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1. Introduction

1.1. Background of the Study

Dividends are the distribution of a firm's earnings to its shareholders and serve as a crucial metric in deciding a company's capital procurement strategies, as well as aiding investors in assessing corporate value (O'Sullivan & Sheffrin, 2013). From a financial perspective, various explanations have been proposed for the factors that influence a firm's decision to pay dividends (Baker et al., 2001). Theoretical deliberations surrounding the conduct of both corporations and investors in their dividend-related decision-making processes are still ongoing, and various empirical studies have been conducted to provide evidence.

As the most classic theoretical study on the factors affecting corporate dividends, according to Miller and Modigliani (1961), dividend policy is irrelevant to both corporate value and shareholder wealth in a perfect capital market devoid of hindrances such as taxes and transaction costs. According to their theoretical framework, when a firm pays dividends while simultaneously procuring external funds, the resultant consequence is a decrease in the share price, muting the impact of the dividend distribution. Conversely, when a company opts not to distribute dividends and instead retains funds for internal investment, the resulting returns on those investments are reflected in the share price, enhancing the firm's overall value. However, in the real-world context, the presence of taxes and transaction costs deviates from their assumptions of a perfect capital market (DeAngelo & DeAngelo, 2006; 2007). Therefore, a firm's dividend policy can affect its value. In this context, various internal and external factors that affect a firm's decision-making process regarding dividends have been discussed.

A company makes a choice between retaining its current year's earnings for investment purposes or distributing them to shareholders, enabling them to partake in the company's profit. Among the primary determinants influencing

a company's dividend policy, taxes emerge as a pivotal consideration. Taxation is a quintessential market imperfection and a direct impact on an investor's after-tax returns. In accordance with the tax preference theory, when the tax rate on dividend income is higher than the tax rate on capital gains, investors exhibit a preference for capital gains over dividends, which may subsequently affect the dividend decision of companies (Litzerberger & Ramaswamy, 1980). In light of this perspective, policymakers have frequently tried to use tax policies as a mechanism for influencing corporate dividend policy (Jacob & Michaely, 2017).

In South Korea, strategic tax incentives were introduced for dividend income for three years, from 2015 to 2017, with the aim of inducing companies to allocate a more significant share of their profits to shareholders in the form of dividends (Korean Ministry of Economy and Finance, 2014). It is noteworthy that, as of 2014, dividend income in South Korea was subject to a progressive tax rate of up to 38 percent, which increased to 45 percent by 2023 under the comprehensive taxation system. In contrast, capital gains from shares were subject to a flat tax rate of 20 percent, which resulted in dividend income facing a tax disadvantage when compared to capital gains.

Consequently, under this taxation framework, the South Korean Government introduced tax incentives specifically tailored to dividend income. These incentives were implemented with the dual objectives of stimulating companies to augment their dividend payouts and promoting the engagement of investors in long-term investment through fostering tax neutrality in the decision-making process of companies and investors with regard to dividends.

These tax incentives were not applied to shareholders of all listed companies but only to those of high-dividend companies whose dividend payout ratio and dividend yield exceeded the market average. In 2015, a noteworthy adjustment was made, reducing the withholding tax rate from 14 percent to 9 percent, specifically for shareholders of such high-dividend companies.

Furthermore, these shareholders were allowed to choose a 25 percent separate taxation for their financial income, which fell under the comprehensive taxation system (Korean Ministry of Economy and Finance, 2014). In the subsequent years, 2016 and 2017, the previously implemented 25 percent separate taxation system was converted to a 5 percent tax credit, and the tax credit was capped at 20 million Korean won per year (Korean Ministry of Economy and Finance, 2016).

While there has been a theoretical debate on whether taxes on dividend income affect firms' dividend decisions, cases for empirical analyses have been constrained by the realistic challenges associated with altering the tax rates on dividend income. Within this context, the South Korean case, wherein tax incentives were temporarily implemented for dividend income, provides an opportunity to conduct empirical analyses of the impact of tax policy on corporate dividend decisions.

1.2. Research Aims and Objectives

The aim of this research is to investigate the impact of changes in tax policy on listed firms’ dividend payout in South Korea. To this end, this study focuses on four key research objectives:

1) To identify the factors that affect firms’ dividend decisions
2) To analyze the relationship between changes in taxation and corporate dividend payout in South Korea
3) To examine the effect of major shareholders who have a high stake on companies’ dividend policies in South Korea
4) To recommend actions in order to influence firms' dividend decisions in terms of taxation effectively

Furthermore, the four main research questions of this study are as follows:

1) What factors affect firms’ dividend decision-making?
2) How has the tax policy influenced listed corporations’ dividend payout

in Korea?

3) How have the listed companies with a high stake in major shareholders responded to changes in taxation in Korea?
4) What are the recommended actions to influence corporate dividend payout effectively?

1.3. Outline of Methodology

Research methodology refers to the methods that a researcher uses in a study to fulfill the objectives of the study and the principles that support the study (Somekh & Lewin, 2005). The purpose of this study is to conduct an empirical analysis of whether changes in tax policy have a significant impact on firms' dividend payout decisions. This study will be carried out by the structured framework known as the *"research onion"* developed by Saunder et al. (2019). Hence, the research philosophy, research approach, research strategy, research choice, and data collection and analysis utilised for this study will be comprehensively described and discussed.

1.4. Research Significance

Despite the theoretical suggestion that tax policy plays a significant role in firms' dividend propensity, empirical investigations have been limited by the realistic difficulty of changing the tax rate on dividend income.

Prior empirical studies of the relationship between tax policy and corporate dividend decisions have primarily focused on the consequences of the 2003 tax cut in the United States of America (USA), which is the Jobs and Growth Tax Relief Reconciliation Act of 2003, also known as the Bush Tax Cuts (Chetty & Saez, 2005; Blouin et al., 2011; Hanlon & Hoopes, 2004; Edgerton, 2012; Floyd et al., 2015; Yangon, 2015). In 2003, the USA enacted a tax reform measure that reduced the tax rate applicable to dividend income, lowering it from a maximum of 38.6 percent to 15 percent. As a result,

several studies have attempted to compare the dividend decisions of firms before and after the year 2003 (Chetty & Saez, 2005; Blouin et al., 2011; Hanlon & Hoopes, 2004; Edgerton, 2012; Floyd et al., 2015; Yangon, 2015). However, the results of these studies are mixed. Some studies indicate that the change in tax rates had a marginal impact on dividend income (Edgerton, 2012; Floyd et al., 2015; Yangon, 2015). In contrast, others contend that the 2003 dividend tax cut had a substantial influence on corporate dividend payout (Chetty & Saez, 2005; Blouin et al., 2011; Hanlon & Hoopes, 2004).

In contrast to the USA tax cut in 2003, South Korea implemented temporary tax incentives for dividend income over the limited spanning period from 2015 to 2017. Consequently, the South Korean case provides an opportunity to compare the dividend payout of firms before and after the introduction of the tax incentives, as well as to examine the response of firms subsequent to the expiration of these tax benefits. This study fills a gap in the literature by empirically analysing the extent to which changes in tax policy on dividend income have a significant impact on firms' dividend decisions through the new South Korean case.

1.5. Dissertation Structure

This research will be structured into the following six chapters:

Chapter 1 - Introduction: This chapter provides an introduction to the research topic, the background for choosing it, and the research objectives and questions. It also explains the significance of this research based on a comprehensive analysis of the theoretical and empirical literature.

Chapter 2: This chapter is dedicated to reviewing the previous studies that explore the factors affecting corporate dividends and the relationship between tax policy and firms' dividend decision-making. It expounds on various theories concerning both external and internal determinants of dividend decisions. In addition, it presents the findings of several empirical

studies examining the impact of tax rate changes on corporate dividend payout.

Chapter 3: In this chapter, the research methodology employed in this study will be detailed. The research philosophy, research approach, research strategy, and research method utilised in this study will be justified. The methods used for data collection and analysis will be clearly explicated.

Chapter 4: This chapter presents the results of the analysis conducted using statistical software. It will test the hypotheses set out to determine whether changes in tax policy have had a significant impact on firms' dividend payout. Furthermore, it will assess whether firms with large shareholders or insiders were more sensitive to changes in tax policy and provide the findings.

Chapter 5: The purpose of this chapter is to interpret and discuss the findings derived from this study. The results of this study will also be compared with those identified in the previous theoretical and empirical studies, facilitating a comprehensive examination of the research outcomes.

Chapter 6: This concluding chapter provides an overall review of the entire research, spanning from Chapter 1 to Chapter 5. It discusses the limitations and implications of this research, suggests directions for future research, and provides recommendations for policymaking related to the topic of this research.

2. Literature Review

2.1. Overview of the Chapter

This chapter primarily reviews a multitude of theories that investigate the determinants impacting a firm's decision-making on dividend policy. Dividends are the distribution of profits derived from a firm to its shareholders as a result of its business operations, and dividend policy refers to the payout policy followed by a firm in determining the amount and pattern of dividends to its shareholders (Baker & Weigand, 2015). Concerning the diverse factors influencing corporate dividends, it is imperative to empirically analyse the relationship between changes in tax policy and corporate dividend policy, necessitating a comprehensive review of the theoretical discussions.

Furthermore, given that this study aims to explore the impact of tax policy on listed firms' dividend decisions in South Korea, this chapter discusses the previous studies that have empirically analysed the relationship between changes in tax policy and corporate dividend decisions. Numerous empirical analyses have endeavored to assess the influence of taxation on corporate dividend payout. Therefore, the cases, methodologies, and findings of these empirical investigations are explained and compared.

Finally, this chapter presents empirical research on the impact of ownership structure on firms' dividend decisions in response to changes in tax policy. Since one of the critical objectives of this study is to evaluate whether companies with large shareholders are more sensitive to changes in the taxation of dividend income, prior empirical studies are thoroughly examined and discussed in this regard.

2.2. Factors Affecting Corporate Dividend Decisions

2.2.1. Dividend Irrelevance Theory

A classic theory underpinning corporate dividend policy is the Dividend

Irrelevance Theory proposed by Miller and Modigliani (1961). As described in Chapter 1.1., the theory posits that in a perfect capital market, the value of a firm and the wealth of its shareholders are entirely irrelevant to the company's dividend policy. In other words, the value of a company is determined by its assets and the cash flow generated by these assets, not by the specific way in which these cash flows are distributed to shareholders. Consequently, a company's financial structure and dividend policy represent mere technical mechanisms for allocating profits into retained earnings and dividends. Shareholders possess the ability to self-adjust their dividends by engaging in purchasing or selling shares in companies that pay dividends, even in instances where the distributed dividends do not precisely align with their preferred level (Miller & Modigliani, 1961). As a result, shareholders are indifferent to corporate dividend policy.

However, the veracity of the Miller and Modigliani (MM) theory has come under scrutiny due to the inherent assumption of a perfect capital market without taxes and transaction costs. This assumption does not align with the realities of the actual world (DeAngelo & DeAngelo, 2006). In actuality, capital markets are not frictionless; they incur transaction costs and exhibit inefficiencies, rendering the MM theory less applicable. Black (1996) coined the term *“dividend puzzle”* to describe the phenomenon that dividends are widely paid even though, given the tax disadvantages of dividends, paying dividends actually has a negative impact on the value of the firm.

Subsequently, numerous studies have been conducted to explain this dividend puzzle from multifaceted perspectives (Poterba & Summer, 1984; Jenson, 1986; Filbeck, 2011; Easterbrook, 1984; Allen & Michaely, 2003; Megginson, 1996; Leary & Michaely, 2011; DeAngelo & DeAngelo, 2006; Bulan & Subramanian, 2009). These examinations include classic studies that focus on the influence of taxes, signaling (information asymmetries), and agency costs in the context of market imperfections. More recent explanations delve into the rule of investor preferences and corporate-specific characteristics in making dividend decisions.

2.2.2. Dividend Relevance Theory

2.2.2.1. Taxes

Taxes are the most prominent manifestation of market imperfections. According to tax preference theory, differences in the tax rates on capital gains and dividend income affect a firm's dividend policy (Poterba & Summer, 1984). For example, when the tax rate levied on dividend income is higher than that imposed on capital gains, investors tend to favor capital gains over dividends, potentially influencing a firm's dividend payout policy. Grounded in these theoretical underpinnings, many empirical studies have been carried out to explore the impact of taxes on corporate dividend policy, the findings of which are discussed in subsequent sections.

2.2.2.2. Signaling and Asymmetric Information

The next factor of market imperfection that can be considered is the information asymmetry between firms and investors. This information asymmetry forms the basis of signaling theory (Baker & Weigand, 2015). Signaling theory argues that under asymmetric information, dividend payments serve as a signal to the market to convey insider information regarding the firm's financial health. In other words, if managers who possess insider knowledge believe that the current market value of the firm is lower than its intrinsic value, they have an incentive to communicate this privileged information to investors. Dividend payments then function as a medium to transmit the optimistic future prospects of the firm.

Several empirical analyses have been conducted to explore the tenets of signaling theory. Some studies provide empirical support for this theory by demonstrating that an increase in dividend payments has a significant impact on a firm's earnings (Grullon et al., 2000; Healy & Palepu, 1988). According to Filbeck (2011), based on a comprehensive review of the

literature, most empirical evidence aligned with the theoretical model, signifying that changes in dividend policies indeed affect stock prices.

Results based on surveys of managers also generally support the signaling effect. Among USA firms, surveys supported signaling over taxes and agency costs among the main factors associated with market imperfections, and signaling theory also had the highest support among non-USA firms (Baker et al., 2011).

However, there are empirical analyses that showed opposite results. Allea and Michaely (2003) argued that changes in dividend payout policy were not driven by managers' desire to signal internal value. Farre-Mensa et al. (2014) concluded that the signaling theory had a weak empirical basis based on their survey.

However, the empirical findings stemming from surveys conducted with managers generally supported the signaling theory. Among USA firms, these surveys indicated that signaling was favored over taxes and agency costs as one of the main factors associated with market imperfections. Additionally, signaling theory also appeared to receive substantial support among non-USA firms as well (Baker et al., 2011).

