MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC REASEARCH

ECOLE SUPERIEURE DE COMMERCE

-KOLEA-

End-of-cycle dissertation for the purpose of Obtaining a Master's Degree in Financial Sciences and Accounting

MAJOR: CORPORATE FINANCE

TOPIC:

The Impact of Dividend Policy on Large Private Algerian Firms' Performance

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Submitted by:
BENNAMANE Kaouther

Supervised by:
Pr. BENILLES Billel

Duration of the internship: From 13/02/2025 to 26/05/2025

Academic Year: 2024/2025

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Dedication

I dedicate this work to my dear parents, whose unwavering support, unconditional love, and endless sacrifices have been the foundation of all my achievements. Your guidance and belief in me have shaped who I am today, and for that, I will be forever grateful for the sacrifices you have made to provide me with an education and a better future. This accomplishment is as much yours as it is mine.

To my dear sister Khadidja, and my brothers Haythem and Yahia, I am deeply grateful for your continuous support and endless kindness and love. Your encouragement and presence have always been a source of strength and happiness in my life. I am truly grateful to have you by my side.

To my beloved grandmother, aunts, uncles and cousins, thank you for your unwavering love and support. I am forever grateful for your motivation.

To my dear friends, thank you for your constant companionship, support, and kindness. Your presence has been invaluable, and I'm truly lucky to have you in my life.

Kaouther

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List of acronyms

CAPM	*Capital Asset Pricing Model*
CFROI	*Cash Flow Return on Investment*
DPR	*Dividend Payout Ratio*
DIH	*Dividend Irrelevance Hypothesis*
EVA	*Economic Value Added*
EPS	*Earnings Per Share*
GLS	*Generalized Least Squares*
IRS	*Internal Revenue Service*
IRR	*Internal Rate of Return*
LSDV	*Least Squares Dummy Variable*
MVA	*Market Value Added*
OGA	*Ordinary General Assembly*
OLS	*Ordinary Least Squares*
PCSE	*Panel-Corrected Standard Errors*
ROI	*Return on Investment*
ROE	*Return on Equity*
ROA	*Return on Assets*
VIF	*Variance Inflation Factor*
WACC	*Weighted Average Cost of Capital*

Abstract

This research investigates the impact of dividend policy on the performance of large private Algerian firms. The study is based on a panel data comprising 61 firms observed over the period 2019 to 2023, totaling 305 firm-year observations. To explore the relationship between dividend policy and firm performance, we employ panel data regression techniques that account for both cross-sectional and temporal variations. Firm performance is measured using the Return on Assets (ROA) ratio, while dividend policy is represented by the dividend payout ratio (DPR), both of which are widely utilized indicators in financial research. The model also includes a set of control variables, including liquidity, leverage, asset tangibility, and firm size. The findings reveal that dividend policy has a significant and positive impact on firm performance, suggesting that firms distributing dividends tend to achieve higher performance levels. Additionally, liquidity and firm size are found to have a positive influence on performance, whereas asset tangibility and leverage exhibit a negative relationship.

Keywords: Dividend policy, Firm performance, Panel data, Large private Algerian firms.

Résumé

Cette recherche examine l'impact de la politique de dividendes sur la performance des grandes entreprises privées algériennes. L'étude repose sur un ensemble de données de panel composé de 61 entreprises observées entre 2019 et 2023, totalisant 305 observations entreprise-année. Afin d'explorer la relation entre la politique de dividendes et la performance des entreprises, nous utilisons des techniques de régression sur données de panel, prenant en compte à la fois les variations interindividuelles et temporelles. La performance des entreprises est mesurée à l'aide du ratio de rentabilité des actifs (ROA), tandis que la politique de dividendes est représentée par le ratio de distribution des dividendes (DPR), deux indicateurs largement utilisés dans la recherche financière. Le modèle inclut également un ensemble de variables de contrôle, notamment la liquidité, l'endettement, la tangibilité des actifs et la taille de l'entreprise. Les résultats révèlent que la politique de dividendes exerce un impact significatif et positif sur la performance des entreprises, suggérant que les entreprises distribuant des dividendes tendent à afficher de meilleures performances. De plus, la liquidité et la taille de l'entreprise influencent positivement la performance, tandis que la tangibilité des actifs et l'endettement présentent une relation négative.

Mots clés: Politique de dividendes, Performance des entreprises, Données de panel, Grandes entreprises privées algériennes.

General Introduction

Dividend distribution is considered one of the most important and critical decisions in corporate finance as it directly impacts both shareholder wealth and the firm's financial strategy. Dividend policy determines the portion of profits distributed to shareholders and the portion of retained earnings.

Dividends represent a return on investment for shareholders and are often used as a signaling hypothesis due to information asymmetries between managers who have a clearer picture of the company's financial health and less informed shareholders.

Firm performance refers to a company's overall financial health, it is a measure of how well a company is achieving its goals and meeting the expectations of its stakeholders.

The relationship between dividend policy and firm performance is a topic that has been extensively debated by academics and practitioners while there is no definitive consensus. There are three major, yet contradictory, theories regarding dividend policy: the bird in hand theory, which argues that increasing dividend payments increases firms' value, the tax-effect hypothesis suggests that high dividend payouts decreases firms' value and according to the hypothesis of Modigliana and Miller 1961, dividend payout policy is considered irrelevant in a perfect capital market.

Many empirical studies have been conducted to better understand the relationship between dividend distribution and firm performance, such as the study of (Boubaker, 2023) for a sample of 83 firms in Tunisia over the period 2010 to 2015, (Njoku & Lee, 2024) examines the relationship between dividend policy and firm performance in the Korean market based on a dataset consisting of 5478 observations, (Nurmadi & Novietta, 2022) aims to examine the impact of dividend policy on the performance of publicly listed companies in Sri Lanka, using a sample of 289 firms over the period 2017 to 2022, (Khan et al., 2019) investigates their relationship, using a sample of 40 cement sector companies in Pakistan.

All of these researchers have found that dividends influence firm performance.

Given the limited research on the topic of dividend policy and firm performance in the context of Algerian firms, this study can contribute to filling this knowledge gap and providing

valuable insights for policymakers, investors and managers.

This research offers valuable knowledge and enhances the overall understanding of the relationship between dividend policy and firm performance. By examining the unique characteristics of Algerian market, this study contributes to the academic literature and provides guidance for shareholders who can use this information to assess the potential impact of dividend policy on firm performance and make informed investment decisions.

The impact of dividend policy on large private Algerian firms is a particularly interesting topic due the unique economic and political landscape of Algeria. Additionally, private firms may enjoy greater flexibility in dividend distribution compared to public or state-owned enterprises, which can make their behavior more reflective of internal financial strategies rather than external political pressures. This aspect represents a valuable advantage for this study, as it allows for a clearer analysis of how dividend policy impacts firm performance.

The purpose of this research is to examine the effect of dividend policy on the performance of Algerian large private firms. In this context, we formulate our research problem as follows:

What is the impact of dividend policy on large private Algerian firms' performance?

To answer this problematic, we set the following sub-questions:

- How does dividend policy influence the performance of large private firms in Algeria?
- What is the impact of other financial determinants on the performance of large private Algerian firms?
- What is the relationship between firm size and firm performance in large private Algerian firms?

In order to explore the research problem, the following set of hypotheses has been formulated:

- H_1: Dividend policy has a significant positive impact on the firm performance of large private Algerian firms.
- H_2: Other financial determinants have a significant impact on the performance of large private Algerian firms.
- H_3: Firm size contributes positively to firm performance in large private Algerian firms.

In order to address the core research problem and test the proposed hypotheses, the methodology utilized in this study combines a descriptive approach where a literature review will be conducted including books and articles, to gather relevant theoretical and contextual information, and an analytical approach which constitutes the empirical component of the study. This

component will rely on the analysis of panel data, comprising a sample of 61 large private Algerian firms from 2019 to 2023, resulting in a total of 305 firm-year observations. A linear regression model will be applied to assess the impact of the selected determinants on firm performance.

This dissertation will be divided for three chapters.

The first chapter will provide a general overview of firm performance discussing its definition, various types, components and the key financial and non-financial indicators commonly used to measure it, additionally, the chapter will provide a comprehensive overview of dividend policy, including its definition, significance, importance and evolution, along with the legal framework governing dividend distribution in Algeria.

The second chapter will present the conflicting opinions, theories, models and empirical research that have explored the impact of dividend policy as well as various other selected factors such as firm size, liquidity, leverage, and asset tangibility, on firm performance.

The third chapter is dedicated to the empirical study, which aims to test the research hypotheses through the analysis of panel data. It will present the methodology adopted, the characteristics of the selected sample, the variables used, and the results obtained from the linear regression model applied to assess the impact of dividend policy and other selected determinants on firm performance.

