



**The Impact of Corporate Governance Mechanisms on Dividend Policy: An
Empirical Evidence from Saudi Arabia**

A thesis submitted in partial fulfillment for the Master Degree of Science in
Finance

By
Ahlam Alrehaili

Supervisor
Faleel Jamalaldeen, PhD.

Effat College of Business
Effat University
Jeddah - Saudi Arabia

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إعداد
احلام الرحيلي

المشرف
د. فليل جمال الدين

كلية عفت للأعمال
جامعة عفت
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**Effat University
Jeddah, Saudi Arabia
Deanship of Graduate Studies and Research**

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Thesis Committee

Thesis Supervisor

Name: Dr. Faleel Jamaldeen

Signature: 

Co-supervisor/member

Name:-----

Signature:-----

External Member

Name:-----

Title:-----

Signature:-----

Member

Name:-----

Title:-----

Signature:-----

Department Chair

Name:-----

Signature:-----

Dean of the College

Name:-----

Signature:-----

Dean of Graduate Studies & Research

Name:-----

Signature:-----

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Name of Student: *Ahlam Alrehaili*

Signature: 

Table of Contents

Table of Contents	iv
Abstract	1
1. Chapter I: Introduction	2
1.1. Background.....	2
1.2. Problem Statement.....	4
1.3. Significance of the Study.....	5
1.4. Research Questions.....	5
1.5. Objectives of the Study.....	6
1.6. Research Hypotheses.....	6
1.7. Scope of the Study.....	7
1.8. Research Limitations.....	7
1.9. Outline of the Thesis.....	8
2. Chapter II: Review of Literature	9
2.1. Theoretical Review of Literature.....	9
2.2. Empirical Review of Literature.....	14
2.3. Hypotheses Development.....	21
2.4. Chapter Summary.....	24
3. Chapter III: Methodology	25
3.1. Data.....	25
3.2. Sample Selection.....	26
3.3. Panel Data Techniques.....	27
3.4. The Model Specifications and Variables.....	29
3.5. Chapter Summary.....	36
4. Chapter IV: Results and Discussions	37
4.1. Descriptive Statistics.....	37
4.2. Results of the Logit Models.....	40
4.3. Results of the Tobit Models.....	47
4.4. Discussions.....	55

4.5.	Chapter Summary	59
5.	Chapter V: Conclusions and Limitations	60
5.1.	Conclusions.....	60
5.2.	Study Limitations and Future Research.....	61
5.3.	Implications	62
	References.....	63
	Appendices.....	66

List of Tables

Table 1	Summary of Variables	30
Table 2	Dividend Payers Descriptive Statistics	39
Table 3	Dividend Non-payers Descriptive Statistics	39
Table 4	Results of Logit Model 1	40
Table 5	Results of Logit Model 2	42
Table 6	Results of Logit Model 3	43
Table 7	Results of Logit Model 4	44
Table 8	Results of Logit Model 5	45
Table 9	Results of Tobit Model 1.....	47
Table 10	Results of Tobit Model 2.....	48
Table 11	Results of Tobit Model 3.....	49
Table 12	Results of Tobit Model 4.....	51
Table 13	Results of Tobit Model 5.....	52
Table 14	Logit Diagnostics	54

List of Figures

Figure 1	Cross-section Output of Logit Model 4 (BRDINDP)	46
Figure 2	Cross-section Output of Logit Model 4 (BRDS).....	46
Figure 3	Cross-section Output of Logit Model 4 (BRDM)	46

Abstract

What determines when a company pays dividends or why, has been a topic of debate in the finance literature for decades. A vast body of research has suggested that dividends are used as a mitigation strategy to agency costs arising from corporate governance practices (La Porta et al, 2000). Previous literature has investigated if dividend policy in a country or region is an outcome that complements good corporate governance practices and investor protection laws or a substitute model for those practices and laws. This research aims to investigate the association between the corporate board characteristics and the dividend policy among firms on the Saudi Stock Exchange. The research sample includes data from 103 non-financial firms over four years, from 2015 to 2018. The study employs logit and tobit models to investigate how corporate governance mechanisms such as board independence, board size and frequency of meetings impact dividend policy. This study concludes that board size, board independence and frequency of board meetings do not influence the firm's decision to pay dividends while board size has a significantly positive impact on the levels of cash dividends paid to investors. Furthermore, the level of free cash flow has a significant positive influence on both the decision to pay dividends and the magnitude of dividend payouts. In conclusion, board characteristics which represent one of the crucial mechanisms of corporate governance, are found to be complementary to corporate laws and regulations imposed on the Saudi market after 2015.

Keywords: Agency theory, Corporate governance, Dividend policy, Outcome vs. Substitute model

1. Chapter I: Introduction

As the title indicates, this chapter introduces dividend policy, corporate governance and the recent changes in Saudi market regulations. Furthermore, it gives a bird's eye view of the motivation of this thesis, its objectives, hypotheses and contribution to the literature on corporate governance and dividend payouts in the Saudi settings. This chapter is organized as follows: background of dividend policy and Saudi context, problem statement and research significance, the objective of the study and the thesis outline.

1.1. Background

1.1.1. Dividend Policy Definition

One of the crucial decisions that corporate management undertakes is the choice between making payouts to shareholders or use the retained earnings to invest in new projects that contribute to the value of a given firm. When a firm decides to issue payouts to shareholders, they either distribute cash dividends or use stock repurchases. This practice is referred to as a dividend policy. This thesis focuses only on cash dividend or commonly known as dividend payouts because stock repurchases are not a common practice among Saudi firms.

1.1.2. Corporate Governance in the Context of Saudi Arabia

The goal of any financial management should be to increase shareholders' wealth (Jensen, 2002), one approach to protect the shareholders' rights and their interests is corporate governance (CG) regulations. Corporate governance is a set of institutional and market-based mechanisms that motivate the managers of a company to act in the best interest of shareholders and work to maximize the shareholders' wealth (Denis & McConnell, 2003).

Such regulations ensure that there are effective governance corporate mechanisms in place that serve that purpose. One essential aspect of corporate governance is the board of directors (BoD). The capital market authorities around the globe regulate the board governance of each firm under their jurisdiction. Regulations might include but not limited to articles that put restrictions on the number of the board of directors, the relationship between its members and require disclosures of the shares held by the BoD or disclosure of the company-specific corporate governance policies.

Saudi Capital Market Authority (CMA) is the entity that regulates and enforces corporate governance mechanisms of listed firms on Tadawul.

In 2015, the Saudi Capital Market Authority made a separation between the functions of the board chairman and the chief executive officer (CEO). Thus, the CEO duality function is non-existent among Saudi firms after this new amendment (Kalyanaraman & Altuwaijri, 2016). In 2017, the Saudi Capital Market Authority replaced the existing corporate governance regulations with new regulation articles. This change in CG regulations came as a result of the newly implemented Companies Law, which took effect in the same year. The previous CG regulations published by Saudi Capital Market Authority were more of guiding articles and not mandatory. Under the new regulations, 76 out of 96 articles are mandatory, and companies had to adjust their corporate governance practices to comply with the newly imposed regulations.

With the new regulations of 2017, Saudi companies started to follow a seemingly similar governance structure, unlike before when the previous corporate governance regulations were merely guidelines. Also, under the new Companies Law and Corporate

Governance Regulations, firms are required to disclose more information and comply with more regulations that protect the interest of shareholders.

Corporate regulations that are the interest of this thesis are board size, board independence and frequency of board meetings. CMA limits the board size to be between a minimum of 3 directors or a maximum of 11 directors. It also mandates that at least no less than two directors of the board are independent or one-third of the board members. Under CMA corporate governance articles, independent directors refer to non-executive directors. They are entirely independent in their positions and decisions and are not affected by the issues specified in article 20. Lastly, the frequency of board meetings is recommended to be no less than four times per the fiscal year and no less than one meeting every three months. The board meetings' recommendation in article 32 is a guiding paragraph and not mandatory.

This research focuses on the relationship between corporate governance regulations such as board characteristics and the dividend payouts for listed non-financial firms in the Saudi Exchange Stock Market, formally known as Tadawul.

1.2. Problem Statement

Corporate governance mechanisms of the board of directors are an essential aspect of this research. Previous researches investigated corporate governance and dividend policy either in the emerging market or developed market. For example, (Adjaoud & Ben-Amar, 2010), (Yarram & Dollery, 2015) and (Elmagrhi, et al., 2017) investigated the corporate governance and dividend policy of corporation in developed countries while (Benjamin & Zain, 2015), (Mehdi, Sahut, & Teulon, 2017), (Sumail, 2018) investigated corporations from the emerging countries.

Nevertheless, there is still a gap concerning the Saudi market. Countries have different regulations and tax regimes than Saudi Arabia. This gap is further extended by the new regulations implemented by CMA in 2015 and 2017. Besides, the research that studied corporate governance and the dividend policy in Saudi Arabia used data before 2013 (Hamdouni, 2015). The paper included the CEO duality as one of the independent variables in the model. However, this variable is irrelevant under the new corporate regulations of 2015.

1.3. Significance of the Study

These new amendments in the Saudi capital market regulations necessitate reevaluating the corporate governance practices in Saudi Arabia since no published work has been conducted after the recent regulations in Saudi Arabia, as far as my knowledge.

This thesis aims to fill the gap in the literature by studying the association between corporate governance and dividend policy in Saudi Arabia. It provides updated information to investors and regulators interested in the Saudi market.

1.4. Research Questions

The research aims to answer the following questions:

1. How do board characteristics determine the propensity to pay dividends among Saudi firms?
2. What factors determine the level of dividends paid among Saudi Firms?
3. Are dividend payouts of Saudi firms an outcome of strong corporate governance practices or a substitute for them?

1.5. Objectives of the Study

The objectives of the research that aim to address the previous questions are:

1. To review the previous literature on the influence of corporate governance on dividend policy
2. To collect secondary data on corporate board and the financial performance from the Saudi market
3. To develop empirical strategies that investigate the impact of board characteristics on the decision and magnitude of dividend payouts
4. To investigate what dividend related theories are prevalent in the Saudi market

1.6. Research Hypotheses

The relationship between corporate governance and dividend policy has been an interest of researchers for decades.

The research hypotheses aim to answer research questions and investigate whether dividend policy is an outcome of strong corporate governance practices or a substitute for them.

- **H1:** Board size significantly determines the decision to pay dividends
- **H2:** Board size significantly impacts the level of dividend payouts
- **H3:** Board independence significantly determines the decision to pay dividends
- **H4:** Board independence significantly impacts the level of dividend payouts
- **H5:** The frequency of board meetings significantly determines the decision to pay dividends
- **H6:** The frequency of board meetings significantly impacts the level of dividend payouts

1.7. Scope of the Study

This research focuses on the Saudi market and examines the impact of corporate governance on dividend payouts. The corporate governance mechanisms that of interest to this study are board characteristics such as size, independence and frequency of meetings. The sample of the study includes all the non-financial firms listed on Tadawul from 2015 to 2018 and excludes financial and utilities firms.

1.8. Research Limitations

Though the present research follows empirical strategies previously used in the literature that investigated similar relationships between board characteristics and dividend payouts, this research is not without limitations. Due to time constraints and limited access to data sources on campus, this research excludes managerial ownership and institutional ownership from corporate governance attributes. Furthermore, there is no publicly published index of Saudi firms that measures the overall quality of corporate governance, and construction of such an index is not feasible given the current resources and the time available for this research.

1.9. Outline of the Thesis

The thesis is organized in five chapters: Introduction, Review of Literature, Methodology, Results and Discussions, and Conclusions and Limitations.

Chapter I: Introduction

This chapter introduces corporate governance in the Saudi settings and discusses the thesis motivation and the gap in the literature, research questions and briefly lists the research hypotheses.

