institutional investor and the ultimate decision makers of large corporations. To this day, dividend policy is a highly researched area within corporate finance.

Why corporations pay dividends and why investors find interest in them, are the main themes of Black's (1976) article named "The Dividend Puzzle". The publication aims to describe the reasoning behind, and consequences of different dividend policies. Black discusses the relationship between risk and return, signalling properties, the impact of taxes and transaction costs, and portfolio diversification. According to Black, existing explanations fail to come to a satisfactory conclusion regarding how any of these factors can be said to impact dividend policy, or, why corporations choose to pay them at all. Eventually, Black (1976) concluded that an optimal dividend strategy could neither be derived for investors nor corporations. Researchers are to this day at odds regarding the reasoning behind dividend policies.

Traditional explanations regarding dividend policies can generally be derived from Miller and Modigliani's (1961) Dividend Irrelevance Theorem. They argued that during perfect market conditions, dividend policy is irrelevant to the valuation of a firm. Others have opposed this view, by focusing on various market imperfections including taxes, information asymmetry and risk, the shareholder incentives for receiving dividends have been explained (Brennan, 1970). However, none of these explanations have in a satisfactory manner captured the full complexity of the matter. In recent years the focus has shifted. From attempting to understand the preferences of the shareholders, attention is upon the inner mechanisms of the firm itself. More specifically, emerging explanations of the nature of dividends are revolving around the governance of the corporation.

Through Agency Theory the connection between dividend payments and corporate governance has been further investigated. Agency Theory. Developed by Jensen and Meckling (1976), Agency Theory highlights the conflict that arises with the separation of control and ownership of a firm. The theory is based upon the assumption that managers may not always adopt policies that maximise the value for shareholders, but instead, tend to promote their own private benefits. In the Agency Theory, dividends payouts serve as a control mechanism, as they transfer excess cash flows to the shareholders, thus making it unavailable for management disposal (Easterbrook, 1984; Jensen, 1986).

Further on, two major theoretical perspectives regarding governance and dividends were developed by La Porta, de Silanes, Shleifer, and Vishny (2000): the Outcome Hypothesis and the Substitution Hypothesis. Focusing on the governance quality, the Outcome Hypothesis explains that well governed corporations do not suffer agency conflicts to the same extent as poorly governed firms, and therefore they tend not to retain excess cash (La Porta et al., 2000). Instead it is distributed to the firm's shareholders in the form of cash dividends. This means, according to the Outcome Hypothesis, well governed firms pay higher dividends. In an opposing view, the Substitution Hypothesis predicts that poorly governed firms can improve the relationship with their shareholders by paying larger dividends. Thereby, poorly governed firms pay higher dividends (La Porta et al., 2000).

1.2 Problem Discussion

In explaining cash dividends through governance quality, this thesis has identified new possibilities of extending the literature. Recent studies have revealed an increased discussion on board composition and quality, and whether board mechanisms may have an effect on the dividend policy. The board of directors play a crucial part in the corporation (Emmerich, Savitt, Niles, & Abdel-Malek, 2021). They monitor and control the firm’s management and CEO (Fama, 1980). It sets the standards regarding risk, legal compliance and best practises (Emmerich et al. 2021). More interestingly, through fiduciary powers, the board of directors can decide on how to finance the firm’s operations, make new investments and distribute dividends to shareholders. As the dividend payout is declared by the board of directors, variables concerning board composition and function are expected to prove highly relevant.

As the largest economy in the world, the US is home to some of the most innovative, influential corporations in the world. Therefore the authors find the development on the US market highly significant for the world wide business environment. For a long time, the US governance model, as a common law country, has been characterised by strong shareholder rights (La Porta, Lopez de Silanes, Shleifer & Vishny, 1998) According to La Porta et al. (1998), a framework to describe shareholder rights mainly regards the shareholders voting rights, which are considered stronger when connected to dividends and furthermore, it considers to which extent minority shareholders are favoured. In recent years the US market has also been affected by increasing shareholder activism, as a consequence of shareholders engaging in questions about strategy, performance and returns (Deveau, 2021). This development, alongside new regulations, has increased the expectations on board performance. Boards are no longer the ceremonial entities, instead shareholders demand more independent directors that actively interfere in company affairs (Banta & Garrow, 2017) and now more than ever directors tend to become a direct link between the firm and its shareholders (Emmerich et al. 2021).

As the actuality of corporations' applied dividend policies have proved almost impossible to predict using traditional tools and theories (Easterbrook, 1984), it is highly relevant to find further explanations of why corporations select certain ways of distributing their earnings. This study aims to narrow it down even further, to the agent at the centre of decision making. By focusing on more explicit factors, considered to impact governance quality, this study seeks more in depth explanations of what factors into a corporation's choice of dividend payout. Through investigating, not only variables that have been shown to affect dividend payout, but also whether these board variables do contribute to better governance, the study seeks to create a more detailed argument for either the Outcome Hypothesis or the Substitution Hypothesis.

1.3 Purpose

The purpose of this thesis is to investigate the nexus between dividend payout policy and board quality, defined through different board characteristics. By using the opportunities provided by modern databases and regression models, the investigation seeks to contribute to the field of research with more explanatory variables regarding dividend payout policy. Through the Outcome- and Substitution Hypotheses we aim to investigate what implications board quality has on dividend payout policy.

1.4 Research Question

From the above stated purpose, the thesis aims to answer the following question:

How do board characteristics determine a corporation's dividend payout on the largest US exchanges?

1.5 Limitations and Scope

This study focuses on 803 publicly traded firms on the New York Stock Exchange and NASDAQ in the US during 2015-2019. Furthermore, only dividend paying firms are investigated, as the aim is to explain the magnitude of dividends paid, rather than the propensity to pay dividends. Only firms with dividend payout above 0 and less than or equal to 100 percent are included, meaning the study excludes firms with negative net incomes, as well as firms who pay out above their net income. The choice furthermore ensures we investigate strategic choices regarding dividend payout. Selection criterias are further discussed under section *4.2.3 Data Selection Criteria.*

1.6 Target Group

The main target group of this thesis is academics with an interest in financial theories, and in particular corporate governance and dividend policy. The findings of this research may also be compelling for investors who seek information about how firms' different dividend payout are affected by specific board characteristics. Furthermore, elementary knowledge in econometrics is recommended.

1.7 Structure

Chapter 2 - Theoretical framework: The chapter introduces key frameworks and principles within the fields of corporate governance and dividend policy. Traditional perspectives on dividend policy are accounted for, focusing on firm value and shareholder preferences

Chapter 3 - Previous empirical evidence: Previous empirical research is presented and relevant results are accounted for**.** Specific characteristics that have been shown to determine board quality are introduced.

Chapter 4 - Methodology: Following chapter discusses the methodological approach of the research, along with data collection and variable calculations. Additionally, the regression model is explained as well as statistical tests for the regression.

Chapter 5 - Empirical Results: Initially the general results and the descriptive statistics will be presented. The chapter will later discuss the tests and present results from three different regressions models and then discuss the final model further

Chapter 6 - Analysis: Differences and similarities to previous studies are highlighted and the results are analysed through the theoretical frameworks put forward in chapters two and three. Ultimately, it is determined whether the hypotheses of chapter three are accepted.

Chapter 7 - Conclusions: This chapter includes a recap of the most important findings of the study. The central themes of the thesis are once again discussed and the main points are put into a more specific, yet larger context

Chapter 8 - Discussion: The authors discuss the implications of the study for the theoretical landscape surrounding both dividend policy and corporate governance. Limitations in the study are highlighted and thus further extensions for future research are proposed.

2 Theoretical Framework

In the theoretical chapter, the central theories of this study are introduced. Traditional perspectives on dividend policy are accounted for, focusing on firm value and shareholder preferences. Thereafter emerging theories regarding corporate governance and dividend policy are presented, mainly Agency Theory and the Outcome- and Substitution Hypotheses.

2.1 Traditional Dividend Theory

2.1.1 Dividend Irrelevance Hypothesis

The Dividend Irrelevance Theory was published by Miller and Modigliani (1961), who concluded that, with perfect capital markets and given a constant investment policy, neither stock price nor the total shareholder return is affected by the firm's dividend policy. As a result, shareholders are indifferent in the choice between capital gains and dividends and firm value is merely a product of the ability to generate earnings (Miller & Modigliani, 1961).

Advocating for the Dividend Irrelevance Hypothesis, Black and Scholes (1974), after using what they regarded as the prime method of deducting such a relationship, concluded differences in dividend yield could not be shown to influence differences in stock prices. In opposition, Easterbrook (1984) argued that the issue was that dividends occur despite being costly. Evidence to support the hypothesis is also challenging to collect as the conditions of a perfect capital market are difficult to replicate (Ball, Brown, Finn & Officer, 1979).

2.1.2 The Bird-in-the-Hand Hypothesis

One opposing view to Miller and Modigliani's (1961) Irrelevance Theory was initially presented by John Lintner (1956) who concluded that a corporation's dividend payout ratio is commonly set long term, with the purpose of maximising shareholder wealth. Gordon (1959) highlights how events leading to increased dividends include improved returns on investments, successful equity trading, heightened common stock sales to a profitable rate, and, most importantly, retained earnings. Gordon (1963) further found dividends to be the main influence on stock price when compared to retained earnings, as dividends shift the discount rate downwards, and thus increases share price.

Through considering market imperfections and uncertainty, the Bird-In-The-Hand Hypothesis proclaims that risk averted shareholders prefer the certainty of direct cash flows through dividends before uncertain capital gains in the future (Gordon, 1959; 1963; Lintner, 1956). Therefore, firm value increases with a higher dividend payout ratio. Modigliani and Miller (1961) were critical to the hypothesis and responded that the investor's risk is linked to the firm's operations, not dividend distributions. Bhattacharya (1979) further reasoned dividend payments would not reduce the risk of an investment, rather the firm risk influences the magnitude of its dividends.

2.1.3 Tax-Effect Hypothesis and Clientele Effects

Due to historical variations in the tax treatment of dividends and capital gains, it is suggested in the Tax-Effect Hypothesis that firm value increases with lower dividends (Brennan, 1970). The theory can be derived from Brennan's (1970) after-tax CAPM model that highlights the impact of taxation on individuals. When dividends are taxed higher than capital gains, a higher share price is the result of the reduced cost of capital that follows a low payout ratio. Furthermore, dividend taxes cannot be deferred, whereas capital gains tax is paid once the stock is sold. Thus, with highly taxed dividends, investors will demand higher pre-tax returns when corporations pay a higher dividend yield (Brennan, 1970).

Black and Scholes (1974) were critical to the results presented by Brennan (1970). According to them, the return of a portfolio consisting of high (dividend) yielding stocks, would impossibly correlate with the the return of a low yield portfolio (Black & Scholes, 1974). In other words, investors are unable to choose a portfolio consisting of stocks with their preferred dividend policy (with the purpose of minimising tax effects), without surrendering the diversification effects that would occur in a portfolio with both high and low yield stocks. In the following empirical evidence, Black and Scholes (1974) found there was no significant correlation between high- or low-dividend stocks and stock return. The same result was achieved both before and after tax returns.

In support of the Tax-Effect Hypothesis, Litzenberger and Ramaswamy (1979) showed a positive and highly significant tax effect on dividend yield. Their approach was critiqued by Miller and Scholes (1982), who found the short term measurement of dividend yield inappropriate. The same year Litzenberger and Ramaswamy (1982) adjusted their initial coefficient, and still achieved similar results.

2.1.4 Signalling Quality of Dividends

Investors are, as a rule, suspicious in regard to information that comes directly from managers (Black, 1976). Dividend policy has long been said to mirror a firm's earning prospects and could thereby be regarded as a tool to reduce information asymmetry (Lintner, 1956; Watts, 1973). Managers will cut the dividend when future outlooks are poor, while heightened dividends tend to indicate prospects are good and management expects future cash flows will be high enough to cover such an increase (Black, 1976). Hereby, according to the Signalling Hypothesis, dividend policies can provide an indication of what managers do not say explicitly (Bhattacharya, 1979; Miller & Rock, 1985; John & Williams, 1985).

According to Black (1976), dividend payments may convey information about the corporation itself, yet they fail to explain the reason for why they are paid. A similar view was adopted by Easterbrook (1984) who points out, it is uncertain what dividends do signal, and furthermore, signalling through dividends is impossible, if the costs of dividends are indistinguishable between prosperous and unprosperous firms. The positive price effect of dividend increases would also be temporary, should it be made apparent that the change did not mirror improved prospective earnings (Black & Scholes, 1974).

2.2 Corporate Governance and Dividend Policy

2.2.1 Outcome Hypothesis and Substitution Hypothesis

Governance factors have been shown to have a larger effect on dividend policy than previously thought and thereby, new explanations have been developed. Through the Outcome Hypothesis and the Substitution Hypothesis, dividend policy is considered a direct result of governance quality (La Porta et al., 2000; Jiraporn, Kim & Kim, 2011; Al-Najjar & Hussainey, 2009; Elmagrhi, Ntim, Crossley, Malagila, Fosu & Vu, 2017).

That strong governance is associated with larger dividend payouts is suggested by the Outcome Hypothesis (La Porta et al., 2000; Jiraporn, Kim & Kim, 2011; Al-Najjar & Hussainey, 2009; Elmagrhi et al., 2017). The hypothesis can be derived from Agency Theory, wherein managers of well-governed firms are less expected to exploit excess cash flows to their personal benefit (Jensen, 1986). Instead, earnings that cannot be used for positive NPV investments are distributed through dividends, maximising the wealth of the firm's shareholders. Thereby, through the Outcome Hypothesis, there is a positive relationship between higher quality governance and dividend payout (La Porta et al., 2000).

The Substitution Hypothesis adopts the opposite view, meaning firms with weaker governance can maintain a good relationship with its shareholders by paying larger dividends (La Porta et al., 2000). It is hereby suggested that poorly governed firms use dividend payouts as a governance mechanism to mitigate the conflict of interest between shareholders and managers. In addition, firms with poor corporate governance will be able to attract future external funds at lower cost by establishing a positive reputation with shareholders. (La Porta et al., 2000; Jiraporn, Kim & Kim, 2011; Al-Najjar & Hussainey, 2009; Elmagrhi et al., 2017). Thus, the substitution hypothesis expects a negative association between governance quality and dividend payouts.