Chapter 1

Dividend Policy and Firm Performance: A Theoretical Perspective

Introduction

Performance is a multifaceted and a complex concept, characterized by a variety of definitions and perspectives presented by numerous authors and researchers. It encompasses different typologies, components, indicators and key factors that influence it. Firm performance is a multidimensional concept that can be assessed through both financial indicators, such as profitability and return on investment, and non-financial measures, capturing various aspects of a company's overall efficiency and strategic outcomes. Moreover, firm performance is shaped by numerous determinants, among which dividend policy plays a significant role.

Dividend policy refers to a company's approach to distributing profits back to its shareholders. At the end of each financial year, firms must decide how much of their earnings to retain for reinvestment and how much to return to owners. In Algeria, the distribution of dividends is regulated by national corporate laws and financial standards, which guide how companies manage their dividend policies.

The objective of this chapter is to explore theoretical perspectives on firm performance and dividend policy. It provides a review of the concept of firm performance, including its components, typologies and financial and non-financial indicators used to assess it. Furthermore, the chapter investigates the key theoretical views on dividends and dividend policy, focusing on the importance of choosing the appropriate policy that balances retaining earnings for reinvestment and distributing profits to shareholders, while considering the firm's financial health and growth objectives.

The chapter is structured into three main sections.

The first section provides a general overview of firm performance, highlighting the different dimensions and measures of performance.

The second section focuses on dividends and dividend policy, outlining the theoretical perspectives and assumptions surrounding dividend decisions.

The third section examines dividend distribution in Algeria, analyzing the legal framework, practices, and their implications for firms operating within the country.

Section 1: General Overview of Firm Performance

Regardless of its size, a company should always seek to achieve high performance.

In this context, firm performance becomes a key determinant of success. Achieving improved performance is essential for fostering development. Consequently, the measurement of company performance occupies a crucial place within innovative companies that strive to achieve optimal results.

In this section, we will introduce the definition and evolution of firm performance, its components, types, indicators, and methods of measurement.

1. Definition of Firm Performance

Performance is a broad and a complex concept characterized by a variety of definitions and diversity of perspectives as revealed and demonstrated by authors and researchers. Over time and across different contexts, the concept has evolved, giving rise to multiple viewpoints, positions, and research questions.

Nowadays, firm performance is the key concept in strategic management research and is often used as a dependent variable. Despite its widespread use in academic literature, there is a little consensus on its definition and measurement.

Otley (1999, as cited in St-Pierre et al., 2005) states that "performance" is itself an ambiguous term that does not have a single definition.

Firm performance refers to the measurement of a company's financial success and operational efficiency over a period of time. It serves as a barometer of the company's overall health, reflecting its profitability.

Hence, firm performance acts as a signal to investors by indicating financial stability, growth potential, and risk level, enabling investors, stakeholders, and management to evaluate its financial health through various performance metrics. High performance increases investor confidence attracting greater investment.

2. Historical Evolution of the Term "Firm Performance"

In the 1950s, organizational efficiency was synonymous with firm performance. This efficiency represents the degree to which an organization, as a social system with some limited resources and means, achieves its goals without an excessive effort from its members. Organizational effectiveness was assessed using three variables:

-Station productivity was measured through company records of individual performance.

-Intraorganizational strain reflected tensions between subgroups.

-Organizational flexibility referred to the organization's ability to adapt to internal and external changes (Georgopoulos & Tannenbaum, 1957).

Later in the 60s and 70s, organizations began to explore new ways to evaluate their performance. Performance was then understood as an organization's capacity to leverage its environment to acquire and utilize scarce resources (Yuchtman & Seashore, 1967); in the 1980s, the firm performance depended on its ability to generate value for its clients (Porter, 1986), as cited in Taouab and Issor (2019).

According to (Taouab & Issor, 2019), during the following decade, Adam (1994) considered organizational performance as deeply dependent on the employees' performance quality, he believed that in order to guarantee a high quality organizational performance, it is essential to have regular exposure of the workers of the company to new and up-to-date knowledge and skills in order to keep pace with market changes and contribute to organizational success; we can agree with the view of many researchers in the field Niculescu (1999), Burgoingnon (1995), Corvellec (1994, 1995) about the fact that the term "performance" implies at the same time three interpretations: action, the result of the action, and success.

Performance as action: in this perspective, performance is viewed as a continuous process rather than a fixed result, where the process itself becomes the focus, not the final outcome.

Performance as the result of action: here, performance is understood as the outcome, often measured through an "ex post" assessment, comparing the actual results to predefined standards or benchmarks.

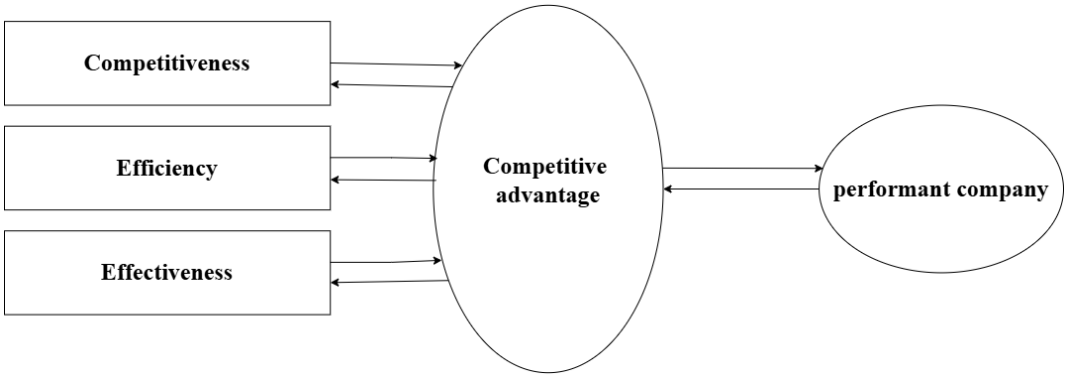
Performance as success: performance does not exist by itself, it is in fact a dependent representation of the success of the different categories of accounting information users.

Harrison and Freeman (1999) asserted that organizations prioritize stakeholder interests in order to enhance financial performance.

In the early 2000s, organizational performance was primarily defined by an organization's ability to efficiently utilize available resources to achieve objectives aligned with company goals, while also considering the relevance of those achievements to its users (Peterson, Gijsbers & Wilks, 2003).

According to Taouab and Issor (2019), Verboncu and Zalman (2005) define performance as "a particular result obtained in management, economics, marketing, etc.. that print features of competitiveness, efficiency and effectiveness of the organization and its procedural and structural components. Performance can be regarded as the equivalent of competitiveness."

Figure 1.1: Factors that drive performance



Source: **(Taouab & Issor, 2019, p. 96)**

Lebans and Euske (2006) offered a multifaceted definition of organizational performance, highlighting several key aspects:

-Performance is a set of financial and non-financial indicators that reflect the degree to which objectives and results have been achieved.

-Performance is dynamic, requiring judgment and interpretation.

-Performance may be illustrated by using a causal model that describes how future results can be affected by current actions.

-Performance may be understood differently depending on the person involved in the assessment of the firm performance.

-To define the concept of performance, it is necessary to know its fundamentals characteristics to each area of responsibility.

-To report a firm's performance level, it is necessary to be able to quantify the results.

Siminica (2008) appreciates that a firm is performant when it is at the same time efficient and effective. Therefore, the performance is a function of two variables, efficiency and efficacy.

Bartoli and Blatrix (2015) believed that the definition of performance should be achieved through items such as piloting, evaluation, efficiency, effectiveness, and quality.

3. Performance Components

Gilbert (1980, as cited in Gnaoui & Moutahaddib, 2024) presents his model and states that performance is defined by the simultaneous presence of three dimensions: effectiveness, efficiency, and relevance. These components of performance may vary depending on the context and objectives of the company, they may reflect aspects such as financial profitability, customer satisfaction, etc.

Relevance: refers to the alignment between the resources employed and the attainment of pre-

defined objectives. Its measurement is challenging due to its subjective nature, as it depends on the selection of tools in relation to the intended goals.

Effectiveness: it is measured by the extent to which desired results are achieved based on predefined objectives. The closer the actual outcomes are to the intended goals, the greater the company's effectiveness.

Efficiency: it is related to the optimal use of resources such as effort, cost, and energy to achieve the highest possible output while minimizing waste.

4. Common Types of Firm Performance

The evolution of firm performance has transformed it from a unidimensional and objective notion to a multidimensional and subjective concept, reflecting the varying perspectives of scholars and researchers. This shift has led to the identification of various typologies, including:

4.1 Financial Performance

Financial performance is a key indicator used to assess a company's efficiency in managing its financial resources. (Surya & Asiyah, 2020, as cited in Erragragui & Aoufir, 2023). It can be defined as a company's ability to generate satisfactory profitability, ensure sustainable growth, and create value for its shareholders (Guérard, 2006, as cited in Oubya, 2016). Profitability, on the other hand, measures a company's ability to generate profits over a given period. This indicator evaluates efficiency by analyzing the earnings obtained relative to sales. A company is considered profitable when it successfully achieves its financial objectives by optimizing the use of its internal resources (Oubya, 2016).