However, it is essential to acknowledge the existence of empirical analyses that yielded contrasting results. For instance, Allea and Michaely (2003) argued that changes in dividend payout policy were not primarily motivated by managers' intentions to signal the firm's internal value. Furthermore, based on their survey and analysis, Far-Mensa et al. (2014) concluded that the empirical basis for signaling theory was relatively weak. These different points of view illustrate the complexity and intricacy of the relationship between dividend policies and signaling.

2.2.2.3. Agency Cost

The third element of market imperfections is agency costs. Dividends act as

a mechanism to mitigate agency costs or surveillance expenses inherent in the principal-agent relationship between investors and managers (Easterbrook, 1984). Agency costs may arise because, under the condition of information asymmetry, shareholders encounter difficulties in monitoring the actions of managers. In contrast, managers often have a greater incentive to maximise their own efficiency as opposed to prioritizing the enhancement of shareholder value. Consequently, when a firm opts to distribute dividends, it necessitates more frequent access to capital markets to finance new investments. In this case, external financial institutions play a role in reinforcing the firm's valuation, thereby limiting managerial tendencies toward overinvestment and unnecessary expenditures. Ultimately, this practice serves to augment the firm's overall worth (Jensen, 1986). Therefore, according to this theory, shareholders demand dividends as a means to reduce agency costs.

Various empirical studies have delved into whether dividends are effective in mitigating agency costs within the investor-manager relationship. Allen and Michaely (2003) concluded that dividends appeared to be paid to reduce potential overinvestment by managers. Farre-Mensa et al. (2014) argued that of the three traditional motivations for firms to pay dividends, taxes, asymmetric information, and agency costs, the rationale of agency costs emerged as the most persuasive. However, Baker (2011) highlighted mixed results from surveys conducted among both USA and non-USA firms with regard to the impact of agency costs.

2.2.2.4. Clientele Effect

An alternative perspective on why companies adopt different dividend policies pertains to investor demand. According to the Clientele Effect theory (Allen & Michaely, 2003), investors tend to invest in stocks that align with their preferences. For instance, an investor who is subject to a higher income tax rate is declined to favour dividends that result in additional cash flow and,

as such, seeks to purchase shares in companies that do not pay dividends or offer low dividends. Conversely, an investor who is subject to a lower income tax rate is inclined to invest in companies that disburse high dividends, thereby generating additional cash flow.

Therefore, according to this theory, companies tend to maintain a constant level of dividends rather than readily change their dividend policy to accommodate investor demand, which is referred to as *"dividend stabilization"* (Leary & Michaely, 2011). Empirical studies provided support for this theory, showing that firms' consistent dividend behaviour, a phenomenon frequently observed in the stock market (Lakin et al., 2017; Gwilym et al., 2000).

2.2.2.5. Firm Life-Cycle Theory

The Firm Life-Cycle theory attempts to explain a firm's dividend policy by linking it to its characteristics. According to DeAngelo and DeAngelo (2006), this Life-Cycle theory describes that a firm's stage in its life cycle can be applied to its dividend policy. Start-up firms, in their explanation, often find it financially untenable to allocate dividends as they channel their resources into early-stage investment activities. However, as these firms mature, they tend to be more inclined to initiate dividend payments. With maturity, a firm's cash flow typically improves, rendering it more likely to distribute earnings to shareholders in the form of dividends.

Based on an examination of the literature, Bulan and Subramanian (2009) contended that there was a significant relationship between the propensity to pay dividends and life cycle characteristics. Baker et al. (2011) also concluded that an increase based on survey research supported the Firm Life-Cycle theory of dividends.

2.3. The Effect of Tax Policy on Firms' Dividend Decisions

As discussed in Chapter 2.2.2.1., taxes constitute a representative source of market imperfections, and empirical analyses of the relationship between tax policy and firms' dividend decisions exhibit a range of outcomes.

Poterba and Summers (1984) conducted an empirical analysis examining the relationship between dividends and changes in the taxation of capital gains and dividend income in the United Kingdom (UK) over the period spanning 1965 to 1973. The UK introduced a taxation regime for capital gains in 1965, followed by a tax incentive for dividend income in 1973. These two tax policy modifications augmented the relative attractiveness of dividend income, suggesting that investors' preference for dividends increased as a result. Poterba and Summer (1984) showed that changes in tax policy on dividend income had a notable impact on investors' demand for dividends, increasing the demand to invest in assets with relatively low tax rates.

Chetty and Saez (2005) empirically analysed the impact of the 2003 tax cut on dividend income in the USA on corporate dividend policy. The enactment of the Jobs and Growth Tax Relief Reconciliation Act of 2003 brought a significant reduction in the tax rate levied on dividend income in the USA. Prior to this, dividend income was taxed at the same rate as ordinary income, up to 38.6 percent (United States Congress, 2003). However, after 2003, the tax rate for dividend income was aligned with that of long-term capital gains, fixed at 15 percent. Using a sample of companies excluding financial and utility sectors, this study found that the reduction in the tax rate on dividend income led to a roughly 20 percent increase in dividend payouts. Additionally, a significant number of companies either started paying dividends for the first time or increased the amount of their dividend payments immediately following the dividend tax cut. These findings supported the idea that a decrease in the tax rate on dividend income has a positive effect on the magnitude of dividend payouts across the broader market.

Furthermore, Blouin et al. (2011) undertook an analysis of corporate dividend policies both before and after the 2003 tax reform in the USA. Their study found that firms adjusted their payout policies in response to the changed tax treatment of individual investors. Importantly, these payout adjustments began several months after the tax rate cut had been implemented.

Hanlon and Hoopes (2014) conducted an examination of whether taxes on individuals' dividend income affect firms' dividend decisions. They based their analysis on data from the last calendar months of 2010 and 2012, particularly before an expected increase in the tax rate on dividend income. The tax rate cut enacted in 2003 in the USA was scheduled to end on 31 December 2010 and was subsequently extended for two years to end on 31 December 2012. Their findings indicated that firms opted to pay special dividends just prior to the tax rate increase or change the timing of dividends that would generally be paid in January. This result supported the view that special dividends paid at the end of 2012 served to boost shareholder returns (Hribar et al., 2014) and that firms adjusted the timing of financial transactions in response to changes in tax policy (Slemord, 1992). These studies provided empirical evidence that tax policy on shareholders' dividend income affects firms' dividend decision-making.

Jacob and Michaely (2017) argued that taxes on dividend income play a substantial role in a firm's dividend propensity, taking into account factors such as ownership structure and investor’s level of tax burden. Their analysis centered on the case of Sweden, which, in 2006, lowered the tax rate on dividend income for shareholders of unlisted companies by 5-10 percentage points. They analysed the effect of this tax cut and showed that in the absence of conflicts between owners and managers or among shareholders, a reduction in the tax rate on dividend income had a statistically and economically meaningful influence on corporate dividend payments.

However, it is crucial to note that there are a number of studies suggesting that the taxation of dividend income has a limited impact on firms' dividend decisions. Poterba (2004) examined the effect of the differential tax treatment between dividend income and capital gains on corporate dividends, using a sample of USA firms from 1935 to 2003. His finding was that the short-term effect of disparities in tax treatment was very small and statistically insignificant.

Edgerton (2013) reported that real estate investment trusts (REITs) did not benefit from the 2003 tax cuts in the USA, yet they increased their dividends to a comparable extent as non-REITs companies. Given that dividends from REITs did not benefit from the favourable tax rates under the 2003 tax cuts but increased, it was described that factors other than taxes, such as improved corporate earnings and increased investor demand for cash, contributed to the increase in dividends from REITs and non-REITs. Furthermore, they also indicated a relatively modest increase in dividend payouts per corporate earnings.

Floyd et al. (2015) argued that the increase in corporate dividends since 2003 was due to factors other than the 2003 tax cuts in the USA, based on the fact that share repurchases were higher than dividends through their analysis of USA firms from 2002 to 2007. One factor they pointed to was the increase in corporate profitability, which plays a pivotal role in shaping dividend decisions.

Yagan (2015) analysed whether the 2003 tax rate cut in the USA had an impact on business investment and labour income. The study relied on corporate tax returns for USA firms over the period spanning 1996 to 2008. He found that the tax cut did not yield any observable effects on firm investment and worker wages. He also concluded that the tax cut on dividend income at the individual level increased overall corporate dividends, but the magnitude of the increase was not statistically significant.

Lee and Hong (2017) carried out an empirical analysis of the impact of the

tax incentive on dividend income, which was introduced for a limited period from 2015 to 2017 in South Korea, on firms' dividend decision-making. By examining the changes in the dividend amount and dividend propensity of listed South Korean firms in the two years before and after the introduction of the tax incentive, this study found that the tax incentive had a positive effect on increasing the dividend amounts and dividend propensity of firms, but the effect was not statistically significant. The increase in dividend amount was mainly attributed to the rise in the net profit of companies.

Survey-based evidence also questions the relationship between changes in tax policy on dividend income and firms' dividend decisions. Brav et al. (2008) conducted a survey involving 328 corporate finance executives to analyse the effect of the 2003 USA tax cut on dividend income. Their findings indicated that the tax treatment of shareholders was not a significant determinant of corporate dividend decisions. Although some companies reported that they initiated or increased dividends after 2003, a majority of executives stated that past dividend levels, current cash reserves, and anticipated future cash flows were more influential factors than the tax rate on dividend income for shareholders.

2.4. The Influence of Shareholder or Insider Ownership on Corporate Dividend Policy

In addition to exploring the impact of tax policy on investors' dividend income on firms' dividend decision-making, various empirical studies have also been conducted on whether firms' dividend policy is more sensitive to changes in tax policy when major shareholders or insiders who possess the ability to influence significant corporate decisions, hold higher stakes.

Chetty and Saez (2005) conducted an analysis of the impact of the USA 2003 tax reform on corporate dividends. They found no change in dividend policy for firms with a higher proportion of non-taxable corporations.

Furthermore, they concluded that companies exhibiting significantly higher sensitivity to a reduction in the tax rate on dividend income featured major shareholders whose tax liability underwent a notable shift in response to alteration in tax rates, such as independent directors, investors with high stakes, and top management with a lower proportion of stock options.

Blouin et al. (2011) carried out a comparative study of firms' dividend policies before and after the 2003 USA tax rate cut. They found that officers and directors holding firm shares adjusted their portfolios in response to the tax rate change. Moreover, the tendency was shown that firms with a larger number of shares held by officers and directors were more sensitive to the changed tax policy.

Hanlon and Hoopes (2014) conducted a test to determine whether firms with higher insider ownership were more inclined to modify the timing of their dividend payments, specifically shifting them from January to December in anticipation of the sunset of the USA 2003 tax cut act in December 2010 and 2012. Their results provided a positive and significant association between insider ownership and the propensity to alter the timing of dividends.

Jacob and Michaely (2017) analysed the effect of a dividend income tax reduction for shareholders of unlisted Swedish companies, which was implemented in 2006. Their findings showed that the presence of greater friction between owners and managers or among shareholders muted the influences of tax policy on a firm's dividend policy. Along with the agency problem proposed by Chetty and Saez (2005), conflict among shareholders also reduced the sensitivity of a firm's dividend policy to tax policy. This was attributed to differing tax preferences among owners and an increasing number of investors, which dampened the responsiveness to tax changes.

Chkir and Saadi (2011) employed an index of corporate governance to investigate the effect of Canada's tax reform on corporate dividend policy. They contended that the stronger the corporate governance, the more pronounced the effect of lower tax rates on dividend income.

2.5. Conclusion

Despite the extensive theoretical and empirical debate on the factors that determine a firm's dividend policy, a definitive consensus has yet to be reached. None of the theories or explanations of dividend payout is considered to be robustly verified (Frankfurter & Wood, 2002). This lack of consensus may be attributed to the influence of a number of exogenous and endogenous factors that affect firms' decisions on dividend policy, and these factors often interact in complex ways (Chetty & Saez, 2005; 2010).

In contrast to the theoretical expectation that the taxation of dividends should play a significant role in corporate dividend payouts (Alstadsæter & Jacob, 2016), the results of empirical analyses are mixed. Therefore, the relationship between changes in taxes on dividend income for individuals and corporate dividend decisions remains a subject of ongoing debate and further investigation.

Empirical studies examining the impact of taxes on dividend income on firms' dividend decision-making have mainly concentrated on the 2003 USA tax reform. Apart from the USA case, most studies have scrutinized the consequences of permanent tax rate reductions on dividend income. This seems to stem from practical constraints such as tax revenue, stakeholder backlash, and the stability and predictability of tax policy, which make it difficult to change the tax rate on dividend income frequently. This circumstance implies that there is an ongoing need for a deeper understanding of how corporate policy is influenced by tax policy at the shareholder level (Graham, 2003).

In addition, most of the literature suggests that firms with large shareholdings and insiders capable of influencing corporate decision-making are more responsive to changes in the tax treatment of dividend income. However, these studies add to the growing body of research showing that taxes on dividend income affect firms' dividend decisions.

In South Korea, a tax incentive for dividend income was implemented for a limited period of three years, from 2015 to 2017. This study distinguishes itself from previous studies in that it analyses whether firms' dividend policy changes not only before the introduction of the tax incentive but also after the tax incentive expires. Suppose there is a positive relationship between the tax policy on dividend income and the firm's dividend decision. In that case, the firm's dividend payout will tend to increase after the tax incentive is introduced and decrease after the tax incentive is terminated.

Building on the information gathered from the literature review in this chapter, the next chapter will delve into the methodology employed in this study to investigate the impact of South Korea's temporary dividend tax incentive on firms' dividend decisions.

3. Data and Methodology

3.1. Overview of the Chapter

This chapter describes the research methodology and methods employed to address the research objectives and inquiries pertaining to the assessment of tax policy's influence on dividend-related decision-making within listed companies in South Korea.

Methodology refers to the systematic acquisition of reliable data for the purpose of undertaking a specific study and the subsequent investigation to address research questions. It constitutes the approach by which research is conducted to gather additional information and augment comprehension (Kumar & Phrommathed, 2005). Saunders et al. (2019) have suggested a research model known as the *"research onion,"* which provides a structured framework for formulating a research strategy. In this study, the research methodology will be addressed by the guidance provided by the research onion model.