2.2.2 Agency Theory

Jensen and Meckling (1976) developed the Agency Theory, through which, implications of separating ownership and control are explained. At the core is the apparent conflict of interest between a firm's shareholders, the principals, and its executive leaders, the agents. Through this conflict, costs of monitoring, bonding and opportunity arise, commonly referred to as agency costs (Jensen and Meckling, 1976).

As the sales grow in size, so does the managerial power and compensation (Murphy, 1985). Because of this, managers have a tendency to neglect the concerns of their principals (Jensen, 1986). As the managerial power increases, so does the risk of manipulating accounting records, building empires and enjoying pecuniary benefits (Jensen & Meckling, 1976). These actions in contrast to principals' aspiration in maximising their wealth is what creates the agency problem. Agency problems can also occur from the difference of attitude in risk taking between managers and shareholders (Easterbrook, 1984). Shareholders often have diversified portfolios

and can therefore favour more risktaking. Opposingly, managers are more risk averse since they often have personal wealth tied up in the firm and risk losing their jobs when the results are poor (Easterbrook, 1984).

Traditional solutions to the agency conflict include the implementation of incentive schemes, and increasing the monitoring capacity (Jensen & Meckling, 1976). Eisenhardt (1989) highlights the aspect of self-interest, and thereby proposes that managers and the CEO are more prone to maximise shareholders interest in case of a generous incentive compensation plan. However, Bebchuk and Fried (2003) argue that managerial compensation is a part of the agency problem and that incentive schemes give more power to the agents. Instead, according to Fama (1980) and Fama and Jensen (1983) argue that effective monitoring by the board makes managers favour shareholder interests to a larger extent. In this work, Fama (1980) further highlights the importance of independent directors, who are less likely to refrain from imposing their influence on managers.

Jensen (1986) established that agency costs are more severe in firms with high levels of free cash flow. To optimise the usage of funds, shareholders therefore seek to ensure management has enough capital to fund all value increasing investments but restrict excess cash flows. One way of controlling a firm's excess cash flows, to the direct profit of the shareholders, is through dividends (Jensen, 1986). When firms sustain substantial free cash flows, cash is distributed through dividends which thereby reduces the risk of managers investing in low-return investments or wasting it on self-serving benefits. Thus, investments that merely benefit managers, at the cost of shareholders, are limited (Jensen, 1986). The argument is supported by Easterbrook (1984) who further adds that a different way of controlling the distribution of free cash flows is through leverage. Creditors also induce a monitoring capacity, as their primary interest is reducing risky, inefficient investments in order to secure the inflow of interest on their investments (Easterbrook, 1984).

2.2.3 Stakeholder Theory

Agency Theory covers different problematic spectrums between managers and shareholders (Jensen & Meckling, 1976). However, both theories fail in not including all stakeholders of interest. Freeman (1984) argues that firms do not have sole responsibility towards their shareholders only, but also to the society in which they operate. Stakeholder Theory aims to improve the balance between the interests of different stakeholders and assure that each stakeholder receives some degree of satisfaction (Buchholz & Rosenthal, 2004). Donaldson and Preston (1995) highlighted that managers are responsible for making sensible decisions and generating benefits that satisfy all stakeholders.

2.2.4 Stewardship Theory

Stewardship Theory was first developed by Davis, Schoorman and Donaldson (1997), who aimed to explain human behaviour beyond the economic perspective, thus it is opposite to the Agency Theory. Through organisational psychology and sociology they studied situations where managers (stewards) were motivated to act in the interest of their principals. In Stewardship Theory, internal factors such as recognition, loyalty and collectivism have higher utility than individualistic and self-serving behaviours (Davis, Schoorman & Donaldson 1997). It is argued that stewards are rational and will always prioritise the interest of the firm. In addition, stewards identify themselves with the firm and see the firm's success as their own personal triumph. This behaviour generates positive effects of profits on dividends and share prices, which in turn will benefit the principals (Davis, Schoorman & Donaldson 1997).

As opposed to Agency Theory, where shareholders risk neglect, Stewardship Theory describes shareholders who trust managers to act according to their interests (Fama & Jensen, 1983). Further, managers and directors want to be perceived as effective stewards of their companies. By making decisions that improve the performance of their firms, managers can both protect their reputations as good decision makers and protect shareholders interests (Fama, 1980).

2.3 Summary of Theoretical Frameworks

Table 1. Summary of Theoretical Frameworks

Key Articles	Field	Summary
Modigliani & Miller, 1961 Black & Scholes, 1974 Ball et al., 1979 Easterbrook, 1984	*Dividend Irrelevance Hypothesis*	In perfect capital markets, dividend policy does not affect firm value. Investors are indifferent between dividends and capital gains.
Lintner, 1956 Gordon, 1959; 1963 Bhattacharya, 1979 Modigliani & Miller, 1961	*The Bird-In-The-Hand Hypothesis*	Investors prefer the certainty of direct cash flows through dividends to the risk of future capital gains.
Brennan, 1970 Black & Scholes, 1974 Litzenberger & Ramaswamy, 1979; 1982 Miller & Scholes, 1982	*Tax-Effect Hypothesis and Clientele Effects*	When dividends and capital gains are taxed differently, investors will prefer firms that pay less dividends.
Black & Scholes, 1974 Black, 1976 Bhattacharya, 1979 Easterbrook, 1984 John & Williams, 1985 Miller & Rock, 1985	*Signalling Hypothesis*	Dividends provide information about a firm's earning prospects and thereby reduce information asymmetry.
Jensen, 1986 La Porta et al., 2000 Al-Najjar & Hussainey, 2009 Jiraporn, Kim & Kim, 2011 Elmagrhi et al., 2017	*Outcome- & Substitution Hypotheses*	Increased dividends either act as an outcome of high quality governance, or a substitute for low quality governance.
Jensen & Meckling, 1976 Fama, 1980 Fama & Jensen, 1983 Easterbrook, 1984 Murphy, 1985 Jensen, 1986 Eisenhardt, 1989 Bebchuk & Fried, 2003	*Agency Theory*	The conflict of interest between a firm's owners and executive leadership can be mitigated through dividends.
Freeman, 1984 Donaldson & Preston, 1995 Buchholz & Rosenthal, 2004	*Stakeholder Theory*	Firms have the responsibility to cover the interests of all stakeholders.
Fama, 1980 Fama & Jensen, 1983 Davis, Schoorman & Donaldson, 1997	*Stewardship Theory*	Managers are through psychological and sociological factors motivated to prioritise the firm’s success.

3 Previous Empirical Findings

Previous empirical research within the subject dividend payout policy and board quality is reviewed and the chapter is to be viewed as a presentation of the variables later used in the empirical model. Specific characteristics that have been shown to determine board quality are introduced. On this basis, the six hypotheses of the study are formulated. Finally, other relevant firm characteristics are accounted for.

3.1 Board Characteristics

3.1.1 Board Directors Age

Age is an important characteristic that has a significant influence on decision making, risk-taking and motivation (Xu, Zhang & Chen, 2018). For instance, Serfling (2014) found younger CEOs to be more risk-averse as they do yet possess the same high recognition as older CEOs, who have had time to establish their reputation. Moreover, individuals older than 50 years possess less cognitive abilities (Verhaeghen & Salthouse, 1997) and are more exposed to a deteriorating motivation (Ebner, Freund & Baltes, 2006). Age is also an important characteristic when considering monitoring incentives and experience (Xu, Zheng & Chen, 2018).

Prior studies researching board age influence on dividend policy are limited, however, very recent studies by Tahir, Masri and Rahman (2020) and Thompson and Manu (2021), were found. Investigating 2,842 firm year observations in Malaysia during 2005-2018, Tahir, Masri and Rahman (2020) found a negative association between the board members' ages and dividend payouts. A contradicting result was displayed by Thompson and Manu (2021) who reported a positive relationship when researching 6,283 firm year observations in the US during 2007-2018. On the basis of the above findings, the following hypothesis has been developed:

H_1 *: Significant relationship between board age and dividend payout.*

3.1.2 Board Gender Diversity

In recent years there has been a significant increase in females taking on leading positions and firms are increasingly pressured to ensure diversity in their boardrooms (Adams & Ferreira, 2009; Chen, Leung & Goergen, 2017). Arguments that gender diversity would not create higher quality governance has been presented by Erhardt, Werbel and Shrader (2003) who showed, differing experience would lower the firm performance. The effects on group dynamics and informal relations among the higher decision makers were emphasised. Later on, Baranchuk and Dybvig (2009) argued gender diversity could increase conflict among board members, leading to in-efficient governance.

In other studies, women have been shown to attend more board meetings than their male counterparts, and moreover, male directors were likely to improve their meeting attendance if the board was more gender diverse (Adams & Ferreira, 2009). Diversity can be also expected to improve decision making, as female directors tend to show less overconfidence in their decision making (Pucheta-Martinez & Bel-Oms, 2015). In hiring from a larger group, firms can also acquire more talent, with a wider knowledge base (Erhardt, Werbel & Shrader, 2003; Adams & Ferreira, 2009). Female directors have also been shown to increase the monitoring capacities of the firm (Adams & Ferreira, 2009; Pucheta-Martinez & Bel-OMs, 2015; Chen, Leung & Goergen, 2017). Women, more often than men, hold positions on audit, nomination and governance committees. Furthermore, CEOs are more often held accountable if the corporate stock performed poorly, when the board was more diverse (Adams & Ferreira, 2009).

In accordance, gender diversity has in previous empirical work, mainly been considered to increase governance quality, however, studies on how gender diversity impacts dividend payout are limited. Previous empirical findings have shown a positive relationship between board gender diversity and dividend payout ratio in Spain (Pucheta-Martinez & Bel-OMs, 2015), the US (Chen, Leung & Goergen, 2017) and world wide (Ye, Deng, Liu, Szewczyk & Chen, 2019). A negative relationship was displayed by Elmagrhi et al. (2017). The following hypothesis is developed:

H_2*: Significant relationship between gender diversity and dividend payout.*

3.1.3 Board Independence

Appointing independent directors has become increasingly popular over the years (Francis & Lublin, 2016). Fama and Jensen (1983) argues that greater board independence leads to better corporate governance and general consensus builds upon this idea. Independent directors have for instance been shown to better monitor CEO performance (Weisbach, 1988). When the board has more outside directors the firm is also less likely to engage in value destroying acquisitions (Cotter, Shivdasani & Zenner, 1997). The NYSE and NASDAQ require the boards of the firms listed on their exchanges to be composed of a majority of independent directors (Emmerich et al. 2021). Audit, compensation or nominations committees must according to federal law be constituted by independent directors (Emmerich et al., 2021).

Previous research regarding board independence and dividend payout policy has been found in multiple studies. Sharma (2011) examined 944 publicly traded firms listed on NYSE and NASDAQ in 2006 with the intention of finding an association between the independent directors and dividend policy. The study showed a significant positive relationship between independent directors and the firm's propensity to pay dividends to shareholders. Sharmas results are consistent with the findings of Hu and Kumar (2004) who also reported a positive relationship based on 2,081 firms during 1992-2000. By contrast, in a study made by Elmagrhi et al. (2017) board independence had no significant effect on the level of dividend payout on 1,096 SME enterprises in the UK between 2010-2013. On this basis, studying the implications of board independence on dividend payout in the US during a more recent period is of interest and the hypothesis is as follows:

H_3*: Significant relationship between board independence and dividend payout.*

3.1.4 Board Meetings

Conger, Finegold and Lawler III (1998) suggest directors need sufficient and well-conducted board meetings to make effective decisions for shareholders. By giving directors more time to monitor and evaluate management performance, it is argued that frequent board meetings improve board effectiveness and ensure directors act on behalf of the shareholders (Vafeas, 1999). According to Lipton and Lorsch (1992), between eight to twelve board meetings per year is considered optimal. However, directors lack sufficient time to devote to meeting related activities, which affects their work performance negatively (Lipton & Lorsch (1992).

Empirically, studies have measured frequency of board meetings and firm performance (Vafeas, 1999; Karamanou & Vafeas, 2005; Conger, Finegold & Lawler III). However, credible and relevant studies that examine board meetings effects on dividend policy are rare. The studies that have examined the relationship concluded that the effect is negative on dividend payout for SMEs (Elmagrhi et al., 2017). That board meetings impact the boards decision making capacities and, more importantly, firm performance, and as it has been shown to significantly influences dividend payout, this study aims to expand the existing research with the following hypothesis:

H_4 *: Significant relationship between board meetings and dividend payout.*

3.1.5 Board Size

According to Jensen (1993) and Lipton and Lorsch (1992) larger boards are more effective in monitoring managers. Elmagrhi et al. (2017) further highlight how larger boards can appoint a wider variety of directors, who can contribute with experience and expertise to the firm. Dalton, Daily, Johnson and Ellstrand (1999) confirm this argument and lists other advantages of large boards, such as an increased ability in extracting external funds. However, large boards can also be considered less effective and not as cohesive or productive as smaller boards (Lipton & Lorsch, 1992; Jensen, 1993). A corporate board with more than seven or eight board members increases the communicative issues and is therefore more likely to be in-efficient, so by keeping a board small it can increase the firm performance (Jensen, 1993). However, the ISS has stated a board is optimal if it is composed of nine to twelve directors. According to them, a board should also avoid having less than six or more than fifteen directors (ISS, 2021).