Firms can certainly be valued using the data contained in their financial reports. However, as Damodaran (1999, as cited in Magnusson & Enebrand, 2018) points out, these valuations often rely on noisy estimates, meaning they may contain inaccuracies or inconsistencies that can influence both the valuation process and the final outcome.

4.2 Commercial Performance

Commercial performance reflects achieving business objectives in proportion to the resources invested. Ouattara (2007) defines it as "the company's ability to satisfy its customers by offering high-quality goods and services that meet their expectations" ; similarly, Plauchu and Taïrou (2008) describe it as "the art of being present with the right interlocutor at the right time, with a relevant offer that enables the establishment of lasting and profitable business relationships for the company, in a context of continuous pursuit of service excellence.", as cited in (Oubya, 2016).

Based on these definitions, commercial performance primarily seeks to achieve the company's predefined objectives, with a particular focus on customer satisfaction and retention.

4.3 Strategic Performance

A company's performance can not be achieved without clearly defining strategic objectives set by its executives. These objectives may encompass various aspects, such as enhancing product quality, strengthening marketing strategies, or adopting new technologies to improve productivity. The formulation of these strategic objectives represents the first step toward establishing operational goals and ensuring the company's long-term performance (Ouattara, 2007, as cited in Oubya, 2016).

Strategic Performance refers to the long-term performance, it reflects a company's ability to differentiate itself from competitors by adopting appropriate strategies to achieve its objectives.

4.4 Competitive Performance

Competitive performance reflects a company's ability to adapt to competitors' actions to maintain its market position. This adaptability relies on a deep understanding of the competitive system, which determines the strategies required to ensure sustainable performance. By mastering market developments and competitive dynamics, a company can either leverage existing opportunities or anticipate and create new competitive advantages by influencing the industry's rules and structure. Studies on competitive performance focus on how a company positions itself advantageously against its competitors and the strategies it implements to achieve its objectives (Bounfour, 2006); in a highly competitive environment, understanding consumer perceptions of a company's products is crucial for identifying areas for improvement. One possible approach is to evaluate product competitiveness by comparing customer expectations with perceived value, using strategic assessment matrices (Lehu, 2001), as cited in (Oubya, 2016).

5. Performance Indicators

Lebas and Euske (2002, as cited in Erragragui & Aoufir, 2023) defined organizational performance as a multidimensional concept. They explained that performance encompasses both financial and non-financial indicators that assess an entity's ability to achieve its predetermined objectives.

5.1 Financial Indicators

Financial performance indicators, while widely used, have notable limitations. Traditional financial metrics primarily consider shareholder interests, often neglecting other key stakeholders. Moreover, these indicators may drive managers to focus on short-term profitability at the expense of long-term investments in areas such as research and development or marketing.

According to Cumby and Conrod (2001), "financial performance cannot be assessed solely based on financial indicators but must also consider non-financial indicators such as customer loyalty, internal processes, and the level of innovation within the company." Until the 1990s,

corporate performance was primarily assessed using traditional financial indicators. The most commonly used metrics included Return on Investment (ROI), revenue, and net income (Oubya, 2016).

However, these indicators were later criticized for their reliability and their ability to provide an accurate representation of a company's actual financial health. In response to these concerns, new metrics that better capture value creation emerged, such as Economic Value Added (EVA) and Cash Flow Return on Investment (CFROI). Today, financial performance assessment relies on more diverse indicators, including Return on Equity (ROE), free cash flow, cash flow growth, Return on Assets (ROA), and ROI. These tools provide managers with a more comprehensive view of a company's profitability and financial stability (Oubya, 2016).

5.1.1 Cash Flow Return on Investment (CFROI)

The Cash Flow Return on Investment measures how profitable a company's investments are. It calculates the internal rate of return (IRR) which is the average return a company earns from its investments. The CFROI formula is expressed as follows:

CFROI = Cash Flow / Market Value of Capital Employed

The CFROI is then compared to the weighted average cost of capital (WACC) in order to determine whether an investment is Profitable (if CFROI is higher than the cost of capital), neutral (if CFROI equals the cost of capital) or unprofitable (if CFROI is lower than the cost of capital).

A firm's CFROI is assessed against its cost of capital to determine whether its investments are favorable, neutral, or unfavorable. To enhance its value, the company should aim to widen the gap between its CFROI and its cost of capital (Venanzi, 2011).

5.1.2 Return on Equity (ROE)

Return on Equity is a key financial metric used to evaluate a company's profitability and its efficiency in generating returns from shareholder investments. It serves as a measure of financial performance by assessing the relationship between net income and shareholders' equity. It allows analysts to understand how well a company is using its shareholders' money to generate profits (Berland & Simon, 2010). However, ROE can be subject to volatility due to the fixed nature of financial debt, while revenue and cost components remain variable, making it less stable compared to other financial indicators (Ponssard, 2005), as cited in Oubya (2016).

5.1.3 Return on Assets (ROA)

Return on Assets, introduced by Dupont in 1919, is one of the most widely used financial models for performance measurement (Zairi, 1994, as cited in Tangen, 2003).

ROA ranks as one of the most extensively used variables in determining a firm's profitability (Menaje, 2012, as cited in Sharin, 2023). It corresponds to the economic profitability of a company, as it assesses whether the firm's economic resources are effectively utilized.

It is determined by the following formula: ROA = Net Income / Total Assets

As one of the most extensively used variables in assessing a firm's financial performance, ROA highlights the effectiveness of asset utilization. A high ROA indicates that the company is effectively using its assets to generate profit, whereas a low ROA may suggest poor asset management or operational inefficiencies.

Given its role in measuring a firm's ability to generate earnings from its core operations, ROA remains a fundamental metric in financial analysis.

5.1.4 Return on Investment (ROI)

Return on Investment represents the percentage return on invested capital, serving as an indicator of how efficiently a company utilizes its assets to generate profits. It is primarily employed to evaluate whether the investments made in launching a project are justified by the results achieved (Pinardon, 1989, as cited in Oubya, 2016).

5.1.5 Economic Value Added (EVA)

The Economic Value Added is a financial metric used to measure the net value created by a company after compensating all employed capital. It is calculated using the following formula:

EVA = (Economic Return - Cost of Capital) x Invested Capital

EVA can also be assessed based on equity capital, using the following equation:

EVA for Equity = (Return on Equity - Cost of Equity) x Amount of Equity Invested

A positive EVA for equity indicates that the company is generating value for its shareholders, whereas a negative EVA suggests value destruction. It plays a crucial role in guiding investment decisions.

However, EVA has been subject to criticism, particularly due to its strong dependence on the accounting methods used. Additionally, it can exhibit significant volatility when adjustments are made over time. Some managers consider EVA to be an outdated tool, necessitating the use of more advanced performance indicators for effective financial management.

5.1.6 Market Value Added (MVA)

Market Value Added is a key financial metric that evaluates a company's ability to create or diminish shareholder value. Closely linked to Economic Value Added (EVA), MVA measures the difference between a company's market value and the economic book value of capital

employed, providing insight into the firm's financial performance and value creation. The economic book value typically exceeds the accounting book value, as it incorporates additional reserves, offering a more accurate reflection of the total cash investment made by shareholders. MVA is determined using the following formula: MVA = Market Value − Capital (Hall & Brummer, 1999).

A positive MVA indicates that the company has added value, meaning its market value exceeds the invested capital, demonstrating strong financial performance and effective capital utilization. Conversely, a negative MVA suggests that the company is eroding shareholder value, as its market valuation falls below the capital invested. Ultimately, a company's ability to generate a positive MVA depends on achieving returns that exceed the cost of capital. Successful firms increase their MVA, enhancing shareholder wealth, while underperforming firms experience a decline in MVA, signaling potential financial inefficiencies and value destruction (Benhalima, 2019).

5.1.7 Tobin's q ratio

Tobin's q ratio, introduced by Tobin and Brainard (1968, 1977) and further developed by Tobin (1969, 1978), is widely utilized in financial literature as an indicator of future investment opportunities. It is defined as the market value of a firm divided by the replacement cost of its assets. The numerator of Tobin's q (market value) is derived from the present value of expected future cash flows generated by a firm's assets. Meanwhile, the denominator represents the replacement cost of these assets, also expressed in present value terms. This suggests an inherent positive correlation between Tobin's q and a firm's future cash flows.