Chapter II: Review of Literature

Chapter II reviews literature on dividend theories and the association with corporate governance. Moreover, it sets the theoretical framework of the research hypotheses

Chapter III: Methodology

This chapter discusses the research methodology, including data, sample selection and the regression models that investigate the hypotheses and answer the research questions.

Chapter IV: Results and Discussions

This chapter lists the results of the research models and discusses in detail the findings of each model and addresses the research questions and hypotheses.

Chapter V: Conclusions and Limitations

This chapter concludes the work of this research and briefly discusses the implications and recommendations for future research.

2. Chapter II: Review of Literature

This chapter reviews the theoretical work that addressed dividend policy and its association with corporate governance. It also discusses the previous empirical work in developed and emerging markets. Furthermore, the last section in the chapter introduces hypothesis development. It develops the link between the theories addressed in the literature review and the research variables and hypotheses.

2.1. Theoretical Review of Literature

Several theories developed over the years to understand why firms pay dividends and the relationship between those payouts and the firm's value, life cycle, cash flow and governance. This section reviews the related theories concerning payouts.

After almost three decades later, (Miller & Modigliani, 1961) assumed that in a "perfect capital market" where investors are rational, and there is a perfect certainty, dividends become irrelevant to the firm's value. MM set several assumptions that define the "perfect market," "rational investors," and "perfect certainty."

First, in a perfect market, there are no larger stock sellers, buyers or stock issuers that can cause the stock prices to appreciate. In this market, stock traders have equal and cost-free access to the same information about the stock in question. This market is completely free of taxes, transaction fees or any other fees that might occur during trade transactions. Second, "rational behaviors" refer to investors who favor more wealth over losses whether this increase in wealth is in the form of cash payments or an appreciation in the value of their stock holdings. Third, "perfect certainty" refers to each investor being assured of their future investments and the profits of every firm.

Under those assumptions, MM argued that dividends and capital gains generated from each invested dollar should be the same throughout the market and in any given period. (Miller & Modigliani, 1961) concluded that the investment policy and dividend policy of a firm is irrelevant to its current market valuation. Dividends do not affect the firm's overall value.

Several scholars have investigated and explored this theorem over the years. (Miller & Scholes, 1978) extended further on the work of (Miller & Modigliani, 1961) in the context of the United States (US) tax regimes. Their work came as implications of dividend irrelevance first proposed by MM. They argued that even with tax differentials of investors who favor capital gains, taxable investors are indifferent to dividends. They debated that investors could launder their personal tax on dividends with insurance or pension funds. Thus, their dividends can be tax exempted.

Under theories of (Miller & Modigliani, 1961) and (Miller & Scholes, 1978), the changes in dividends should not affect the overall value of the firm or the shareholders' wealth even in the presence of taxes.

On the contrary to dividend irrelevance theorem, (Richardson, Sefcik, & Thompson, 1986) examined how changes in dividend policy should lead to a significant increase in trading volume as markets are impacted by the shifts in shareholder clienteles. They used a sample of 192 firms that made dividend announcements for the first time between 1973-1977. Their findings suggested that the trading volume increased as a reaction to the signal about future earnings generated by dividends while clientele adjustment shifts were small. (Rees, 1997) investigated the impact of dividends, debt and investment decisions on the valuations of British firms. The researcher tested a sample of firms based in the United

Kingdom, covering the period from 1987 to 1995. He found that the signals of dividends and capital expenditure found to be significant, especially the impact of dividends. However, the author found that there was no substantial evidence of equity value being impacted by the level of leverage. The author proceeded to conclude that dividends have a lesser impact in larger or in firms that have high returns on equity.

(Richardson, Sefcik, & Thompson, 1986) and (Rees, 1997) work showed a relevance of dividends to firm valuation.

(DeAngelo & DeAngelo, 2006) also argued that in contrary to MM, even in a perfect market, dividend payouts are not irrelevant, and investment policy is not the only factor that determines a firm's value. DD argued that MM's analysis mandated that 100% of free cash flow is paid in every period. They explained that when the analysis assumptions of MM are relaxed and left room for some free cash flow retention, dividend policy matters just like the investment policy. Thus, they concluded that dividends are not a puzzle because it is built on the wrong assumption of MM's irrelevance theory, according to the authors.

2.1.1. Agency Theory

Agency costs and problems might occur within an organization when there is no substantial external control in place; insiders tend to expropriate opportunities that serve their interests. The early work that discussed agency costs found that the interests of managers are not necessarily aligned with the interests of the firm's shareholders (Jensen & Meckling, 1976), (Easterbrook, 1984), (Jensen, 1986). Managers tend to waste free cashflow on bad investments. Debt and dividends play an essential role in mitigating this exploitation risk. However, the presence of non-executive directors on board might make

exploiting such opportunities for the benefits of the manager more challenging. Separation of decision management and decision control across the different levels of an organization assists in controlling agency problems as it limits individual agents from exploiting the interests of minority shareholders or residual claimants (Fama & Jensen, 1983).

2.1.2. Dividend Policy as an Outcome or Substitute for Corporate Governance

(La Porta et al, 2000) made significant contributions to the development of the agency theory. They argued that when outside shareholders' protection is strong, the inside shareholders and management are less likely to retain cash. They tend to pay cash dividends because exploitation opportunities have become less efficient. Thus, dividends could be an "outcome" of strong governance practices and shareholders protection laws. This hypothesis is theoretically based on agency theory and free cash flow (Jensen, 1986). In other words, in the strongly governed firms, managers find fewer opportunities to exploit free cash flow. Thus, dividend policy under this hypothesis complements governance practices. By contrast, the managers in poorly governed firms tend to abuse cash flow for their personal gains. They engage in practices such as empire building and bad investments that serve their prestige and not the overall value of the firm (Jiraporn, Kim, & Kim, 2011).

Another hypothesis discussed by (La Porta et al, 2000) is the substitution model. The dividend payouts could be a substitute for outside directors. In this case, the managers pay dividends to tell investors that they are not wasting free cash and thus keeping their reputation. Dividend policy in the substitute model is used as a replacement for weak shareholder protection laws. Occasionally, these poorly governed firms might need to raise capital; hence they pay dividends to tell investors that they are not expropriating free cashflows. They might pay dividends to build up their reputation, but this is not a common practice for most of these firms. As a result, poorly governed firms are less likely to pay dividends. When they do pay dividends, they tend to have lower dividend payouts than their counterparties with strong corporate governance mechanisms.

2.1.3. Life Cycle Theory

Another dividends theory that is explored and examined in literature is the life cycle (Anthony & Ramesh, 1992). Firms with low-growth rates or mature firms tend to pay more dividends or engage in more stock repurchases compared to high-growth firms. Mature firms inform the market through their dividend policy that there is a decline in investment opportunities resulting in lower risks and rate of returns (Grullon, Michaely, & Swaminathan, 2002).

2.2. Empirical Review of Literature

One of the early papers that addressed dividend policy in emerging markets and compared them to US firms is (Aivazian, Booth, & Cleary, 2003), and since then, scholars are still investigating dividends in both developed and emerging markets.

(Adjaoud & Ben-Amar, 2010) studied how the quality of corporate governance of Canadian firms affects dividend policy. The authors' motive was to investigate if dividend payouts of Canadian companies are a result of the outcome or substitution hypothesis. The study sample consisted of 714 publicly listed on the Toronto Stock Exchange over four years (2002 - 2005). They concluded that the firms with well-established corporate governance mechanisms had high dividend payouts than their peers. Their study also found a positive relationship between firm size, free cash flow and dividend payouts while they documented the association between firm risk and being cross-listed in the United States. In conclusion, their result indicated that the dividend policy of Canadian companies is a result of an outcome model.

(Jiraporn, Kim, & Kim, 2011) examined the influence of the overall corporate governance quality on dividend policy. The authors studied a large sample from the firms in the ISS index. They used cash dividends to total assets along with net income to total assets ratio as a measure to the level of dividends. They used several regression models such as logit, ordinary least squares (OLS) and two-stage least squares (2SLS) regressions employed at different stages to study the CG attributes and firm-specific control variables. The authors concluded that the overall quality of corporate governance resulted in a positive influence on dividend policy supporting the outcome models for the sample investigated.

(Sharma, 2011) studied whether if board characteristics such as board independence, independent directors' tenure, the busyness of the board members and board ownership affect the likelihood of a firm to pay dividends. The papers examined 944 firms trading on NYSE and NASDAQ. The author's findings showed that there is a positive relationship between both board independence and director tenure and the firms' propensity to pay dividends. Also, there was a negative association between busy directors and equity compensation and the propensity to pay dividends.

(Benjamin & Zain, 2015) studied board characteristics and dividend payouts in an emerging market. Their work focused on the effects of board meetings and independence. Their motive was to investigate if CG attributes are substitutes to mitigate agency problems in Malaysian firms. They studied 114 firms over seven years from 2002 to 2008. According to their findings, there was a significant negative relationship between CG attributes and dividend payouts supporting the substitution model.

Another empirical study that examined board characteristics is (Yarram & Dollery, 2015). They investigated the association between board characteristics such as board size, independence and CEO duality and dividend policy of 413 Australian firms from 2004 to 2009. They used three empirical stages to investigate this relationship. The first stage employed a logit model to study the likelihood of paying dividends or the decision of dividend payouts. In the second stage, they implemented a random Effects Generalized Least Squares Estimator (GLS). This stage inspected the factors that influenced the companies that paid dividends. The third stage of analysis used a Tobit censored regression to analyze dividend behaviors among payers and nonpayers. Their empirical findings showed that board independence is positively associated with dividend payouts. This positive association implies that the dividend payouts are an outcome model. Their Tobit regression results supported the life cycle theory as growth rates had significantly impacted dividend payouts. Board size and CEO duality were found to have no relationship with dividend payouts. For firm-specific features, the researchers found that free cash flow has a positive impact on dividend behaviors. This finding supported agency cost theory among Australian firms.

(Mehdi, Sahut, & Teulon, 2017) studied the relationship between board governance and dividend policy in East Asian and Gulf Cooperation Council countries during crisis times. The model of the study was the generalized method of moments (GMM). The authors examined two dependent variables used separately: dividend payouts and the decision to pay dividends (dummy). They also used institutional ownership and board governance attributes as independent variables. Their sample excluded medium and small size firms and included 175 firms from GCC countries, including Saudi Arabia. The study concluded

that dividend payout decisions increased with institutional ownership and board characteristics. During a crisis, ownership concentration and board independency had a significant effect on dividend payouts in firms with CEO duality.

Corporate governance and dividend payouts had also been investigated in 50 small and medium enterprises (Elmagrhi, et al., 2017). The paper aimed to inspect the effects of board characteristics on the level of payouts in small and medium enterprises (SMEs) listed on the Alternative Investment Market in the United Kingdom. They concluded that board size, board meetings, board gender and audit committee size had a significant relationship with the level of dividend payouts while there was no significant relationship between board independence and CEO duality on dividend payouts. They concluded that among SMEs in the UK, dividend policy acted as a substitute model for poorly governed firms.

(Chang, Dutta, Saadi, & Zhu, 2018) addressed the inconclusive and mixed conclusions existing in corporate governance and dividend policy literature. The paper studied a sample collected from 30 countries. It also compared the results before and after the financial crisis of 2008–2009. The authors employed a tobit model to investigate corporate governance and dividend policy. They used the dividends-to-asset ratio as their dependent variable. The CG variables were based on the ISS41 index, which measures board, audit, antitakeover provisions, compensation and ownership. For the country-level governance variables, they used the ASD index. It measured the strength of the legal protection of minority shareholders against insider shareholders. For control variables, they referred to the work of (Brockman & Unlu, 2009). Their study concluded that firms with superior corporate governance paid higher levels of dividends. This relationship was noticeable in countries

with poor investor protection laws. This study did not include any Gulf Cooperation Council Country (GCC).