Al Farooque, Hamid and Sun (2021) examined Australian firms using 1,438 firm-year observations during 2005-2011 and significantly showed that a larger number of board members results in higher dividend payouts. This conclusion is correspondent to the results of Tahir, Masri and Rahman (2020), Elmagrhi et al. (2017) and Thompson and Manu (2021). Mehdi, Sahut and Teulon (2017) studied 362 non-financial firms from East Asia and Gulf Cooperation Council Countries and also found a significant positive relationship between board size and dividend firm's dividend payout. By contrast, Yarram and Dollery (2015) studied 413 non-financial Australian firms during 2004-2009 and reached the conclusion that board size

did not have a significant influence on the size of dividend payout of Australian firms. Based on a majority of previous empirical evidence reporting a significance, the study has developed the following hypothesis:

H_5*: Significant relationship between board size and dividend payout.*

3.1.6 CEO Duality

CEO duality occurs when the CEO is also the chairperson of the board (Finkelstein & D'Aveni, 1994). It is indicated that firms have opted to appoint the leading role of the board to an independent director. Combining CEO and chair roles can lead to reduced monitoring over top management, which negatively impacts board independence (Fama & Jensen, 1983). According to Ryan and Wiggins (2004) a dual CEO-chairperson can utilize the power of the position to reduce the board's incentives to monitor. Jensen (1993) further argues that combining the roles of CEO and chair creates agency problems, as increasing the power of the CEO, allows for them to maximise their own personal wealth rather than focusing on the shareholders interests. Thus, weak monitoring by boards may grant the CEO a possibility to take control over shareholder wealth by, for instance, paying low or no dividends.

Prior empirical evidence show mixed results on the relationship between CEO duality and dividend payouts. Zhang (2008) presented a negative association when studying Chinese listed firms. The same result was reported by Chen, Chuan and Kim (2011) who studied 1,056 Chinese companies during 2001-2007, Sharma (2011) who examined 944 firms listed on NYSE and NASDAQ in 2006 and Ghosh and Sirmans (2006) examining REITs in the US from 1990-2000 (note that REITs legally must pay out at least 90 percent of earnings (SEC, 2011)). In opposition, Chen, Leung and Goergen (2017) and Tahir, Masri and Rahman (2020) report that CEO duality has a positive effect on dividend payout, the same results as Jensen (1993). By contrast, Hu and Kumar (2004) find that CEO duality has no association with dividend payout ratios among US-listed firms. As the research has come to differing conclusions, although plenty of evidence indicate significance, this study has developed the following hypothesis:

H_6 *: Significant relationship between CEO duality and dividend payout.*

3.1.7 Summary of Hypotheses

Table 2: Summary of Hypotheses

Hypothesis	Description
H_1	*Significant relationship between **board age** and dividend payout.*
H_2	*Significant relationship between **gender diversity** and dividend payout.*
H_3	*Significant relationship between **board independence** and dividend payout.*
H_4	*Significant relationship between **board meetings** and dividend payout.*
H_5	*Significant relationship between **board size** and dividend payout.*
H_6	*Significant relationship between **CEO duality** and dividend payout.*

3.2 Other Determinants of Dividend Payout

3.2.1 Free Cash Flow

It is established that agency costs are linked to high levels of free cash flow and one way of controlling a firm's excess cash flows, to the profit of the shareholders, is through dividends (Jensen, 1986). DeAngelo and DeAngelo (2006) stated that the optimal dividend policy is determined by the need to distribute free cash flow. As free cash flow directly indicates cash available for agency cost inducing actions, Holder, Langrehr and Hexter (1998) further argues that free cash flow could be used as a way of measuring agency costs. On this basis, empirical studies have found a positive association between dividend payout ratio and free cash flow (Holder, Langrehr & Hexter, 1998; Farinha, 2003; DeAngelo & DeAngelo, 2006; Adjaoud & Ben-Amar, 2010; Jiraporn, Kim & Kim, 2011; Elmagrhi et al., 2017).

3.2.2 Leverage

A central argument for the relationship between leverage and dividend policy revolves around the agency costs of debt, where the firm, by paying dividends, transfers wealth to the shareholders (Easterbrook, 1984). Brockman and Unlu (2008) argued that agency costs of debt had more effect on dividend policy than agency costs of equity. They stated that creditors would demand lower dividend payments to mitigate those agency costs, a demand generally met by managers. In support of this reasoning, several empirical studies have found a negative relationship between leverage and dividend payments (Jensen, Solberg & Zorn, 1992; Farinha, 2003; Gugler & Yurtoglu, 2003; Emalghiri et al., 2017; Sharma, 2011; Al Farooque, Hamid and Sun, 2021; Chen, Leung & Goergen, 2017). The results indicate that firms with higher fixed costs through debt, avoid committing to higher dividend payments (Jensen, Solberg & Zorn, 1992). Stulz (1990), argued that increased debt payments could both favour and thwart shareholders as it limits both negative and positive NPV investments.

3.2.3 Profitability

Profitability is a widely used control variable when studying dividend payout. According to Jensen, Solberg and Zorn (1992) dividends are directly connected to current profitability. Through the signalling hypothesis it is further suggested that dividend payments indicate signs of future profitability (Watts, 1973; Black, 1976; Bhattacharya, 1979; Miller & Rock, 1985; John & Williams, 1985). Through this, Grullon, Michaely and Swaminathan (2002) argue that dividends increase as firms become mature. Higher dividends would thus be related to lower growth and profitability. Higher profitability could furthermore be said to leave monitoring effects of dividends irrelevant, as agency costs become less urgent (Farinha, 2003). However, an opposing view is that higher profitability would leave greater risk for excess cash flows and thus increase agency costs (Coulton & Ruddock, 2011). This explanation is in line with how it has frequently been shown that firms with higher profitability are prone to pay higher dividends (Jensen, Solberg & Zorn, 1992; Farinha, 2003; Coulton & Ruddock, 2011; Elmagrhi et al., 2017; Al Farooque, Hamid & Sun, 2021; Chen, Leung & Goergen, 2017).

3.2.4 Firm Size

Firm size has long been considered to have implications on dividend payout (Dang, Li & Yang, 2018). In explaining the prosensity of paying dividends, Redding (1997) explains that the relationship is positive because institutional investors are prone to invest in larger corporations. These investors generally favour dividends, and consequently, the managers of large firms seek to apply dividend policies in accordance with this preference. Holder, Langrehr and Hexter (1998) further explained that larger corporations have an advantage when collecting external capital and thereby less incentives to retain cash for future investments. In opposition, it is argued that firm size has been proven to negatively influence transaction costs associated with issuance of securities. Thus, to reduce information asymmetry, smaller firms have to utilise signalling properties of dividends and thereby hold a higher payout ratio (Farinha, 2003; Yaram & Dollery, 2015). Through empirical research firm size has been shown to influence dividend payout both positively (Holder, Langrehr & Hexter, 1998; Adjaoud & Ben-Amar, 2010; (Elmarghi et al., 2017) and negatively (Farinha, 2003; Gugler & Yurtoglu, 2003; Jiraporn, Kim & Kim, 2011).

3.2.5 Growth Opportunities

Growth opportunities affect dividend policy as cash needed for positive NPV investments cannot simultaneously be paid out to shareholders (Myers & Majluf, 1984; Fama & French, 2001). According to Jensen, Solberg and Zorn (1992) this explains why dividend paying firms with higher growth opportunities have more restrictive dividend policies. Holder, Langrehr and Hexter (1998) highlighted that high growth firms generally have a greater need for external financing and must thereby reduce their cost of equity through dividends. DeAngelo and DeAngelo (2006) further argue that younger firms pay less dividends as capital is primarily used for investments. As the firm matures, internal funds begin to exceed its growth opportunities leading to higher dividend payouts (DeAngelo & DeAngelo, 2006; Coulton & Ruddock, 2011). However, Jensen, Solberg and Zorn (1992) stated that firms could maintain a stable dividend payout if it corresponds with management's predictions on future growth opportunities. A negative relationship between dividend payout and expected growth rate has been shown through several empirical studies (Jensen, Solberg & Zorn, 1992; Holder, Langrehr & Hexter, 1998; Grullon, Michaely & Swaminathan, 2002; Coulton & Ruddock, 2011; Adams & Ferreira, 2009; Chen, Leung & Goergen, 2017; Gugler & Yurtoglu, 2003).

4 Methodology

Following chapter discusses the methodological approach of the research, along with data collection and variable calculations. Additionally, the regression model is explained as well as statistical tests for the regression. Furthermore, it presents a discussion of potential shortcomings in the overall choice of methodology.

4.1 Research Approach

There are two different approaches in business research that are widely used. The deductive research method presents hypotheses derived from existing theories, whereas the inductive approach begins with data collection and different theories are proposed at the end of the study (Bell, Bryman & Harley, 2019). This study will adopt a deductive research approach since the hypothesis development is derived from previous research, and the hypotheses will be either accepted or rejected through a regression model on the acquired data.

Another necessary aspect is deciding between qualitative vs. quantitative data. Bell, Bryman and Harley (2019) describe quantitative research as a method that puts emphasis on data that can be quantified both in terms of the collection and the analysis process of the study. The study aims to examine whether there is a statistically significant relationship between selected board variables and dividend payout. To present an objective truth on the subject the study will use a quantitative and deductive approach in combination to explain the data.

4.2 Data Sources and Collection Process

4.2.1 Bloomberg Terminal

Bloomberg Terminal is a fully integrated service that provides real-time and historical data on every market (Bloomberg, 2021). The Terminal can be used to gather both financial and non-financial data, which is the main reason why the terminal has been used. Secondly, the Bloomberg add-in for Excel makes it reliable to transfer data through an API. Finally, the Terminal is widely used by leading financial decision makers, and can thus be considered trustworthy (Bloomberg, 2021)

4.2.2 Data Collection Process

The collection process of data from Bloomberg Terminal was relatively time-efficient and reliable. The process began by exporting all securities listed on NYSE and NASDAQ to excel. The securities are listed with a Bloomberg Security ID in excel, making it easy to extract data related to each security. However, it was not possible to export panel data directly from Bloomberg, instead this has been done manually with excel formulas.

When the securities are listed in panel format the process of gathering the data is straightforward. Using Bloomberg Data API makes it possible to write formulas in excel for direct extraction from the Terminal. It is thereby easy to screen if some variables have sufficient data. The largest firms have sufficient data whereas smaller firms generally miss one or several data points from the explanatory variables. However, firms with missing data points will be included and the statistical software will handle the unbalanced data.

Since the study will examine securities in the US, a problem with currency arose. Some firms report in EUR or CNY. This was mitigated by using a Bloomberg API to convert the financial data points to a specific currency. USD is deemed appropriate, as the study is conducted on the US market and a majority of securities are originally reported using this currency.

4.2.3 Data Selection Criteria

Data is gathered solely from active firms listed on the largest stock exchanges in the US: NYSE and NASDAQ as the data to cover smaller firms is insufficient.

By limiting the study to a short period, the study runs the risk of getting too few data points for a solid regression. In selecting the 5 year period, several factors were considered. First, the data should be up to date, and by choosing a longer time period you increase the risk of outdated data. Furthermore, Bloomberg has an extraction limit of 5 000 rows in excel which means that more years would result in fewer companies. Lastly, the period is chosen as the investigation aims to exclude the effects of the global financial crisis of 2008 and the COVID-19 pandemic during 2020.

Furthermore, the study will exclude financial companies due to the major differences in operational activities compared to other firms, which may risk a distortion of the result. The financial companies are active on a heavily regulated market and can therefore not be considered as fully free with regards to dividend and capital structure. The same arguments have been applied in previous studies, where financial firms were either excluded or treated as a separate group (Alli, Khan & Ramirez, 1993; Sumail, 2018; Chen, Leung & Goergen, 2017). In this case, the sample size for financial firms is too low to be worth analysing separately.

Only dividend paying firms are investigated meaning only firms meeting the following requirement are included: $0< DPR \leq 100$ percent. In excluding non dividend paying firms, and firms with a negative DPR or DPR exceeding 100 percent, corporations incapable of paying dividends due to significant losses, impending bankruptcy or other special circumstances are disregarded. The choice furthermore ensures we investigate strategic choices regarding dividend payout.

Table 3. Firm Selection Process

Selection Criteria	Matches
1. Trading Status: Active	540,953
2. Security Attributes: Show Primary Security of company only	98,581
3. Security type: Common Stock	61,776
4. Exchanges: New York (NYSE); NASDAQ	5,008
5. Sector (GICS): - (Minus) Financials	4,308
6. Has data on all variables	1,784
7. Fulfil the following: $0 < DPR \leq 100$	803

4.3 Variables

The study aims to examine whether there is a relationship between dividend payout and board characteristics. The selection of the variables depends on previous research described and presented in section *3 Previous Empirical Findings*. The independent variables are based on characteristics of the board and its directors. The control variables are based on financial metrics that in previous research have been shown to influence dividend payout. When control variables are included, the regression becomes more trustworthy as it reduces the risk of a deceptive result (Brooks, 2014; Bell, Bryman & Harley, 2019). The following part will define, describe and show calculations for these variables.

4.3.1 The Dependent variable

The study's dependent variable is dividend payout ratio (DPR). The DPR is defined as the proportion of the net income a firm pays to its common shareholders in dividends. The ratio is generally accepted in measuring dividends and previous research has used it to examine the relationship between dividend payout and board characteristics in other markets (Chen, Leung & Georgen, 2017; Jiraporn, Kim & Kim, 2011; Al Farooque, Hamid & Sun, 2021; Alli, Khan & Ramirez, 1993). Jiraporn, Kim and Kim (2011) highlight that DPR should be treated as a censored variable, as the ratio cannot be negative. However, as this study only examines dividend paying firms, it is not necessary to treat it as such. Additionally, Chen, Leung and Georgen (2017) found that the DPR is robust to other dividend measures such as, dividend to total assets and dividend yield. Consequently, DPR is considered a reliable measure for dividend payments and will be used as the dependent variable for the regression analysis.

$$\frac{Total\ Common\ Dividends}{Income\ Before\ Extraordinary\ Items\ LessMinority\ and\ Preferred\ Dividends} \quad \textbf{(1)}$$

4.3.2 The Independent Variables

4.3.2.1 Board Directors Age

Calculated as the average of the directors' ages that currently hold a spot on the board of directors. The numbers are collected from the annual reports (Bloomberg, 2021), which is in line with previous research (Tahir, Masri & Rahman, 2020; Thompson & Manu, 2021).

$$\frac{Sum\ of\ All\ Directors\ age}{Total\ Number\ of\ Directors} \quad \textbf{(2)}$$

4.3.2.2 Board Gender Diversity

There are two common ways of measuring gender diversity in empirical research. Either as the percentage of women on the board, or as a dummy variable if there are any women represented on the board. However, the variable tends to more often be measured as a percentage of women in the board (Adams & Ferreira, 2009; Pucheta-Martinez & Bel-OMs, 2015; Elmagrhi et al., 2017). Furthermore this calculation is more optimal for this study as it displays a wider range and thereby provides a more nuanced analysis.

$$\frac{Number\ of\ Female\ Directors}{Total\ Number\ of\ Directors} \quad \textbf{(3)}$$

4.3.2.3 Board Independence

Board Independence is measured by calculating the fraction of independent directors to the total number of directors. The result will be presented as a percentage, which makes the descriptive statistics easier to follow. An independent director is only affiliated with the firm as a director, with no other personal or business relations with the firm (SEC, 2003). The director can furthermore only be compensated through fees that are common for the position.

$$\frac{Number\ of\ Independent\ Directors}{Total\ Number\ of\ Directors} \quad \textbf{(4)}$$

4.3.2.4 Board Meetings

Board meetings are measured as the amount of meetings the board conducts during a full fiscal year. Previous research has not set the variable as a ratio (Vafeas, 1999; Elmagrhi et al., 2017). Therefore the study will continue with the same variable construction since board meetings are a relatively untouched variable.