Tobin's q has been employed in numerous financial studies to analyze different phenomena and decision-making processes. It has been used to investigate investment and diversification strategies (Jose, Nichols, and Stevens, 1986; Malkiel, von Furstenberg, and Watson, 1979), as well as the relationship between managerial ownership and firm value (McConnell and Servaes, 1990; Morck, Shleifer, and Vishny, 1988). Additionally, it has recently been explored as a proxy for risk in cross-sectional return studies. Lang and Stulz (1994) and Berger and Ofek (1995) have applied Tobin's q to analyze the connection between diversification and firm performance.

Despite its widespread use in empirical studies in various forms, no study has definitively established the relationship between Tobin's q and future firm performance, as cited in (Fu et al., 2016).

5.1.8 Earnings Per Share (EPS)

According to (de Wet, 2013), Earnings Per Share remains the most widely used financial performance benchmark, a survey conducted by Graham, Harvey, and Rajgopal (2004) among 400 financial executives in the USA revealed that the vast majority consider earnings to be

the most critical performance metric reported to external stakeholders. EPS plays a central role in key strategic decisions, including share valuations, executive compensation schemes, merger and acquisition negotiations. Given its significance, managers tend to focus heavily on EPS, especially when their compensation is directly linked to the company's EPS performance. Investors, too, rely on EPS, as it serves as the denominator in the widely used Price-to-Earnings (P/E) ratio. Several studies, including those by Chen, Jorgensen, and Yoo (2004); Ohlson and Juettner-Nauroth (2005); and Taboga (2011), confirm that EPS and its growth remain essential in modern share valuation methodologies.

5.2 Non Financial Indicators

Commercial performance is generally assessed through quantitative indicators such as market share, profit and revenue, as well as qualitative indicators like customer satisfaction, loyalty, the ability to innovate for the client, and the company's perceived reputation (Issor, 2017).

It is measured using key indicators such as the evolution of customer numbers, the conversion rate, revenue growth, and market share expansion. Another key metric is the gross operating surplus, which evaluates a company's ability to sell products profitably and generate sustainable earnings. This indicator provides insights into multiple dimensions, including industrial, operational, commercial, and financial aspects (Njampiemp, 2008). The gross profit margin is also a fundamental measure of commercial performance, as it reflects the firm's ability to navigate market constraints. Additionally, it serves as an indicator of the company's commercial strategy, particularly in terms of pricing policies and sales approaches (Genaivre, 2006), as cited in (Oubya, 2016).

Strategic performance is measured through various indicators, including business growth, the development of a well-defined strategy, a dynamic organizational culture, employee motivation, value creation that enhances customer satisfaction and loyalty, as well as commitment to product and service quality, environmental protection, and corporate social responsibility (Issor, 2017).

These non-financial indicators are incorporated into the balanced scorecard, which combines financial and non-financial metrics to offer a comprehensive view of management's performance oversight (Benhalima, 2019).

6. Common Models of Firm Performance Measurement

There are various models used to measure firm performance, among which the most widely recognized are:

6.1 The Balanced Scorecard (BSC)

The Balanced Scorecard is undoubtedly the most widely used performance measurement system. Developed by Robert Kaplan and David Norton, it introduced a framework that supplements traditional financial indicators with strategic non-financial performance measures. According to Kaplan and Norton, managers are generally aware of the importance of performance measurement, but they rarely view the measurement system itself as an essential component of their overall strategy (Kaplan & Norton, 1993, as cited in Zsidó, 2015). While financial performance remains a key objective, the framework integrates other crucial factors necessary for achieving long-term financial success. It operates through four perspectives, each perspective plays a crucial role in assessing and enhancing organizational performance:

Financial Perspective (How do we appear to shareholders?): Managing financial resources effectively is critical to the firm's success.

Customer Perspective (How do customers perceive us?): Understanding customer expectations regarding quality, cost, and service delivery is essential. Additionally, anticipating future customer needs helps the organization maintain competitiveness and sustain growth.

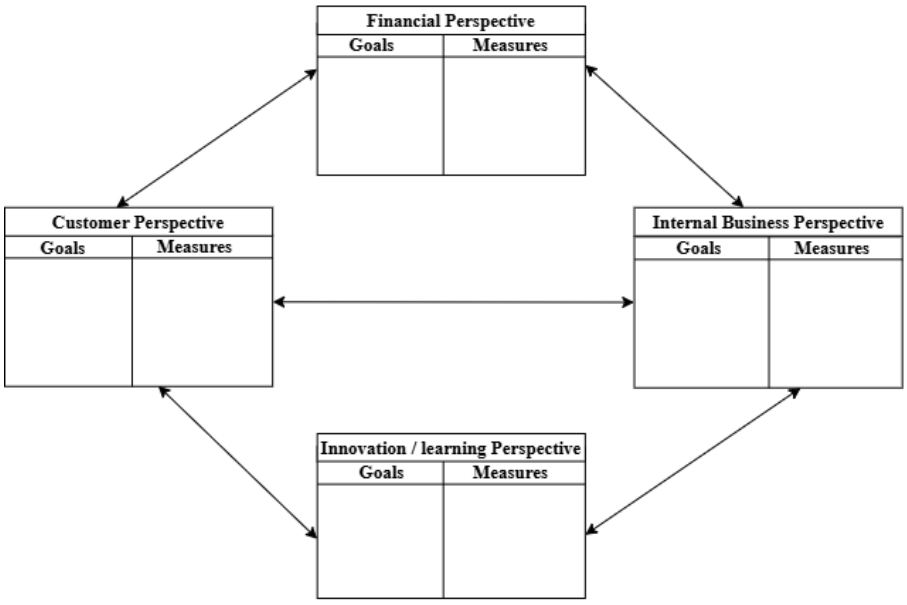
Internal Processes Perspective (What areas must we excel in?): Optimizing internal operations is fundamental to achieving strategic goals and delivering value to customers.

Innovation and Learning Perspective (Can we continue to improve and create value?): Organizational success depends on its ability to innovate and develop human capital. Continuous learning, employee development, and fostering an innovative environment contribute to long-term competitiveness and value creation.

By utilizing the BSC, managers gain a deeper understanding of how value can be created for customers in the future (Taouab & Issor, 2019).

The system provides a balanced perspective by incorporating both retrospective performance indicators and forward-looking factors that influence future success (Szívós, 2007). (Szívós, 2007, as cited in Zsidó, 2015) states that "The Balanced Scorecard is more than a simple set of financial and non-financial indicators. It is a translation of an organization's strategy into measurable objectives, encompassing both long-term goals and the mechanisms required to achieve them."

Figure 1.2: Balanced Scorecard (BSC)



Source: **(Taouab & Issor, 2019, p. 99)**

6.2 The Performance Pyramid (PPS)

The Performance Pyramid System, developed by Lynch and Cross in 1991, is a structured framework designed to measure organizational performance by integrating strategic and operational indicators. It serves as a tool to align an organization's strategic goals with its operational performance, ensuring coherence between high-level objectives and day-to-day business activities. By providing a structured approach to performance monitoring, the model enables organizations to effectively track and improve their overall efficiency and competitiveness (Lynch & Cross, 1991, as cited in Zsidó, 2015).

The model is built on four key levels:

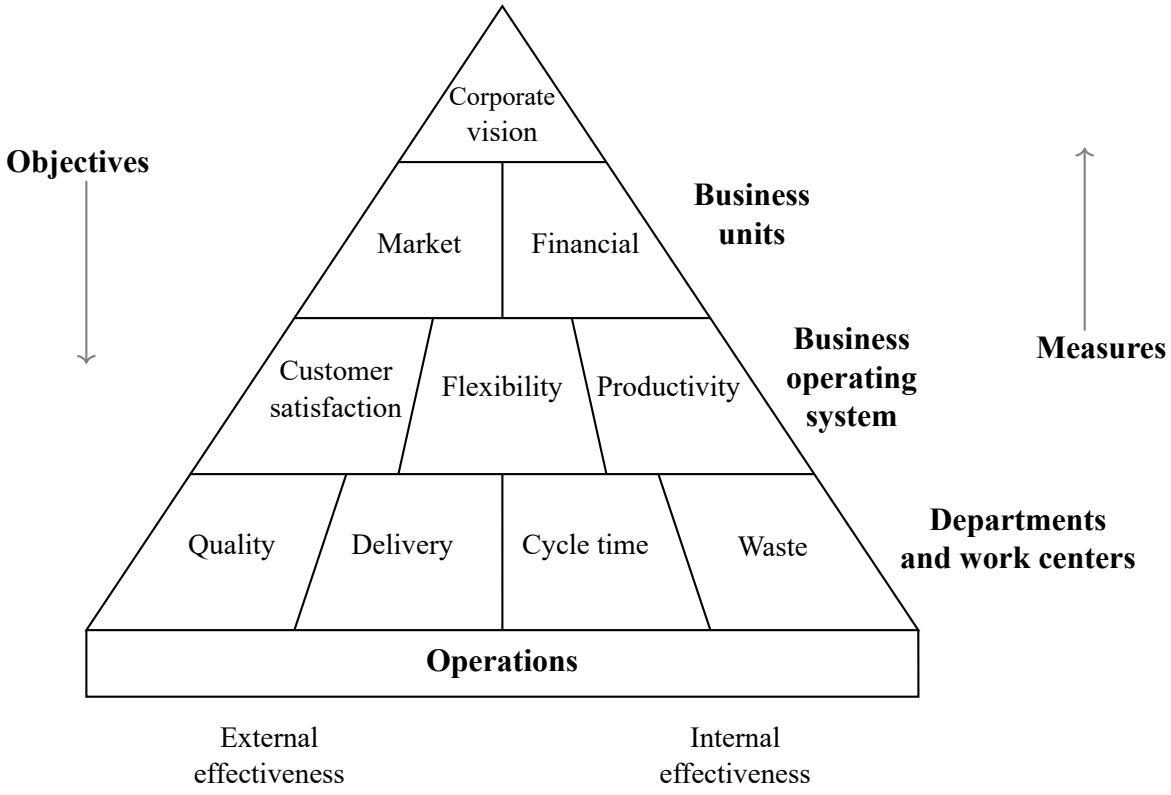
Corporate Vision: at the highest level, the organization establishes its corporate vision, which serves as the foundation for strategic direction, this vision is then translated into specific objectives for individual business units, ensuring alignment with the company's overall strategy.