Another study that focused on an emerging market is (Sumail, 2018). It studied the influence of corporate governance on dividend payouts in Indonesian firms. The author's findings suggested that board independence, board size, institutional ownership and leverage had a negative impact on dividend payouts.

(Odeleye, 2018) studied the relationship between corporate governance and dividend payouts in 97 non-financial Nigerian firms from 1995 to 2012. The findings concluded that there was a significant association between board independence and dividend payouts. It also found that board size and net income are positively associated with dividend payouts.

Board independence and institutional ownership had a significant association with the dividend payout ratio in Indonesian firms (Desmiza, Nidar, Masyita, & Anwar, 2019). The authors sampled 94 from the Indonesian stock market from 2009 to 2016. The board independence and institutional ownership were found to be positively associated with dividend payout ratio while the board size had a negative but insignificant relationship with the dividend payout ratio.

(Pahi & Yadav, 2019) revisited the topic and investigated Indian firms using new indices that consist of CG attributes such as board structure, audit committee and disclosures. Their results implied that firms with good corporate governance practices firms were more likely to pay dividends in comparison to firms with weak corporate governance practices.

Concerning the Saudi settings, several studies in recent years investigated the influence of firm-specific variables, corporate governance or board characteristics on the capital structure or firm performance in Saudi Arabia (Kalyanaraman & Altuwaijri, 2016), (Buallay, Hamdan, & Zureigat, 2017), (Alnori & Shaddady, 2019). Those studies used a sample from the Saudi market, but dividend policy was not the primary focus of these studies.

(Hamdouni, 2015) addressed the Saudi market in terms of corporate governance and dividend payouts. The objective of the paper was to investigate the dividend policy of listed companies in Saudi Arabia. The article categorized Saudi firms into Shariah-compliant and non-Shariah-compliant companies. The paper employed Tobit models to answer the research questions. The first model studied the effect of CG using an index score. The second tested the impact of CG mechanisms such as board structure, ownership structure, debt policy, free cash flow, and corporate governance score. The third model investigated how corporate governance improvements affect dividends' sensitivity to free cash flows. The dividend payout ratio was used as a dependent ratio while Corporate Governance Score, ownership concentration, managerial ownership, the board size, CEO duality, number of board meetings, board independence, free cash flow and debt policy used as independent variables. The control variables in the study were the firm's size, return on equity, growth opportunities, industry classification and fixed assets. The study concluded for all Saudi firms; dividend policy was a substitute model. However, as briefly discussed in chapter one, the paper included CEO duality. This variable is irrelevant under the new corporate regulations. Also, this present research investigates the non-financial firms in Saudi Arabia without screening or dividing the sample between Shariah and non-Shariah

compliant firms. Thus, this research builds on the previous literature and shed light on the effects of corporate governance on dividend payouts in Saudi Arabia.

Scholars also investigated corporate governance, dividend policy and free cash flow in GCC (Guizani, 2018). The motive of the paper was to study the effects of dividend payouts on the relationship between internal corporate governance and free cash flow in GCC regions. The author used linear regression models in this paper. The sample included 207 non-financial firms in GCC between 2009 and 2016. The paper's results confirmed that independent directors or outside directors increased dividend policy. The authors suggested that there was a positive relationship between larger managerial ownership holdings and free cash flow as a result of lower dividend payouts. In the context of GCC, powerful managers prefer to retain excess free cash flow instead of paying dividends.

2.3. Hypotheses Development

2.3.1. Hypotheses Development

The previous sections discussed the theoretical and the empirical literature concerning dividend policy, corporate board and governance practices. The board of directors plays an essential role in corporate governance. It provides monitoring and disciplinary function resulting in a reduction in agency costs. (Yarram & Dollery, 2015). Thus, the association between board characteristics and dividend policy can be used to investigate CG practices. These practices might mitigate agency costs that could arise from the separation of ownership and management.

The theoretical assumptions of the agency theory and the outcome and substitution hypotheses of dividend policy and governance practices form the basis for the research hypotheses (Jensen & Meckling, 1976), (Easterbrook, 1984), (Jensen, 1986) and (La Porta et al, 2000).

This section further elaborates on the different hypotheses of this research that address the research questions first asked in chapter one.

2.3.2. Dividend Payouts and Board Size

In line with the literature discussed in the previous subsections, e.g. (Benjamin & Zain, 2015), (Hamdouni, 2015) and (Elmagrhi, et al., 2017), the present study uses the board size as a proxy of corporate governance practices. Since the outcome model suggests that dividends complement corporate governance, one might see no or a positive impact of corporate governance on the firm's decision to pay dividends. Dividend policy becomes complementary to governance practices (La Porta et al, 2000). Furthermore, the outcome hypothesis implies that larger boards help in monitoring controlling the management

actions resulting in fewer agency costs. Therefore, an outcome model will lead to less cash flow retention.

Consequently, larger board sizes lead to higher levels of dividend payouts. This practice renders exploiting free cash flow insufficient, resulting in a positive association between dividends and free cashflows. On the contrary, the substitute hypothesis indicates that larger boards lead to weaker monitoring of the board of directors as they are associated with communication challenges leading to more cashflow retention and fewer dividend payouts. Thus, larger boards will result in less frequent dividend payouts and a negative relationship between payouts and free cash flow.

Since the research on the Saudi market is limited, the research alternative hypotheses are:

- **H1:** Board size significantly determines the decision to pay dividends
- **H2:** Board size significantly impacts the level of dividend payouts

2.3.3. Dividend Payouts and Board Meetings

Board meetings are also found to have a significant relationship on dividend policy (Benjamin & Zain, 2015), (Hamdouni, 2015), (Elmagrhi, et al., 2017). As a result, this research also examines the association between board meetings and dividend payouts. Under the outcome model, meetings could complement strong corporate governance practices. As a result, the board of directors does not need to meet more often because there are robust monitoring and controlling practices in place. By contrast, more meetings might be used as a substitute for weak governance practices. Firms try to maintain a good relationship with investors through attending more meetings as suggested by (Elmagrhi, et al., 2017) or maybe weaker boards require more meetings to substitute for inadequate monitoring and controlling

practices. Due to the limited studies investigating this attribute in Saudi Arabia, the following hypotheses are proposed:

- **H3:** Board meetings significantly determines the decision to pay dividends
- **H4:** Board meetings significantly impacts the level of dividend payouts

2.3.4. Dividend Payouts and Board independence

The agency costs occur as a result of the separation between ownership and management. Independent board directors help in reducing this risk. The outcome model suggests that the presence of non-executive directors mitigates the risk of exploiting free cash flow and plays a complementary role leading to less free cashflow retention and more dividends. By contrast, the substitute model implies that dividend payouts replace the presence of outside executives (La Porta et al, 2000), resulting in a negative association with dividend policy. As stated previously, due to the lack of the recent literature that investigates the new CG and dividend policy in Saudi Arabia, the research hypothesizes the following:

- **H5:** Board independence significantly determines the decision to pay dividends
- **H6:** Board independence significantly impacts the level of dividend payouts

2.3.5. Control Variables

In line with (Aivazian, Booth, & Cleary, 2003), (Brockman & Unlu, 2009), (Hamdouni, 2015), (Yarram & Dollery, 2015), (Elmagrhi, et al., 2017) (Chang, Dutta, Saadi, & Zhu, 2018) and others, the research controls for firm-specific performance characteristics using well-established variables in a vast body of literature (table1). These control variables are frequently used in the literature with a different scale or sometimes limited by data availability; hence the justifications behind selecting these control variables will not be discussed here.

2.4. Chapter Summary

This chapter reveals that the topic of dividend policy is still baffling scholars for decades. It is a topic that still of interest to researchers until recent years in emerging markets and otherwise (Mehdi, Sahut, & Teulon, 2017), (Elmagrhi, et al., 2017), (Sumail, 2018) (Odeleye, 2018) (Guizani, 2018) (Desmiza, Nidar, Masyita, & Anwar, 2019) (Pahi & Yadav, 2019). Not to mention that corporate governance regulations are always changing and particularly in new emerging economies such as Saudi Arabia. The recent amendments of the Saudi capital market regulations have rendered the previous literature on corporate governance and dividends inapplicable.

Furthermore, the recent literature that examined corporate governance in general after the new regulations in Saudi Arabia is still sparse (Kalyanaraman & Altuwaijri, 2016), (Buallay, Hamdan, & Zureigat, 2017), (Alnori & Shaddady, 2019). To the best of my knowledge, studies that investigated the association between dividends and CG practices as the one under investigation by this research remain scarce (Hamdouni, 2015). The contributions of this research to the existing body of literature include the sample of Saudi firms investigated and the period under investigation. This research examines the years after the new corporate regulations took effect in Saudi Arabia.

3. Chapter III: Methodology

The current chapter builds on the previous literature on dividend and corporate governance. The research expands the work of prior researchers and employs two empirical approaches to answer the research questions first asked in chapter one. This chapter describes the data and sample selection criteria. It also establishes and specifies the regression models employed in the research methodology. The organization of this chapter as follows: data, sample selection, panel data techniques, model specifications and variables and the chapter summary.

3.1. Data

This research aims to investigate the impact of corporate governance on dividend payouts of listed Saudi companies. Thus, the sample includes all the non-financial listed companies in the Saudi Stock Exchange (Tadawul) for the period of 2015 to 2018. Tadawul's website only provides the last five years of annual board reports. At the time of writing this research, most Saudi firms did not publish the annual report of 2019, thus limiting the sample to only four years. Board characteristics variables are hand-collected from those reports while financial data is collected from Bloomberg terminal. All data is collected at the end of the fiscal year. As a result, the data for the sample used is panel data.

Firms with missing data are excluded from the study. Subsequently, the final sample includes 103 listed firms in the Saudi market, and this constitutes the largest possible sample that could be obtained while maintaining a balanced panel data.

The upcoming sections explain the panel data techniques used to analyze the data.

3.2. Sample Selection

Financial firms and utilities firms are excluded from the sample. Following the work of (RAJAN & ZINGALES, 1995), the sample excludes financial firms, namely banks, insurance and diversified financial firms. The authors explained that those firms follow different regulations, and their leverage is influenced by deposit insurance and other regulations. Furthermore, their debt-like liabilities do not follow the same restrictions as non-financial firms, and they have different capital structure requirements.

The exclusion of utilities is since these firms are highly regulated (Chang, Dutta, Saadi, & Zhu, 2018). For instance, in Saudi Arabia utilities sectors complies with the regulations of Electricity & Cogeneration Regulatory Authority (ECRA) in addition to CMA regulations. The exclusion of financial utilities sectors grantee the validity and reliability of the sample, as companies affected with a different capital structure or corporate regulations, are not included in the current study.

Bloomberg EQS function is used to obtain the company tickers to collect financial data from the terminal. The Bloomberg EQS function resulted in 131 non-financial firms and utilities listed on Tadawul. Further selection criteria are applied to select the research sample, as follows:

1. The availability of financial data for the specified period from 2015 to 2018
2. The availability of annual board reports for the specified period from 2015 to 2018

As a result, the final sample consists of 103 non-financial firms.

3.3. Panel Data Techniques

This research employs panel data techniques instead of the ordinary least square (OSL) approach, for several reasons. The OSL approach assumes that the average value and the relationship between variables are constant over time and across different units in the sample (Brooks, 2014). For instance, the sample consists of different units and measurements, such as the percentage of dividends to total assets, the number of directors and the percentage of independent directors to the total number of directors. Although other approaches of OSL can be employed through estimating separate regressions for each variable or period, this will lead to losing some common structures present in each series regressed.

Nonetheless, another approach could estimate the model by applying separate subsectional regressions for each period, but again this will not take into consideration the common variation in the data series overtime (Brooks, 2014). This research is interested in such a variation, hence the period of 4 years of the research sample. To estimate the parameters of the models implemented by this research, E-views is used as the primary analysis tool in this work. The results of each model are discussed in detail in chapter 4.