4.3.2.5 Board Size

The board size is measured as the number of ordinary directors on the board, as reported by the company on their annual report. Deputies and non full time directors are not included in the number (Bloomberg, 2021). Empirically, the variable has not been set as a ratio (Al Farooque, Hamid & Sun, 2021; Thompson & Manu, 2021). Therefore the study will continue with the same variable construction.

4.3.2.6 CEO Duality

CEO duality indicates if the firm's CEO also holds the chairperson position of the board. The data is collected based on what the firm reports (Bloomberg, 2021). "Yes" indicates that the CEO and the Chairperson are the same person. As the variables are not measured numerically, a dummy variable had to be created, where "Yes" equals 1, and "No" equals 0. This variable construction is in line with previous empirical research (Zhang, 2008; Sharma, 2011; Ghosh & Sirmans, 2006)

4.3.3 The Control Variables

4.3.3.1 Free Cash Flow

The free cash flow (FCF) can, according to the literature, be measured in several different ways (Harford, Mansi & Maxwell, 2008; Elmagrhi et al., 2017; DeAngelo & DeAngelo, 2006; Coulton & Ruddock, 2011). However, a common calculation is the difference between cash flow from operations and capital expenditures and divided by total assets (Holder, Langrehr & Hexter; Coulton & Ruddock, 2011; Adjaoud & Ben-Amar, 2010). The study will measure it the same way using the following equation:

$$\frac{Cash\ Flow\ From\ Operations - Capital\ Expenditure}{Total\ Assets} \quad \textbf{(5)}$$

4.3.3.2 Leverage

Firm leverage is measured by dividing average total debt with average total assets. Leasing is excluded from the calculation. The Accounting Standards Codification (ASC) 842 regulations in regards to lease have been considered. There was no reliable way to calculate operating lease assets before ASC 842 was adopted. However, there is reliable data that exclude the lease accounts from 2019 (when the firms adopted ASC 842). Therefore, the calculations this study will apply are as the equation below. The leverage ratio is empirically used in connection with dividend payout (Sharma, 2011; Al Farooque, Hamid and Sun, 2021; Chen, Leung & Goergen, 2017)

$$\frac{Average\ Total\ Debt\ Less\ Operating\ Lease\ Liabilities}{Average\ Total\ Assets\ Less\ Operating\ Lease\ Assets} * 100 \quad \textbf{(6)}$$

4.3.3.3 Profitability

Return on assets (ROA) indicates how profitable a firm is in relation to its total assets (Sharma, 2011). Profitability also gives an indication on how efficiently the management team of the company uses its assets to generate profit (Bloomberg, 2021). The measure is calculated by dividing reported net income by average total assets, where the average is calculated by adding beginning and ending balance and dividing by two. The net income is adjusted and therefore excludes the impact of abnormal items. The return on assets is empirically used in regards to dividend payout (Elmagrhi et al., 2017; Chen, Leung & Goergen, 2017; Sharma, 2011)

$$\frac{Adjusted\ Net\ Income\ Available\ to\ Common\ -\ Other\ Adjustments\ -\ Total\ Cash\ Preferred\ Dividends}{Average\ Total\ Assets} \quad \textbf{(7)}$$

4.3.3.4 Firm Size

Firm size is measured by a proxy where the study uses the natural logarithm of average book value of total assets. By taking the logarithm of total assets the distribution will have a higher likelihood of behaving like a normal distribution, thus resulting in a better regression. The average total assets are calculated by adding beginning and ending balance and dividing the sum by two (Bloomberg, 2021). The natural logarithm of total assets is the most common way to measure a firm's size (Dang, Li, & Yang, 2018; Harford, Mansi & Maxwell, 2008). It has furthermore been proved to be a robust variable in connection to dividend payments (Dang, Li, & Yang, 2018). Previous empirical research has also measured firm size using the same method (Denis & Osobov, 2008; Jiraporn, Kim & Kim, 2011; Holder, Langrehr & Hexter, 1998).

$$\ln Average\ Total\ Assets \quad \textbf{(8)}$$

4.3.3.5 Growth Opportunities

Tobin's Q is used as a proxy for growth opportunities. It is calculated as the ratio of the firm's market value to the cost of replacement for the total assets in the firm. The ratio is based on the assumption that the market value of a firm should be close to the replacing costs of the firm's assets (Bloomberg, 2021). Studies in the same field have used the same proxy (Adams & Ferreira, 2009; Chen, Leung & Goergen, 2017; Gugler & Yurtoglu, 2003) The calculations are shown in the equation below.

$$\frac{Market\ Capitalization\ +\ Total\ Liabilities\ +\ Preferred\ Equity\ +\ Minority\ Interest}{Average\ Total\ Assets} \quad \textbf{(9)}$$

4.3.4 Summary of Variable Measurements

Table 4: Summary of Variable Measurements

Variables	Measurements	EViews Symbols
Dependent Variable		
Dividend Payout Ratio	Calculated as the dividends to common shareholders over income before extraordinary times less minority and preferred dividend.	DPR
Independent Variables		
Board Directors Age	Calculated as the average of all the directors' ages	B_AGE
Board Gender Diversity	Calculated as the quotient of women in the board and the total number of directors	B_DIV
Board Independence	Calculated as the quotient of independent directors and the total number of directors	B_IND
Board Meetings	Calculated as the number of board meetings held during the fiscal year.	B_MEET
Board Size	Calculated as the number of ordinary board directors	B_SIZE
CEO Duality	Dummy variable taking a value of 1 if the person is both CEO and Chairperson, otherwise 0	DUA
Control Variables		
Free Cash Flow	Calculated as the difference between operating cash flow and the capital expenditures to the total assets	FCF
Leverage	Calculated as total debt excluding operating lease liabilities to the total assets less operating lease assets.	LEV
Return on Assets	Calculated as net income to the average of total assets.	ROA
Firm Size	Calculated as the natural logarithm of the average total assets.	SIZE
Tobin’s Q	Calculated as the quotient of the firm’s market capitalisation to the cost of replacement for the total assets in the firm	TOB_Q

4.4 Procedure for Regression Model

A regression will be conducted in the statistical software EViews using unbalanced panel data. As the study aims to examine how much the dependent variable varies with several independent variables, a multiple linear regression is used (Griffiths, Hill & Judge, 1993).

The significance in the multiple linear regression will be estimated with the Ordinary Least Squares Model (OLS). For the model to be reliable a few assumptions need to be met (Brooks, 2014). The assumptions will be tested. If the results of these tests are not satisfactory the model construction will be altered. The study starts off with a base model (see equation 10) and there is a high probability the base model will differ from the final model presented in the empirical chapter of the study. The following part of the methodology chapter will cover the OLS-model's assumptions and the tests and measures that shall be done in order for the data to fit the model.

$$DPR_{it} = \beta_0 + \beta_1 B\_AGE_{it} + \beta_2 B\_DIV_{it} + \beta_3 B\_IND_{it} + \beta_4 B\_MEET_{it} + \beta_5 B\_SIZE_{it} + \beta_6 DUA_{it} + \beta_7 FCF_{it} + \beta_8 LEV_{it} + \beta_9 ROA_{it} + \beta_{10} SIZE_{it} + \beta_{11} TOB\_Q_{it} + \varepsilon_{it} \quad \textbf{(10)}$$

4.4.1 Test for Autocorrelation

According to Brooks (2014) the most common method to test the assumption of no autocorrelation is to use the Durbin-Watson test. The test will measure the serial correlation in all of the residuals and is a part of the regression output. The Durbin-Watson can be conducted in EViews and will return a value between 0 and 4 where 2 means that no autocorrelation is present in the data (Brooks, 2014). According to Johnston and DiNardo (1997) a Durbin-Watson value between 1.5 and 2.5 is seen as relatively good, whereas values outside of this range can be a concern for the model's reliability. If the assumption is not met, one-period lags will be included in the model to deal with autocorrelation (Brook, 2014).

4.4.2 Test for Hetero- or Homoscedasticity

The OLS-model assumes that there is homoscedasticity in the data. The opposite is called heteroscedasticity, which often occurs when using financial data (Brooks, 2016). According to Dougherty (2016) heteroscedasticity exists if the error terms or disturbance is different for all of the observations in the sample. Heteroscedasticity is problematic as it tends to give smaller p-values than they should be (Dougherty, 2016). This could result in some variables becoming significant if the heteroscedasticity is ignored and not dealt with. The effect will result in an increase of the variance of the coefficient estimates, but the model does not detect the increase and they are no longer Best Linear Unbiased Estimators (BLUE) (Brook, 2016).

White (1980) came up with a test which will test the null hypothesis of no presence of heteroskedasticity. The study will build the test manually by first making a residual series. The new variable with the residual will be squared and act as a dependent variable in a new regression. The independent variables will thereafter be squared and the product between the independent variables will be included. If the test returns a significant F-stat, heteroskedasticity is present in the data and is dealt with using White diagonal standard errors & covariance (d.f. corrected) to deal with the problem and therefore present more trustworthy p-values (Brooks, 2014).

4.4.3 Test for Normality

Another assumption for OLS is that the standardised residuals are normally distributed (Brooks, 2014). The normality test is especially important for small sample sizes. In contrast, lack of normality for big sample sizes is not necessarily a problem. This study's sample size can be considered relatively big and can therefore accept a small lack of normality. However, a normality test will be conducted through a Jarque-Bera test. The test measures the skewness and kurtosis in relation to that of the normal distribution (Brooks, 2014).

The study will take the logarithm of total assets to measure firm size, as seen in (Table 4), which will increase the normality. Another method is to use winsorization on all the variables except for CEO duality (dummy variable) and size (already logarithmized). If the study can increase the normality by using winsorization at the 5th and 95th percentile, it will be included in the model to reduce the number of outliers.

4.4.4 Test for Linearity

A linear regression assumes that the relationship between the variables are linear (Dougherty, 2016). The Ramsey RESET-test will test whether there are non-linear relationships of the fitted values to explain the dependent variable in the model. Ramsey RESET will test the null hypothesis of having a coefficient equal to 0 through an F-test. If the null hypothesis is rejected the model is wrongfully specified (Dougherty, 2016).

The test is not available for panel data. Therefore, the study will build the test manually. A new variable is created for the residuals in the regression, which will test the null hypothesis (Brooks, 2014). The model will add the square term for the independent and control variables if non-linearly is present to increase linearly. However, if the residual vaiable's p-value does not change, the squared terms will not be included, as quadratic terms will make the model more difficult to interpret.

4.4.5 Test for Multicollinearity

Multicollinearity exists if two or several variables correlate with each other (Dougherty, 2016). If multicollinearity is present it becomes hard to determine if there is significance or not (Brooks, 2014). To test whether multicollinearity exists a correlation matrix between all the variables will be analysed. According to Brooks (2014) further tests for multicollinearity need to be conducted if two or several variables have a correlation coefficient above 0.8. Variables with higher correlation coefficients than 0.8 will be excluded from the regression in accordance with Berry and Feldman (1985).

4.4.6 Test for Endogeneity

The assumption for OLS is that the data is exogenous. The Hausman specification test will be used to potentially detect endogenous regressors in the model (Brooks, 2014). The reason for an endogenous model is that there is an unobserved relationship in the error term, which means there could be bias in the coefficients. The test will look at the difference between the fixed effect estimator and the random effect estimator. If the test returns a significant p-value, the study can reject the null hypothesis, which suggests that the independent variables are correlated with the random effect (Brooks, 2014). Thus, a fixed effects model is appropriate for the final model. If the null is rejected, a redundant fixed effects test will be conducted to determine if fixed effects will be applied on both cross-section and period.

The firm specific effects will deal with the data that is constant over time but differs between firms. Whereas, the period specific effects will deal with changes that all firms experience over time (Brooks, 2014). The fixed effects will also help improve the model and take advantage of the panel data that is often lost with a pooled OLS (Brooks, 2014). Furthermore, if there are omitted variables, the model will adjust (but not solve) for this by adding cross-section and period fixed effects (Brooks, 2014).

4.5 Missing Data

A total of 5,308 firms met the initial requirements of being listed on NYSE and NASDAQ. Firms that are categorised as "Financials" according to Global Industry Classification Standard (GICS) are excluded due to reasons that are discussed in *4.2.3 Data Selection Criteria*. In addition, 2,525 firms dropped from the sample as they did not fulfil the requirement of having data on all the variables for any of the years between 2015-2019. The requirement of having a DPR above 0 and less than or equal to 100 percent resulted in a further decrease, to 803 firms and 3117 firm-year observations. The potential shortcomings with the statistical loss will be discussed in the following chapter.

4.6 Methodology Critique

4.6.1 Critique of Data Collection and Methodology

After the purpose of the study was defined, a database with sufficient information was required. The databases available for use were limited, however, the Bloomberg terminal was well equipped for the study's needs. Apart from Bloomberg, the ISS (formerly RiskMetrics) database with governance data was considered. ISS has the most comprehensive governance data for US companies. The data can be accessed through the Bloomberg terminal, however, it would be better to export directly from ISS to avoid potential distortion that can occur when using secondary databases. Due to Bloomberg's reputation, the database is considered sufficiently correct and will still be used for the data collection.