Hence, this chapter will commence by delineating the research philosophy, research approach, and research selection undertaken for the execution of this research. Subsequently, it will expound upon the data collection methods and data analysis procedures employed. In the part of data analysis, the formulation of research hypotheses and the explication of relevant statistical models and variables that are selected for hypothesis testing will be elucidated.

3.2. Research Philosophy

A research philosophy is characterized as one's perspective on the fundamental nature of the phenomenon being studied (Bryman, 2016). Research philosophy can also be described as an individual's conceptualization and approach to enhancing or developing a particular body of knowledge (Baskerville & Wood-Harper, 1996). It can vary based on

the research objectives and the most appropriate means to accomplish them (Goddard & Melville, 2004). The two principal ontological frameworks commonly employed in the research process are positivism and constructivism (Gulati, 2009). Positivism posits that socially observed phenomena should be treated as objective entities, while constructivism challenges the positivist perspective by asserting that reality is subjective, pluralistic, and consists of social actors (Lincoln et al., 2011; Asgedom, 2004). Consequently, positivism predominantly utilizes scientific and quantitative methodologies, whereas constructivism employs non-scientific and qualitative approaches (Uduma & Sylva, 2015).

This study adheres to the ontological framework of positivism, as it employs quantitative data analysis methods to test hypotheses, relying on highly reliable sources such as official government statistics or stock exchange trading data (Johnson & Clark, 2006; Bryant, 1985).

3.3. Research Approach

Research approaches can be categorized into two types: deductive and inductive. Deductive approaches formulate or test hypotheses or assumptions based on existing theory (Silverman, 2013). It is an approach that collects quantitative data to formulate and test hypotheses to explain general correlations between variables (Hyde, 2000; Ketokivi & Mantere, 2010). Inductive approaches, on the other hand, are used primarily in qualitative research as a way to expand on a particular phenomenon (Bell et al., 2022). It is an approach that relies on qualitative data, such as free speech and in-depth interviews, to provide a detailed and rich description of social phenomena (Cohen et al., 2002; Newman, 2003).

The purpose of this study is to design proper hypotheses and formulate statistical models to test hypotheses and draw conclusions on whether the relationship between tax policy and dividend policy of Korean listed

companies is compelling. As with most of the precedent studies discussed in the previous chapters, this study uses methods to analyze statistically numerical data. Therefore, a deductive approach is applied to this research.

3.4. Research Strategy

A research strategy represents a method of conducting research aligned with specific research objectives. There are many different strategies, including experiments, surveys, action research, case studies, grounded theory, ethnography, and archival research (Saunders et al., 2019). Each of these types of research strategies has distinct advantages and disadvantages, and the researcher selects the most proper strategy depending on the research topic (Dubois & Gadde, 2002).

The case study strategy allows the researcher to gain an in-depth understanding of the issue they are focusing on and is informed by real-life experiences (Blumberg et al., 2014; Orbe, 1996). While some argue that this research strategy is optimized for qualitative research, it is applicable across both the natural and social sciences, enabling hypothesis testing and enhanced comprehension of social phenomena (Yin, 2009).

This research employs a case study approach as a strategy to investigate the correlation between tax policy and corporate dividend payout ratios within the context of listed companies in South Korea.

3.5. Research Choice

The next layer of the research onion is called *“the research choices.”* Depending on the type of data used in the study, they are divided into mono-method, mixed-method, and multi-method (Saunders et al., 2019). Mono-method research pertains to studies exclusively reliant on either quantitative or qualitative data, while mixed methods involve the utilization of both. Mixed

methods incorporate a diverse array of data sources that yield distinct and independent datasets (Bryman, 2016).

Similar to precedent studies, this study chooses a mono-method using numerical data to study whether changes in tax policy have led to statistically significant changes in the dividend policy of listed companies in South Korea. Therefore, this study can be categorized as the mono method because it analyzes only quantitative data, such as corporate financial indicators collected through databases.

3.6. Data Collection

The data utilized in this study comprise the audited financial statements of listed companies in Korea spanning from 2012 to 2022. Given the research's primary focus on the influence of Korea's dividend incentive policy on the dividend policies of the corporations, the data is aggregated from three consecutive time periods: the three years preceding the policy's implementation, the three-year during the policy's enactment, and the five years following the policy's cessation. Datasets have both cross-sectional characteristics, in which data on the same item is collected from many companies simultaneously, and time-series characteristics, in which data on the same item is accumulated at regular intervals. This type of dataset is known as panel data (Baltagi, 2015).

The sample selection process is as follows.

In the initial step, SPACs (Special Purpose Acquisition Companies) and REITs (Real Estate Investment Trusts) were excluded from the pool of 1,788 companies listed on the Korea Exchange (KRX) over a decade-long observation period. SPACs were omitted due to their status as essentially shell companies without operational activities. In addition, REITs were excluded because they are investment trusts that distribute almost all their profits through real estate leases.

Subsequently, among the remaining 1,766 listed companies, those that underwent significant governance changes such as spin-offs or mergers during the observation period, as well as entities that were either delisted or had their initial listing, were also excluded. This process, aimed at ensuring data homogeneity and continuity, resulted in 1,527 companies remaining within the dataset.

To further enhance the dataset's robustness, companies that experienced at least one instance of a net loss during the observation period were excluded, as the continuity of the dividend policy can be compromised. Consequently, the final dataset for this research encompasses 400 companies.

The data is collected using FnGuide (www.fnguide.com), a data provider that provides audited financial statements of South Korean companies, various investment researches and macroeconomic indicators. FnGuide is the most widely used data provider in South Korea, and the data collected is highly credible.

3.7. Research Method

All collected data will be verified by hypothesis testing using quantitative analysis methods.

3.7.1. Definition of Variables

3.7.1.1. Dependent Variables

Dividend Policy is defined as the payout policy that a firm follows in determining the size and pattern of distributions to shareholders (Baker et al., 2011). The dividend payout ratio is the amount of dividends paid to shareholders in relation to the total amount of net income the company gains. In alignment with the purposes of this research, this study chooses the dividend payout ratio, which refers to a company's dividend policy, as the

dependent variable.

In addition, this study considers an additional dependent variable to construct a model similar to the model in the previous studies. In the preceding studies, the researchers used total dividend amounts as the dependent variable to study the notional change in dividends rather than the dividend payout ratio (Chetty & Saez, 2015; Jacob & Michaely, 2017; Lee & Hong, 2017). Even with the considerable concentration of the Korean economy within a single entity, Samsung Electronics, there is a legitimate concern that employing nominal dividends as the dependent variable in the model may yield misleading results, primarily due to the outsized impact of Samsung Electronics.

The importance of Samsung Electronics in the Korean economy is overwhelming. As of 2018, the company's net income, market capitalization, and total dividend amounts constituted a substantial 42%, 28%, and 39% of the KOSPI200 constituents, respectively. Consequently, this situation underscores the necessity for employing a standardized variable that remains unaffected by a company's size.

This study employs dividend yield as a standardized variable. Dividend Yield is expressed as a percentage showing how much a company pays out in dividends each year relative to its stock price (Pinto et al., 2010; Pinto, 2022). The dividend yield has stock price in the denominator, so there is a risk of misleading conclusion, as higher stock prices will result in lower dividend yields, even if there is no change in dividend payout ratio. However, it is much more logically rigorous than using a notional dividend amount, as the stock price of a company has a strong positive correlation with its earnings.

3.7.1.2. Independent Variables

The first variable selected as an independent variable is *"Year,"* serving as a temporal representation. The observation period for the study

encompasses distinct time frames, including the period preceding policy implementation, the policy duration, and the post-policy phase. Therefore, estimating how much the dependent variable changed over time and testing whether policy implementation and termination have an impact on the observed relationships is very helpful in determining the effectiveness of the policy.

Additionally, a selection of diverse financial metrics denoting profitability and growth of the companies is included as independent variables in this analysis. Notably, previous literature has identified profitability, cash flow, and corporate governance as primary determinants of a firm's dividend policy (Dewasiri et al., 2019).

Consistent with the approach employed for the dependent variable, independent variables comprise ratio-based metrics that are, regardless of a company's size, sourced from a range of profitability, growth, and cash flow indicators. Specifically, year-over-year net profit growth is embedded to represent the growth of the companies. Indicators encompassing return on equity (ROE) and return on assets (ROA) are employed to gauge profitability, while cash flow is assessed through the variable of *"free cash flow relative to market capitalization."*

Instead of employing numerical variables to portray corporate governance, this study constructs two categorical (dummy) variables. The first dummy variable categorizes companies as either individually owned or owned by a holding company or other corporate entities. The second categorical variable distinguishes between major shareholders with high, medium or low ownership stakes.

For each dummy variable, an initial analysis of variance (ANOVA) is conducted to determine whether there exist statistically significant differences among the group means. If no meaningful distinctions are observed in the mean values across groups, the variable is omitted from the model. Conversely, if significant differences exist, the variable is retained

and employed as either an independent, moderating, or control variable.

Table 3.1 shows the definitions and formulas for the independent variables.

Table 3.1: Definitions and formulas for the independent variables

Name	Type	Definition	Formula
Year	Continuous	Fiscal year of observation	Designated as 1 in 2012, 2 in 2013, … , 10 in 2021
NPG	Continuous	Net Profit Growth (YoY)	$\frac{Net\ Profit_t}{Net\ Profit_{t-1}} - 1$
ROE	Continuous	Return on Equity	$Net\ Profit / Shareholder's\ Equity$
ROA	Continuous	Return on Assets	$Net\ Profit / Total\ Assets$
FCF	Continuous	Free Cash Flow on Market Cap	$Free\ Cash\ Flow / Market\ Cap$
Owned	Categorical	Owned by individual or not	Owned= 0 if major shareholder is individual, Owned= 1 otherwise
Stake	Categorical	Major shareholder's stake	Stake = 0 if major shareholder's stake is the bottom third Stake = 1 for 1/3 of the medium Stake = 2 for the top third

3.7.1.3. Moderating Variables

The most important part of variable selection and model construction for this study is the design of moderating variables. The central aim of this research is to assess and quantify whether alterations in the government's tax incentive policy yield statistically significant modifications in the relationship

between the dependent and independent variables. This study introduces two binary (dummy) variables denoting the introduction and termination of the policy, which are subsequently employed as moderating variables.

For the sake of model simplicity, it may be tempting to employ a singular moderating variable. Under such an arrangement, this moderating variable would possess a value of 1 during the timeframe when the Korean government's tax policy was in effect and a value of 0 for all other periods. However, this singular moderating variable approach assumes that the policy's impact is entirely nullified once the policy concludes.

If the policy exerts a positive influence, enhancing firms' inclination to distribute dividends, and this positive impact endures even after the policy's termination, the underlying assumption in a singular moderating variable would lead to inaccurate outcomes. Therefore, it is more suitable for this study to examine and quantify the consequences of policy implementation and its counteracting effect at the time of policy cessation through separate moderating variables. Consequently, two binary (dummy) variables, labeled *"policy initiation"* and *"policy termination,"* are generated and employed concurrently for this purpose.

Table 3.2 shows the definitions and formulas of the moderating variables.

Table 3.2: Definitions and formulas for the moderating variables

Name	Type	Definition	Formula
PI	Index	Initiation of the tax policy	PI= 0 before policy initiation (Year <= 3) = 1 after policy initiation (Year> 3)
PT	Index	Termination of the tax policy	PT= 0 before policy termination (Year<= 6) =1 after termination (Year> 6)

3.7.2. Hypotheses and Model Constructions

This study will encompass three sequential phases to test each hypothesis and develop the necessary model.

The initial phase involves a one-way analysis of variance (ANOVA) aimed at ascertaining the inclusion of two categorical variables, namely *"Owned"* and *"Stake,"* in the subsequent model. One-way ANOVA examines the equality of population means for a quantitative outcome and a single categorical explanatory variable with any number of levels (Seltman, 2009).

The hypotheses for the ANOVA are as follows:

H_0: *There is no statistically significant difference between the dividend payout ratio of companies owned by individuals and companies owned by corporations.*

H_{1-1}: *There is a statistically significant difference between the dividend payout ratio of companies owned by individuals and companies owned by corporations.*

H_0: *There is no statistically significant difference between the dividend payout ratio of firms with high and low stakes of the major shareholder.*

H_{1-2}: *There is a statistically significant difference between the dividend payout ratio of firms with high and low stakes of the major shareholder.*

Since the observation period is divided into three periods: before initiation, during implementation, and after expiration, the average dividend payout ratio for each of these periods is initially computed for each observation prior to conducting the analysis of variance. If the null hypothesis cannot be rejected in all periods, the *"Owned"* and *"Stake"* variables are dropped from the model. If any variables are retained, they will be used as control variables or moderating variables in subsequent models to compare with the findings of the precedent research.

In the second phase, empirical examinations are undertaken to investigate the influence of the temporary tax incentive policy of South Korea. This study examines the following hypotheses through panel regression for each of the two dependent variables identified in the Section 3.7.1.3.

H_0: *There is no significant change in the dividend policy of South Korean firms before initiation, during implementation, and after the termination of the tax policy.*

H_{1-3}: *The dividend tax incentive policy of South Korea has affected the dividend policy of Korean listed companies.*

Suppose there are any retained categorical variables from the initial phase, and any of null hypotheses are rejected in the second phase. In that case, this research proceeds to construct the model for further hypothesis test.

In precedent studies, Hanlon and Hoopes (2014) revealed that corporate governance plays a role in influencing shifts in dividend policy in response to changes in tax policy, focusing on the dataset of USA corporations. Similarly, Chkir and Saadi (2011) examined similar trends within a sample of Canadian firms. In line with this earlier research, this study also investigates whether the sensitivity of the response to tax policy changes varies depending on the identity and stake of the major shareholders in South Korean companies.

The hypotheses in the final phase of this study are as follows;

H_0: *There is no significant difference in the response of dividend policy to tax policy changes by corporate governance.*

H_{1-4}: *The response to the dividend policy in response to the tax change is different depending on the form of corporate governance and the shareholding of the controlling shareholder.*

3.8. Research Ethics

This study will adhere to the General Data Protection Regulation (GDPR) guidance with regard to data management and ethical consideration (GOV.UK, 2022). Nevertheless, it is imperative that no supplementary personal surveys or interviews will be undertaken since this research will rely on only secondary data related to corporate finance and accounting in the database. However, the database used in this study, FnGuide, is a paid service and not publicly available for free.