The research employs empirical approaches used before by (Yarram & Dollery, 2015), (Chang, Dutta, Saadi, & Zhu, 2018), (Hamdouni, 2015) and others before them.

The first approach aims to investigate the propensity to pay dividends. For this purpose, the present research employs logit models and divide the sample into dividend-paying and non-dividend paying. A dummy variable of 1 is assigned to dividend payers and 0 otherwise.

The second approach employs tobit models to test the association between board characteristics and firm-specific variables that might affect the level of dividend payments. The model includes every firm in the sample. On the other hand, the dependent variable of the model is cash dividends scaled by total assets. The next subsections specify the models used in this research.

3.4. The Model Specifications and Variables

As discussed in chapter two, a vast body of research investigated the impact of board characteristics such as board independence, board meetings, board size on dividend policy across different countries (Aivazian, Booth, & Cleary, 2003), (Brockman & Unlu, 2009), (Yarram & Dollery, 2015), (Chang, Dutta, Saadi, & Zhu, 2018), (Elmagrhi, et al., 2017). This research adopts and adjusts their empirical strategy, but it excludes board gender diversity because only a few Saudi companies from the sample have women directors on board. Besides, this research does not investigate CEO duality, as explained previously in chapter one.

Table 1 lists the variables investigated in this research along with their definitions, calculations and notations.

Table 1 Summary of Variables

Variable Type	Definition	Notation	Calculation	Expected Sign
Intercept	Coefficient or constant sometimes denoted as β	C	Estimated by E-views.	?
Dependent Variables	The level of dividend payouts: Cash dividends scaled by total assets (Tobit models)	DIVID	$\frac{\text{Cash Dividends}}{\text{Total Assets}}$	
	Dummy Variable (Logit models)	DIVIDP	1 for dividend payers and 0 for non-dividend payers	
Independent Variables	The board size refers to the total number of directors on the corporate board.	BRDSIZE	Total number of directors on the board	(+/-)
	The frequency of board meetings refers to the number of board meetings conducted per fiscal year.	BRDM	Frequency of board meetings	(+/-)
	Board independence refers to non-executive Independent directors on the board	BRDINDP	$\frac{\text{Independent Directors}}{\text{BRDS}}$	(+/-)
Control Variables	Free cashflow	FCF	$\frac{\text{FCF}}{\text{Total Assets}}$	
	Cash holdings	CASH	$\frac{\text{Cash \& Marketable Securities}}{\text{Total Assets}}$	
	Retained earnings scaled by total assets	RE	$\frac{\text{Retained earnings}}{\text{Total Assets}}$	
	Market capitalization or market value of equity scaled by total assets (a proxy for the current market value of a firm)	EQT	$\frac{\text{Market Cap}}{\text{Total Assets}}$	

	Return on assets (a proxy for profitability)	ROA	$\frac{Net\ Income}{Total\ Assets}$	
	Growth in sales (a proxy for lifecycle)	SGR	$\ln\left(\frac{sales_t}{sales_{t-1}}\right)$	
	Debt policy or leverage (another disciplinary proxy for management control, and it plays a similar role to DIVID) (Jensen, 1986).	LEVERAGE	$\frac{Total\ Liabilities}{Total\ Equity}$	
	Firm size	LOGSIZE	$\ln(total\ assets)$	

The table above lists and describes the definitions of each variable used in the regression models along with variable notations and calculations. The tobit and logit models employed by this study aim to measure different objectives. The studies that investigated the Saudi market are limited; thus, no signs are assigned to firm-specific factors.

3.4.1. Logit Regression: Propensity to Pay Dividends

This research implements logit regression models to determine the propensity to pay dividends. The logit models include all of the firms in sample dividend payers or nonpayers (Yarram & Dollery, 2015) (Jiraporn, Kim, & Kim, 2011). The dependent variable is either 1 for dividend payers or 0 otherwise. Thus, it is binary and has an S-shape distribution (Figures 1, 2 and 3). The figures visualize how y is bounded between (0,1).

Although a basic approach to deal with a binary independent variable is the linear probability model (LPM), the logit regression is employed instead. The LPM produces estimated probabilities that can be either negative or more than one (Brooks, 2014). Since the dependent is either 1 or 0, LPM is not appropriate here. The logit model transforms the regression and results to values between the (0,1) interval. The logistic function can be written as:

$$F(z_i) = \frac{e^{z_i}}{1+e^{z_i}} = \frac{1}{1+e^{-z_i}} \quad (3.1)$$

E is the exponential value under the logit model. The logit function (F) is the cumulative logistic distribution. Thus, the logit model is estimated as follows:

$$DIVIDP_i = 1/(1 + e^{-(\beta_1 + \beta_2 BRDSIZE + \beta_3 BRDM + \beta_3 BRDINDP + \beta_4 FCF + \beta_4 CASH + \beta_5 RE + \beta_6 EQT + \beta_7 ROA + \beta_8 SGR + \beta_9 LOGSIZE + u_i)}) \quad (3.2)$$

Where $DIVIDP_i$ is the probability that a firm will pay dividends $y_i=1$. Thus, this model is nonlinear.

Interestingly, logit or probit applications might give similar results except when there is an extremely unbalanced split between the dependent variables. For example, the probability of $y = 1$ is a small percentage. In this case, the two models would generate different results (Brooks, 2014). Since the research sample is not that unbalanced, and the probability of $y=1$ is 67.067% of the total sample observations, this research uses logit models to determine the propensity to pay dividends. Unlike OLS, logit and probit regressions are nonlinear and require iterative optimization algorithm to estimate the optimal parameters in the model. For example, the E-views uses the Newton-Raphson algorithm to estimate the parameters or coefficients. Such an algorithm is used to solve nonlinear regression problems. This algorithm might explain why it was not commonly used in the early literature, especially the probit models. Now with the high-performance computational capabilities at researchers' disposal, both models can be estimated with ease (Brooks, 2014).

Five Logit models are employed to determine the likelihood of paying dividends following a similar approach to (Yarram & Dollery, 2015) (Jiraporn, Kim, & Kim, 2011). Model 1 and 2 investigate the relationship between the likelihood to pay dividends and the firm-specific variables, namely CASH, EQT, FCF, LEVERAGE, RE, ROA, LOGSIZE and SGR. Model 3 examines the association between the likelihood to pay dividends and board characteristics only. Model 4 and 5 investigate the decision to pay dividends and board characteristics while controlling for firm-specific variables. Model 1 and 4 include CASH, but not FCF as a control variable, while model 2 and 5 use FCF instead.

3.4.2. Tobit Regression: Magnitude of Dividend Payouts

Unlike logit and probit models, Tobit models do not necessarily include binary dependent variables. The tobit model has censored variables that are not dummy variables. It is first developed by (Tobin, 1958) and named after him.

In this research, the dependent variable for the tobit models is cash dividends divided by total assets. This subsection explains the tobit model and the justifications of using such a regression to investigate the variables that impact the level of dividends paid.

In addition to the OLS limitations discussed previously, the dependent variable of the level of cash dividends has many observations as zeros. Even with the removal of the zero observations, OLS will still lead to inconsistent and biased estimates (Brooks, 2014). These biased estimates might generate due to the error term. In such a model, the error term is not zero, and it can be correlated with independent variables resulting in a violation of the assumption that the covariance between the error term and independent variables is zero (Brooks, 2014). This assumption is usually invoked in linear regressions. Also, the dependent variable observations cannot be a negative number, but some firms might want or decide to pay dividends while recording negative net income. Such information is not observed in the dependent variable observations, or it is censored. Thus, the use of tobit models or maximum likelihood functions instead of OLS is more appropriate to generate unbiased estimates and account for the censored or truncated information (Brooks, 2014).

The dependent variable to measure what factors determine the level of dividend payouts here is censored, not truncated. In other words, only values below zero are censored while there are no censored values above zero. Simply, the dependent variable is left-censored and negative values cannot be observed. With censored data, tobit analysis can be employed in the model estimation. The tobit models in this approach can be estimated as follows:

$$\begin{aligned}
 DIVID_{i,t}^* = & \beta_1 + \beta_2 BRDSIZE + \beta_3 BRDM + \beta_3 BRDINDP + \beta_4 FCF + \\
 & \beta_4 CASH + \beta_5 RE + \beta_6 EQT + \beta_7 ROA + \beta_8 SGR + \beta_9 LOGSIZE + u_i
 \end{aligned}
 \tag{3.3}$$

$$DIVID_{i,t} = \begin{cases} DIVID_{i,t}^* & \text{if } DIVID_{i,t}^* > 0 \\ 0 & \text{if } DIVID_{i,t}^* \leq 0 \end{cases}$$

Adopting the work of (Yarram & Dollery, 2015) & (Chang, Dutta, Saadi, & Zhu, 2018) and others, several tobit models are implemented to determine which factors influence dividend payouts. This research employs five tobit models. The approach in constructing the five models is the same as discussed in the logit model specifications. However, the dependent variable that measures the magnitude or level of cash dividends is cash dividends to total assets ratio.

3.5. Chapter Summary

The research aims to examine corporate governance and dividend policy among non-financial firms listed on Tadawul. The period under investigation is four years, starting from 2015 to 2018. After excluding firms with missing information and reports, the final sample is 103 firms, which accounts for a total of 412 observations. Due to the complexity of dividend payouts, two empirical approaches, namely tobit and logit models, will be employed to address the research questions and hypotheses. The next chapter will discuss the results of each model presented in this chapter.

4. Chapter IV: Results and Discussions

This chapter discusses the results of the research models specified in the previous chapter. The chapter includes descriptive statistics, logit model results, tobit model results, discussion of the results and the chapter summary. Along with the results, every section and subsection provide commentary or interpret the analysis results.

4.1. Descriptive Statistics

First, the correlation matrix in appendix 2 shows that there is no correlation above .50; thus, no variable in the model is correlated. Therefore, it is possible to proceed with the regression analysis. In the summary of the descriptive statistics (appendix 3), the number of observations for each variable is 412. Since the main board characteristics are the primary interest of the study, their statistics figures are discussed in depth.

The minimum frequency of meetings per year is 1, and the maximum value is 13. CMA recommends a minimum of 4 meetings per fiscal year. However, this is a guiding recommendation and not mandatory, as explained in chapter one. This recommendation might explain why this variable has the highest standard deviation in comparison to BRDS or BRDINDP. The mean and the median of BRDINDP are slightly above the required 30% percentage by CMA. BRDS mean and median are 8.1 to 8, indicating that most Saudi firms do not have small corporate boards.

Interestingly, the minimum BRDS in the sample is 5. Also, BRD is the only variable that is normally distributed according to Jarque-Bera probability scores. Interestingly, there are negative skewness scores for EQT, RE and ROA. Table 2 and Table 3 summarize the descriptive statistics of the board attributes among dividend payers and nonpayers. Dividend payers tend to have large boards with a mean and median of 8.30 and 9,

respectively. Dividend nonpayers have a mean of 7.75 and a median of 7. Dividend payers are slightly less independent than nonpayers with mean and median of 47.4% and 44.4% in comparison to nonpayers mean and median scores of 54.30% and 50%.

Table 2 Dividend Payers Descriptive Statistics

	BRDINDP1	BRDM1	BRDS1
Mean	0.478473	4.971326	8.304659
Median	0.444444	5.000000	9.000000
Maximum	0.909091	9.000000	12.000000
Minimum	0.250000	1.000000	5.000000
Std. Dev.	0.141636	1.444128	1.268183
Skewness	1.053269	0.301377	-0.098116
Kurtosis	3.532753	3.301868	3.384921
Jarque-Bera	54.88543	5.282834	2.170049
Probability	0.000000	0.071260	0.337894
Sum	133.4941	1387.000	2317.000
Sum Sq. Dev.	5.576907	579.7706	447.1039
Observations	279	279	279

The table above lists the descriptive statistics of dividend payers and their corresponding corporate board variables.