It is also of importance to be critical towards Bloomberg as a datasource, because of the secondary data they provide. There is no possibility to control how they collect and/or process the data. However, to examine whether the data is trustworthy or not, some spot-checks were conducted. The check resulted in a satisfactory result and the authors are confident that Bloomberg is a reliable source given the fact that it is frequently used for collection of data.

A weakness with Bloomberg is the 500,000 API hit limit per day, which means that as soon as the excel sheet is updated the API will refresh the data and thus download it again, which will affect the sample size and number of variables. Another problem is that the licence only allows users to generate 5,000 rows and 40 columns. If the limit is exceeded the terminal locks all users from downloading more data. This forced the authors to do screening of certain geographic areas, markets and sectors in the terminal, instead of doing it in EViews. By only using the two largest exchanges in the US a sum of 1,784 rows were created (see table 3).

Furthermore, the regression model (OLS) may not be the optimal method for estimating the significance for the independent variables. The data must fulfil all of the Gauss Markov Assumptions for the OLS to be a valid regression for analysis, which may not be the case. Furthermore, previous empirical studies have both used OLS and a censored regression model (Tobit model) where the model includes observations where the dependent variable is unknown. However, given the limitations and scope, almost all firms reported a DPR. Therefore, it can be argued that a censored regression would not result in a more reliable result, which is the reason why OLS is still used as a model.

4.6.2 Reliability

According to Bryman, Bell and Harley (2019) the most important criteria for a study to achieve precision is to consider the reliability together with the study's validity. The reliability refers to whether there is consistency and stability of a measure or not. Reliability can then be described as to which extent this study can be done by another researcher and receive the same results, which is of major importance for a quantitative study to be considered reliable (Bryman, Bell & Harley, 2019). Since the data comes from a well-established financial data provider and with a methodology thoroughly explained, the reliability can therefore be considered high. The data is also reliable as the study is based upon historical data, meaning the information is stable. Furthermore, the OLS regression model is commonly accepted and thereby replicable.

4.6.3 Validity

The validity refers to how good the study is at measuring the concept it is supposed to measure. In this case it means if the sample will be able to adequately measure certain board characteristics impact on dividend payout in the US. Reliability and validity are strongly related to each other. According to Bryman, Bell and Harley (2019) a study can only achieve full validity if the reliability is fully met. However, the reverse is not the case. Total reliability does not mean that the study reaches full validity. Since the study's purpose has not yet been studied with the same limitations and scope in the US, the selection of variables to describe the payout ratio are important to receive a valuable result. The variables are selected based on prominent previous research in order to reach high validity.

A problem is that not all firms had available data, therefore the sample decreased from 4,308 to 1,784 when added to the criteria of having at least one data point. Some firms also returned a value of: "N/A" for a few variables. The study cannot assume that these firms are random, therefore one should be sceptical about the data provided from Bloomberg. The authors suspect, based on inspection of the data, that large firms are partly overrepresented in the sample. The reason could be that Bloomberg primarily collects data from large firms. As a result, one cannot be certain that the results truly reflect the companies that met the initial requirements to be included in the sample. The bias could have been mitigated by manually collecting data from the missing cells, however, with the limited timeframe and large sample size the method would not be feasible. Through this argument the validity can be questioned.

Furthermore, in finance the OLS assumption of exogeneity is almost never met. This means that the correlation between the explanatory variables and the error term is seldom zero, thus the model will not be fully exogenous. Since validity refers to how good the study is at measuring what it is supposed to measure, endogeneity (opposite of exogeneity) in the model could therefore cause a problem regarding the validity of the study. The most common reason to cause endogeneity in finance is the omitted variable bias, which refers to the problem that the model might be missing relevant variables that are determinants of the dependent variable. The implications of endogeneity are severe and complicated to deal with (Dougherty, 2016). Several control variables have been included to reduce the risk of omitting important variables. Furthermore, according to the methodology, fixed effects will be introduced if endogeneity is present.

5 Empirical Results

Initially the general results and the descriptive statistics will be presented. The chapter will later discuss the tests and present results from three different regressions models and then discuss the final model further.

5.1 Descriptive Statistics

Table 5: Summary of Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
DPR	38.41806	34.46154	99.92341	0.642811	22.22387
B_AGE	63.62024	63.50000	79.28570	48.71430	3.822540
B_DIV	19.31799	20.00000	75.00000	0.000000	11.63117
B_IND	81.57985	85.71430	100.0000	33.33330	11.10314
B_MEET	7.235483	6.000000	37.00000	1.000000	3.039278
B_SIZE	9.644530	10.00000	17.00000	4.000000	2.187617
DUA	0.450112	0.000000	1.000000	0.000000	0.497585
FCF	1.808924	1.574734	33.61540	-12.80491	1.402603
LEV	3.367716	2.394971	115.1484	0.891726	5.208711
ROA	8.074175	6.947387	68.23611	-2.307534	5.294832
SIZE	8.160255	8.157523	13.09803	2.522021	1.784067
TOB_Q	2.172320	1.762623	15.56517	0.605533	1.331901

Table 5. The table above shows the descriptive statistics for 803 firms between 2015-2019 listed on NYSE and NASDAQ. ***DPR*** *is the dividend to common shareholders over income before extraordinary times less minority and preferred dividend.* ***B_AGE*** *is the average of all the directors' ages.* ***B_DIV*** *is the quotient of women in the board and the total number of directors.* ***B_IND*** *is the quotient of independent directors of the total number of directors.* ***B_MEET*** *is the number of board meetings held during the year.* ***B_SIZE*** *is the number of ordinary board directors that the firm reports.* ***DUA*** *is a dummy variable taking a value of 1 if the person is both CEO and Chairperson, otherwise 0.* ***FCF*** *is the difference between operating cash flow and the capital expenditures to the total assets.* ***LEV*** *is the total debt excluding operating lease liabilities to the total assets less operating lease assets.* ***ROA*** *is net income to the average of total assets* ***SIZE*** *is the natural logarithm of the average total assets.* ***TOB_Q*** *is the ratio of market capitalisation to the cost of replacement for the total assets in the firm.*

Table 5. presents a summary of the descriptive statistics for all of the study's variables. The data set consists of 3,117 firm-year observations with unbalanced data from 803 firms between 2015-2019 listed on NYSE and NASDAQ. The table includes mean, median, maximum, minimum and standard deviation for all variables.

The dependent variable (DPR) shows that the average firm in the sample pays out approximately 38 percent of the firm's net income. The mean is marginally higher than the median which implies small skewness due to high DPR-values for some firms. The relatively close values can be explained by the fact that only firms with a DPR above 0 and less than or equal to 100 percent are included in the sample. The reported range is between 0.64 and 99.92 percent.

For the explanatory variables the table shows that the average age of board directors (B_AGE) in the sample is 63.6 years old, which is close to its median at 63.5 years. The average director's age ranges from a minimum of 48.7 years to a maximum of 79.3 years. Additionally, the board diversity (B_DIV), ranges from 0 to 75 percent with a mean and median at 19.3 and 20 percent. Furthermore, the board independence (B_IND) shows that the mean and median for the variables is 81.6 and 85 percent with a minimum of 33.3 percent and a maximum of 100 percent board independence. Moreover, the reported board meetings (B_MEET), ranges from 1 to 37 meetings with a mean and median of 7.2 and 6 meetings per year. The board size (B_SIZE) in the sample shows that the smallest board consists of 4 directors whereas the largest consist of 17 directors. The sample shows a mean and median at 9.6 and 10 directors per board.

For the dummy variable, CEO duality (DUA), the mean is the most relevant for the descriptive statistics. The mean shows that 45 percent of the firms have reported that the same person holds both the CEO and chairperson positions. The median will return a value of 0 due to the fact that the majority do not have CEO duality, therefore the median, minimum and maximum is not of any interest.

For the control variables the tables show that free cash flow (FCF) has a spread of -12.8 to 33.6 and a mean and median of 1.8 and 1.6. Furthermore, the leverage (LEV) has mean and median of 3.4 and 2.4. The mean is slightly higher due to skewness in some of the maximum values. One firm in the sample has a leverage of 115.1 which has affected the mean. Additionally, the adjusted return on assets (ROA) have a mean and median of 8.1 and 6.9. The minimum and

maximum differ quite a lot with values of -2.3 and 68.2. In addition, the firm size (SIZE) has been logarithmized and shows a mean and median of 8.2 and 8.2, with a minimum and maximum of 2.5 and 31.1. Finally, Tobin's Q (TOB_Q) has been used as a proxy for growth opportunities where the mean and median for the sample is 2.2 and 1.8. The minimum and maximum for the sample is 0.6 and 15.6. A ratio between 0 and 1 indicates that the firm is undervalued. Conversely, a ratio of above 1 indicates that the firm is overvalued. A value higher than 1 would therefore mean that the market sees growth opportunities and therefore overvalues the firm, given the current financials.

5.2 Model 1: Base Model

Table 6. Results from Model 1 (Base Model)

Dependent Variable: **DPR**
Total panel (unbalanced) observations: **3117**

Variable	Coefficient	Std. Error	P-value
B_AGE	0.338173	0.102639	0.0010***
B_DIV	0.189885	0.036151	0.0000***
B_IND	-0.025361	0.037485	0.4987
B_MEET	0.455510	0.128603	0.0004***
B_SIZE	0.740518	0.228807	0.0012**
DUA	4.048287	0.780407	0.0000***
FCF	2.951213	0.279884	0.0000***
LEV	0.188722	0.074422	0.0113
ROA	0.687368	0.106731	0.0000***
SIZE	-0.270139	0.298595	0.3657
TOB_Q	3.254934	0.415551	0.0000***
C	-2.246277	7.801199	0.7734
R-squared	**0.095554**		
Adjusted R-squared	**0.092350**		
Durbin-Watson stat	**0.518475**		

***Significance levels**: * = p < 10 % ** = p < 5 % *** = p < 1 %.*

***Table 6.** shows results from regression model 1 (Base model) using pooled OLS. **DPR** is the dividend to common shareholders over income before extraordinary times less minority and preferred dividend. **B_AGE** is the average of all the directors' ages. **B_DIV** is the quotient of women in the board and the total number of directors. **B_IND** is the quotient of independent directors of the total number of directors. **B_MEET** is the number of board meetings held during the year. **B_SIZE** is the number of ordinary board directors that the firm reports. **DUA** is a dummy variable taking a value of 1 if the person is both CEO and Chairperson, otherwise 0. **FCF** is the difference between*

operating cash flow and the capital expenditures to the total assets. ***LEV*** *is the total debt excluding operating lease liabilities to the total assets less operating lease assets.* ***ROA*** *is net income to the average of total assets* ***SIZE*** *is the natural logarithm of the average total assets.* ***TOB_Q*** *is the ratio of market capitalisation to the cost of replacement for the total assets in the firm.*

The base regression model shows that several of the explanatory variables are significant at the 1 percent level (see Table 6). However, the results are not fully trustworthy based on several aspects. Firstly, the explanatory variables can only explain 9.2 percent of the variance in DPR (adjusted R^2 is used because the study uses several independent variables). Secondly, the model suffers from heteroscedasticity based on the results from a manual heteroscedasticity test conducted in EViews (see Appendix I). In accordance with the method of this study, heteroscedasticity will be mitigated by White's diagonal in model 2. Thirdly, the model suffers from endogeneity indicated by a Hausman test (see Appendix VIII). This means that the Gauss Markov assumptions are not satisfied and the study cannot assume that the model has Best Linear Unbiased Estimators (BLUE). The test shows that the Hausman null hypothesis is rejected and a fixed effect model is appropriate for the regression. Furthermore, a redundant fixed effects test (see Appendix VII) will also be included to test if the study should use fixed effects on both cross-section and period. The Ramsey RESET test is conducted manually to detect non-linearity (see Appendix III), the test shows that the squared fitted values are significant, therefore Ramsey's null hypothesis is accepted. In an attempt to decrease the significance the control variables are calculated in quadratics terms, as seen in appendix III. However, the attempt does not lead to any improvements in regard to linearity, the quadratic terms will therefore not be included in the next model, in accordance with the methodology.

5.3 Model 2: Robust Standard Errors and Fixed Effects of Model

Table 7. Results from Model 2

Dependent Variable: **DPR**

Total panel (unbalanced) observations: **3117**

Variable	Coefficient	Std. Error	P-value
B_AGE	0.359601	0.155073	0.0205**
B_DIV	0.032279	0.053096	0.5433
B_IND	-0.045788	0.064164	0.4755
B_MEET	0.441988	0.116241	0.0001***
B_SIZE	-0.180646	0.271208	0.5054
DUA	1.810165	0.868052	0.0372**
FCF	3.757775	0.762401	0.0000***
LEV	0.091165	0.088994	0.3058
ROA	1.694382	0.156999	0.0000***
SIZE	-7.779090	2.089324	0.0002***
TOB_Q	0.267769	0.495538	0.5890
C	85.85529	21.42662	0.0001

White diagonal:

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	**0.813502**
Adjusted R-squared	**0.747226**
Durbin-Watson stat	**2.329586**

***Significance levels**: * = p < 10 % ** = p < 5 % *** = p < 1 %.*

***Table 7** shows results from regression model 2 using fixed effects for both cross section and period. The model also uses white's diagonal to deal with heteroskedasticity. **DPR** is the dividend to common shareholders over income before extraordinary times less minority and preferred dividend. **B_AGE** is the average of all the directors' ages. **B_DIV** is the quotient of women in the board and the total number of directors. **B_IND** is the quotient of independent directors of the total number of directors. **B_MEET** is the number of board meetings held during the year. **B_SIZE** is the number of ordinary board directors that the firm reports. **DUA** is a dummy variable taking a value of 1 if the person is both CEO and Chairperson, otherwise 0. **FCF** is the difference between operating cash flow and the capital expenditures to the total assets. **LEV** is the total debt excluding operating lease liabilities to the total assets less operating lease assets. **ROA** is net income to the average of total assets **SIZE** is the natural logarithm of the average total assets. **TOB_Q** is the ratio of market capitalisation to the cost of replacement for the total assets in the firm.*

Model 2, as seen in table 7, is created to mitigate the shortcomings of model 1. The model now includes cross-section and period fixed effects based on the Hausman test. Furthermore, the model includes robust standard errors to deal with the heteroskedasticity noticed in model 1. The p-values and R^2 have now significantly increased. The R^2 is now at 74.7 percent, compared to 9.2 percent from the base model. The result from model 2 shows that both board age (B_AGE) and CEO duality (DUA) has a significant positive relationship with DPR at a 5 percent significance level. Furthermore, the model also shows that the number of board meetings (B_MEET) has a positive relationship at a 1 percent significance level.