In the context of quantitative research endeavors, the essential principles of research ethics necessitate both data sharing and research transparency (Lupia & Elman, 2014). All secondary data collected shall be acknowledged through proper citation and referencing practices, thereby facilitating enhanced accessibility to the data. Furthermore, this study will provide a comprehensive exposition of the methodologies employed not only in data generation and selection but also in elucidating the findings from the data (Zyphur & Pierides, 2017).

3.9. Conclusion

This chapter discussed the methodology of this study according to the research onion. The purpose of this study is to examine the impact of changes in tax policy on the dividend policy of Korean listed companies. To achieve this goal, this study analyses quantitative data. Therefore, this study adopts a positivism philosophy and deductive approach and employes a case study strategy to analyse quantitative data using the South Korean case. Excluding SPACs and REITs from the South Korean listed companies, only the data of the companies that are continuously net positive from 2012 to 2022 are collected. The data is used to test the hypotheses using ANOVA and panel regression analysis.

4. Finding and Results

4.1. Overview of the Chapter

This study aims to analyze the impact of the South Korean government's dividend promotion tax policy, which was implemented in 2015 and terminated in 2017, on the dividend policy of South Korean firms. For this research, 4,400 observations covering 400 listed companies in South Korea over the last 11 years were collected. The data used in this study is panel data with both cross-sectional and time-series characteristics, and a panel regression analysis is used throughout the analysis.

4.2. Descriptive Statistics

Before conducting the panel regression analysis, the variables' descriptive statistics should be examined first.

4.2.1. Dependent Variables

The two dependent variables selected for the study are dividend payout ratio and dividend yield. Tables 4.1 and 4.2 show the descriptive statistics of the dividend payout ratio and the mean for each year. Figure 4.1 is a histogram representing the distribution of the dividend payout ratio.

Table 4.1: Descriptive statistics of dividend payout ratio

	Obs	Mean	St.Dev	Min	Max
D1_DPR	4,400	30.6528	61.4495	0	1493.62

Table 4.2: Mean and standard deviation of dividend payout ratio for each year

Year	D1_DPR (Dividend Payout Ratio)			
	Mean	St.Dev		Mean
2012	24.03387	63.75253		
2013	23.71795	31.26478	Before	23.87206
2014	23.86435	29.92281		
2015	29.15727	74.5909		
2016	31.34472	81.29763	During	30.39008
2017	30.6527	61.80963		
2018	35.097	58.94702		
2019	36.31235	56.48086		
2020	39.8903	82.83938	After	34.907
2021	28.65097	42.25007		
2022	34.45933	63.96086		

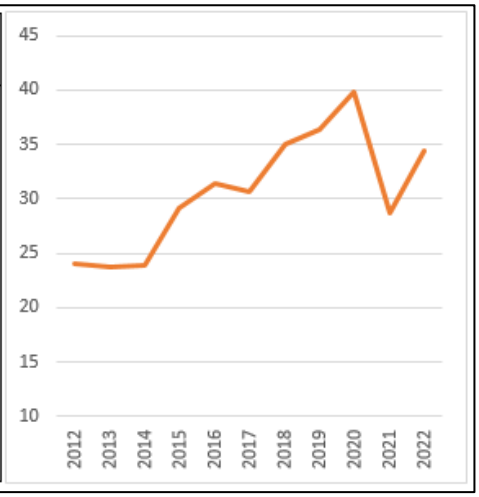
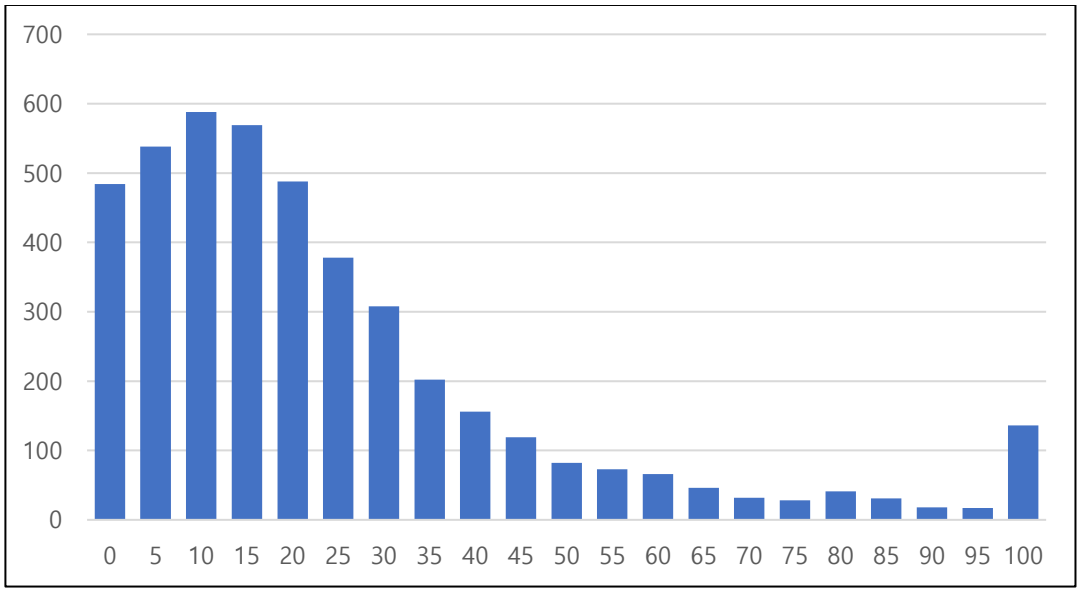


Figure 4.1: Histogram of dividend payout ratio



Over the entire observation period from 2012 to 2022, the average dividend payout ratio of the 400 South Korean listed companies was 30.65%. As shown in Table 4.2 above, the sample means of dividend payout ratio ranged from 23.72% to 24.03% before the dividend promotion tax policy started. The

sample means of dividend payout ratio ranged from 29.16% to 31.34% when the dividend promotion policy was in effect from 2015 to 2017, which seems to have increased from the pre-policy period. Contrary to the initial thought, South Korean companies' average dividend payout ratio did not decrease in 2018 when the dividend promotion policy was terminated but increased.

A significant drop in the average dividend payout ratio in 2021 is also worth noting. While it recovers in subsequent years, the notable decline in dividend payout ratios more than three years after the end of the dividend promotion policy is likely due to the impact of COVID-19 and the resulting contraction in economic activity, not the policy. Therefore, further explanation is needed at the modeling stage.

The histogram in Figure 4.1 outlines the distribution of the 4,400 observations. The dividend payout ratio is limited to values above zero because companies with net losses are excluded from the sample. 136 observations have an outlying value of dividend payout ratio greater than 100. These are exceptional cases where either the firm paid out a special dividend larger than its net income or believed that the sharp decline in net income was temporary and kept the dividend at the previous year's level. The distribution of dividend payout ratios is positively skewed, with the most frequent interval in the 10-15%, significantly different from the average.

Table 4.3 and Table 4.4 show the descriptive statistics of the dividend yield and the average for each year. Figure 4.2 is a histogram of the dividend yield.

Table 4.3: Descriptive statistics of dividend yield

	Obs	Mean	St.Dev	Min	Max
D2_DY	4,400	2.0683	1.6901	0	20.08

Table 4.4: Mean and standard deviation of dividend yield for each year

Year	D2_DY (Dividend Yield)			
	Mean	St.Dev		Mean
2012	1.8804	1.693398		
2013	1.6848	1.452184	Before	1.75275
2014	1.69305	1.298631		
2015	1.7274	1.361888		
2016	1.7708	1.298466	During	1.806117
2017	1.92015	1.387252		
2018	2.27705	1.514693		
2019	2.3225	1.672377		
2020	2.3471	2.211053	After	2.41502
2021	2.32795	1.923864		
2022	2.8005	2.083534		

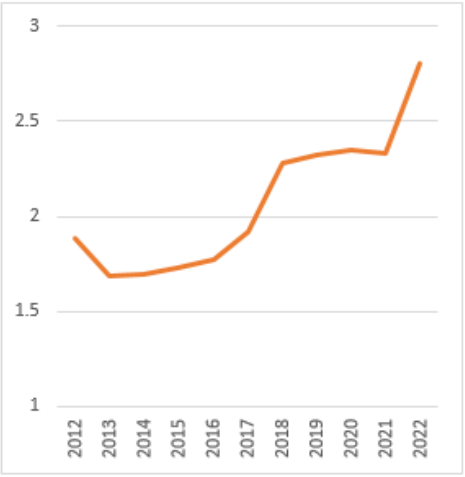
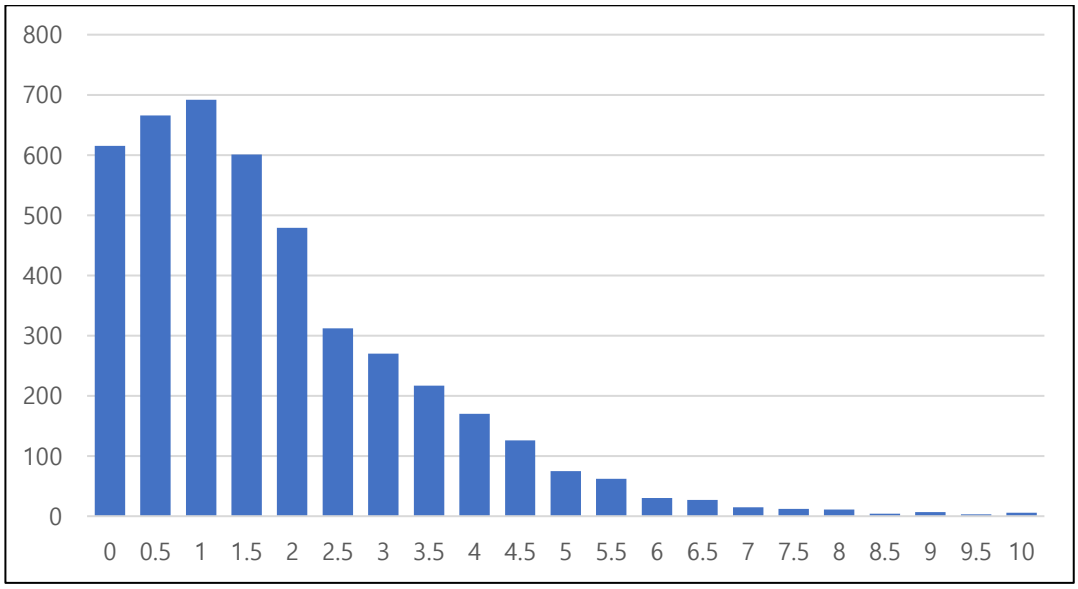


Figure 4.2: Histogram of dividend yield



The dividend yields of the observed Korean firms show a similar change to the previous dividend behavior. The average dividend yield for the entire observation period is 2.07%. As shown in Table 4.4, the average dividend yield increased from 1.88% in 2012 to 2.80% in 2022. However, the growth pattern in dividend yields is somewhat different from that of dividend payout ratios. In 2015, when the dividend promotion tax policy was implemented, the dividend payout ratio increased significantly, but the dividend yield increased only slightly. Since then, the dividend yields have been steadily increasing. In 2018, when the dividend promotion tax policy expired, the dividend yield increased significantly, similar to the significant increase in the dividend payout ratio.

The histogram in Figure 4.2 outlines the distribution of dividend yields. Like the payout ratio, the dividend yield is limited to values above 0 because the numerator, dividend, cannot be less than 0. Even though there are 136 observations with payout ratios above 100%, the lack of outlier observations in dividend yield supports the idea that the outliers are due to temporary impairment of net income rather than special dividends. Like dividend payouts, the distribution of dividend yields is positively skewed, with the most frequent interval in the 1.0-1.5% range.

4.2.2. Independent Variables

The independent variables selected for this study are year, which represents time, and net profit growth (NPG), return on equity (ROE), return on assets (ROA), and free cash flow over market cap (FCFY), representing a company's growth, profitability, and cash flow, respectively. Table 4.5 shows the descriptive statistics of the selected independent variables.

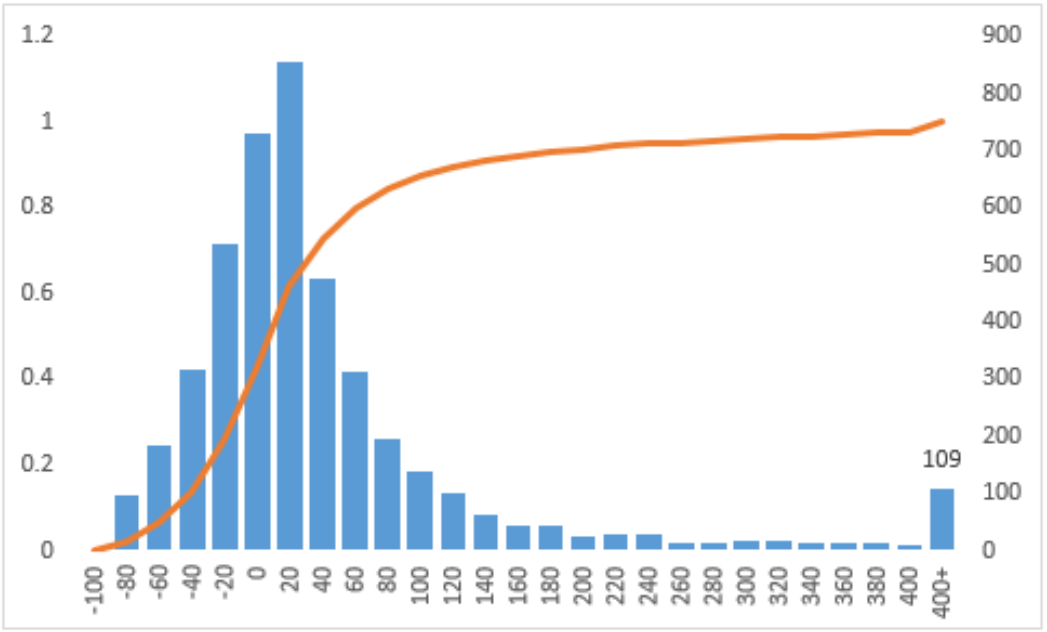
Table 4.5: Mean and standard deviation of independent variables

	Mean	St.Dev	Min	Max
I2_NPG	49.3252	296.8912	-99.41	11669.84
I3_ROE	9.8291	8.2707	0	182.43
I4_ROA	6.1410	5.8276	0	118.54
I5_FCFY	0.0112	0.2783	-9.4508	3.63

Over the 11-year observation period, Korean companies recorded an average net income growth rate of 49.33%, ROE and ROA averaged 9.83% and 6.14%, respectively. FCFY, Free cash flow (FCF) / market cap (MV), averaged 1.12%. Since loss-making companies were excluded, ROE and ROA were restricted to values at least equal to zero, but NPG and FCFY can have values less than zero.