Table 3 Dividend Non-payers Descriptive Statistics

	BRDINDP2	BRDM2	BRDS2
Mean	0.540302	5.127820	7.751880
Median	0.500000	5.000000	7.000000
Maximum	1.000000	13.000000	11.000000
Minimum	0.142857	2.000000	5.000000
Std. Dev.	0.198315	2.024148	1.442882
Skewness	0.443386	1.024525	0.105286
Kurtosis	2.233742	4.590154	2.420194
Jarque-Bera	7.611557	37.27988	2.108691
Probability	0.022242	0.000000	0.348420
Sum	71.86014	682.0000	1031.000
Sum Sq. Dev.	5.191418	540.8271	274.8120
Observations	133	133	133

The table above lists the descriptive statistics of dividend nonpayers and their corresponding corporate board variables.

4.2. Results of the Logit Models

The following subsections report the result of the five logit regressions as obtained from E-views.

4.2.1. Results of Model 1: Logit Regression

Table 4 Results of Logit Model 1

Dependent Variable: DIVIDP

Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)

Date: 04/17/20 Time: 21:32

Sample (adjusted): 1 412

Included observations: 412 after adjustments

Convergence achieved after 7 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-3.262202	1.421565	-2.294796	0.0217
CASH	-3.151918	1.640700	-1.921081	0.0547***
EQT	2.234249	1.252064	1.784452	0.0744***
LEVERAGE	-0.108930	0.227473	-0.478869	0.6320
LOGSIZE	0.327560	0.132568	2.470874	0.0135*
RE	4.573099	1.424394	3.210559	0.0013*
ROA	14.46312	3.006186	4.811122	0.0000*
SGR	0.100911	0.245255	0.411454	0.6807
McFadden R-squared	0.326557	Mean dependent var		0.677184
SD dependent var	0.468121	SE of regression		0.372750
Akaike info criterion	0.885991	Sum squared resid		56.13271
Schwarz criterion	0.964069	Log likelihood		-174.5142
Hannan-Quinn criter.	0.916875	Deviance		349.0283
Restr. deviance	518.2742	Restr. glog likelihood		-259.1371
LR statistic	169.2459	Avg. log likelihood		-0.423578
Prob(LR statistic)	0.000000			
Obs with Dep=0	133	Total obs		412
Obs with Dep=1	279			

The table above lists the results of logit model 1 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

In model one, 279 observations of 412 have a dependent variable of 1. The logistic regression uses a McFadden's pseudo-R squared score, and this model scored 0.326557. A McFadden's pseudo-R squared between 0.2 to .4 generally indicates an acceptable model. The market value of equity, retained earnings and return on assets have a positive significant

association with dividend decisions. Cash has a significant negative relationship at level 10%.

Growth rates have a positive but insignificant relationship.

4.2.2. Results of Model 2: Logit Regression

Table 5 Results of Logit Model 2

Dependent Variable: DIVIDP

Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)

Date: 04/17/20 Time: 20:39

Sample (adjusted): 1 412

Included observations: 412 after adjustments

Convergence achieved after 6 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.726009	1.410706	-1.932372	0.0533
EQT	1.302530	1.165595	1.117480	0.2638
FCF	3.472173	1.374410	2.526300	0.0115*
LEVERAGE	-0.194130	0.218709	-0.887618	0.3747
LOGSIZE	0.285639	0.130802	2.183743	0.0290**
RE	4.750716	1.396398	3.402123	0.0007*
ROA	13.69580	3.023239	4.530173	0.0000*
SGR	0.099559	0.250274	0.397802	0.6908
McFadden R-squared	0.332985	Mean dependent var		0.677184
SD dependent var	0.468121	SE of regression		0.370006
Akaike info criterion	0.877904	Sum squared resid		55.30926
Schwarz criterion	0.955982	Log likelihood		-172.8482
Hannan-Quinn criter.	0.908788	Deviance		345.6965
Restr. deviance	518.2742	Restr. log likelihood		-259.1371
LR statistic	172.5777	Avg. log likelihood		-0.419535
Prob(LR statistic)	0.000000			
Obs with Dep=0	133	Total obs		412
Obs with Dep=1	279			

The table above lists the results of logit model 2 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

In model 2, free cashflows, firm size, retained earnings and return on assets have a significant positive relationship, while equity or market capitalization and sales growth rates have no significant impact on dividend decisions. Leverage or debt policy has a negative but insignificant impact on dividend decisions. The model has an acceptable McFadden's pseudo-R squared at 0.332985.

Results of Model 3: Logit Regression

Table 6 Results of Logit Model 3

Dependent Variable: DIVIDP
 Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)
 Date: 04/17/20 Time: 20:00
 Sample (adjusted): 1 412
 Included observations: 412 after adjustments
 Convergence achieved after 4 iterations
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.106958	0.839096	-0.127469	0.8986
BRDINDP	-1.896306	0.654374	-2.897892	0.0038*
BRDM	-0.100174	0.066421	-1.508175	0.1315
BRDS	0.288336	0.084594	3.408466	0.0007*
McFadden R-squared	0.049706	Mean dependent var		0.677184
SD dependent var	0.468121	SE of regression		0.452981
Akaike info criterion	1.214837	Sum squared resid		83.71828
Schwarz criterion	1.253876	Log likelihood		-246.2565
Hannan-Quinn criter.	1.230279	Deviance		492.5129
Restr. deviance	518.2742	Restr. log likelihood		-259.1371
LR statistic	25.76129	Avg. log likelihood		-0.597710
Prob(LR statistic)	0.000011			
Obs with Dep=0	133	Total obs		412
Obs with Dep=1	279			

The table above lists the results of logit model 3 as generated by E-views. * Significant at level 1%. Significant at level 5%. Significant at level 10%.

In model 3, board independence has a significant relationship with the decision to pay dividends. Furthermore, board size has a negative and significant association with the decision to pay dividends while the meetings variable has no association with the dependent variable. This model has a low McFadden R-squared score at 0.049706 due to the limited variables and exclusion of control variables from the model. This model also scored the highest Akaike info criterion at 1.1248, indicating that it is the least fitted model.

4.2.3. Results of Model 4: Logit Regression

Table 7 Results of Logit Model 4

Dependent Variable: DIVIDP
 Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)
 Date: 04/17/20 Time: 20:43
 Sample (adjusted): 1 412
 Included observations: 412 after adjustments
 Convergence achieved after 7 iterations
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-3.414030	1.679016	-2.033351	0.0420
BRDINDP	-0.833850	0.898474	-0.928074	0.3534
BRDM	-0.029291	0.081505	-0.359383	0.7193
BRDS	0.132749	0.113031	1.174444	0.2402
CASH	-3.095166	1.642486	-1.884440	0.0595***
EQT	2.498078	1.276291	1.957295	0.0503***
LEVERAGE	-0.120146	0.228720	-0.525298	0.5994
LOGSIZE	0.265413	0.140660	1.886910	0.0592***
RE	4.245157	1.418096	2.993560	0.0028*
ROA	14.10279	3.058856	4.610478	0.0000*
SGR	0.058424	0.252889	0.231026	0.8173
McFadden R-squared	0.331051	Mean dependent var		0.677184
SD dependent var	0.468121	SE of regression		0.372531
Akaike info criterion	0.894900	Sum squared resid		55.65043
Schwarz criterion	1.002258	Log likelihood		-173.3494
Hannan-Quinn criter.	0.937365	Deviance		346.6989
Restr. deviance	518.2742	Restr. log likelihood		-259.1371
LR statistic	171.5753	Avg. log likelihood		-0.420751
Prob(LR statistic)	0.000000			
Obs with Dep=0	133	Total obs		412
Obs with Dep=1	279			

The table above lists the results of logit model 4 as generated by E-views. * Significant at level 1%. Significant at level 5%. Significant at level 10%.

In model 4, equity (at level 10%), firm size (at level 10%), retained earnings and return on assets have a significant positive relationship with the dummy dependent variable. The cash variable has a significant negative impact on dividend decisions. Both of board independence and meetings have a negative but insignificant impact, while the board size and sales growth have an insignificant positive impact. The model has a McFadden R-squared of 0.331051, which is an indication of an acceptable fitted model.

Results of Model 5: Logit Regression

Table 8 Results of Logit Model 5

Dependent Variable: DIVIDP
 Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)
 Date: 04/17/20 Time: 20:44
 Sample (adjusted): 1 412
 Included observations: 412 after adjustments
 Convergence achieved after 6 iterations
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.997266	1.677092	-1.787180	0.0739
BRDINDP	-0.749318	0.896369	-0.835948	0.4032
BRDM	-0.037761	0.080580	-0.468617	0.6393
BRDS	0.149468	0.113150	1.320970	0.1865
EQT	1.616878	1.192960	1.355350	0.1753
FCF	3.515095	1.403014	2.505389	0.0122**
LEVERAGE	-0.188934	0.220647	-0.856276	0.3918
LOGSIZE	0.215299	0.139659	1.541604	0.1232
RE	4.470350	1.390408	3.215135	0.0013*
ROA	13.35756	3.089768	4.323160	0.0000*
SGR	0.063252	0.255279	0.247777	0.8043
McFadden R-squared	0.337926	Mean dependent var		0.677184
SD dependent var	0.468121	SE of regression		0.368948
Akaike info criterion	0.886252	Sum squared resid		54.58525
Schwarz criterion	0.993609	Log likelihood		-171.5678
Hannan-Quinn criter.	0.928717	Deviance		343.1356
Restr. deviance	518.2742	Restr. log likelihood		-259.1371
LR statistic	175.1386	Avg. log likelihood		-0.416427
Prob(LR statistic)	0.000000			
Obs with Dep=0	133	Total obs		412
Obs with Dep=1	279			

The table above lists the results of logit model 5 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

The fifth model, which includes free cash flow instead of cash holdings, demonstrates that free cash flows, retained earnings and return on assets have a significant and positive association with the decision to pay dividends. Like the previous model, board independence, meetings and leverage have a negative but insignificant impact. Each of the board size, firm size, equity and growth rate variable has a positive but insignificant impact. Moreover, the model has a McFadden R-squared of 0.337926.

4.2.4. Cross-section Output of Logit Model 4 (Board Characteristics Only)

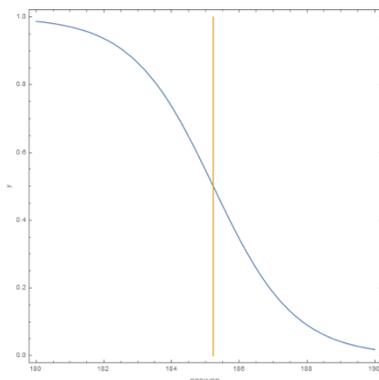


Figure 1 Cross-section Output of Logit Model 4 (BRDINDP)

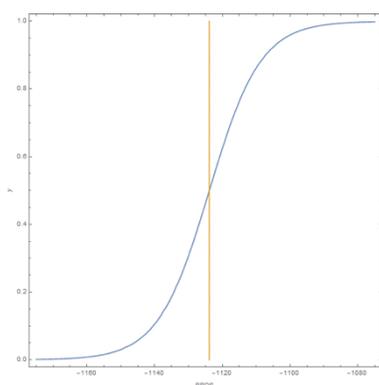


Figure 2 Cross-section Output of Logit Model 4 (BRDS)

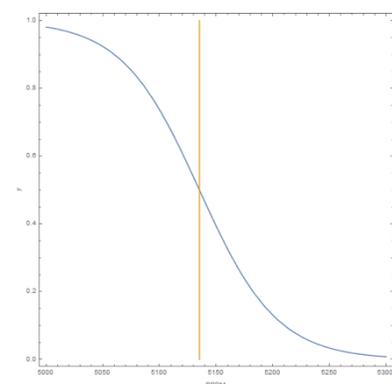


Figure 3 Cross-section Output of Logit Model 4 (BRDM)

The three graphs above show an S-shape Distribution of the logistics function. The probability of paying dividends (y) is bound between 0 and 1, resulting in an S-shape line. The line in the middle is the threshold of .5 and is added for visual presentation purposes. The BRDM and BRDINDP have a negative but insignificant impact resulting in an inverse S-shape while BRDS has a positive but insignificant impact hence the S-shape. The cross-section figures are used to display how the model makes estimations, and the figures illustrate how each variable individually impacts y .