In table 7 the Durbin-Watson value is 2.33. Which means that there is a slight negative serial autocorrelation in the data. However, the value is within the acceptable range, stated in *4.4.1 Autocorrelation*. Therefore, the model does not suffer from severe autocorrelation. To test for the assumption regarding normality a Jarque-Bera test will be conducted in EViews (see Appendix V), which will indicate if the data is normally distributed. As mentioned in *4.4.3 Test for Normality* a lack of normality is not necessarily a problem with a big sample size. However, as seen in appendix V, the value of 3,994 is considered quite high. The boxplot seen in appendix IX also indicates that there are outliers present in most of the variables, therefore the final model will include winzorazition at the 5th and 95th percentile to increase normality and thus, decrease the Jarque-Bera.

5.4 Model 3: Winsorization of Model 2

Table 8. Results from Model 3 (Final Model)

Dependent Variable: **DPR_W**

Total panel (unbalanced) observations: **3117**

Variable	Coefficient	Std. Error	P-value
B_AGE_W	0.248584	0.146028	0.0888*
B_DIV_W	0.021146	0.051380	0.6807
B_IND_W	-0.036955	0.061803	0.5499
B_MEET_W	0.549272	0.129514	0.0001***
B_SIZE_W	-0.069362	0.272334	0.7990
DUA	1.530840	0.807532	0.0581*
FCF_W	7.150835	0.436040	0.0000***
LEV_W	-0.328317	0.416206	0.4303
ROA_W	1.784644	0.176819	0.0000***
SIZE	-9.839785	1.908553	0.0000***
TOB_Q_W	0.197698	0.594910	0.7397
C	102.7365	19.58125	0.0000

White diagonal:
Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	**0.846032**
Adjusted R-squared	**0.791316**
Durbin-Watson stat	**2.252032**

***Significance levels**: * = p < 10 % ** = p < 5 % *** = p < 1 %.*

***Table** 8. shows results from regression model 3 using fixed effects for both cross section and period. The model also uses white's diagonal to deal with heteroskedasticity. Additionally, the model uses winsorization at the 5th and 95th percentile to deal with normality. **DPR** is the dividend to common shareholders over income before extraordinary times less minority and preferred dividend. **B_AGE** is the average of all the directors' ages. **B_DIV** is the quotient of women in the board and the total number of directors. **B_IND** is the quotient of independent directors of the total number of directors. **B_MEET** is the number of board meetings held during the year. **B_SIZE** is the number of ordinary board directors that the firm reports. **DUA** is a dummy variable taking a value of 1 if the person is both CEO and Chairperson, otherwise 0. **FCF** is the difference between operating cash flow and the capital expenditures to the total assets. **LEV** is the total debt excluding operating lease liabilities to the total assets less operating lease assets. **ROA** is net income to the average of total assets **SIZE** is the natural logarithm of the average total assets. **TOB_Q** is the ratio of market capitalisation to the cost of replacement for the total assets in the firm.*

The final model, as seen in table 8, has reduced the lack of normality discovered in model 2. Therefore, the final model includes winsorization for all variables, except firm size (SIZE) and CEO duality (DUA). The firm size is already logarithmized which is a stronger transformation than winsorization, therefore the variables will not be transformed again. The CEO duality is a dummy variable and outliers cannot exist.

The winsorization made the Durbin-Watson decrease from 2.33 to 2.26. Since a value of 2 is ideal for no autocorrelation, the results are satisfactory. The Jarque-Bera is now 1,822 (see Appendix VI), which is a significant decrease from model 2 (see Appendix V), thanks to winsorization. This proves that outliers were present in the data set. Model 3 has now solved all solvable aspects of the base model and will be used as the final model for the empirical presentation and then for analysis.

The final model shows that adjusted R^2 has increased marginally. The R^2 is now at 79.1 percent compared to 74.7 percent from model 2. The p-values have also changed marginally. The result shows that both board age (B_AGE) and CEO duality (DUA) has a significant positive relationship with DPR at a 10 percent significance level, compared to 5 percent from model 2. The number of board meetings (B_MEET) show a significant positive relationship with DPR at a 1 percent significance level. Finally, the other explanatory variables, board gender diversity (B_DIV), board independence (B_IND) and board size (B_SIZE), do not prove a relationship with DPR at conventional confidence levels. However, the regression shows that coefficients are positive for board gender diversity, whereas the relationship is slightly negative for board independence and board size.

The control variables free cash flow (FCF) and return on assets (ROA) are significantly positive at a 1 percent significance level. Whereas, firm size (SIZE) is significantly negative at a 1 percent level. Leverage ratio (LEV) is not significant, but returns a negative coefficient. Tobin's Q (TOB_Q) is not significant either, but returns a positive coefficient.

Table 9. Summary of the Models

Variable	Base Model *(p-values)*	Model 2 *(p-values)*	Final Model *(p-values)*
B_AGE	0.0010***	0.0205**	0.0888*
B_DIV	0.0000***	0.5433	0.6807
B_IND	0.4987	0.4755	0.5499
B_MEET	0.0004***	0.0001***	0.0001***
B_SIZE	0.0012**	0.5054	0.7990
DUA	0.0000***	0.0372**	0.0581*
FCF	0.0000***	0.0000***	0.0000***
LEV	0.0113	0.3058	0.4303
ROA	0.0000***	0.0000***	0.0000***
SIZE	0.3657	0.0002***	0.0000***
TOB_Q	0.0000***	0.5890	0.7397
C	0.7734	0.0001	0.0000
Fixed Effects	No	Yes	Yes
Robust Standard Errors (White)	No	Yes	Yes
Winsorization (5th and 95th)	No	No	Yes
Adjusted R-squared	0.092350	0.747226	0.791316
Durbin-Watson stat	0.518475	2.329586	2.252032
Jarque-Bera	-	3,997.202	1,822.500

5.5 Correlation Matrix of Final Model

The matrix (see Table 10) shows the test for multicollinearity. The correlation between the variables are based on the final model and varies from -0.220809 to 0.354448 for explanatory variables and from -0.363520 to 0.750574 for control variables. The strongest correlation is observed between board size (B_SIZE) and firm size (SIZE) as well as return on assets (ROA) and tobin's q (TOB_Q), with correlations of 0.645182 and 0.750574 respectively. Since the correlation matrix does not show any correlations above 0.8 or under -0.8 the results are satisfactory, with reference to the methodology, thus, the study does not have to deal with multicollinearity.

Table 10. Correlation Matrix (Final Model)

	DPR	B_AGE	B_DIV	B_IND	B_MEET	B_SIZE	DUA	FCF	LEV	ROA	SIZE	TOB_Q
DPR	**1.000000**											
B_AGE	0.017244	**1.000000**										
B_DIV	0.132174	-0.220809	**1.000000**									
B_IND	0.042267	-0.143293	0.325404	**1.000000**								
B_MEET	0.062178	-0.041397	0.099364	0.134979	**1.000000**							
B_SIZE	0.093390	-0.127268	0.354448	0.314819	0.106694	**1.000000**						
DUA	0.108496	0.071129	0.097890	0.127732	-0.074783	0.048078	**1.000000**					
FCF	0.266704	-0.019197	-0.002462	-0.010983	0.011582	0.015365	0.003324	**1.000000**				
LEV	0.108729	-0.109456	0.198486	0.161796	0.086141	0.287820	0.074900	0.118508	**1.000000**			
ROA	-0.094528	-0.040579	0.022584	-0.015051	-0.117002	-0.071391	-0.035592	-0.363520	-0.156352	**1.000000**		
SIZE	0.081754	-0.134919	0.395333	0.354028	0.182636	**0.645182**	0.103510	0.036959	0.386425	-0.146636	**1.000000**	
TOB_Q	0.046083	-0.063263	0.014680	-0.046815	-0.130502	-0.041221	-0.026510	-0.215900	-0.050207	**0.750574**	-0.133387	**1.000000**

6 Analysis

In this chapter, the empirical findings are discussed. Main focus is upon the significance or insignificance of the board variables. Differences and similarities to previous studies are highlighted and the results are explained through the theoretical frameworks put forward in chapters two and three. Ultimately, it is determined whether the hypotheses of chapter three are accepted.

6.1 Significant Variables

6.1.1 Board Directors Age

H_1 *: Significant relationship between board age and dividend payout.*

The board age variable shows a positive coefficient in relation to dividend payout ratio. The result is significant on the 10 percent level. Thus, a board with a higher average in age is prone to pay higher dividends, than a younger board. The coefficient indicates a 0.2486 percentage point increase in dividend payout ratio, for each year the average board gains. The coefficient is marginally smaller than in the study by Thompson and Manu (2021). This indicates the empirical model has been correctly executed. Similarities could be expected as both study US firms during a close period of time, as opposed to the study by Tahir, Masri and Rahman (2020) performed in Malaysia. However, it can be argued this study presents more reliable results, as it disregards years heavily associated with the financial crisis of 2008. Primarily, this has been done as new regulations and practises were imposed as a result of the crisis, and, in examining a more stable period, strategic choices are considered to be less affected by outside pressures. Also, this study creates a stronger focus on a more coherent era, where it regards the evolution of modern trends and values that affect the corporate environment to a higher extent today.

Through the descriptive statistics, the average age range is to be considered a quite high spectrum overall, meaning US boards seem to be dominated by mostly the same generation. Results showing how dividend payout ratio increases with the board's age is therefore most interesting. It could indicate that it is not merely different schoolings of generations that determine how the policy is set, but possibly more direct implications of age. As previous

research shows people above 50 years are considered to be in the higher age spectrum (Verhaeghen & Salthouse, 1997; Ebner, Freund & Baltes, 2006), this imposes both advantages and limitations that come with age.

Whether an older board is to generate higher or lower quality governance is disputed, yet in general, higher age is associated with less cognitive abilities and motivation (Verhaeghen & Salthouse, 1997; Ebner, Freund & Baltes, 2006). However, it should be argued that older directors possess experience younger generations lack, and can therefore provide both guidance, skills and knowledge. The argument that older directors, like older CEOs, would be prone to engage in higher risk endeavours (Serfling, 2014) should be questioned. It is possible that the operational leadership role of the CEO encompasses a different view on risk taking, than the role of the director. In effect, directors generally become more risk averse with age. The decreasing motivation that follows age could furthermore be discussed through the Stewardship Theory. Such an approach would indicate that older directors are less equipped to represent the shareholders in a satisfactory manner.

In accordance with the above analysis, a more conservative and risk-advert approach to investments and decision making could be connected to more experience and deteriorating motivation. This would indicate that the increased dividend payout is a result of lower quality governance and the Substitution Hypothesis is thereby supported.

Conclusion: The null hypothesis is rejected. A higher average board age tends to result in a higher dividend payout ratio. Support is found for the Substitution Hypothesis.

6.1.2 Board Meetings

H_4 *: Significant relationship between board meetings and dividend payout.*

Frequency of board meetings show a positive association with dividend payout ratio, which means that a higher frequency of board meetings results in larger dividend payout. The result is significant at the 1 percent level. As previously mentioned, there is a lack of prior empirical research focusing on what effect the amount of board meetings has on dividend payout. That the result of this study differs from the findings by Elmagrhi et al. (2017), can be explained by

how they explored SMEs on the UK market. It is reasonable to expect that larger corporations demand a different meeting structure than smaller firms.

Theoretically, the empirical findings are in accordance with the Outcome Hypothesis, which suggests that firms with strong corporate governance will be positively associated with larger dividend payouts. This implies that well-governed companies have directors and managers that offer great engagement to their firms, by being active and having a higher frequency of board meetings. In the sample, the amount of board meetings per firm year vary between 1 and 37 with a mean of 7.2 meetings. Intuitively, having many board meetings (more than twelve) may send signals of an existing problem within the firm. However, many board meetings does not necessarily mean that the firm is poorly governed, instead it gives an opportunity to show that the firm is strongly governed. Stewardship Theory, which suggests that internal factors such as collectivism and loyalty have a higher utility than individualistic motives, can be used when analysing firms with a higher board meeting frequency than the mean. Suppose a problem exists within the firm that requires a higher amount of board meetings. This could signal how directors and managers are working tirelessly to find solutions to the problem, which goes in line with Davis, Schoorman and Donaldson (1997) arguments that stewards always prioritise the interests of the firm.

Analysing from the Agency Theory framework, Vafeas (1999) argues that frequent board meetings can increase agency costs. Frequent board meetings could reduce the time directors spend monitoring management and should therefore not be considered as a good governance mechanism. On the other hand, Conger, Finegold and Lawler III (1998) claim that frequent board meetings instead improve the quality of the governance process. Moreover, the frequency of board meetings delivers information regarding decisions to shareholders and managers in a transparent way and can therefore reduce agency costs. Through the Agency Theory, frequent board meetings could thereby signal a well governed firm. This would in turn support the Outcome Hypothesis.

Conclusion: The null hypothesis is rejected. A higher amount of board meetings tend to result in a higher dividend payout ratio. Support is found for the Outcome Hypothesis.

6.1.3 CEO Duality

H_6*: Significant relationship between CEO role duality and dividend payout.*

The empirical results show a positive relationship between CEO duality and dividend payout ratio. The significance is on the 10 percent level. The positive coefficient thereby describes that firms where the CEO and chairman positions are held by the same person display a higher dividend payout ratio. The average difference is quite low, firms with CEO duality generally have a 1.53 percentage points higher ratio than firms without.