Given the large standard deviation of the NPG, it was recognized that the maximum value of the NPG was too large at 11,669.84. The histogram and cumulative probability distribution of NPG are plotted in order to identify the presence of outliers, as shown in Figure 4.3.

Figure 4.3: Histogram and cumulative probability function of NPG



From Figure 4.3, it is shown that 109 observations, about 2.5% of all observations, have outlying values above 400. In an economic sense, net profit growth of more than 400% can be interpreted as an outlier that occurs when the previous year's net profit was close to zero. Eliminating these outliers from the observations in the panel regression is appropriate to construct more robust models.

4.2.3. Grouping variables

Among the variables selected for this study are two grouping variables. Owned is an index variable with a value of 0 if an individual owns the company and 1 if a corporation owns it. The Stake variable is an index variable containing the largest shareholders' shareholdings, sorted in ascending order and then divided into thirds, with values of 0, 1, and 2, respectively. The values of the two variables are used to categorize the groups, and the numbers themselves have no meaning.

Table 4.6 shows the number of firms in each group when the 400 samples are divided into groups. Table 4.7 also shows each group's average dividend payout ratio and dividend yield.

Table 4.6: Number of companies included in each group

		I7_Stake			
		0	1	2	TOTAL
I6_Owned	0	79	84	80	243
	1	50	54	53	157
	TOTAL	129	138	133	400

Table 4.7: Group mean of dependent variables for each group

Dividend Payout Ratio		I7_Stake			
		0	1	2	TOTAL
I6_Owned	0	25.704	27.701	32.901	28.764
	1	30.512	26.454	43.725	33.577
	TOTAL	27.567	27.213	37.214	30.653

Dividend Yield		I7_Stake			
		0	1	2	TOTAL
I6_Owned	0	1.682	2.005	2.081	1.925
	1	2.219	1.948	2.706	2.290
	TOTAL	1.890	1.982	2.330	2.068

Of the 400 observed firms, 243 are owned by individuals and 157 by other corporations. The high percentage of firms owned by other corporations is due to a variety of reasons. In South Korea, the national pension fund, which is institutionalized as a mandatory contribution for all citizens, holds the overwhelming assets under management (AUM) and is the largest

shareholder of many companies. In addition, a few holding companies, conglomerates, have many listed subsidiaries, and many cases of spin-offs of listed companies into holding and operating companies are observed.

The Stake group is divided into thirds of the 400 observations, and the reason for the different group sizes is simply that there are five companies with the same shareholding percentage of the largest shareholder to the second decimal place, which increases the size of the median group.

Table 4.7 shows that corporately owned firms have higher dividend payout ratios than privately owned firms. It is also observed that the group with the largest shareholder has higher dividend payout ratios and dividend yields than those without. No significant differences are observed in the lower and middle groups by stake.

4.3. Normality Test for the Dependent Variable

Normality is often assumed for the dependent variable in regression analysis. This assumption is necessary to make valid inferences about population parameters based on sample data. Normality is particularly essential when small samples are used (Witte & Witte, 2017).

In particular, normality confirms least square estimators as minimum variance estimators and gives credibility to the confidence intervals of regression coefficients and hypothesis testing. Before conducting ANOVA and panel regression, normality tests of the dependent variable are performed to determine the adoption of group variables.

Table 4.8 shows the result of the Shapiro-Wilk normality test, and Table 4.9 shows the result of the Shapiro-Wilk W test for 3-parameter lognormal data.

Table 4.8: The result of the normality test for the dividend payout ratio

Variable	Obs	W	V	Z	P value
D1_DPR	4,400	0.3026	1685.999	19.417	0.0000

Table 4.9: The result of the log-normality test for the dividend payout ratio

Variable	Obs	W	V	Z	P value
D1_DPR	4,400	0.3026	1685.999	-0.962	0.8320

The null hypothesis of the Shapiro-Wilk test is that the variable is normally distributed. The p-value in Table 4.7 is 0.000, and the null hypothesis is rejected at the 0.05 significance level. Therefore, the dependent variable, the dividend payout ratio, is not normally distributed. Based on the results in Table 4.8, the Shapiro-Wilk test for lognormal data rejects the null hypothesis since the p-value in Table 10 is 0.83204. Therefore, the null hypothesis that the dividend payout ratio has a lognormal distribution cannot be rejected. Hence, the dividend payout ratio is log-transformed and used as the dependent variable.

If the dependent variable is log-transformed, it is preferable to log-transform the independent variables as well. The variables ROE and ROA are always positive, so no observations are lost in the log transformation. However, the variables NPG and FCFY often have negative values, so that log-transforming would result in the loss of 1039 and 800 observations, respectively. Therefore, despite the tricky interpretation, only the ROE and ROA variables limited to positive values are log-transformed for panel regression.

4.4. Analysis-of-Variance (ANOVA)

In this part, ANOVA tests are performed. ANOVA is used to test whether

there is a statistically significant difference between group means for the grouping variables and to determine whether those variables should be retained or eliminated from panel regression models.

4.4.1. Owner

First, ANOVA tests are conducted to determine whether there is a difference in dividend propensity between the groups of firms owned by individuals and firms owned by corporations. Since the observation period in this study can be divided into three periods: before the policy implementation, during the policy, and after the termination of the dividend promotion policy, the ANOVA tests are conducted separately for each policy period. Table 4.10 shows the results of the ANOVA test.

Table 4.10: ANOVA test for Owner variable

Before	# Of Obs	1,200		Root MSE	44.46
		Partial SS	df	F	P value
	Model	814.4974	1	0.41	**0.5211**
	Residual	2,368,166	1,198		
	TOTAL	2,368,981	1,199		
During	# Of Obs	1,200		Root MSE	72.94
		Partial SS	df	F	P value
	Model	8,340.08	1	1.57	**0.2108**
	Residual	6,374,081	1,198		
	TOTAL	6,382,421	1,199		
After	# Of Obs	2,000		Root MSE	62.29
		Partial SS	df	F	P value
	Model	15,058.68	1	3.88	**0.0490**
	Residual	7,753,315	1,198		
	TOTAL	7,768,374	1,199		

As shown in Table 4.10, before and during the policy, the p-values of the ANOVA test are 0.5211 and 0.2108, which are greater than the significance level of 0.05. Therefore, the null hypothesis that there is no statistically significant difference between the means of the two groups cannot be rejected. However, in the period after the end of the policy, the p-value of 0.0490 is smaller than the significant level, which means that the group means are significantly different.

Therefore, the Owned variable should be retained in panel regression models in the following stage. An interaction term with the index variables that represent the implementation and termination of the policy might be considered.

4.4.2. Stake

Secondly, ANOVA is conducted to test whether there is a statistically significant difference between the dividend propensity of the low, medium, and high groups of the largest shareholders' stake. Like the Owned variable, group means are evaluated for each period before, during, and after the dividend promotion policy. Table 4.11 shows the test results if there are statistically significant mean differences between the stake groups.

Table 4.11: ANOVA test for Stake variable

Before	# Of Obs	1,200		Root MSE	44.47
		Partial SS	df	F	P value
	Model	1,360.935	2	0.34	**0.7090**
	Residual	2,367,620	1,197		
	TOTAL	2,368,981	1,199		
During	# Of Obs	1,200		Root MSE	72.79
		Partial SS	df	F	P value
	Model	40,060.54	2	3.78	**0.0231**
	Residual	6,342,360	1,197		
	TOTAL	6,382,421	1,199		
After	# Of Obs	2,000		Root MSE	62.07
		Partial SS	df	F	P value
	Model	74,136.91	2	9.62	**0.0001**
	Residual	7,694,236	1,197		
	TOTAL	7,768,373	1,199		

There is no statistically significant difference between the high and low stake groups before implementing the dividend policy.

However, the p-values of the ANOVA test in the period when the policy was implemented and after the policy was terminated are 0.0231 and 0.0001, respectively. The null hypotheses can be rejected, and there are statistically significant differences between the means of the groups divided by the stake of the largest shareholder in both periods.

Therefore, the Stake variable will be utilized in the following panel regression model, and the interaction term with the policy variables should also be considered.

4.5. Autocorrelation Test

Autoregression refers to a model in time series data where the current value depends on the value at the previous time step. This means the current value is regressed on itself by the previous values (Chatterjee & Hadi, 2013). If the dependent variable is autoregressive, the past value of the dependent variable should be used as the independent variable, or the variable should be transformed in such a way that it is differentiated to ensure the independence of the error term.

Table 4.12 shows the results of a unit root test to check for autoregression in the panel data.

Table 4.12: The results of the unit root test for variables

Levin-Lin-Chu Unit-Root Test for Panel Data

H_0 : Panels contain unit root H_a : Panels are stationart

	t statistics	Adjusted t*	p value
DPR	-61.2008	-48.2713	0.0000
DY	-22.5495	-3.5311	0.0002
I2_NPG	-150.0000	-150.0000	0.0000
ROE	-41.2918	-18.8636	0.0000
ROA	-40.4106	-18.2098	0.0000
I5_FCFY	-49.1931	-22.2174	0.0000

In Table 4.12, all the p-values are close to 0.0000, which leads to rejecting the null hypothesis that the panel data contains unit roots and concludes that all variables are stationary. Therefore, there is no need to transform the variables or use past values as independent variables.

4.6. Correlation Test

Regression assumes a linear relationship between the independent and dependent variables (Freedman, 2009). Correlation helps assess the strength and direction of the linear relationship. In multiple regression, it is vital to check for multicollinearity, which occurs when independent variables are highly correlated. High correlations between independent variables can lead to unstable coefficient estimates. Identifying and addressing multicollinearity can be crucial for the reliability of regression results.

Pearson correlation coefficients ignore panel data characteristics that allow unobserved heterogeneity between groups. However, exploring the correlation matrix between the variables is still needed. Table 4.13 represents the correlation matrix and the result of the pairwise correlation matrix test between the variables.

Table 4.13: Correlation matrix and pairwise correlation test

	DPR	I2_NPG	ROE	ROA	FCFY
DPR	1.000				
I2_NPG	**-0.155*** **	1.000			
ROE	**-0.498*** **	0.110	1.000		
ROA	**-0.412*** **	0.083	0.811	1.000	
FCFY	**-0.052*** **	0.052	-0.048	-0.106	1.000

As shown in Table 4.13 above, the correlation coefficients between the independent and dependent variables are all statistically significant. Moreover, it is found that the variables ROE and ROA are highly correlated. It looks natural as both the variables are calculated with the same accounting item of net profit as a numerator. However, one of them is likely to be removed from the panel regression model due to collinearity.

4.7. Panel Regression Model

In this stage, panel regression models are constructed to analyze how South Korean listed companies' dividend payout ratio and dividend yield have changed over the policy change. Naturally, individual firms have different and diverse dividend policies. This unobserved heterogeneity in individual companies makes pooled OLS (Ordinary Least Squared) estimators no longer unbiased. Therefore, the panel regression method is used to analyze the data. Since the group variables retained in the ANOVA test earlier have time-invariant values, the fixed effect model, which assumes no time-invariant characteristics in the samples, can no longer be utilized. The fixed effect model does not estimate the regression coefficients of time-invariant group variables and omits those variables in the model. Hence, the panel regression with random effects model is used in the analysis.

4.7.1. For a Dependent Variable of DPR (Dividend Payout Ratio)

Firstly, the simplest model using only the dependent variable of year, which represents time, is carried out. It is built under the assumption that there are either no parallel jumps or slope changes in the regression coefficient of firms' dividend payout ratio at the beginning and end of the policy. The variables Owned and Stake serve as control variables. Figure 4.4 shows the model in the form of a formula. Table 4.14 below shows the test statistics of the panel regression.

Figure 4.4: Formula for panel regression without jumps

$$\ln(DPR_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times Own_i + \beta_3 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.14: Test statistics of panel regression along with time without jumps

# of Observation		3,980	# of Groups		393
R-square	within	0.0335			
	between	0.0248		Wald chi2	134.34
	overall	0.0303		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	0.0319	0.0029	0.0262	0.0376	**0.000**
I6_Owned	0.1731	0.0674	0.0410	0.3052	**0.010**
I7_Stake 1	-0.0496	0.0812	-0.2088	0.1097	**0.542**
2	0.1540	0.0813	-0.0054	0.3134	**0.058**
_Cons	2.7667	0.0671	2.6351	2.8983	**0.000**

In this model, the regression coefficient of the Year variable is 0.032 with a p-value of 0.000, so the null hypothesis can be rejected, which implies that the dependent variable, dividend payout ratio, is expected to increase by 3.02% ($e^{0.0319} = 1.0302$) on average with each year. The regression coefficient of Owned has a positive value of 0.1731, but the p-value is 0.010, so the null hypothesis can be rejected at the 95% confidence level. Therefore, the dividend payout ratios of corporate-owned companies are expected to be larger than those of individual-owned companies by 18.89%. ($e^{0.1731} = 1.1889$) The regression coefficient of the Stake variable is statistically significant only in group 2 (the highest group with the major shareholder's stake), which means that firms with the high stake have, on average, 16.65% higher dividend payout ratios than companies in other groups. ($e^{0.1540} = 1.1665$) Though most regression coefficients are significant, the model can only explain 3.35% of within variance, which is insufficient.

Next, a model including the variables PI and PT representing the start and end of the policy is constructed. PI is an index variable that has a value of 0 before the dividend promotion tax policy is implemented and a value of 1 afterward. Similarly, PT is an index variable that takes the value of 1 in the period after the dividend policy ends and 0 otherwise. The model assumes

that the change in dividend propensity over time represents a jump at the beginning and end of the dividend promotion tax policy. Figure 4.5 and Table 4.15 show the model's equations and test statistics, respectively.