4.3. Results of the Tobit Models

4.3.1. Results of Model 1: Tobit Regression

Table 9 Results of Tobit Model 1

Dependent Variable: DIVID
Method: ML - Censored Normal (TOBIT) (Newton-Raphson / Marquardt steps)

Date: 04/17/20 Time: 22:00

Sample (adjusted): 1 412

Included observations: 412 after adjustments

Left censoring (value) at zero

Convergence achieved after 7 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.103040	0.023730	-4.342089	0.0000
CASH	-0.042988	0.026798	-1.604162	0.1087
EQT	0.089799	0.022756	3.946230	0.0001*
LEVERAGE	-0.000996	0.004903	-0.203168	0.8390
LOGSIZE	0.007026	0.001978	3.552579	0.0004*
RE	0.010728	0.019608	0.547125	0.5843
ROA	0.637344	0.036748	17.34342	0.0000*
SGR	0.013411	0.005009	2.677672	0.0074*
Error Distribution				
SCALE:C(9)	0.041705	0.001806	23.09092	0.0000
Mean dependent var	0.042822	S.D. dependent var	0.058455	
SE of regression	0.030625	Akaike info criterion	-1.992914	
Sum squared resid	0.377967	Schwarz criterion	-1.905076	
Log likelihood	419.5403	Hannan-Quinn criter.	-1.958170	
Avg. log likelihood	1.018302			
Left censored obs	133	Right censored obs	0	
Uncensored obs	279	Total obs	412	

The table above lists the results of tobit model 1 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

The censored observations are 133, and they account for the observations with zero dividend payouts. Firm size, equity or market capitalization, return on assets and sales growth rates have a significant and positive relationship with dividend payouts. Cash and leverage have a negative but insignificant impact on dividend payouts. Retained earnings variable has a positive but insignificant impact.

Furthermore, unlike the logit models where only the signs of the coefficients are examined, the tobit coefficients estimate the linear increase in the latent variable (uncensored in the study models). For example, the tobit coefficients can be interpreted as a one-unit increase in equity is associated with an increase in the predicted value of cash dividends by 0.089799. If there is a negative association, a one-unit increase in the independent variable will result in a lower predicted value of the dependent variable (cash dividends).

4.3.2. Results of Model 2: Tobit Regression

Table 10 Results of Tobit Model 2

Dependent Variable: DIVID

Method: ML - Censored Normal (TOBIT) (Newton-Raphson / Marquardt steps)

Date: 04/17/20 Time: 22:02

Sample (adjusted): 1 412

Included observations: 412 after adjustments

Left censoring (value) at zero

Convergence achieved after 6 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.089315	0.022245	-4.015018	0.0001
EQT	0.068859	0.020540	3.352363	0.0008*
FCF	0.112339	0.022100	5.083308	0.0000*
LEVERAGE	-0.002746	0.004332	-0.634026	0.5261
LOGSIZE	0.006156	0.001867	3.297451	0.0010*
RE	0.009595	0.018407	0.521291	0.6022
ROA	0.580247	0.036841	15.75004	0.0000*
SGR	0.011936	0.004895	2.438298	0.0148*
Error Distribution				
SCALE:C(9)	0.040072	0.001735	23.09809	0.0000
Mean dependent var	0.042822	S.D. dependent var	0.058455	
SE of regression	0.029663	Akaike info criterion	-2.046815	
Sum squared resid	0.354605	Schwarz criterion	-1.958977	
Log likelihood	430.6440	Hannan-Quinn criter.	-2.012071	
Avg. log likelihood	1.045252			
Left censored obs	133	Right censored obs	0	
Uncensored obs	279	Total obs	412	

The table above lists the results of tobit model 2 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

In model 2, firm size, equity or market capitalization, firm size, return on assets and sales growth rates have a significant and positive relationship with dividend payouts while the free cash flow variable has a positive and significant influence on payouts. Leverage has a negative but insignificant impact. The return earnings variable has a positive but insignificant impact.

4.3.3. Results of Model 3: Tobit Regression

Table 11 Results of Tobit Model 3

Dependent Variable: DIVID
Method: ML - Censored Normal (TOBIT) (Newton-Raphson / Marquardt steps)
Date: 04/17/20 Time: 22:05
Sample (adjusted): 1 412
Included observations: 412 after adjustments
Left censoring (value) at zero
Convergence achieved after 6 iterations
Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.049684	0.031061	-1.599526	0.1097
BRDINDP	-0.059379	0.025144	-2.361551	0.0182*
BRDM	-0.004217	0.002453	-1.719301	0.0856***
BRDS	0.015443	0.003025	5.105752	0.0000*
Error Distribution				
SCALE:C(5)	0.074806	0.003345	22.36465	0.0000
Mean dependent var	0.042822	S.D. dependent var	0.058455	
SE of regression	0.056779	Akaike info criterion	-1.062843	
Sum squared resid	1.312111	Schwarz criterion	-1.014044	
Log likelihood	223.9457	Hannan-Quinn criter.	-1.043541	
Avg. log likelihood	0.543557			
Left censored obs	133	Right censored obs	0	
Uncensored obs	279	Total obs	412	

The table above lists the results of tobit model 3 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

Board size has a significantly positive impact on dividend payouts, while board independence has a significantly negative impact. The frequency of board meetings has a significantly negative impact. Similar to the logit model 3, this model also has the highest Akaike info criterion at -1.062843.

4.3.4. Results of Model 4: Tobit Regression

Table 12 Results of Tobit Model 4

Dependent Variable: DIVID
 Method: ML - Censored Normal (TOBIT) (Newton-Raphson / Marquardt steps)
 Date: 04/17/20 Time: 22:11
 Sample (adjusted): 1 412
 Included observations: 412 after adjustments
 Left censoring (value) at zero
 Convergence achieved after 7 iterations
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.137192	0.027422	-5.002970	0.0000
BRDINDP	-0.010038	0.016431	-0.610951	0.5412
BRDM	-0.001353	0.001471	-0.919647	0.3578
BRDS	0.006851	0.001860	3.682176	0.0002*
CASH	-0.034392	0.026260	-1.309691	0.1903
EQT	0.096785	0.023043	4.200277	0.0000*
LEVERAGE	-0.001986	0.004930	-0.402803	0.6871
LOGSIZE	0.005427	0.002048	2.650022	0.0080*
RE	0.005389	0.019462	0.276919	0.7818
ROA	0.614212	0.036672	16.74893	0.0000*
SGR	0.011369	0.004967	2.288895	0.0221**
Error Distribution				
SCALE:C(12)	0.040821	0.001767	23.09688	0.0000
Mean dependent var	0.042822	S.D. dependent var	0.058455	
SE of regression	0.029706	Akaike info criterion	-2.011807	
Sum squared resid	0.352974	Schwarz criterion	-1.894690	
Log likelihood	426.4322	Hannan-Quinn criter.	-1.965481	
Avg. log likelihood	1.035030			
Left censored obs	133	Right censored obs	0	
Uncensored obs	279	Total obs	412	

The table above lists the results of tobit model 4 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

In this model, the board size, equity, firm size, return on assets and sales growth rates have a significantly positive impact on dividend payouts. The retained earnings variable has a positive but insignificant impact. The board meetings, board independence, cash holdings and leverage have a negative but insignificant influence on dividend payouts.

Results of Model 5: Tobit Regression

Table 13 Results of Tobit Model 5

Dependent Variable: DIVID
 Method: ML - Censored Normal (TOBIT) (Newton-Raphson / Marquardt steps)
 Date: 04/17/20 Time: 22:12
 Sample (adjusted): 1 412
 Included observations: 412 after adjustments
 Left censoring (value) at zero
 Convergence achieved after 7 iterations
 Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.123153	0.026250	-4.691602	0.0000
BRDINDP	-0.011078	0.015807	-0.700812	0.4834
BRDM	-0.000891	0.001417	-0.628716	0.5295
BRDS	0.006173	0.001782	3.463774	0.0005*
EQT	0.080500	0.021013	3.830915	0.0001*
FCF	0.106095	0.021963	4.830662	0.0000*
LEVERAGE	-0.002613	0.004377	-0.596922	0.5506
LOGSIZE	0.004621	0.001940	2.381771	0.0172**
RE	0.004626	0.018262	0.253338	0.8000
ROA	0.563426	0.036697	15.35342	0.0000*
SGR	0.009867	0.004851	2.034106	0.0419**
Error Distribution				
SCALE:C(12)	0.039357	0.001703	23.11604	0.0000
Mean dependent var	0.042822	S.D. dependent var	0.058455	
SE of regression	0.028964	Akaike info criterion	-2.061953	
Sum squared resid	0.335561	Schwarz criterion	-1.944836	
Log likelihood	436.7623	Hannan-Quinn criter.	-2.015627	
Avg. log likelihood	1.060103			
Left censored obs	133	Right censored obs	0	
Uncensored obs	279	Total obs	412	

The table above lists the results of tobit model 5 as generated by E-views. * Significant at level 1%. **Significant at level 5%. ***Significant at level 10%.

In model 5, the board size, equity, firm size, return on assets and sales growth rates have a positive and significant impact on dividend payouts. The retained earnings variable has a positive but insignificant impact. The board meetings, board independence, cash holdings and leverage have a negative but insignificant influence on dividend payouts.

4.3.5. Robustness of the Logit Models

The robustness tests are conducted only in model 4 and 5 of the logit regressions because the two account for all the board variables along with the control variables, including free cash flow or cash holdings. Table 15 shows that the logit model estimated that the equation is 57.15% correct in predicting the nonpayment decision of dividends. At the same time, it is 92.47 correct in predicting payment decisions considering that most observations have a dummy variable of 1. It is regarded as an acceptable outcome for this model. In total, the model has an accuracy of 81.07 in predicting either payment or nonpayment decisions. This model performs better than a constant probability model by 13.35%. This change represents 41.35% improvement over the 67.72% correct predication of the default model (constant probability).

Table 14 Logit Diagnostics

Expectation-Prediction Evaluation for Binary Specification

Equation: LOGIT4

Success cutoff: C = 0.5

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
P(Dep=1)≤C	76	21	97	0	0	0
P(Dep=1)>C	57	258	315	133	279	412
Total	133	279	412	133	279	412
Correct	76	258	334	0	279	279
% Correct	57.14	92.47	81.07	0.00	100.00	67.72
% Incorrect	42.86	7.53	18.93	100.00	0.00	32.28
Total Gain*	57.14	-7.53	13.35			
Percent Gain**	57.14	NA	41.35			

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
E(# of Dep=0)	76.88	56.12	133.00	42.93	90.07	133.00
E(# of Dep=1)	56.12	222.88	279.00	90.07	188.93	279.00
Total	133.00	279.00	412.00	133.00	279.00	412.00
Correct	76.88	222.88	299.75	42.93	188.93	231.87
% Correct	57.80	79.88	72.76	32.28	67.72	56.28
% Incorrect	42.20	20.12	27.24	67.72	32.28	43.72
Total Gain*	25.52	12.17	16.48			
Percent Gain**	37.69	37.69	37.69			

*Change in "% Correct" from default (constant probability) specification

**Percent of incorrect (default) prediction corrected by equation

The table above shows the Expectation-Prediction Evaluation for Binary Specification or the Classification Table for logit model 4 as generated by E-views.