Short-Term and Long-Term Goals: this level focuses on balancing short-term objectives, such as cash flow management and profitability, with long-term targets, including business expansion and market positioning.

Day-to-day Operational Measures: this level includes performance indicators that support the achievement of strategic and financial objectives. The key areas measured are: customer satisfaction, flexibility and productivity.

Key Performance Measures: the base of the pyramid consists of four essential performance indicators: quality, delivery, cycle time and cost (Taouab & Issor, 2019).

Figure 1.3: Performance Pyramid



Source: **(Taouab & Issor, 2019, p. 102)**

6.3 The Performance Prism (PP)

The Performance Prism, developed by Neely, Adams, and Kennerley (2002), is a comprehensive performance measurement framework designed to address key business challenges relevant to profit and non-profit organizations (Neely, Adams & Crowe, 2001), as cited in (Taouab & Issor, 2019). According to Neely et al (2004), organizations must consider all stakeholders rather than prioritizing only owners and customers. Success depends on reciprocal relationships where stakeholders not only have expectations but also actively contribute to organizational performance, as cited in (Zsidó, 2015).

The model is structured around five interconnected perspectives:

Stakeholder satisfaction: which identifies key stakeholders and their expectations.

Stakeholder contribution: which determines what stakeholders must provide to sustain and enhance organizational capabilities.

Strategies: which outline the actions needed to meet stakeholder expectations.

Processes: which define the necessary operations to execute these strategies effectively.

Capabilities: which encompass the essential competencies, infrastructure, and technological resources required to support these processes (Taouab & Issor, 2019).

Section 2: Dividends and Dividend Policy

Financial theory states that the primary goal of management is to create value for shareholders, with the objective of maximizing shareholder wealth (Jensen, 2001, as cited in Baker & Weigand, 2015). Despite extensive theorizing and empirical research, there remains considerable debate over the role that dividend policy plays in achieving this goal. When a company generates a profit, it must determine how to allocate those earnings. It can either retain the profits within the business to support future growth and operations or distribute them to shareholders. Dividend policy refers to the payout strategy a firm adopts in determining the amount and pattern of distributions to shareholders over time.

In this section, we will provide an insight into the origins, evolution, and types of dividends, the dividend policy and its measures, and the differences between dividend distribution and share repurchases.

1. Dividends

Dividends represent a portion of a company's profits distributed to its shareholders as a reward for their investment. Understanding the origins and evolution of this concept provides valuable insight into its significance in today's financial markets.

1.1 The Origin of the Term "Dividend"

The concept of dividends traces its origins to the development of joint-stock corporations, where ownership is divided into shares, and profits are distributed based on shareholding, with the term itself derived from the Latin word "dividendus", meaning something to be divided.

Early forms of corporate organization can be identified in ancient Greek and Roman societies, where groups of individuals pooled resources for trade and other activities. By the 14th century, more formalized trading organizations began to appear in Italy and Denmark (Kindleberger, 2000; Scott, 1912). By the 16th century, ship captains began seeking investments from individuals to finance maritime expeditions. This marked an early form of equity financing.

At the conclusion of each voyage, the vessel's assets were liquidated, and profits from sale were distributed among investors based on their shareholding. If investors wished to maintain their investment, they engaged in negotiations with the captain to finance a new voyage (Lease et al., 1999). This fundamental approach is known as the "liquidating dividend policy".

Although investors could mitigate the risk of fraudulent behavior by the ship captain by receiving all proceeds directly, this distribution method was economically inefficient; investors often received non-financial assets, which they were unable to utilize or manage effectively. Furthermore, the human capital acquired from previous ventures remained underutilized, repre-

senting a lost opportunity for optimizing future endeavors. The collaboration between investors and sea captains laid the foundation for the establishment of jointstock companies, as merchants required greater capital to finance their foreign trade ventures (Kindleberger, 2000).

A major milestone in corporate history was the establishment of the Dutch East India Company (VOC) in 1602, which became the first corporation to receive a perpetual charter (Van Loon, 1913). The VOC pioneered stock trading and contributed to the creation of the world's first stock exchange in Amsterdam in 1613 (Freedman, 2006). The company began paying dividends in 1612, offering an initial dividend yield of 57.5% of the share price, and maintained an average dividend yield of 25% over its first 15 years (Scott, 1912).

As corporate structures evolved, the British Parliament introduced regulations in the late 17th century to govern profit distribution, establishing the legal foundation for modern dividend policies (Lease et al., 1999; Scott, 1912). Over time, corporations moved away from liquidating dividends to a system where dividends serve as a symbolic tool for profit distribution, ultimately aiming to maximize shareholder wealth (Scott, 1912), as cited in (Tran, 2024).

1.2 Definition of Dividends

From a broader perspective, a dividend refers to any form of property distributed to shareholders. Unlike interest payments to debtholders, which corporations are legally obligated to pay, dividend distribution is discretionary. Firms have the flexibility to decide whether to distribute dividends or not.

From a more specific perspective, a dividend is defined as a cash payment distributed by a corporation to its shareholders. Companies can finance dividend payments from two main sources: the current net income or accumulated retained earnings, and other available funds. Some scholars argue that distributions made from sources other than retained earnings should be classified as distributions rather than dividends. However, it is widely accepted to refer to any cash distribution to shareholders as a dividend, regardless of its funding source (Ross et al., 2010). Fundamentally, dividends serve as a return on shareholders' investments, and companies must decide whether to retain their profits for reinvestment or distribute them as dividends, as equity shareholders have an essential right to receive a share of the company's earnings, as cited in (Tran, 2024).

1.3 Types of Dividends

Dividends can be classified in various ways, based on dividend nature or form. Based on dividend nature, they include cash or stock dividends, while based on dividend form, they may be regular, special or liquidating dividends. These classifications help in understanding how companies distribute profits and reflect their financial strategy.

1.3.1 Based on Dividend Nature

Based on the nature of distribution, dividends can be classified into different types:

Cash dividend: The most common type of dividend is the cash dividend, which provides shareholders with a proportional cash return on a per-share basis. This distribution reduces the firm's assets and stockholders' equity, specifically retained earnings. While this may lead to a reduction in the firm's overall size, if managers successfully maintain earnings per share despite a smaller asset base, market perception can remain positive. Additionally, if dividends per share continue at a stable rate in the foreseeable future, the company's market value may experience further growth. Cash dividends are typically issued when firms have sufficient retained earnings to finance all necessary investments while maintaining adequate liquidity to support dividend payments (Laux, 2011).

Stock dividend: Among the different types of dividends, stock dividends are a common alternative when firms seek to retain cash reserves. According to Ross et al.(2010, as cited in Tran, 2024), stock dividends do not constitute a true distribution of value because they do not involve any cash outflow from the corporation. Instead, when a company issues stock dividends, it increases the total number of shares outstanding. This results in a proportional decrease in the stock price, as the market value of the company is now spread across a larger number of shares.

However, if the company sustains dividends per share over time, shareholders benefit from holding a greater number of shares, potentially increasing their future cash receipts. Additionally, the market value per share may not decline proportionally, providing shareholders with a return that they can either realize by selling shares or retain for future dividends. Stock dividends are commonly used by firms with strong growth prospects that require reinvestment of retained earnings to finance capital projects. Such firms often prioritize conserving cash while building a solid earnings per share foundation to support higher cash dividends in the future (Laux, 2011).

1.3.2 Based on Dividend Form

Dividends can be distinguished by the form in which they are issued to shareholders.

Regular dividends: Regular dividends are distributed at fixed intervals, such as quarterly, semi-annually, or annually.