Figure 4.5: Formula for panel regression with two jumps

$$\ln(DPR_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times PI_t + \beta_3 \times PT_t$$
$$+\beta_4 \times Own_i + \beta_5 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.15: Test statistics of panel regression along with time with two jumps

# of Observation		3,980	# of Groups		393
R-square	within	0.0416			
	between	0.0257		Wald chi2	166.02
	overall	0.0338		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	-0.0089	0.0079	-0.0244	0.0067	**0.265**
I6_Owned	0.1728	0.0674	0.0407	0.3049	**0.010**
I7_Stake 1	-0.0489	0.0812	-0.2081	0.1103	**0.547**
2	0.1540	0.0812	-0.0533	0.3134	**0.058**
M1_PI	0.1518	0.0342	0.0848	0.2188	**0.000**
M2_PT	0.1786	0.0385	0.1032	0.2541	**0.000**
_Cons	2.8193	0.0685	2.6851	2.9535	**0.000**

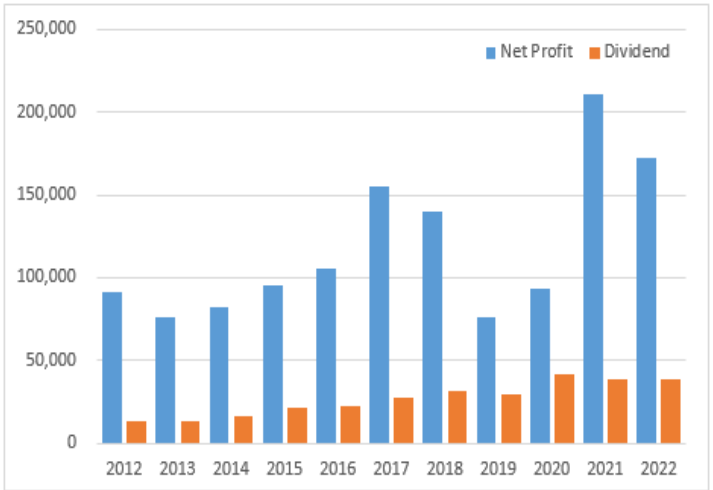
Table 4.15 allows this study to test the regression coefficient of PI and PT variables. Suppose the regression coefficient of the PI variable is statistically significantly different from zero. In that case, it can be interpreted that implementing the dividend promotion policy has caused a significant change in the dividend payout ratio of companies. The regression coefficient of PI is 0.1518, and the p-value is 0.000, which means that the null hypothesis can be rejected at the 95% confidence level. Therefore, it can be interpreted that

the dividend promotion tax policy has had a positive effect on the dividend payout ratio, which is in line with the intention of the South Korean government. The South Korean companies have increased their dividend payout ratio at the initiation of the policy by 16.38%. ($e^{0.1517} = 1.1638$) on average.

The p-value for PT is 0.1786, which means that the null hypothesis can be rejected at the 95% confidence level, so the change in dividend payout ratio due to the termination of the policy is statistically significant but not as expected. The South Korean companies increased their dividend payout ratio despite the termination of the policy by 19.55%. ($e^{0.1786} = 1.1955$) on average.

Figure 4.6 below shows aggregated net income and dividends of sample companies. In 2019 and 2020, South Korean companies experienced a significant erosion of net income but did not reduce their dividends because they expected this to be a temporary correction of economic conditions. Since this period is included in the policy termination period, the regression coefficient has a positive value because the dividend payout ratio of the post-policy period is overestimated.

Figure 4.6: Aggregated net income and dividend of the sample companies



Year	Net Profit	Dividend
2012	91,638	13,465
2013	76,198	13,323
2014	81,896	16,582
2015	94,962	21,199
2016	105,562	22,769
2017	155,539	27,109
2018	140,000	31,184
2019	76,561	29,889
2020	93,022	41,654
2021	210,288	38,618
2022	171,865	38,946

Before adding financial metrics, a model with an interaction term of PI and the group variable is considered. The interaction term is to see if different groups reacted differently to the initiation of the policy. Figure 4.7 and Table 4.16 show the model's equations and test statistics, respectively.

Figure 4.7: Formula for panel regression with interaction term

$$\ln(DPR_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times PI_t + \beta_3 \times PT_t + \beta_4 \times Own_i$$
$$+\beta_5 \times Stake_i + \beta_6 \times PI_t \times Stake_i + u_i + \varepsilon_{it}$$

$$\ln(DPR_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times PI_t + \beta_3 \times PT_t + \beta_4 \times Own_i$$
$$+\beta_5 \times Stake_i + \beta_6 \times PI_t \times Owned_i + u_i + \varepsilon_{it}$$

Table 4.16: Test statistics of panel regression with interaction term

# of Observation		3,980	# of Groups		393
R-square	within	0.0458			
	between	0.0280		Wald chi2	183.04
	overall	0.0360		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	-0.0089	0.0079	-0.0245	0.0066	**0.260**
I6_Owned	0.1735	0.0669	0.0425	0.3046	**0.009**
I7_Stake 1	0.0167	0.0892	-0.1582	0.1915	**0.852**
2	0.0700	0.0892	-0.1049	0.2448	**0.433**
M1_PI	0.1432	0.0461	0.0528	0.2336	**0.002**
M2_PT	0.1787	0.0385	0.1034	0.2541	**0.000**
Stake*MI 1	-0.0878	0.0512	-0.1882	0.0125	**0.086**
2	0.1134	0.0512	0.0131	0.2138	**0.027**
_Cons	2.8260	0.0719	2.6851	2.9668	**0.000**

# of Observation		3,980	# of Groups		393
R-square	within	0.0417			
	between	0.0256		Wald chi2	165.91
	overall	0.0338		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	-0.0089	0.0079	-0.0244	0.0067	**0.264**
I6_Owned	0.1803	0.0738	0.0356	0.3250	**0.015**
I7_Stake 1	-0.0488	0.0805	-0.2065	0.1089	**0.545**
2	0.1541	0.0805	-0.0038	0.3119	**0.056**
M1_PI	0.1558	0.0382	0.0810	0.2306	**0.000**
M2_PT	0.1787	0.0385	0.1031	0.2542	**0.000**
Owned*MI	-0.0101	0.0423	-0.0931	0.0729	**0.812**
_Cons	2.8164	0.0691	2.6810	2.9518	**0.000**

As shown in Table 4.16 above, the interaction term of PI and Owned is not statistically significant. Therefore, individual-owned companies and corporate-owned companies increase their dividend payout ratios to a similar extent.

However, the interaction term between PI and Stake is statistically significant, implying that firms with a high stake of the largest shareholder are more sensitive to policy initiation than other firms.

Now, as in precedent studies, a panel regression model that includes financial performance indicators is built. The independent variables newly included are Net Profit Growth (NPG), ROE, ROA, and Free Cash Flow over Market Cap (FCFY), indicators of a company's growth, profitability, and cash flow abundance.

Figure 4.8 and Table 4.17 show the formula and test statistics of the panel regression model with the dividend payout ratio as the dependent variable.

Figure 4.8: Formula for panel regression with financial performance indicators

$$\ln(DPR_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times NPG_{it} + \beta_3 \times \ln(ROE_{it}) + \beta_4 \times \ln(ROA_{it})$$
$$+\beta_5 \times FCF_{it} + \beta_6 \times PI_t + \beta_7 \times PT_t + \beta_8 \times Own_i + \beta_9 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.17: Test statistics of panel regression with financial indicators

# of Observation		3,905	# of Groups		393
R-square	within	0.5880			
	between	0.0773		Wald chi2	4959.94
	overall	0.2639		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	0.0057	0.0053	-0.0046	0.0160	**0.279**
I2_NPG	-0.0004	0.0001	-0.0006	-0.0003	**0.000**
ROE	-0.5648	0.0431	-0.6492	-0.4804	**0.000**
ROA	-0.1043	0.0419	-0.1864	-0.0221	**0.013**
I5_FCFY	0.1926	0.0273	0.0343	0.0728	**0.481**
I6_Owned	0.2177	0.0670	0.0864	0.3489	**0.001**
I7_Stake 1	-0.0702	0.0794	-0.2258	0.0855	**0.377**
2	0.0179	0.0796	-0.1381	0.1738	**0.822**
M1_PI	0.0769	0.0227	0.0324	0.1215	**0.001**
M2_PT	0.0349	0.0256	-0.0152	0.0851	**0.172**
_Cons	4.2068	0.0723	4.0650	4.3486	**0.000**

With the addition of financial performance indicators, the model can now explain 58.8% of within error.

The null hypothesis for the regression coefficients of Year, Stake, PT, and FCFY cannot be rejected, and they are not statistically significantly different from zero. The regression coefficients of net profit growth, ROE, and ROA have a p-value smaller than the significance level. Hence, the null hypothesis can be rejected. Interestingly, those three variables have

regression coefficients less than zero, which means that the dividend payout ratio decreases when net profit growth increases or ROE and ROA increase. Despite increasing growth rates and profitability indicators, the declining dividend payout ratio suggests that South Korean companies have a reluctant and passive dividend policy and need to be more generous in sharing profits with shareholders.

As shown in Table 4.17, the regression coefficient of PI remains significant, which supports our previous findings that policy implementation increases firms' dividend payout ratio. However, the regression coefficient of PT is no longer statistically significant. The fact that PT is no longer significant means that the increase in the dividend payout ratio after the policy termination is explained by the decrease in growth and profitability, as previously discussed in Figure 4.6. In this model, the variable Owned remains significant, but Stake is not significant anymore.

Since ROE and ROA are highly correlated, one of them can be removed from the model without lowering the R square. Two alternative models with one of the two variables removed are fitted and compared in Table 4.18.

Table 4.18: R square table of the entire model and two alternative models

R-square	**ROA removed**	ROE removed	Full Model
Within	**0.5867**	0.5807	0.5880
Between	**0.0806**	0.0385	0.0773
Overall	**0.2682**	0.1834	0.2639

The alternative model without the ROA model dominates the model without ROE. Hence, ROE is retained, and ROA is removed. The model can be finalized after removing ROA and insignificant variables, as shown in Table 4.19 below.

Table 4.19: Finalized model with financial performance indicators

# of Observation		3,905	# of Groups		393
R-square	within	0.5848			
	between	0.0770		Wald chi2	4908.49
	overall	0.2646		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I2_NPG	-00004	0.0001	-0.0006	-0.0002	**0.000**
ROE	-0.6729	0.0113	-0.6952	-0.6507	**0.000**
I6_Owned	0.2506	0.0658	0.1217	0.3795	**0.000**
M1_PI	0.1264	0.0140	0.0991	0.1538	**0.000**
_Cons	4.2568	0.0484	4.1619	4.3517	**0.000**

Table 4.20 and Table 4.21 represents the result of the heteroscedasticity test and normality test for the residuals of the model.

Table 4.20: Result of heteroscedasticity test

H0 : $\sigma_i^2 = \sigma^2 \; for \; all \; i$ Ha : $\sigma_i^2 are \; not \; the \; same \; for \; all \; i$

Variable	df	Chi-square	p value
Residuals	393	4.4e+30	0.0000

Table 4.21: Result of normality test

Variable	Obs	W	V	Z	P value
Residuals	4,206	0.94395	130.144	12.705	0.0000

It is observed that the residuals of the model have heteroscedasticity in Table 4.20. However, heteroscedasticity is allowed since the model already assumes the random effect and uses generalized least square estimation.

In Table 4.21, it is found that the residuals are not normally distributed. However, the estimators still remain unbiased.

4.7.2. For a Dependent Variable of DY (Dividend Yield)

In this section, the panel regression model is constructed repeatedly by replacing the dependent variable with dividend yield. Like the process with dividend payout ratio as the dependent variable, the process starts with a model that includes only the dependent variable, year, and the two control variables, Owned and Stake. Figure 4.9 and Table 4.22 below show the formula and test statistics for the panel regression.

Figure 4.9: Formula for panel regression without jumps

$$\ln(DY_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times Own_i + \beta_3 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.22: Test statistics of panel regression without jumps

# of Observation		3,980	# of Groups		393
R-square	within	0.0687			
	between	0.0168		Wald chi2	270.48
	overall	0.0361		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1-_Year	0.3888	0.0024	0.0342	0.4361	**0.000**
I6_Owned	0.1263	0.0678	-0.0066	0.2591	**0.063**
I7_Stake 1	0.0535	0.0817	-0.1066	0.2136	**0.513**
2	0.2026	0.0818	0.0423	0.3628	**0.013**
_Cons	0.1340	0.0667	0.0032	0.2647	**0.045**

Unlike the model with the dividend payout ratio as the dependent variable, the regression coefficient of Owned is not statistically significant, and that of Stake is significant. However, they both have the same sign as the model with the dividend payout ratio, allowing for similar interpretations. It is concluded that the dividend yields of South Korean companies have increased statistically significantly over time, and companies with a higher

shareholding of the major shareholder have a statistically significantly higher dividend yield than other firms. As with the previous model, the model using only the year and group variables has a very low R square of 0.0687.

Next, a model including the variables PI and PT is constructed. The model assumes that the change in dividend yield over time represents a jump at the beginning and end of the dividend promotion tax policy. Figure 4.10 and Table 4.23 show the model's equation and test statistics, respectively.

Figure 4.10: Formula for panel regression with two jumps

$$\ln(DY_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times PI_t + \beta_3 \times PT_t$$

$$+\beta_4 \times Own_i + \beta_5 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.23: Test statistics of panel regression along with time and two jumps

# of Observation		3,980	# of Groups		393
R-square	within	0.0830			
	between	0.0154		Wald chi2	329.71
	overall	0.0404		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	0.0217	0.0066	0.0088	0.0346	**0.001**
I6_Owned	0.1254	0.0677	-0.0074	0.2581	**0.064**
I7_Stake 1	0.0539	0.0816	-0.1061	0.2139	**0.509**
2	0.2017	0.0817	0.0415	0.3618	**0.014**
M1_PI	-0.0718	0.2827	-0.1272	-0.0164	**0.011**
M2_PT	0.1811	0.0318	0.1187	0.2435	**0.000**
_Cons	0.2081	0.0657	0.0757	0.3405	**0.002**

Reviewing Table 4.23 has a confusing result different from the previous models. The variable Owned remains insignificant, and all other regression coefficients are statistically significant. This model supports the findings of the previous model - South Korean firms' dividends are increasing over time,

on average, and firms with higher majority ownership have higher dividend yields on average.