4.4. Discussions

4.4.1. The Propensity to Pay Dividends

Firm-specific Variables

Logit models address the likelihood of dividend policy decisions. The five logit models yield interesting results. The most common and consistent finding is the positive impact of free cash flow on dividend policy. This finding strongly supports the agency theory and the outcome model that dividends are a result of good corporate governance practices. In the presence of strong control and monitor procedures that keep the firm's management in check, the opportunities to exploit free cash flow become inefficient, resulting in a decision to distribute dividends (Jensen, 1986). This finding confirms with (Adjaoud & Ben-Amar, 2010) (Jiraporn, Kim, & Kim, 2011), (Yarram & Dollery, 2015). Nonetheless, it contradicts the findings of (Hamdouni, 2015), which suggested a substitute model existed in the Saudi market.

Another consistent finding is the negative impact of cash holdings on dividend decisions in models 1 and 4 (Yarram & Dollery, 2015).

Another finding suggests that firm-specific factors such as equity and firm size are more likely to pay dividends to reduce agency costs (Adjaoud & Ben-Amar, 2010), (Yarram & Dollery, 2015). Besides, larger firms tend to have strong corporate governance due to their experience and their large share in the market (EQT).

Profitability (ROA) is found to have a positive impact on dividend decisions. Profitability indicates that when a firm has a high-profit margin, it tends to make the decision to distribute dividends payouts. Sales growth in logit models has no impact on the

decision to pay dividends. The cash holdings variable is found to negatively impact the decisions of dividends (Yarram & Dollery, 2015).

Interactions with Board Variables

When controlling for the firm-specific performance variables in model 4 and 5, corporate board attributes have no significant impact on the decisions to pay dividends. These models suggest that board characteristics do not affect whether the firm decides to pay dividends or not. This finding implies that dividend policy complements corporate governance providing further support to the outcome model. In model 3, board size has a significant positive impact on dividend payouts (Yarram & Dollery, 2015), (Odeleye, 2018), while board independence has a negative and significant impact, this significance disappears when firm-specific factors are introduced similar to (Yarram & Dollery, 2015). Leverage is insignificant. The cash holdings variable is found to negatively impact the decisions of dividends (Yarram & Dollery, 2015).

To sum up, the findings of logit models lead to accepting the null hypothesis $H1_0$, $H3_0$ and $H5_0$ that board attributes do not determine the decision to pay dividends. The free cash flow variable has a positive impact on dividend decisions in all models tested supporting the agency theory and outcome model. Leverage has no significant effect, according to five tobit models. The firm size, profitability and growth rates have a positive influence on dividend decisions.

4.4.2. Determinants of the Level of Dividend Payouts

Firm-specific Variables

Model one and two reveal that equity, firm size, return on assets and sales growth rates have a positive impact on dividend payouts. For instance, when a firm has a high profitability ratio, it pays higher dividends than firms with low profitability ratios. Firm size also has a similar impact. Similar to logit 4 and 5 models, larger firms use dividends instead of debt in mitigating agency costs. Similar to previous logit models, debt policy or leverage is found to have no significant impact on the level of dividend payouts.

Interaction with Board Variables

When control variables are introduced to model 4 and 5 along with board characteristics, only board size has a significantly positive impact. This finding also supports the outcome hypothesis that larger boards lead to more dividend payouts. The large boards bring more expertise and diversified backgrounds to the board, resulting in better controlling and monitoring of management actions. Thus, they indicate more robust corporate governance practices. The free cash flow variable has a positive impact on the level of payouts in line with (Adjaoud & Ben-Amar, 2010) (Jiraporn, Kim, & Kim, 2011), (Yarram & Dollery, 2015). Furthermore, equity, profitability and firm size have a significantly positive influence on the level of dividend payouts. Larger firms, in terms of market capitalization or size, are more inclined to pay more dividends. Leverage and cash holdings are insignificant as well in this model. Sales growth rates have a positive association with the level of dividends and contradicting the life cycle hypothesis that high-growth firms pay fewer dividends than mature firms.

In conclusion, the results of the tobit analysis models indicate that the null hypotheses $H4_0$ and $H6_0$ that meetings and independence do not affect dividend payouts can be accepted while the null hypothesis $H2_0$ is rejected.

Firm size, market capitalization, profitability and growth rates have a positive impact on cash dividends while only board size is found to have a positive impact. To sum up, the factors that impact the magnitude of dividend payouts indicate the presence of an outcome model in the Saudi market. This conclusion could be the result of the new regulations imposed in 2015 and 2017. The new regulations aimed to improve investor protection laws and prepare the market for foreign investors.

4.5. Chapter Summary

This chapter describes the results of each model employed to address the research hypotheses and questions. It also discusses the main findings of each model and its implications for Saudi firms in terms of corporate governance and dividends.

5. Chapter V: Conclusions and Limitations

5.1. Conclusions

This research examines an area that is understudied in the Saudi market. It closely investigates how board characteristics such as board size, independence and meetings influence dividend policy in Saudi Arabia.

The study employs two strategies to investigate the influence of board characteristics on dividend decisions and the level of dividend payouts. In the first strategy, five logit models with a dummy variable of 1 and 0 are employed to measure how CG attributes impact a firm's decision to distribute dividends. While the second strategy employs five tobit models to investigate how CG attributes impact the magnitude of cash dividends using a dependent variable of dividend scaled by total assets.

The findings of the two strategies can describe the characteristics of dividend payers and nonpayers. For example, dividend-paying firms are larger in size and market capitalization, generate more profit and have high levels of free cashflows. The board size and free cash flow levels support an outcome model in Saudi Arabia. Additionally, their growth rates have a positive impact on the level of dividend payouts but no impact on dividend decisions. Thus, the lifecycle of dividend payouts theory does not exist among Saudi firms, according to the findings of this study.

Interestingly, board variables do not affect a firm's decision to pay dividends in all models tested. In contrast, only the board size variable seems to have a positive effect on the level of cash dividends paid to investors. Furthermore, the level of free cash flow has a positive impact on both decision and level of dividends supporting the outcome model, while the cash holdings variable has a negative impact. It is hypothesized that strong corporate governance

mechanisms reduce opportunities for exploiting free cash flow (Jensen, 1986) and (La Porta et al, 2000).

5.2. Study Limitations and Future Research

Time constraints and data availability are the main limitations of this study. This study follows the approach of previous researchers in selecting board size, meetings and independence as attributes of CG, e.g. (Benjamin & Zain, 2015), (Yarram & Dollery, 2015), (Elmagrhi, et al., 2017), (Sumail, 2018), (Odeleye, 2018) and others. However, an overall CG score or index might further improve the model as implemented by (Jiraporn, Kim, & Kim, 2011), (Hamdouni, 2015) and (Pahi & Yadav, 2019). The current study does not consider how each variable contributes to the overall corporate governance quality. This consideration might help in improving the models and lead to more robust results. For instance, future researchers could include data on the audit committee, corporate disclosures, antitakeover provisions, managerial ownership, the busyness of chairperson, or even the educational background of the directors on board.

Furthermore, future research could include more years to improve the performance of the logit and tobit models. Researchers could also investigate the corporate governance practices before and after the implementation of new regulations in the Saudi market. These recommendations might improve the understanding of the impact that strong shareholders protection laws leave on dividend payouts and corporate governance.

5.3. Implications

Regulators in the Saudi market could benefit from studies that investigate the quality of corporate governance and its influence on dividend policy. The results of this study inform the regulators of the impact that the recent regulations have left on the Saudi firms and if these amendments and regulations can be tested and explained by theories discussed in the corporate finance literature. The results of this research also educate new investors of the current board governance practices and provide an updated outlook of the Saudi market that might assist them in making informed investment decisions.

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Appendices

Appendix 1. List of Saudi Firms Included in the Sample

Serial Number	Bloomberg Ticker	Company	Tadawul Ticker	Tadawul Sector
1	STC AB Equity	SAUDI TELECOM CO	7010	Communication Services
2	SABIC AB Equity	SAUDI BASIC INDUSTRIES CORP	2010	Materials
3	ALMARAI AB Equity	ALMARAI CO	2280	Consumer Staples
4	MAADEN AB Equity	SAUDI ARABIAN MINING CO	1211	Materials
5	SAFCO AB Equity	SAUDI ARABIAN FERTILIZER CO	2020	Materials
6	YANSAB AB Equity	YANBU NATIONAL PETROCHEMICAL	2290	Materials
7	JARIR AB Equity	JARIR MARKETING CO	4190	Consumer Discretionary
8	SAVOLA AB Equity	SAVOLA	2050	Consumer Staples
9	EEC AB Equity	ETIHAD ETISALAT CO	7020	Communication Service
10	PETROR AB Equity	RABIGH REFINING AND PETROCHE	2380	Energy
11	KAYAN AB Equity	SAUDI KAYAN PETROCHEMICAL CO	2350	Materials
12	NSCSA AB Equity	NATIONAL SHIPPING CO OF/THE	4030	Energy
13	SIPCHEM AB Equity	SAHARA INTERNATIONAL PETROCH	2310	Materials
14	PETROCH AB Equity	NATIONAL PETROCHEMICAL CO	2002	Materials
15	APPC AB Equity	ADVANCED PETROCHEMICALS CO	2330	Materials
16	SIIG AB Equity	SAUDI IND INVESTMENT GROUP	2250	Materials
17	SACCO AB Equity	SAUDI CEMENT	3030	Materials
18	MOUWASAT AB Equity	MOUWASAT MEDICAL SERVICES CO	4002	Health Care
19	NIC AB Equity	NATIONAL INDUSTRIALIZATION C	2060	Materials
20	SOCCO AB Equity	SOUTHERN PROVINCE CEMENT CO	3050	Materials
21	AOTHAIM AB Equity	ABDULLAH AL OTHAIM MARKETS	4001	Consumer Staples
22	CATERING AB Equity	SAUDI AIRLINES CATERING CO	6004	CATERING
23	ZAINKSA AB Equity	MOBILE TELECOMMUNICATIONS CO	7030	Communication Services
24	QACCO AB Equity	QASSIM CEMENT/THE	3040	Materials

25	SGS AB Equity	SAUDI GROUND SERVICES CO	4031	Industrials
26	SEERA AB Equity	SEERA GROUP HOLDING	1810	Consumer Discretionary
27	SAUDI RESEARCH AND MARKETING	SAUDI RESEARCH AND MARKETING	4210	Communicati on Services
28	YNCCO AB Equity	YANBU CEMENT CO	3060	Materials
29	ALHOKAIR AB Equity	FAWAZ ABDULAZIZ ALHOKAIR & C	4240	Consumer Discretionary
30	YACCO AB Equity	YAMAMA CEMENT CO	3020	Materials
31	SADAFCO AB Equity	SAUDIA DAIRY & FOODSTUFF CO	2270	Consumer Staples
32	EXTRA AB Equity	UNITED ELECTRONICS CO	4003	Consumer Discretionary
33	DALLAH AB Equity	DALLAH HEALTHCARE CO	4004	Health Care
34	ALDREES AB Equity	ALDREES PETROLEUM AND TRANSP	4200	Energy
35	SPIMACO AB Equity	SAUDI PHARMACEUTICAL INDUSTR	2070	Health Care
36	CITYC AB Equity	CITY CEMENT CO	3003	Materials
37	ARCCO AB Equity	ARABIAN CEMENT	3010	Materials
38	HERFY AB Equity	HERFY FOOD SERVICES CO	6002	Consumer Discretionary
39	ADCO AB Equity	ARRIYADH DEVELOPMENT COMPANY	4150	Real Estate
40	EACCO AB Equity	EASTERN PROVINCE CEMENT CO	3080	Materials
41	ALHAMMAD AB Equity	AL HAMMADI CO FOR DEVELOPMEN	4007	Health Care
42	DUR AB Equity	DUR HOSPITALITY CO	4010	Consumer Discretionary
43	BUDGET AB Equity	UNITED INTERNATIONAL TRANSP	4260	Industrials
44	SCERCO AB Equity	SAUDI CERAMIC CO	2040	Industrials
45	NADEC AB Equity	THE NATIONAL AGRICULTURE DEV	6010	Consumer Staples
46	CARE AB Equity	NATIONAL MEDICAL CARE CO	4005	Health Care
47	NORTHCEM AB Equity	NORTHERN REGION CEMENT CO	3004	Materials
48	NAJRAN AB Equity	NAJRAN CEMENT CO	3002	Materials
49	SAPTCO AB Equity	SAUDI PUBLIC TRANSPORT CO	4040	Industrials