Special dividends: Special dividends are paid irregularly and are issued in addition to regular dividends, a corporation may distribute a special dividend to reduce excess cash reserves, adjust its financial structure, or convey a strategic signal to investors.

Liquidating dividends: Firms may occasionally distribute liquidating dividends, which exceed the retained earnings reported on their financial statements. These dividends are considered a return of capital rather than ordinary income by the Internal Revenue Service (IRS). As a

result, liquidating dividends may have distinct tax implications for investors, differing from those associated with regular or special dividends (Damodaran, 2014).

2. Dividend Policy

At the end of each fiscal year, publicly traded companies must determine whether to distribute cash to their shareholders and, if so, the appropriate amount in the form of dividends. Similarly, private business owners face the decision of how much cash to withdraw from the company for personal use versus how much to reinvest in the business.

2.1 Definition

Dividend policy is "the practice that management follows in making dividend payout decisions or, in other words, the size and pattern of cash distributions over time to shareholders" (Yusof & Ismail, 2016).

When a company generates profit, it must decide whether to retain the entire net income for future investments, distribute all profits to shareholders, or allocate a portion to dividends while reinvesting the remainder. The primary objective of this decision is to maximize shareholder wealth by finding an optimal balance between dividend payments and reinvestment. Corporate managers are responsible for determining whether to pay dividends and, if so, how much of the earnings should be allocated. Ultimately, dividend policy is reflected in both the decision to distribute dividends and the magnitude of the payout. According to Allen & Michaely (1995), understanding dividend policy is essential for firms, as it significantly impacts key financial decisions, including capital budgeting, asset pricing, mergers and acquisitions, and capital structure, as cited in (Anuar et al., 2023).

2.2 The Dividend Payment Time Line

The process of dividend payment begins when a corporation announces its intention to distribute dividends through a formal declaration. This declaration specifies essential details such as the amount to be paid, the date of record, and the payment date. In publicly traded companies, the board of directors determines the dividend, and shareholders typically receive the payout a few weeks later. Several key dates occur between the board's declaration and the actual payment, ensuring that only eligible shareholders (those holding shares by the record date) receive the dividend.

2.2.1 The Declaration Date

It marks the official announcement of a dividend distribution by a corporation. On this date, the board of directors declares the dividend amount per share (DPA) that will be paid for the period. This announcement is crucial as it signals the firm's financial health and strategic

direction, influencing market perception and investor sentiment. In publicly traded companies, this declaration typically follows a vote by the general assembly, formalizing the decision to distribute dividends (Gliz, 2024).

2.2.2 The Record Date

Also known as the holder of record date, is the date on which a corporation establishes the official list of shareholders eligible to receive the declared dividend. Any investors who acquire shares after this date will not qualify for the current dividend distribution. To maintain eligibility, shareholders must confirm their ownership before the record date, as any transactions occurring afterward will not affect dividend rights.

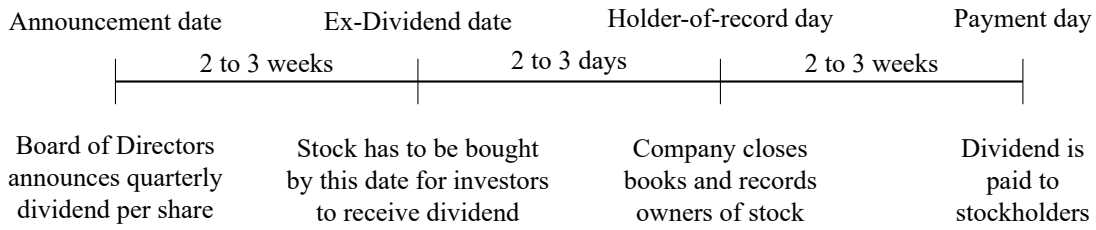
2.2.3 The Ex-Dividend Date

Typically occurs two to three days before the record date, this date is crucial because investors who purchase shares on or after the ex-dividend date will not receive the upcoming dividend. As a result, the stock price usually drops by an amount approximately equal to the dividend per share, compensating new investors who are no longer entitled to it. On the record date, the company finalizes the list of shareholders eligible for the dividend payment. Only those who appear in the company's shareholder register on this date will receive the dividend, while investors who buy shares afterward are excluded (Barneto & Gregorio, 2009).

2.2.4 The Payment Date:

It is the date on which shareholders officially receive their dividends, either through direct deposit into their bank accounts or via mailed checks. This marks the final step in the dividend distribution process. In most cases, the payment date occurs two to three weeks after the record date, allowing the company time to process and distribute the funds (Damodaran, 2014).

Figure 1.4: The Dividend Timeline



Source: **(Damodaran, 2014, Chapter 10, p.3)**

2.3 Measures of Dividend Policy

A firm's dividend policy involves two key decisions: whether to distribute dividends and how much to pay. The dividend payout ratio and dividend yield are the two primary measures used to evaluate a firm's dividend policy, they provide essential insights into a company's finan-

cial health, growth prospects, and attractiveness to investors.

2.3.1 Dividend Yield

The dividend yield represents the return on investment from dividends relative to the stock price and is calculated using the formula:

Dividend Yield = Annual Dividends per Share / Stock Price per Share

This ratio indicates how much cash flow investors receive from dividends relative to the stock's market price. It is particularly important for investors who prioritize income-generating stocks.

The dividend yield is a key component of total stock return, which consists of both dividend income and price appreciation:

Expected Return on Stock = Dividend Yield + Price Appreciation

Certain investors use dividend yield as a measure of risk and an investment screening tool, favoring stocks with high dividend yields due to their tendency to produce higher returns after adjusting for market performance and risk (Damodaran, 2014).

According to Fama and French (1988), dividend yield is more effective than the dividend payout ratio in predicting stock returns. However, McManus et al. (2004) argue that the payout ratio is more informative for outside investors, as it reflects the firm's internal financial decisions, as cited in (Tran, 2024). Since stock prices fluctuate due to market conditions, dividend yield is partially outside the company's control (Tran, 2024).

2.3.2 Dividend Payout Ratio

The dividend payout ratio measures the proportion of a company's earnings distributed as dividends versus reinvested in the business. It is calculated using the formula:

Dividend Payout Ratio = Dividends / Earnings

Dividends are typically paid from both current earnings and accumulated retained earnings. When current net income is negative, payout ratio may not provide meaningful insights. To address this issue, researchers typically replace net income with total assets or sales revenue as a deflator, thus using these ratios as proxies for the traditional dividend payout ratio. As a result, the dividend-to-assets and dividend-to-sales ratios are commonly employed in academic studies as alternative measures of dividend payout.

The dividend payout ratio is commonly used in valuation models to estimate future dividends, as analysts typically focus on projecting earnings growth rather than dividend growth (Damodaran, 2014).

2.4 Patterns of Dividend Policy

Firms generally follow distinct patterns in their dividend distribution strategies.

2.4.1 The Absence of a Dividend Policy

Often adopted by firms with substantial investment opportunities. Younger firms, in particular, prioritize reinvestment over dividend payouts, as they have a greater need for cash to fund growth initiatives (DeAngelo & DeAngelo, 2006; Grullon et al., 2002). However, shareholder expectations play a crucial role, as some investors may demand dividends if they are uncertain about the firm's future prospects (Gordon, 1959). In contrast, long-term investors tend to favor capital gains and are more likely to support a no-dividend policy.

2.4.2 The Residual Dividend Policy

Another approach is where firms view dividend payments as a secondary consideration, distributing them only if excess cash remains after funding all profitable investments (Weston & Brigham, 1979, as cited in Tran, 2024). Since surplus cash does not inherently create value, firms resort to dividend payments to optimize asset management while avoiding unnecessary external financing.

2.4.3 The Stable Dividend Policy

A widely practiced strategy, in which companies strive to maintain either a consistent payout ratio or a fixed dividend per share over time. This approach is particularly beneficial to investors who rely on stable income, such as retirees and low-income households, though it can pose financial challenges during periods of low earnings. Lintner (1956) observed that firms establish a target payout ratio and adjust dividends gradually in response to earnings changes, emphasizing the link between long-term profitability and dividend stability.

2.4.4 Irregular Dividend Policy

Some firms follow an irregular dividend policy, under which dividends are neither paid on a fixed schedule nor in predictable amounts. Unlike a stable dividend policy, this approach relieves firms from financial pressure when performance declines, as investors do not anticipate regular payouts. From a theoretical standpoint, full distribution of earnings has been proposed by Rubner (1966), who argues that shareholders generally prefer receiving more dividends rather than fewer. However, in practice, firms rarely implement this policy, as it significantly limits their ability to finance future investments and it is as well rare for companies to retain all earnings without any dividend payments. Similarly, no dividend distribution has been examined by Clarkson and Elliot (1966), who describe dividends as a "luxury" that neither firms nor shareholders can always afford, as cited in (Zekri et al., 2020).