However, unlike the results of the model with the dividend payout ratio as the dependent variable, the dividend yield actually decreases after the dividend promotion policy is implemented and increases after the dividend promotion policy ends. This result is likely due to the price dependence of dividend yields. The KOSPI200 index, a representative index of the South Korean stock market, continued to the sidewalk before the policy was implemented and then recorded a significant increase during the policy. The KOSPI200 Index rose +8.17% and +24.90% in 2016 and 2017, respectively. The decline in dividend yields does not mean South Korean companies are retreating their dividend policies since rising prices can cause dividend yields to fall.

Lastly, the panel regression model is constructed with dividend yield as the dependent variable and independent variables representing financial performance. Figure 4.11 and Table 4.24 show the equation and test statistics for the panel regression model with dividend yield as the dependent variable.

Figure 4.11: Formula for the model with financial performance indicators

$$\ln(DY_{it}) = \alpha + \beta_1 \times Year_{it} + \beta_2 \times NPG_{it} + \beta_3 \times \ln(ROE_{it}) + \beta_4 \times \ln(ROA_{it})$$
$$+\beta_5 \times FCFY_{it} + \beta_6 \times PI_t + \beta_7 \times PT_t + \beta_8 \times Own_i + \beta_9 \times Stake_i + u_i + \varepsilon_{it}$$

Table 4.24: Test statistics of panel regression model with financial indicators

# of Observation		3,905	# of Groups		393
R-square	within	0.0969			
	between	0.0567		Wald chi2	398.51
	overall	0.0744		p value	0.0000
	Coefficient	St.Error	95% Conf. Interval		p value
I1_Year	0.0200	0.0066	0.0071	0.0329	**0.002**
I2_NPG	-0.0003	0.0001	-0.0005	-0.0000	**0.020**
ROE	0.3352	0.0481	0.2409	0.4295	**0.000**
ROA	-0.2427	0.0464	-0.3336	-0.1517	**0.000**
I5_FCFY	0.0539	0.0340	-0.0127	0.1205	**0.113**
I6_Owned	0.0449	0.0664	-0.0853	0.1751	**0.499**
I7_Stake 1	0.0765	0..0784	-0.0772	0.2303	**0.329**
2	0.2426	0.0786	0.0885	0.3967	**0.002**
M1_PI	-0.0566	0.0285	-0.1124	-0.0008	**0.047**
M2_PT	0.2028	0.0321	0.1400	0.2657	**0.000**
_Cons	-0.1150	0.0754	-0.2627	0.0327	**0.127**

In the model with dividend yield as the dependent variable and financial indicators as independent variables, the null hypotheses cannot be rejected because the p-values for the regression coefficients of all dependent variables except FCFY and Owned are significant. This model supports the previous findings that the companies with higher majority ownership tend to dividend more than others, and dividend yields are decreased at the policy initiation and increased at the policy termination.

The interpretation of financial performance indicators mainly matches the model with the dividend payout ratio. However, the result implies that the companies with higher ROE provide higher dividend yields.

Unlike the model with dividend payout ratio, the model can only explain 9.69% of within error even after adding financial performance indicators. As explained above, it might be because the denominator of the dividend yield

is the price, which is much more volatile, and therefore, dividend yield may not be a good variable to use as a proxy for a company's dividend policy.

The discovery of other appropriate dependent variables that are neither affected by stock market movements nor tied to the company size is left for further research.

The residuals of the dividend yield model also have heteroscedasticity and non-normal distribution, as shown in Table 4.25 and Table 4.26 below.

Table 4.25: Result of heteroscedasticity test

H0 : $\sigma_i^2 = \sigma^2 \; for \; all \; i$ Ha : $\sigma_i^2 are \; not \; the \; same \; for \; all \; i$

Variable	df	Chi-square	p value
Residuals	393	1.6e+32	0.0000

Table 4.26: Result of normality test

Variable	Obs	W	V	Z	P value
Residuals	4,206	0.95466	105.262	12.151	0.0000

5. Discussion on the Findings and the Results

5.1. Overview of the Chapter

In Chapter 4, various panel regression models are built with different combinations of dependent and independent variables, and the results are interpreted.

In this chapter, the results obtained by panel regression models are interpreted to the economic meanings and findings, and the impact of the South Korean government's dividend promotion tax policy on the dividend policy of South Korean companies is evaluated.

At the end of this chapter, the similarities and differences between the findings from the literature review and the findings from this empirical study are described.

5.2. Changes along with time

In Chapter 4, the variable Year is used to analyze the time evolution of the dividend payout ratio and dividend yield of listed firms in South Korea. In some models, the regression coefficient for the time variable is less than zero but not statistically significant. However, the regression coefficient is always greater than zero in other models where the year is statistically significant. This finding suggests that South Korean companies are gradually improving their dividend payout ratios to address the problem of low payout ratios, which has long been cited as a reason for their undervaluation (Lee, 2017).

5.3. Difference between Owner / Stake Groups

In this study, there are two group variables: owner and stake. The owner variable categorizes firms owned by individuals and those owned by other

corporations, and the stake variable categorizes whether the largest shareholder has a high, medium, or low stake.

The Owner variable is not statistically significant in one model, but the regression coefficient has a positive value. In all other models, it is significantly greater than zero. Therefore, firms owned by other corporations exhibit higher dividend payout ratios and dividend yields on average, which is contrary to the initial idea. In particular, it is surprising that corporate-owned firms have higher dividend payout ratios and dividend yields even during the period when the South Korean government's dividend promotion tax policy was in effect. Since the dividend promotion policy was meant to reduce dividend income taxes for individual shareholders, corporate-owned firms had no incentive to increase their dividend payments. However, the higher dividend payout ratio and dividend yield of corporate-owned companies are maintained. It can be interpreted either as companies responding to the government's policy by increasing their dividends even though there is no real economic benefit to them or as a successful and positive effect of the dividend promotion policy.

The results for the Stake variable are relatively straightforward and support the initial intuition. In almost all panel regression models, the regression coefficient for Group 1 is not statistically significant, while the regression coefficient for Group 2, which includes firms with high majority ownership, is statistically significantly greater than zero. This result supports the initial idea that companies with higher majority ownership pay out more dividends, which is intuitively obvious. In particular, the model with the interaction term between the Stake and MI variables has the most significant estimate of the regression coefficient of the interaction term. It can be concluded that when the dividend promotion tax policy was implemented, firms with a higher shareholding percentage of the largest shareholder increased their dividends significantly more than other firms on average.

5.4. Effect of the Implementation and Termination of the Tax Policy

The central question of this study is, *"Did the Change of the South Korean government's dividend tax policy actually have a positive impact on the increase in the dividend propensity of South Korean listed firms?"*. For this purpose, two index variables, PI and PT, are introduced.

The regression coefficients of the PI variable in the models with dividend payout ratio as the dependent variable are always statistically significant and greater than zero. This finding means that the dividend payout ratios of South Korean companies increase on average after the policy is implemented. Therefore, it is concluded that the dividend propensity of South Korean listed firms increased significantly after the policy was implemented, and the policy has had a positive effect as expected.

Interestingly, the regression coefficients of dividend yields always have negative values. The finding that dividend yields have decreased despite a significant increase in the dividend payout ratio is difficult to interpret. This result suggests that the dividend yield is not a good proxy for a company's dividend policy because the price used as the denominator is volatile, as discussed in Chapter 4.

The results for the PT variable, which refers to the termination of the policy, lead to different results than expected. Even during the design phase of the policy, there was much concern that the effects of the policy would be temporary. Therefore, the intuitive idea is that once the dividend promotion policy ends, companies will stop paying increased dividends and return to the previous dividend level to offset the policy's positive effects. However, in all of the models in Chapter 4, the regression coefficients of the PT variable are all significantly positive. This finding suggests that listed firms in South Korea did not reduce their dividends when the dividend promotion policy terminated but rather continued to increase their dividends after the policy ended. It shows that the government's commitment to promoting dividends through various incentive policies has a lasting and additive positive effect.

5.5. Effect of the Financial Performance

Contrary to the findings of precedent studies, there are no statistically significant positive relationships in the models using various financial performance indicators such as growth rate, profit margin, and cash flow. The regression coefficients of most of the financial performance indicators are either less than zero or not statistically significant.

This result is since, as mentioned before, South Korean companies still adhere to a flat dividend amount policy, which means that they pay out a set amount of money irrelevant to the performance of the companies. Since the dividend amount is fixed, an improvement in financial performance increases the denominator, which is the net income, and decreases the payout ratio.

Figure 5.1 shows the dividend per share (DPS) and earnings per share (EPS) of the top nine stocks by market capitalization in Korea.

Figure 5.1: Dividend per share and earnings per share of South Korean companies

Figure 5.1 shows that while some companies' EPS and DPS are changing in tandem, many companies are paying a fixed amount of dividends regardless of earnings. It may be concluded that listed companies in South Korea are not adopting a flat dividend payout ratio policy in line with the global standard and that the statistical significance of financial performance indicators is not secured because they are paying a fixed amount of dividends.

5.6. Link to the Literature Review

Blouin et al. (2011) found that when the U.S. cut the dividend tax rate, firms whose officers and directors held more stock increased dividend payments more sensitively to the change in tax policy. The fact that the interaction term of PI and Stake variable has a regression coefficient, which is significantly greater than zero in this empirical study, supports the findings of this previous study. When a dividend promotion tax policy was implemented in South Korea, companies with a high stake of major shareholder increased their dividend payout ratio more sharply than other firms.

Poterba and Summer (1984) and Chetty and Saez (2005) found that dividend-friendly changes in tax policy increased the dividend propensity of firms. Both studies argued that the increased investors' demand influenced firms' decisions on profit distribution. The panel regression models lead to similar conclusions. It is found that a statistically significant increase in dividend payout ratios occurred in 2015 when South Korea's dividend promotion tax policy was implemented through a variety of panel regression models.

Some findings in this study contradict the findings of precedent research. Hanlon and Hoopes (2014) found that firms paid special dividends more frequently just before the tax rate on dividend income was increased. However, in this study, when the temporary dividend promotion tax policy ended, South Korean companies did not reduce their dividends but instead increased them. This result contradicts the findings of previous studies in that firms did not make a decision to reduce dividends even when the tax rate on dividend income became less favorable.

Lee (2017), like this study, analyzes the impact of South Korea's dividend promotion tax policy, which was implemented for a limited period from 2015 to 2017. The empirical study reaches an entirely different conclusion from his conclusion. He argued that although the tax policy increased the companies' dividend payments, the effect was insignificant, and the increase

in dividends was primarily due to the increase in net income. However, the panel regression models in this study find that the implementation of the dividend promotion policy causes a significantly positive change in the dividend policy of listed firms in South Korea and that the financial performance of companies is not a significant factor in the increase in the dividend payout ratio.

6. Conclusions and Recommendations

6.1. Summary

South Korean companies tend to share a low dividend payout with their shareholders in spite of large retained earnings. Table 6.1 below displays selected countries' dividend payout ratio, dividend yield, and price-earnings ratio (PER) (Bloomberg, 2023).

Table 6.1: Dividend payout ratio, dividend yield, and PER of countries

Country	Index	Dividend Payout Ratio			Dividend Yield			PER		
		2012	2017	2022	2012	2017	2022	2012	2017	2022
USA	S&P500	33.8	45.5	35.1	2.2	1.9	1.8	14.3	22.0	18.2
UK	FTSE100	53.3	94.8	48.1	4.0	4.0	3.8	11.8	19.6	11.7
France	CAC40	55.1	53.7	37.8	3.9	3.1	3.2	13.1	16.1	10.4
Germany	DAX30	54.4	50.4	42.9	3.4	2.5	3.7	11.3	15.3	11.1
EU	EuroStoxx50	63.3	57.8	45.0	4.5	3.3	3.5	12.0	15.4	11.7
Japan	Nikkei225	54.4	31.8	40.9	2.0	1.6	2.3	23.5	19.1	30.7
Korea	KOSPI200	18.2	20.9	26.4	1.3	1.4	2.0	14.8	13.0	10.2

As shown in Table 6.1 above, South Korean companies have significantly lower dividend payout ratios and dividend yields than the USA, UK, Europe, and other Asian countries. This long-standing practice hinders the capital dynamism of South Korean companies and is blamed for the chronic undervaluation of the South Korean stock market. Table 6.1 shows that the South Korean stock market was deeply undervalued throughout the observation period of this study. The Korean government has made various efforts to address this issue (Korean Ministry of Economy and Finance, 2014). The dividend promotion tax policy, implemented from 2015 to 2017, reflects this goal.

This study builds statistical models to investigate whether the South Korean government's dividend promotion tax policy actually had a positive effect on increasing firms' dividend payout. The models investigate whether the dividend payout ratio change differs between individual-owned and corporate-owned firms and between firms with high and low shareholdings of the largest shareholder.

Dividend and financial performance-related items of 400 South Korean listed companies are collected during the observation period from 2012 to 2022, and statistical analysis is performed. In this empirical study, panel regression with random effect is used to reflect the characteristics of the data.

Panel regression models with various combinations of variables lead to the conclusion that the South Korean dividend promotion tax policy was successful in increasing firms' dividend payout ratio. Contrary to expectations, companies do not decrease their dividend payout ratio when the dividend promotion policy is terminated but continue to increase afterward. The finding that firms increase their dividends when the policy changes in a favorable way is consistent with the literature studies. However, companies' dividends do not return to the original level when the policy terminates. This finding allows for the interpretation that listed firms in South Korea are more sensitive to the government's policy intentions than to the practical benefits of the policy.

Empirically, corporate-owned companies have maintained higher dividend payouts and are more sensitive to policy changes than individual-owned firms. In addition, companies with a high stake of the largest shareholder have higher dividend payouts and policy sensitivity.