50	CHEMICAL AB Equity	SAUDI CHEMICAL CO HOLDING	2230	Health Care
51	SCH AB Equity	SAUDI CO FOR HARDWARE LLC	4008	Consumer Discretionary
52	SACO AB Equity	SASCO	4050	Consumer Discretionary
53	SISCO AB Equity	SAUDI INDUSTRIAL SERVICES CO	2190	Industrials
54	JOUF AB Equity	AL JOUF CEMENT	3091	Materials
55	HCC AB Equity	HAIL CEMENT	3001	Materials
56	TACCO AB Equity	TABUK CEMENT CO	3090	Materials
57	ASTRA AB Equity	ASTRA INDUSTRIAL GROUP	1212	Industrials
58	ZIIC AB Equity	ZAMIL INDUSTRIAL INVESTMENT	2240	Materials
59	ALBABTAI AB Equity	AL BABBAIN POWER & TELECOMMU	2320	Industrials
60	HB AB Equity	HALWANI BROS CO	6001	Consumer Staples
61	ALABDUL AB Equity	ALABDULLATIF INDUSTRIAL INV	2340	Consumer Discretionary
62	SSP AB Equity	SAUDI STEEL PIPE CO	1320	Materials
63	CHEMANOL AB Equity	METHANOL CHEMICALS CO	2001	Materials
64	BAWAN AB Equity	BAWAN CO	1302	Industrials
65	AATD AB Equity	ABDUL MOHSEN AL- HOKAIR TOURI	1820	Consumer Discretionary
66	ASLAK AB Equity	UNITED WIRE FACTORIES COMPAN	1301	Materials
67	SVCP AB Equity	SAUDI VITRIFIED CLAY PIPE CO	2360	Industrials
68	REDSEA AB Equity	RED SEA INTERNATIONAL CO	4230	Real Estate
69	SHAKER AB Equity	AL-HASSAN GI. SHAKER CO	1214	Consumer Discretionary
70	SMARKETI AB Equity	SAUDI MARKETING CO	4006	Consumer Staples
71	SPPC AB Equity	SAUDI PRINTING & PACKAGING C	4270	Industrials
72	TAKWEEN AB Equity	TAKWEEN ADVANCED INDUSTRIES	1201	Materials
73	ALKHLEJ AB Equity	AL KHALEJ TRAINING AND EDUC	4290	Consumer Discretionary
74	EIC AB Equity	ELECTRICAL INDUSTRIES CO	1303	Industrials
75	MEPC AB Equity	MIDDLE EAST PAPER CO	1202	Industrials
76	JADCO AB Equity	AL JOUF AGRICULTURE DEVELOPM	6070	Consumer Staples
77	BCI AB Equity	BASIC CHEMICAL INDUSTRIES	1210	Materials

78	AHFCO AB Equity	FITAIHI HOLDING GROUP	4180	Consumer Discretionary
79	ASACO AB Equity	ASH-SHARQIYAH DEVELOPMENT CO	6060	Consumer Staples
80	AADC AB Equity	AL-AHSA DEVELOPMENT CO.	2140	Industrials
81	NAMA AB Equity	NAMA CHEMICALS CO	2210	Materials
82	GIZACO AB Equity	JAZAN ENERGY AND DEVELOPMENT	6090	Consumer Staples
83	APCO AB Equity	ARABIAN PIPES CO	2200	Materials
84	ZOUJAJ AB Equity	NATIONAL CO FOR GLASS IN/THE	2150	Materials
85	SARCO AB Equity	SAUDI ARABIA REFINERIES CO	2030	Energy
86	NGCO AB Equity	NATIONAL GYPSUM	2090	Materials
87	SAAC AB Equity	SAUDI ARABIAN AMIANITIT CO	2160	Industrials
88	SFICO AB Equity	SAUDI FISHERIES	6050	Consumer Staples
89	SCACO AB Equity	SAUDI CABLE CO	2110	Industrials
90	FIPCO AB Equity	FILING & PACKING MATERIALS M	2180	Materials
91	NMMCC AB Equity	MAADANIYAH	2220	Materials
92	TAACO AB Equity	TABUK AGRICULTURAL DEVELOPME	6040	Consumer Staples
93	MESC AB Equity	MIDDLE EAST SPECIALIZED CABL	2370	Industrials
94	SIECO AB Equity	SAUDI INDUSTRIAL EXPORT CO	4140	Industrials
95	SIDC AB Equity	SAUDI INDUSTRIAL DEVELOPMENT	2130	Consumer Discretionary
96	EAT AB Equity	ETIHAD ATHEEB TELECOMMUNICAT	7040	Communicati on Services
97	TAPRCO AB Equity	TIHAMA ADVERTISING & PUBLIC	4070	Communicati on Services
98	FPCO AB Equity	WAFRAH FOR INDUSTRY AND DEVE	2100	Consumer Staples
99	TECO AB Equity	TOURISM ENTERPRISE CO/ SHAMS	4170	Consumer Discretionary
100	ANAAM AB Equity	ANAAM INTERNATIONAL HOLDING	4061	Consumer Staples
101	SPM AB Equity	SAUDI PAPER MANUFACTURING CO	2300	Materials
102	ALSORAYA AB Equity	ALSORAYAI GROUP	1213	Consumer Discretionary
103	THIMAR AB Equity	THIMAR	4160	Consumer Staples

Appendix 2. Correlation Matrix

	DIVID	BRDM	BRDS	CASH	EQT	FCF	RE	ROA	SGR
DIVID	1	-0.04259	0.230728	0.167812	0.36214	0.415552	0.337803	0.242614	-0.00864
BRDM	-0.04259	1	0.132574	-0.00196	-0.01524	-0.02833	-0.0264	-0.02607	0.152613
BRDS	0.230728	0.132574	1	-0.04715	-0.13181	0.068174	0.190188	0.008621	0.003549
CASH	0.167812	-0.00196	-0.04715	1	0.35441	0.079237	0.027467	-0.0011	-0.06477
EQT	0.36214	-0.01524	-0.13181	0.35441	1	0.085017	0.309352	0.076592	0.103564
FCF	0.415552	-0.02833	0.068174	0.079237	0.085017	1	0.125614	0.117444	0.048246
RE	0.337803	-0.0264	0.190188	0.027467	0.309352	0.125614	1	0.164966	0.043386
ROA	0.242614	-0.02607	0.008621	-0.0011	0.076592	0.117444	0.164966	1	0.268484
SGR	-0.00864	0.152613	0.003549	-0.06477	0.103564	0.048246	0.043386	0.268484	1

Appendix 4. Expectation-Prediction Evaluation for Binary Specification – Logit Model 5

Expectation-Prediction Evaluation for Binary Specification
 Equation: LOGIT5
 Date: 04/19/20 Time: 05:54
 Success cutoff: C = 0.5

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
P(Dep=1)<=C	76	24	100	0	0	0
P(Dep=1)>C	57	255	312	133	279	412
Total	133	279	412	133	279	412
Correct	76	255	331	0	279	279
% Correct	57.14	91.40	80.34	0.00	100.00	67.72
% Incorrect	42.86	8.60	19.66	100.00	0.00	32.28
Total Gain*	57.14	-8.60	12.62			
Percent Gain**	57.14	NA	39.10			

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
E(# of Dep=0)	77.71	55.29	133.00	42.93	90.07	133.00
E(# of Dep=1)	55.29	223.71	279.00	90.07	188.93	279.00
Total	133.00	279.00	412.00	133.00	279.00	412.00
Correct	77.71	223.71	301.41	42.93	188.93	231.87
% Correct	58.43	80.18	73.16	32.28	67.72	56.28
% Incorrect	41.57	19.82	26.84	67.72	32.28	43.72
Total Gain*	26.14	12.46	16.88			
Percent Gain**	38.61	38.61	38.61			

*Change in "% Correct" from default (constant probability) specification
 **Percent of incorrect (default) prediction corrected by equation

Appendix 5. Categorical Descriptive Statistics for Variables – Tobit 4

Categorical Descriptive Statistics for Variables

Equation: TOBIT4

Date: 04/19/20 Time: 06:50

Variable	Dep=L	Mean L<Dep	All
DIVID	0.000000	0.063236	0.042822
C	1.000000	1.000000	1.000000
BRDINDP	0.540302	0.478473	0.498433
BRDM	5.127820	4.971326	5.021845
BRDS	7.751880	8.304659	8.126214
CASH	0.088006	0.096622	0.093841
EQT	0.497272	0.618447	0.579330
LEVERAGE	1.564438	0.805306	1.050365
LOGSIZE	7.067533	7.970789	7.679204
RE	-0.047728	0.131363	0.073550
ROA	-0.064271	0.070813	0.027206
SGR	0.057565	0.041711	0.046829

Variable	Dep=L	Standard Deviation L<Dep	All
DIVID	0.000000	0.061288	0.058455
C	0.000000	0.000000	0.000000
BRDINDP	0.198315	0.141636	0.164432
BRDM	2.024148	1.444128	1.652841
BRDS	1.442882	1.268183	1.350351
CASH	0.090637	0.093055	0.092259
EQT	0.233092	0.191427	0.213198
LEVERAGE	1.528269	0.808938	1.148490
LOGSIZE	1.286489	1.364084	1.403186
RE	0.252999	0.118617	0.192621
ROA	0.508699	0.076600	0.301791
SGR	0.766317	0.326442	0.510625

Observations	133	279	412
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Appendix 6. Categorical Descriptive Statistics for Variables – Tobit 5

Categorical Descriptive Statistics for Variables

Equation: TOBIT5

Date: 04/19/20 Time: 06:52

Variable	Dep=L	Mean L<Dep	All
DIVID	0.000000	0.063236	0.042822
C	1.000000	1.000000	1.000000
BRDINDP	0.540302	0.478473	0.498433
BRDM	5.127820	4.971326	5.021845
BRDS	7.751880	8.304659	8.126214
EQT	0.497272	0.618447	0.579330
FCF	0.023966	0.073198	0.057305
LEVERAGE	1.564438	0.805306	1.050365
LOGSIZE	7.067533	7.970789	7.679204
RE	-0.047728	0.131363	0.073550
ROA	-0.064271	0.070813	0.027206
SGR	0.057565	0.041711	0.046829

Variable	Dep=L	Standard Deviation L<Dep	All
DIVID	0.000000	0.061288	0.058455
C	0.000000	0.000000	0.000000
BRDINDP	0.198315	0.141636	0.164432
BRDM	2.024148	1.444128	1.652841
BRDS	1.442882	1.268183	1.350351
EQT	0.233092	0.191427	0.213198
FCF	0.115295	0.106748	0.111840
LEVERAGE	1.528269	0.808938	1.148490
LOGSIZE	1.286489	1.364084	1.403186
RE	0.252999	0.118617	0.192621
ROA	0.508699	0.076600	0.301791
SGR	0.766317	0.326442	0.510625

Observations	133	279	412
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