In conclusion, firms adopt different dividend policies based on their financial priorities, investment opportunities, and shareholder preferences. While some prioritize reinvestment and capital retention, others focus on maintaining dividend stability to meet investor expectations and financial planning objectives.

3. Common Constraints on Paying Dividends

Most companies understand that shareholders value both dividend payments and capital gains. The decision regarding the proportion of earnings to be distributed as dividends is determined by legal and financial constraints that shape the firm's payout policy.

3.1 Legal Restrictions

A firm's dividend policy must comply with legal regulations and restrictions. Directors are not legally required to declare dividends, they have the choice to distribute profits or retain them. However, when a company does decide to pay dividends, it must follow specific legal guidelines; laws such as the Companies Act stipulate that dividends can only be paid from current or past profits after accounting for depreciation. However, the Federal Government has the authority to permit companies to distribute dividends without depreciation provisions for specific financial years.

While dividends are generally paid in cash, companies may also capitalize profits or reserves to issue fully paid bonus shares (stock dividends). However, if a company has capital profits, it cannot distribute them as dividends unless the company's internal rules (Articles of Association) allow it. These legal constraints establish the framework within which firms must operate when determining dividend payments, requiring careful consideration of financial factors and constraints in making distribution decisions (Onyeogo, 2017).

3.2 Liquidity

Liquidity is a key determinant of a firm's dividend policy. Even if a company generates substantial earnings, it may lack sufficient cash to distribute dividends. A strong liquidity position enables firms to pay higher dividends, whereas limited cash availability may restrict dividend payments. Mature companies, with fewer investment opportunities and lower capital requirements, generally maintain a stable cash position, allowing them to distribute larger dividends. Conversely, growing firms, despite being profitable, often face liquidity pressures due to their continuous need for capital. As a result, they may adopt a conservative dividend policy to preserve cash for investment. In cases of liquidity constraints, companies may choose to issue stock dividends instead of cash dividends, ensuring shareholder returns while maintaining financial stability (Onyeogo, 2017).

3.3 Financial Condition and Borrowing Capacity

The extent of borrowings and associated interest obligations significantly impact its ability to distribute earnings. Firms with high debt usually keep more of their earnings instead of paying them out as dividends, in order to strengthen their financial position.

3.4 Access to Capital Market

A company's ability to pay dividends is not solely dependent on its liquidity. Even if a firm lacks sufficient cash reserves, it can still distribute dividends if it has access to capital markets and it can raise funds from external sources such as debt or equity markets. Well-established companies with a strong track record of profitability typically find it easier to secure external funding, with their low-risk profile, banks and investors are more willing to lend them money or to buy their shares, allowing them to maintain financial flexibility in both dividend distribution and meeting corporate obligations.

However, a company facing both liquidity shortages and difficulties in raising funds externally will struggle to distribute dividends. Therefore, the greater a firm's ability to access financing from capital markets, the higher its capacity to sustain dividend payments becomes, even in the presence of liquidity constraints (Onyeogo, 2017).

4. Dividends and Earnings

The relationship between a firm's earnings and its dividend policy is a central focus in corporate finance. In most cases, dividend decisions are closely linked to a company's profitability and earnings stability.

4.1 Dividends Tend to Follow Earnings

Dividends generally follow earnings trends over time, as they are paid from earnings. John Lintner's study in the 1950s identified three key patterns in dividend policy:

-Companies set target payout ratios, determining the portion of earnings to distribute.

-They adjust dividends to reflect sustainable earnings changes, avoiding dividend cuts and ensuring they can maintain any increases.

-Lastly, managers prioritize dividend stability, by ensuring that any changes in dividends are sustainable and predictable.

4.2 Dividends Are Sticky

Firms typically avoid frequently changing their dividend payments, a behavior known as "sticky dividends". This reluctance to adjust dividends is driven by several factors. One key reason is that companies are concerned about their ability to sustain higher dividend payments in the future. Additionally, markets generally respond negatively to dividend reductions, which

can lead to a decline in the company's stock price. John Lintner's study, conducted over 50 years ago, found that companies set target payout ratios, that dividend changes lag behind earnings, (companies do not immediately change their dividends as soon as their earnings change) and that dividend adjustments are infrequent. These findings remain relevant today in how most companies establish their dividend policies. Given the volatility in earnings and cash flows, it's interesting that dividends don't reflect this volatility, and that firms don't regularly reassess their dividend payments. Cyert and March offer an explanation for these patterns, rooted in the concept of "uncertainty avoidance." They argue that managers try to minimize the unpredictability of future events and they establish dividend levels based on industry standards (Damodaran, 2014).

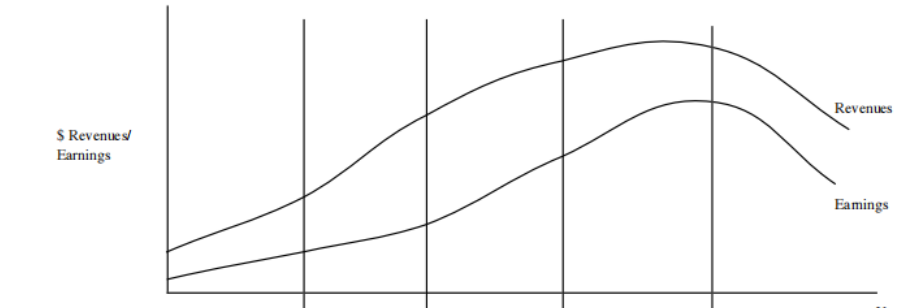
4.3 Dividends Follow a Smoother Path than Earnings

Dividends tend to be more stable than earnings because companies are cautious about increasing them unless they are confident in maintaining the higher payouts, and they avoid cutting dividends unless absolutely necessary. This stability is evident in historical trends, where dividend fluctuations have been significantly lower than earnings fluctuations. Additionally, while earnings vary widely across companies, dividend yields show much less variation, reinforcing the idea that firms prioritize consistency in dividend payments.

4.4 A Firm's Dividend Policy Tends to Follow the Life Cycle of the Firm

A firm's dividend policy aligns with its stage in the business life cycle.

Figure 1.5: Life cycle analysis of dividend policy



External funding needs	High, but constrained by infrastructure	High, relative to firm value.	Moderates, relative to firm value.	Low, as projects dry up.	Low, as projects dry up.
Internal financing	Negative or low	Negative or low	Low, relative to funding needs	High, relative to funding needs	More than funding needs
Capacity to pay dividends	None	None	Very low	Increasing	High
Growth stage	Stage 1 Start-up	Stage 2 Rapid Expansion	Stage 3 High Growth	Stage 4 Mature Growth	Stage 5 Decline

Years

Source: **(Damodaran, 2014, Chapter 10, p.12)**

During high-growth phases, companies with significant investment opportunities usually reinvest earnings rather than paying dividends. Conversely, as firms mature and generate stable cash flows with fewer expansion prospects, they are more likely to distribute a greater share of their earnings as dividends (Damodaran, 2014).

5. Distributions through Stock Repurchases

Companies may choose alternative methods to return value to shareholders aside from traditional dividends. One such method is stock repurchasing, which has become increasingly popular in modern corporate finance.

5.1 Definition

Stock repurchase refers to a corporate strategy where a company uses its excess cash to buy back its own shares from the market, thereby reducing the number of shares outstanding. This process can lead to an increase in earnings per share and may contribute to a rise in the stock's market price, offering shareholders the potential for capital gains while allowing the company to return cash to investors without committing to regular dividend payments (Laux, 2011).

This strategy have become a central component of corporate financial strategies. Since 1985, large firms have repurchased more shares than they have issued, and repurchases have increasingly replaced dividends as the preferred method of distributing cash to shareholders. In 1998, for example, 81% of firms initiating a cash distribution did so through a stock repurchase rather than a dividend, compared to only 27% in 1973. By the late 1990s, companies were distributing more cash to shareholders through repurchases than through dividends (Ehrhardt, 2011).

5.2 Do Repurchases Substitute for Dividends?

One of the most frequently analyzed reasons behind stock repurchases is the concept of dividend substitution. Both dividends and stock repurchases serve as methods for distributing excess cash to shareholders. According to the substitution hypothesis, companies use these two methods interchangeably meaning an increase in share repurchases should coincide with a decrease in dividend payments, and vice versa. However, whether firms truly perceive regular dividends and repurchases as perfect substitutes remains uncertain, given the significant differences between the two approaches (Bonaimé & Kahle, 2024).

5.2.1 Advantages of Repurchases

Repurchasing shares offers several advantages to companies:

First, announcements of share buybacks are often interpreted by investors as positive signals, reflecting management's belief that the stock is undervalued.

Second, repurchases provide flexibility to shareholders by allowing them to choose whether to

sell their shares and receive cash or to hold onto their shares. In contrast, dividends automatically distribute cash to all shareholders, leaving no choice.