The results are in support of previous work by Chen, Leung and Goergen (2017), Tahir, Masri and Rahman (2020), and Jensen (1993) who all observed a positive relationship. In doing so, the remaining studies conducted on the variable are discarded. What should be noted is that none of the previous studies conducted have a scope similar to this one. The studies are all conducted before 2011, with exception for Tahir, Masri and Rahman (2020) whose study ranges from 2005 to 2018. Firms are either collected world wide, or from Asian countries, or in the case of Ghosh and Sirmans (2006), the study solely focuses on REITs, which are covered by different dividend and tax regulations. It is therefore difficult to pinpoint what specifically makes for a resembling result, and it may well be that the conclusion is that our result regarding duality is not fully comparable to other studies.

Duality is commonly linked to agency conflicts, as it is said to increase the CEO positions power at a cost of shareholder rights. Furthermore, duality is said to weaken the monitoring power of the board, and in extension of the shareholders. As previously stated, CEO duality is also considered to reduce shareholder protection, by increasing the power of top management. Even though duality brings lower governance quality, nearly half of the firms in the sample have selected this form of power distribution. Interesting to note is how this contrasts to how common law countries generally hold high shareholder protection (La Porta et al., 1998). This could be one of the reasons why shareholders and regulators in the US currently advocate against entrenchment.

The results can hereby instantly be considered to support the notion that dividend payouts are increased in an effort to minimise agency costs. In consequence, firms with higher entrenchment and lower shareholder rights, and thus lower quality governance, attempt to compensate their shareholders through increased dividend payments. It can therefore also be said that the empirical results support the Substitution Hypothesis.

Conclusion: The null hypothesis is rejected. CEO duality tends to result in a higher dividend payout ratio. Support is found for the Substitution Hypothesis.

6.2 Insignificant Variables

6.2.1 Board Gender Diversity

H_2*: Significant relationship between gender diversity and dividend payout.*

A positive, yet insignificant, relationship is shown between board gender diversity and dividend payout. As the variable is insignificant the coefficient cannot be verified at conventional levels. The positive coefficient supports the work in Spain by Pucheta-Martinez and Bel-OMs (2015) and the US Chen, Leung and Goergen (2017). It is probable that these results contradict those of Elmagrhi et al. (2017) because of differences in scope. Most obvious is that Elmagrhi et al. (2017) only investigate SMEs, in contrast to this study, as well as previous ones. It is more unlikely that geographical differences influenced the results as a positive coefficient was displayed in the US and Spain and a negative coefficient in the UK. This is because both the UK and Spain were subject to EU law at the time of the studies, and also as values regarding diversity cannot be expected to be very different.

The interpretation of the variable used in this study, percentage of women, must be considered ambiguous with regard to quality. This might be the explanation for the poor significance. What must be considered is that a high percentage of women would indicate an undiverse board, in the same manner as a board with a considerable majority of male directors. A positive relationship between percentage of women and dividend payout ratio would indicate that women, to a larger extent than men, favour a more generous dividend policy. For a firm to enjoy the advantages or suffer the disadvantages of a diverse board, and thus promote a higher

dividend payout ratio, the board diversity variable should optimally be around 50 percent. Through this, conclusions regarding quality could become impossible to reach from a positive coefficient. However, the empirical evidence shows an upper limit of 75 percent women on the boards of US corporations. The highest quartile is furthermore constituted by boards ranging around 40 percent (see Appendix IX). Meanwhile there are boards that are solely constituted by men. Possibly we can therefore conclude that a high percentage of women, does in fact indicate a more diverse gender distribution.

A higher degree of gender diversity would be considered higher quality in bringing greater and more diverse perspectives, higher monitoring, effectiveness and independence (Carter, Simkins & Simpson, 2003; Erhardt, Werbel & Shrader, 2003; Adams & Ferreira, 2009; Pucheta-Martinez & Bel-OMs, 2015). Through the Outcome Hypothesis a higher percentage of women would thereby contribute to higher dividend payments. Through the Substitution Hypothesis a higher degree of diversity brings conflict and inefficiency, and is thus an indicator of lower governance quality. Regardless, both perspectives are affiliated with a positive relationship between gender diversity and dividend payout ratio. Thus, the coefficient cannot instantly be said to indicate whether the Outcome- or Substitution Hypothesis is supported, by merely discussing the gender variable. However, as a majority of previous studies have in fact positioned gender diversity as an indicator of good governance, it would be more pertinent to establish that the outcome explanation for a positive relationship as more fitting.

Conclusion: The null hypothesis is accepted. A significant relationship between board gender diversity and dividend payout ratio was not found. Support is found for neither the Outcome- or Substitution Hypothesis.

6.2.2 Board Independence

H_3*: Significant relationship between board independence and dividend payout.*

Board independence displays a negative yet insignificant association with dividend payout. The significance level needs an extensive improvement for the variable to statistically prove a relationship between board independence and dividend payout. The result is coherent with that of Elmagrhi et al. (2017).

Previous studies have found significant evidence regarding the positive impact independent directors have on the firm's dividend payout (Sharma, 2011; Hu & Kumar, 2004). Reasons behind this study not finding a significance is a difficult question. Board independence can be affected by different laws and regulations depending on the studied firm's country of origin. Much like Sharma (2011), this study investigates US firms with a similar amount of firms. Hence, this study not finding a similar result is of interest. Through period fixed effects this study benefits from the advantages of panel data, while Sharma (2011) solely examines data from 2006. A possible explanation for Hu and Kumar (2004) reaching the accepted significance level is that the study used a dummy variable, where 1 equals at least 40 percent outside directors and 0 equals all else.

It is possible that the independence hinders directors from using the firm's earnings to benefit themselves and instead favour the interests of shareholders. A company with a high fraction of independent directors is considered well-governed because of the reducing agency costs it generates. This study not finding significance is surprising since both the theory and prior studies argue that board independence should have a significant and positive effect on dividend payout. It must whatsoever be concluded that the coefficient cannot be determined through this study and therefore neither the Outcome- or Substitution Hypothesis can be supported.

Conclusion: The null hypothesis is accepted. A significant relationship between board independence and dividend payout ratio was not found. Support is found for neither the Outcome- or Substitution Hypothesis.

6.2.3 Board Size

H_5*: Significant relationship between board size and dividend payout.*

The coefficient between board size and dividend payout ratio is negative, which implies that larger boards pay lower dividends, but the relationship is not significant at conventional levels. Therefore, no reliable conclusion regarding the relationship can be drawn.

This result is correspondent to the findings of Yarram and Dollery (2015), who found no significance between board size and dividend payout. However, prior studies are mostly reporting a positive relationship between the two variables. Similarities in method make the

studies worth referring to, however all studies have examined different countries. For instance, a straight comparison to the results of Tahir, Masri and Rahman (2017) is not ideal since Malaysia is an emerging market and not as developed as the US. Elmagrhi et al. (2017) studied SMEs in the UK and Al Farooque, Hamid and Sun (2021) investigated Australia. Compared to the study of Mehdi, Sahut and Teulon (2017) who examine Gulf Cooperation Council Countries, the alternating result can be explained through industry bias: in countries such as Bahrain, Saudi Arabia, Kuwait and Oman, there is a higher degree of firms within the oil industry than in the US. As the industry differs, so could the board's tasks and characteristics. This can affect the amount of board members a company possesses, which in turn could lead to a distortion of the result.

Through both the Outcome- and Substitution Hypothesis larger boards are suggested to have a positive effect on dividend payout ratio. Larger boards are often more aggregated experience and expertise, which can lead to a more effective monitoring of management (Dalton et al., 1999). This may in turn lead to reduced agency costs. Through the Outcome Hypothesis larger boards thereby increase dividend payouts. On the contrary, the substitution approach suggests that communication and coordination errors are more likely to occur in larger boards. Thus, larger boards can be seen as a poor governance mechanism and the firms are therefore paying larger dividends as a substitute for weak governance. Worth noting is that a significant amount of the studied companies have gone against Jensens (1993) suggestion of having no more than seven or eight board members and instead followed ISS (2021) recommendation of having nine to twelve board members. The sampled firms can thus be considered overall high quality by ISS standards. However, as stated above, this study has not found any significance regarding the board size effect on dividend payout and cannot draw any conclusions regarding the Outcome- and Substitution hypothesis.

Conclusion: The null hypothesis is accepted. A significant relationship between board size and dividend payout ratio was not found. Support is found for neither the Outcome- or Substitution Hypothesis.

7 Conclusion

The concluding chapter includes a recap of the most important findings of the study. The central themes of the thesis are once again discussed and a conclusion regarding the Outcome- and Substitution Hypotheses is reached.

The main purpose of this thesis is to investigate the nexus between dividend payout policy and board quality, defined through different board characteristics. The empirical evidence documents that board director age, frequency of board meetings and CEO duality have a significant positive relationship with the level of dividend payout. Simultaneously, the study reports that board gender diversity, board independence and board size do not have a significant relationship with dividend payout.

The theoretical framework used in this study is largely based on the Outcome Hypothesis and the Substitution Hypothesis. Through the analysis it is established that a high frequency of board meetings is considered to be a sign of a well governed firm, hence the positive relationship with dividend payout ratio is in line with the Outcome Hypothesis. A higher board age and CEO duality are considered to indicate weak governance. As the variables positively influence dividend payout ratio, the Substitution Hypothesis is supported.

Throughout the thesis, the crucial position held by the board of directors has been emphasised. Despite indications that strong governance is more coveted than ever, the result determines that shareholders consider dividends a satisfactory substitute for poor governance. One explanation for this shareholder preference can be linked to the Signalling Hypothesis. Dividends deliver a promise of future stability and profitability and are more trustworthy means of information than forecasts distributed by the firm. In addition, through the Bird-In-The-Hand Hypothesis, shareholders prefer certainty through dividends, as opposed to awaiting the riskier capital gains. It can be said, dividends hereby reduce the risk of investment by eliminating information asymmetry and securing a certain amount of recurring return. These benefits exceed the negative implications of poor governance. On this basis, research can work to find further governance related explanations to why corporations pay dividends.

8 Discussion

The authors discuss the implications of the study for the theoretical landscape surrounding both dividend policy and corporate governance. Limitations in the study are highlighted and thus further extensions for future research are proposed.

This study provides new evidence, that various board characteristics affect the level of dividend payout in the US. The results contribute to existing literature by giving a more comprehensive view on the board's effect and can be used for future meta analysis. As the results vary quite drastically between studies, the true relationship between board characteristics and dividend payout appears to be complex. Therefore, the research area is a subject for further discussion.

The control variables are unconventionally significant and must therefore be assessed critically. They have been selected as they have most frequently been shown to significantly impact dividend payout ratio. However, the fact that the results are questionable makes for further investigation. The reason for the control variables extreme significance can be derived from a wrongfully specified OLS-model or measurement error, as discussed in section 4.*6 Methodology Critique.* Therefore, future research could consider other estimation methods such as a Tobit model. The wrongful specification could also be explained by the nonlinearity shown by Ramsey's RESET-test, and should be addressed in future research by making a stronger transformation of the variables, for example the natural logarithm instead of winsorization.

Furthermore, the OLS-model may suffer from endogeneity, causing bias. The methodology dealt with omitted variable bias using fixed effects, however, endogeneity may still be present and can be derived from other endogeneity causing effects. For instance, could reverse causality or simultaneity be present, meaning it is uncertain whether explanatory variables drive the dependent variable or vice versa. Therefore, future research can address the problem by using a cross-lagged panel model with fixed effects, and compare the results to move the research forward.

The different models presented in section *5 Empirical Results,* differ a lot in regards to p-values and adjusted R^2. The difference is a consequence of model reconstruction based on the OLS-

tests conducted in the study. Moreover, the final model returns a high adjusted R^2 compared to previous empirical studies (Jiraporn, Kim & Kim, 2011; Chen, Leung and Georgen, 2017; Elmagrhi et al., 2017). A high goodness-of-fit does not necessarily indicate that the regression model has good fit to the data, thus a bias model could have a high R^2. Therefore, the R^2 should not solely be used to assess if the model is more appropriate compared to previous research.

The descriptive statistics of this study are rather interesting compared to previous findings. The board gender diversity variable returned a mean of 19.3 percent across all observed US firms. However, Pucheta-Martinez and Bel-OMs (2015) researched the same variable on Spanish firms and observed a mean of 7.8 percent. The difference is surprising and could possibly be explained by the cultural differences between the US and Spain. Additionally, Elmagrhi et al. (2017) presented a mean of 12.0 percent for SME firms in the UK. Therefore, another reason could be the large firm bias discussed in section *4.6.3 Validity.* The bias should be addressed in future research to draw better conclusions from the gender diversity statistics in this study. Hence, future research could address the problem by giving different weights to different firms based on distribution, or gather the missing data from other databases or manually. This could provide a better result concerning all variables.

Another way to contribute to extant literature is to study board gender diversity and board independence further. The variables did not show a significant relationship with DPR in this study, as opposed to previous work. An explanation could be the construction of the variables. For instance, the board gender diversity in this study tests if an increased percentage of women in the board have an impact on DPR. The variable could have been measured with a dummy for different specific quantitative thresholds to avoid misleading results. It is not necessarily the case that a higher percentage leads to better diversity beyond a specific level. Therefore, the variables may not be robust in regards to this. This would capture different research angels of gender diversity and thus contribute to the literature.

The study showed a significant relationship between DPR and board meetings. As highlighted, the connection between board meetings and dividend payout is relatively untouched in literature. Thereby, there is room for further research within the field. It would be beneficial in future research attempts to complement these findings through studies with different approaches, markets and variable constructions, to create a more comprehensive understanding for board meetings and its impact. Furthermore, future studies could include even more board

characteristics. For example, variables describing directors' industry experience, education, professional background or whether the directors have other board commitments, would be most interesting to investigate.

The last addition to this thesis is the notion that while board characteristics, quite evidently, influence dividends, it is inconclusive what dividend policy can indicate about the board. That is, if certain boards are more prone to pay a certain amount of dividends, then what does a certain amount of dividends tell us about the board paying them?

Ultimately, what does the dividend say?