On the other hand, most financial performance indicators of firms are either not statistically significant or have regression coefficients less than zero. This finding is surprising because it suggests that financial performance is not a significant factor in the dividend decisions of South Korean companies. Since South Korean firms often use a flat dividend amount policy that simply

pays a fixed amount rather than a percentage of net income, it can be interpreted that improved financial performance does not lead to an increase in dividends.

6.2. Implications and Recommendations

South Korean dividend promotion tax policy, implemented in 2015, comes at the cost of reduced tax revenues, so assessing whether it has had a tangible economic impact is critical. In this empirical study, it is proven that the South Korean government's dividend promotion tax policy has had a positive impact on increasing the dividend propensity of listed firms in South Korea, as intended by the government.

The empirical analysis shows that companies with a high stake in major shareholders increase their dividends more dramatically. This is because the dividend promotion policy reduces the tax rate on dividend income, making shareholders the direct beneficiaries of the policy. One criticism of the policy is that the reduced tax revenues have been concentrated in the hands of the largest shareholders of some companies (Korean Ministry of Economy and Finance, 2017). This finding suggests that it is desirable to design the policy so that the beneficiary of the policy is the corporation itself, rather than its shareholders, in order to provide an incentive for firms with low stakes of major shareholders to increase dividends as well.

The study found that companies did not reverse their dividend propensity after the dividend policy ended. This finding suggests that South Korean firms value and respond to the government's policy intentions more than the economic benefits of the policy. It also implies that in the future, the government may be able to induce active responses through various policies.

It was also found that financial performance metrics were not significant. From a corporate perspective, it suggests that establishing and maintaining a flat dividend policy that is a global standard, rather than adhering to a

dividend policy that pays a fixed amount that is not linked to financial performance, could be a catalyst for breaking out of chronic undervaluation.

6.3. Limitations

The study collected the observations for a total of 11 years, from 2012 to 2022. The observation period includes three years before the policy was implemented, three years during the policy, and five years after the policy ended. A limitation is that the observation period is not long enough since the dividend promotion tax policy under analysis has been in place for only three years, which weakens the reliability of the data.

In addition, the inclusion of the COVID-19 outbreak in the observation period undermines confidence in the consistency of the data. The global pandemic led to a deteriorating economy and unprecedentedly low-interest rates, with many retailers posting losses and financial institutions holding bonds temporarily experiencing a surge in net income. The fact that the observation period includes a period of extremely unusual events can undermine the robustness of the model.

To prevent the dividend propensity from having a negative value, all firms that recorded a net loss even once during the observation period are excluded from the sample. To ensure data consistency, the companies that have undergone governance changes such as mergers, spin-offs, and major shareholder changes are also excluded from the sample. After the exclusion, the final sample for analysis is limited to 400 companies, which is not sufficiently large enough.

6.4. Suggestions for Further Studies

More and more companies are turning to stock buybacks as a way to share profits with shareholders. While stock buybacks do not directly share profits with investors, they do allow shareholders to indirectly enjoy a share of profits in the form of capital gains. Although share buybacks are generally accepted as a form of dividends, they are classified as different items from dividends in accounting. Therefore, only cash and stock dividends are added to the dividend data in this study. With further research, building models using dividend data, including share buybacks, can lead to new discoveries.

This study finds that companies owned by other corporations had higher dividend payout ratios than individual-owned companies. Even though the dividend promotion policy that applies only to individual shareholders was implemented, corporate-owned firms increased their dividend propensity more than individual-owned companies. This result is puzzling since corporation-owned firms have no motivation to increase dividends in terms of economic benefits. This result suggests that companies owned by PEFs (Private Equity Funds) or holding companies, whose sole source of income is dividends, may have significantly increased their dividend payout ratio in response to the policy. It would, therefore, be interesting to study further the nature of the largest shareholders (Individuals, PEFs, pension funds, holding companies, and other corporations) to see which groups showed a statistically significant change in dividend policy.

Finally, the model with dividend yield as the dependent variable did not yield a model with a high enough R square. This result is likely due to the fact that prices are much more volatile than dividends, so dividend yields are affected by the opposite of stock market movements. Further research may yield meaningful findings if a dependent variable is designed to represent a company's dividend propensity that is not affected by the stock market and is independent of company size.

References

Allen, F., & Michaely, R. (2003). Payout Policy. *Handbook of the Economics and Finance, 1*, 337-429.

Alstadsæter, A., & Jacob, M. (2016). Dividend taxes and income shifting. *The Scandinavian Journal of Economics*, *118*(4), 693-717.

Asgedom, A. (2004). Debates in research paradigms: Reflections in qualitative research in higher education. *The Ethiopian Journal of Higher Education*, *1*(1), 41-61.

Baker, H. K., Singleton, J. C., & Veit, E. T. (2011). *Survey research in corporate finance: bridging the gap between theory and practice*. Oxford University Press.

Baker, H. K., Veit, E. T., & Powell, G. E. (2001). Factors influencing dividend policy decisions of Nasdaq firms. *Financial Review*, *36*(3), 19-38.

Baker, H. K., & Weigand, R. (2015). Corporate dividend policy revisited. *Managerial Finance*, *41*(2), 126–144.

Baltagi, B. H. (Ed.). (2015). *The Oxford handbook of panel data*. Oxford University Press.

Baskerville, R. L., & Wood-Harper, A. T. (1996). A critical perspective on action research as a method for information systems research. *Journal of information Technology*, *11*, 235-246.

Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford university press.

Black, F. (1996). The dividend puzzle. *Journal of Portfolio Management*, 8.

Bloomberg L.P. (2023) Index aggregated Dividend payout ratio, Dividend yield, PER. 2012, 2017 & 2022. Retrieved December 12, 2023 from Bloomberg terminal.

Blouin, J. L., Raedy, J. S., & Shackelford, D. A. (2011). Dividends, share repurchases, and tax clienteles: Evidence from the 2003 reductions in shareholder taxes. *The Accounting Review*, *86*(3), 887-914.

Blumberg, B., Cooper, D., & Schindler, P. (2014). *EBOOK: Business Research Methods*. McGraw Hill.

Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2008). Managerial response to the May 2003 dividend tax cut. *Financial management*, *37*(4), 611-624.

Bryant, C. G. (1985). Positivism in social theory and research. *(No Title)*.

Bryman, A. (2016). *Social research methods*. Oxford university press.

Bulan, L. T., & Subramanian, N. (2009). The firm life cycle theory of dividends. *Dividends and dividend policy*, *1*, 201-213.

Chatterjee, S., & Hadi, A. S. (2013). *Regression analysis by example*. John Wiley & Sons.

Chetty, R., & Saez, E. (2005). Dividend taxes and corporate behavior: Evidence from the 2003 dividend tax cut. *The quarterly journal of economics*, *120*(3), 791-833.

Chetty, R., & Saez, E. (2010). Dividend and corporate taxation in an agency model of the firm. *American Economic Journal: Economic Policy*, *2*(3), 1-31.

Chkir, I., & Saadi, S. (2011). Dividends and corporate governance: The effect of Canadian tax reforms. *Can. Tax J.*, *59*, 495.

Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in*

education. routledge.

DeAngelo, H., & DeAngelo, L. (2006). The irrelevance of the MM dividend irrelevance theorem. *Journal of financial economics*, *79*(2), 293-315.

DeAngelo, H., & DeAngelo, L. (2007). Payout policy pedagogy: what matters and why. *European financial management*, *13*(1), 11-27.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial economics*, *81*(2), 227-254.

Dewasiri, N. J., Yatiwelle Koralalage, W. B., Abdul Azeez, A., Jayarathne, P. G. S. A., Kuruppuarachchi, D., & Weerasinghe, V. A. (2019). Determinants of dividend policy: evidence from an emerging and developing market. *Managerial Finance*, *45*(3), 413-429.

Dubois, A., & Gadde, L. E. (2002). Systematic combining: an abductive approach to case research. *Journal of business research*, *55*(7), 553-560.

Easterbrook, F. H. (1984). Two agency-cost explanations of dividends. *The American economic review*, *74*(4), 650-659.

Edgerton, J. (2013). Four facts about dividend payouts and the 2003 tax cut. *International Tax and Public Finance*, *20*, 769-784.

Farre-Mensa, J., Michaely, R., & Schmalz, M. (2014). Payout policy. *Annu. Rev. Financ. Econ.*, *6*(1), 75-134.

Filbeck, G. (2011). Asymmetric information and signaling theory. In *Dividends and Dividend Policy* (pp. 163-177). John Wiley and Sons.

Floyd, E., Li, N., & Skinner, D. J. (2015). Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends. *Journal of Financial Economics*, *118*(2), 299-316.

Frankfurter, G. M., & Wood Jr, B. G. (2002). Dividend policy theories and their empirical tests. *International Review of Financial Analysis*, *11*(2), 111-138.

Freedman, D. A. (2009). *Statistical models: theory and practice*. cambridge university press.

Goddard, W., & Melville, S. (2004). *Research methodology: An introduction*. Juta and Company Ltd.

GOV.UK. (2022). *Data Protection*. Retrieved from https://www.gov.uk/data-protection

Graham, J. R. (2003). Taxes and corporate finance: A review. *The Review of Financial Studies*, *16*(4), 1075-1129.

Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are dividend changes a sign of firm maturity?. *The journal of Business*, *75*(3), 387-424.

Gulati, P. M. (2009). *Research management: Fundamental & applied research*. Busca Inc

Gwilym, O. A., Morgan, G., & Thomas, S. (2000). Dividend stability, dividend yield and stock returns: UK evidence. *Journal of Business Finance & Accounting*, *27*(3-4), 261-281.

Hanlon, M., & Hoopes, J. L. (2014). What do firms do when dividend tax rates change? An examination of alternative payout responses. *Journal of Financial Economics*, *114*(1), 105-124.

Healy, P. M., & Palepu, K. G. (1988). Earnings information conveyed by dividend initiations and omissions.

Hribar, P., Savoy, S., & Wilson, R. J. (2014). Pricing firms' responsiveness to shareholder tax incentives. *Available at SSRN 2320816*.

Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative market research: An international journal*, *3*(2), 82-90.

Jacob, M., & Michaely, R. (2017). Taxation and dividend policy: the muting effect of agency issues and shareholder conflicts. *The Review of Financial Studies*, *30*(9), 3176-3222.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review*, *76*(2), 323-329.

Johnson, P., & Clark, M. (2006). Positivism: deductive research methodologies. *(No Title)*. London: Sage.

Ketokivi, M., & Mantere, S. (2010). Two strategies for inductive reasoning in organizational research. *Academy of management review*, *35*(2), 315-333.

Korean Ministry of Economy and Finance. (2014). *2014 Tax Revision Bill*, Retrieved from https://English.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=3661

Korean Ministry of Economy and Finance. (2016). *2016 Revision Focuses on Boosting Investment and Promoting Employment*, Retrieved from https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=4125

Korean Ministry of Economy and Finance. (2017). *2017 Tax Revision Bill*, Retrieved from https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=4347

Kumar, S., & Phrommathed, P. (2005). Research methodology (pp. 43-50).

Larkin, Y., Leary, M. T., & Michaely, R. (2017). Do investors value dividend-smoothing stocks differently?. *Management Science*, *63*(12), 4114-4136.

Leary, M. T., & Michaely, R. (2011). Determinants of dividend smoothing: Empirical evidence. *The Review of Financial Studies*, *24*(10), 3197-3249.

Lee, S. Y., & Hong, W. H. (2018). *The effect of dividend income tax incentive on dividend policy and its policy implication.* Korea Institute of Public Finance.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research*, *4*(2), 97-128.

Litzenberger, R. H., & Ramaswamy, K. (1980). Dividends, short selling restrictions, tax-induced clienteles, and market equilibrium. *The Journal of Finance*, *35*(2), 469-482.

Lupia, A., & Elman, C. (2014). Openness in political science: Data access and research transparency: Introduction. *PS: Political Science & Politics*, *47*(1), 19-42.

Megginson, W. (1996). *Corporate Finance Theory,* Addison-Wesley, Reading, MA.

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *Journal of Business*, *34*(4), 411-433.

Newman, W. L., (2003). Social research methods: qualitative and quantitative approaches (5th ed.) Boston: Allyn & Bacon.

Orbe, M. P. (1996). Laying the foundation for co-cultural communication theory: An inductive approach to studying “non-dominant” communication strategies and the factors that influence them. *Communication Studies*, *47*(3), 157-176.

O’Sullivan, A & Sheffrin, S. M. (2003). *Economics: Principles in Action.* Pearson Prentice Hall.

Pinto, J. E. (2020). *Equity asset valuation*. John Wiley & Sons.

Pinto, J. E., Henry, E., Robinson, T. R., & Stowe, J. D. (2010). *Equity asset valuation* (Vol. 27). John Wiley & Sons.

Poterba, J. M., & Summers, L. H. (1984). New evidence that taxes affect the valuation of dividends. *The Journal of Finance*, *39*(5), 1397-1415.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (Eighth edition.).

Seltman, H. J. (2012). Experimental design and analysis.

Slemrod, J. (1992). Do taxes matter? Lessons from the 1980s.

Somekh, B., & Lewin, C. (Eds.). (2005). *Research methods in the social sciences*. Sage.

Silvermn, D. (2013). *Doing Qualitative Research: A practical handbook*. London: Sage.

Uduma, I. A., & Sylva, W. (2015). A critique of the adequacy of positivist and interpretivist views of organisational studies for understanding the 21st century organisation (s). *International Journal of Business and Management Review*, *3*(8), 44-52.

United States Congress. 2003. *Jobs and growth tax relief reconciliation act of 2003*. Retrieved from https://www.govinfo.gov/content/pkg/PLAW-108publ27/pdf/PLAW-108publ27.pdf

Witte, R. S., & Witte, J. S. (2017). *Statistics*. John Wiley & Sons.

Yagan, D. (2015). Capital tax reform and the real economy: The effects of the 2003 dividend tax cut. *American Economic Review*, *105*(12), 3531-3563.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

Zyphur, M. J., & Pierides, D. C. (2017). Is quantitative research ethical? Tools for ethically practicing, evaluating, and using quantitative research. *Journal of Business Ethics*, *143*(1), 1-16.