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Appendices

Appendix I - Heteroscedasticity Test– Base Model

Dependent Variable: RESID02^2
Method: Panel Least Squares
Sample: 2015 2019
Periods included: 5
Cross-sections included: 803
Total panel (unbalanced) observations: 3117
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
B_AGE^2	0.116011	0.257563	0.450418	0.6525
B_AGE	-15.75353	32.43213	-0.485739	0.6272
B_DIV^2	0.000879	0.036547	0.024044	0.9808
B_DIV	-0.237210	1.780647	-0.133216	0.8940
B_IND^2	-0.011263	0.059357	-0.189758	0.8495
B_IND	1.384956	9.432349	0.146830	0.8833
B_MEET^2	-0.402277	0.145643	-2.762082	0.0058
B_MEET	14.68341	4.725337	3.107378	0.0019
B_SIZE^2	-0.488560	1.312860	-0.372134	0.7098
B_SIZE	8.056983	27.61824	0.291727	0.7705
DUA	-21.41998	14.14364	-1.514460	0.1300
FCF^2	3.931786	1.187595	3.310712	0.0009
FCF	-15.86872	20.75891	-0.764429	0.4447
LEV^2	-0.021604	0.034149	-0.632624	0.5270
LEV	3.517824	3.821309	0.920581	0.3574
ROA^2	0.266007	0.163479	1.627162	0.1038
ROA	-10.31411	7.256317	-1.421397	0.1553
SIZE^2	3.010603	8.073924	0.372880	0.7093
SIZE	-25.88992	131.0871	-0.197502	0.8435
TOB_Q^2	-0.023762	1.212975	-0.019590	0.9844
TOB_Q	-2.902740	19.26972	-0.150637	0.8803
B_AGE*B_DIV*B_IND*B_MEET*B_SIZE*FCF*LEV*ROA*SIZE*TOB_Q	-8.14E-11	1.05E-10	-0.772397	0.4400
C	552.8532	1191.819	0.463874	0.6428

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

Root MSE	159.6000	R-squared	0.596289
Mean dependent var	92.08184	Adjusted R-squared	0.450191
S.D. dependent var	251.2276	S.E. of regression	186.2830
Akaike info criterion	13.51514	Sum squared resid	79396694
Schwarz criterion	15.12277	Log likelihood	-20234.35
Hannan-Quinn criter.	14.09228	F-statistic	4.081433
Durbin-Watson stat	2.423447	**Prob(F-statistic)**	**0.000000**

Appendix II - Heteroscedasticity Test– Final Model

Dependent Variable: RESID01^2
Method: Panel Least Squares
Sample: 2015 2019
Periods included: 5
Cross-sections included: 803
Total panel (unbalanced) observations: 3117
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
B_AGE_W^2	-0.290092	0.342693	-0.846505	0.3974
B_AGE_W	32.86393	42.69490	0.769739	0.4415
B_DIV_W^2	-0.035160	0.042803	-0.821435	0.4115
B_DIV_W	0.415848	1.792089	0.232046	0.8165
B_IND_W^2	-0.008946	0.068970	-0.129709	0.8968
B_IND_W	0.345925	11.25086	0.030747	0.9755
B_MEET_W^2	-0.577939	0.425456	-1.358397	0.1745
B_MEET_W	14.98944	8.183563	1.831652	0.0671
B_SIZE_W^2	-0.412778	1.765086	-0.233857	0.8151
B_SIZE_W	4.510355	35.13268	0.128381	0.8979
DUA	-6.406651	11.58951	-0.552798	0.5805
FCF_W^2	7.824461	2.633419	2.971217	0.0030
FCF_W	-25.52840	16.04943	-1.590611	0.1118
LEV_W^2	4.346216	2.337173	1.859604	0.0631
LEV_W	-39.57578	22.89392	-1.728659	0.0840
ROA_W^2	0.434088	0.407265	1.065861	0.2866
ROA_W	-10.27161	9.764201	-1.051966	0.2929
SIZE^2	-2.871341	6.687058	-0.429388	0.6677
SIZE	62.62057	113.8930	0.549819	0.5825
TOB_Q_W^2	-0.748512	3.636929	-0.205809	0.8370
TOB_Q_W	4.002244	29.10429	0.137514	0.8906
B_AGE_W*B_DIV_W*B_IND_W*B_MEET_W *B_SIZE_W*FCF_W*LEV_W*ROA_W*SIZE* TOB_Q_W	3.66E-10	5.71E-10	0.640807	0.5217
C	-1071.619	1457.397	-0.735297	0.4622

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

Root MSE	118.7850	R-squared	0.467437
Mean dependent var	68.50706	Adjusted R-squared	0.274709
S.D. dependent var	162.7968	S.E. of regression	138.6443
Akaike info criterion	12.92443	Sum squared resid	43980461
Schwarz criterion	14.53206	Log likelihood	-19313.72
Hannan-Quinn criter.	13.50157	F-statistic	2.425371
Durbin-Watson stat	2.356720	**Prob(F-statistic)**	**0.000000**

Appendix III - Ramsey RESET Test – Base Model

Dependent Variable: DPR
Method: Panel Least Squares
Sample: 2015 2019
Periods included: 5
Cross-sections included: 803
Total panel (unbalanced) observations: 3117
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
B_AGE	-0.484204	2.109717	-0.229511	0.8185
B_AGE^2	0.003753	0.016588	0.226267	0.8210
B_DIV	-0.019507	0.102221	-0.190827	0.8487
B_DIV^2	0.001270	0.001759	0.722047	0.4703
B_IND	0.239056	0.482232	0.495728	0.6201
B_IND^2	-0.001431	0.003079	-0.464896	0.6421
B_MEET	0.742909	0.330205	2.249843	0.0246
B_MEET^2	-0.038227	0.013695	-2.791336	0.0053
B_SIZE	-0.033255	1.439150	-0.023108	0.9816
B_SIZE^2	0.003405	0.067466	0.050465	0.9598
DUA	-0.633954	0.870063	-0.728629	0.4663
FCF	0.772462	1.264932	0.610675	0.5415
FCF^2	-0.092731	0.048446	-1.914133	0.0557
LEV	-0.013748	0.190642	-0.072117	0.9425
LEV^2	1.50E-05	0.002078	0.007210	0.9942
ROA	-1.501073	0.367412	-4.085526	0.0000
ROA^2	0.050369	0.011818	4.262193	0.0000
SIZE	-21.53766	7.340116	-2.934240	0.0034
SIZE^2	1.157506	0.432904	2.673817	0.0076
TOB_Q	1.190131	1.080453	1.101511	0.2708
TOB_Q^2	-0.096462	0.074627	-1.292589	0.1963
C	114.1234	72.35839	1.577197	0.1149
DPRF^2	0.014182	0.001586	8.944613	**0.0000**

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

Root MSE	9.036810	R-squared	0.834602
Mean dependent var	38.41806	Adjusted R-squared	0.774746
S.D. dependent var	22.22387	S.E. of regression	10.54765
Akaike info criterion	7.772411	Sum squared resid	254546.5
Schwarz criterion	9.380045	Log likelihood	-11284.30
Hannan-Quinn criter.	8.349549	F-statistic	13.94359
Durbin-Watson stat	2.339889	Prob(F-statistic)	0.000000

Appendix IV - Ramsey RESET Test – Final Model

Dependent Variable: DPR_W
Method: Panel Least Squares
Sample: 2015 2019
Periods included: 5
Cross-sections included: 803
Total panel (unbalanced) observations: 3117
White diagonal standard errors & covariance (d.f. corrected)

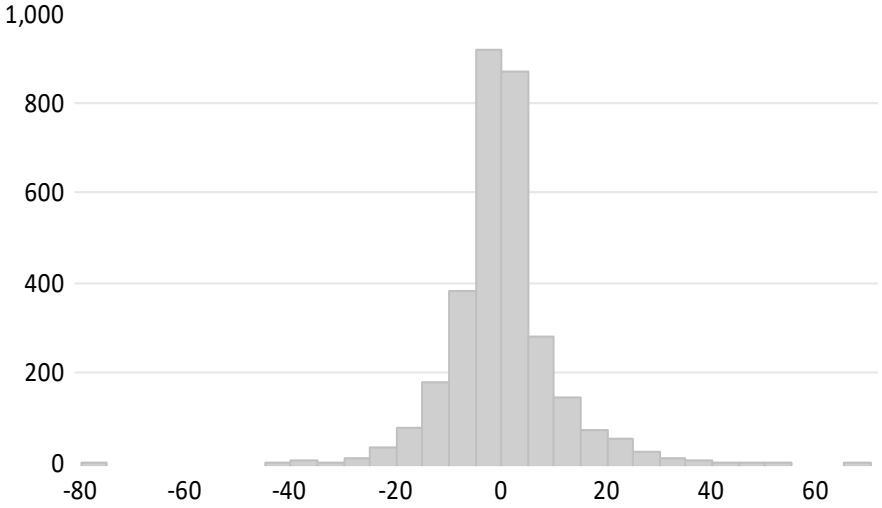
Variable	Coefficient	Std. Error	t-Statistic	Prob.
B_AGE_W	0.290009	3.073344	0.094363	0.9248
B_AGE_W^2	-0.001406	0.024512	-0.057342	0.9543
B_DIV_W	-0.142397	0.118285	-1.203844	0.2288
B_DIV_W^2	0.004253	0.002761	1.540441	0.1236
B_IND_W	0.270972	0.682361	0.397110	0.6913
B_IND_W^2	-0.001728	0.004237	-0.407840	0.6834
B_MEET_W	1.876489	0.577900	3.247083	0.0012
B_MEET_W^2	-0.102228	0.032112	-3.183505	0.0015
B_SIZE_W	-0.491428	2.014693	-0.243922	0.8073
B_SIZE_W^2	0.024770	0.103293	0.239800	0.8105
DUA	0.106257	0.796480	0.133408	0.8939
FCF_W	3.962450	1.051828	3.767204	0.0002
FCF_W^2	-0.405194	0.162142	-2.499007	0.0125
LEV_W	-2.729282	1.542186	-1.769749	0.0769
LEV_W^2	0.265434	0.157795	1.682147	0.0927
ROA_W	-2.190746	0.533138	-4.109155	0.0000
ROA_W^2	0.084750	0.022779	3.720560	0.0002
SIZE	-19.89206	6.976491	-2.851298	0.0044
SIZE^2	0.979287	0.395981	2.473065	0.0135
TOB_Q_W	-0.975514	1.761095	-0.553925	0.5797
TOB_Q_W^2	0.144948	0.234537	0.618020	0.5366
C	98.10458	101.9899	0.961905	0.3362
DPR_WF^2	0.009592	0.001188	8.075827	**0.0000**

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

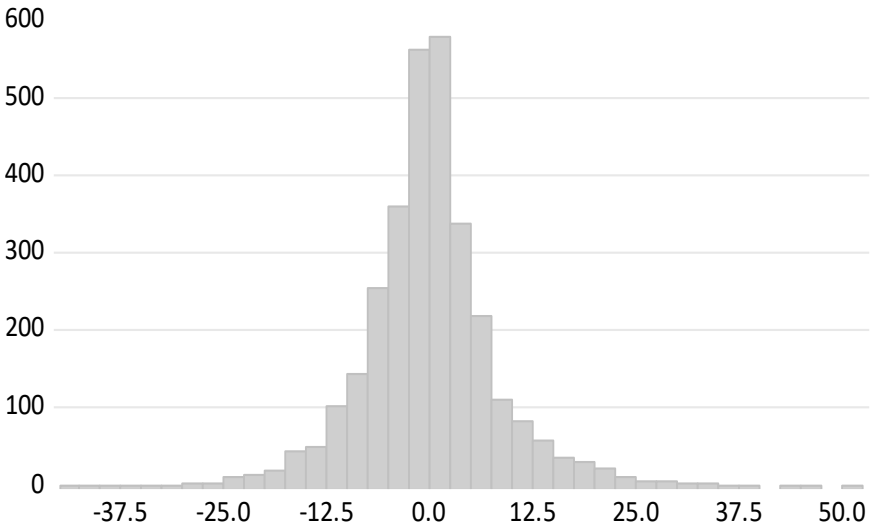
Root MSE	7.940427	R-squared	0.858296
Mean dependent var	38.19150	Adjusted R-squared	0.807014
S.D. dependent var	21.09706	S.E. of regression	9.267962
Akaike info criterion	7.513733	Sum squared resid	196528.0
Schwarz criterion	9.121367	Log likelihood	-10881.15
Hannan-Quinn criter.	8.090870	F-statistic	16.73706
Durbin-Watson stat	2.251638	Prob(F-statistic)	0.000000

Appendix V - Normality test (Jarque-Bera) for Model 2



Series: Standardized Residuals	
Sample 2015 2019	
Observations 3117	
Mean	-1.05e-16
Median	-0.293429
Maximum	68.20218
Minimum	-78.21214
Std. Dev.	9.597468
Skewness	0.535419
Kurtosis	8.441278
Jarque-Bera	3994.202
Probability	0.000000

Appendix VI - Normality test (Jarque-Bera) for Final Model



Series: Standardized Residuals	
Sample 2015 2019	
Observations 3117	
Mean	-2.39e-17
Median	-0.133544
Maximum	51.39279
Minimum	-42.81872
Std. Dev.	8.266496
Skewness	0.397596
Kurtosis	6.660655
Jarque-Bera	1822.500
Probability	0.000000

Appendix VII – Redundant Fixed Effects Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.000094	(802,2299)	**0.0000**
Cross-section Chi-square	4913.538287	802	**0.0000**
Period F	4.349335	(4,2299)	**0.0017**
Period Chi-square	23.498636	4	**0.0001**
Cross-Section/Period F	10.980510	(806,2299)	**0.0000**
Cross-Section/Period Chi-square	4921.436514	806	**0.0000**

Appendix VIII – Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	123.514199	11	**0.0000**

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
B_AGE	0.407276	0.364669	0.008748	0.6487
B_DIV	0.114982	0.127206	0.000805	0.6666
B_IND	-0.021201	-0.036834	0.001516	0.6881
B_MEET	0.427091	0.448336	0.002070	0.6405
B_SIZE	-0.216441	0.099917	0.021907	0.0326
DUA	1.473202	2.710122	0.198123	0.0055
FCF	3.728578	3.613458	0.002870	0.0316
LEV	0.105378	0.163992	0.001133	0.0816
ROA	-1.612773	-1.110877	0.004592	0.0000
SIZE	-3.332988	-0.376549	1.774888	0.0265
TOB_Q	0.453470	2.106659	0.075768	0.0000

Appendix IX – Boxplot