Third, dividends tend to be "sticky," meaning companies are hesitant to increase them unless they are confident the increase can be sustained over time, since reducing dividends later could send a negative signal to the market. This makes repurchases particularly attractive for distributing temporary excess cash flows without committing to a permanent dividend increase.

Fourth, repurchases can be used to quickly adjust capital structure, as seen when companies borrow funds to repurchase shares.

Finally, firms that rely heavily on stock options for employee compensation can repurchase shares and later reissue them to employees when options are exercised, helping to avoid dilution from issuing new shares. This practice has been widely adopted by technology companies such as Microsoft (Ehrhardt, 2011).

5.2.2 Disadvantages of Repurchases

Despite their advantages, share repurchases also come with certain drawbacks:

First, shareholders may not view dividends and capital gains as perfect substitutes. Some investors might prefer the certainty of regular cash dividends over the potential price appreciation from repurchases, especially since dividends are often seen as reliable.

Second, selling shareholders may lack complete information about the company's current situation and future prospects, potentially leading them to make uninformed decisions when selling their shares. To mitigate this risk, companies usually announce repurchase programs in advance to ensure transparency and reduce the risk of shareholder disputes.

Lastly, there is a risk that the company might overpay for its own shares, which could harm the interests of the remaining shareholders. This risk becomes more pronounced if the company intends to buy back a significant number of shares, driving up the stock price during the repurchase period, only for the price to decline once the buyback ends (Ehrhardt, 2011).

5.2.3 Concluding Remarks

After weighing the advantages and disadvantages of stock repurchases and dividends, the following conclusions emerge:

From a tax perspective, repurchases offer a clear advantage over dividends. Capital gains taxation is deferred until shares are sold, while dividends are taxed immediately upon payment. Repurchases also allow shareholders who need cash to sell their shares, while those who prefer to delay receiving cash can simply hold on to their stock. In contrast, dividends provide a more predictable and stable source of income, which appeals to investors seeking regular cash flows.

Due to signaling effects, companies should avoid frequent changes to dividend payments, as this could undermine investor confidence. However, since cash flows and investment opportunities fluctuate over time, the optimal dividend under the residual dividend model is not constant. To manage this, companies can set a conservative baseline dividend that is sustainable even in leaner years and use share repurchases to distribute surplus cash when available. This approach balances dividend stability with the flexibility of repurchases, giving investors both predictable income and optional cash flow.

Repurchases are considered effective in certain specific situations, such as when a company wants to adjust its capital structure, distribute proceeds from a one-time asset sale, or acquire shares for employee stock option plans. In these cases, repurchases offer a practical and flexible tool for managing corporate finances (Ehrhardt, 2011).

Section 3: Dividend Distribution in Algeria

Dividend distribution plays a central role in shaping the relationship between companies and their shareholders. In Algeria, this process is strictly regulated through a combination of legal provisions and tax rules, ensuring transparency and compliance with corporate governance standards.

In this section, we will talk about legal framework and general process of dividend distribution, dividend taxation and share buybacks in Algeria.

1. Legal Framework of Dividend Distribution

In Algeria, the distribution of dividends follows a strict regulatory framework to ensure financial transparency and protect both shareholders and creditors. Generally, dividends are distributed annually after the closing of accounts and the convening of the Ordinary General Assembly (OGA), which approves the financial results of the fiscal year. It is only after this validation that the assembly determines the portion of profits to be distributed to shareholders as dividends (Gliz, 2024).

1.1 Dividend Process

Under certain conditions, it is possible to distribute interim dividends before the final approval of the accounts by the OGA. This decision falls under the authority of the Board of Directors, which must ensure that the company has sufficient financial resources. Specifically, interim dividends can only be distributed if an interim financial statement, certified by a statutory auditor, demonstrates that the company has generated net profits exceeding the planned interim dividends. Additionally, the company must maintain sufficient reserves to ensure financial stability after the distribution of these dividends.

These regulations aim to prevent the distribution of fictitious dividends, meaning dividends paid out without the company having actual profits to support them. Indeed, fictitious dividends could jeopardize the financial stability of the company and harm creditors (Commercial code, Article 723).

1.2 Distributable Profit

The distributable profit of a company consists of the net profit for the financial year, to which undistributed profits from previous years, known as retained earnings, are added. However, before any distribution, certain mandatory deductions must be made. Firstly, a portion of the profits must be allocated in accordance with Article 721 to compensate employees as required by applicable legal provisions. Secondly, any losses incurred in previous financial years must be covered, thereby reducing the amount available for distribution to shareholders.

Additionally, the general assembly of shareholders may decide to increase the distributable amount by drawing from reserves that are at its disposal. In such cases, it must explicitly specify which reserves are being utilized, such as discretionary or extraordinary reserves. This regulation aims to strike a balance between shareholder remuneration and the necessity of maintaining the company's financial stability (Commercial code, Article 722).

1.3 Share Buybacks

Companies are prohibited from subscribing to or purchasing their own shares, either directly or through an intermediary acting on their behalf. This restriction aims to protect shareholders and creditors by preventing market manipulation and artificial alterations to the company's capital.

However, an exception is allowed when the general assembly decides on a capital reduction that is not motivated by losses. In such cases, the board of directors or the executive board may be authorized to repurchase a specific number of shares for the sole purpose of canceling them. This exception enables companies to restructure their capital and enhance financial efficiency while maintaining transparency and shareholder equity (Commercial code, Article 714).

Article 715 bis introduces an exception to the general prohibition on share buybacks, allowing publicly traded companies to purchase their own shares for the purpose of regulating their market price. This measure aims to reduce excessive stock volatility and stabilize share value, thereby protecting investors and reinforcing market confidence. However, this practice is subject to strict conditions. The Ordinary General Assembly (OGA) must grant explicit authorization for the company to engage in such transactions on the stock exchange. This authorization must specify the maximum purchase price and minimum selling price, as well as the maximum number of shares that can be acquired. Additionally, the transaction must be completed within a limited timeframe, which cannot exceed one year. This regulatory framework ensures market transparency and fairness by preventing abusive price manipulation and protecting minority shareholders. While this exception allows companies to exert greater control over their stock performance, it remains highly regulated to ensure a balanced and fair financial market.

When a shareholder wishes to transfer their shares and no buyer is found among the other shareholders, the company itself may repurchase the shares to reduce its share capital. This operation, which requires the consent of the selling shareholder, helps prevent the entry of an external investor while rebalancing the company's capital structure. The purchase price must be determined in accordance with legal provisions, including, if necessary, an evaluation by a certified expert.

Additionally, the company may benefit from a payment period of up to one year, subject to judicial authorization based on justified reasons. This option provides an alternative solution in

cases where the transfer is denied, ensuring both the protection of shareholders' interests and flexibility in capital management (Commercial code, Article 571).

1.4 Payment Procedures and Shareholder Rights

Article 724 regulates the procedures for dividend payments after their approval by the general assembly. The assembly determines the payment terms, but in its absence, this responsibility falls to the board of directors or managers, depending on the company's structure. Dividend payments must be made within a maximum period of nine months after the fiscal year's closing, ensuring timely distribution to shareholders or partners.

However, an exceptional extension of this deadline may be granted by judicial decision if necessary. This provision aims to ensure a fair and organized distribution of profits while allowing some flexibility for companies facing difficulties.

Shareholders are prohibited from receiving a fixed or interim interest, ensuring that dividends remain dependent on the company's financial performance. Any provision contrary to this rule is deemed null and without legal effect, reinforcing the principle that shareholders assume the risks associated with their investment. However, an exception exists when the State guarantees a minimum dividend for certain shares (Commercial code, Article 725).

1.5 Irrevocability of Dividend Payments

Once dividends have been distributed to shareholders or equity holders, they cannot be reclaimed or required to be returned, except in cases where the distribution was made in violation of Articles 724 and 725. This means that if the dividends were paid in compliance with legal regulations, they remain the rightful property of the recipients (Commercial code, Article 726).

2. Dividend Taxation

In Algeria, dividends received by shareholders of joint-stock companies, partnerships limited by shares, limited liability companies, or partnerships subject to Corporate Income Tax (IBS) are taxed as income from movable capital, subject to Personal Income Tax (IRG). This also applies to board members receiving attendance fees or directors' fees. According to Articles 46 to 48 of the Code of Direct Taxes and Similar Taxes (CIDTA), dividends are subject to a withholding tax at a flat rate of 15%, deducted directly by the distributing company at the time of payment. The same rate applies to income from movable capital received by resident individuals, except for certain specific cases defined in Article 54 of the CIDTA (Investor's Tax Guide, 2021).

2.1 Tax Exemptions and Exclusions

Dividends that have already been subject to IBS or that benefit from specific exemptions are excluded from the IBS tax base, as provided by Articles 13 and 19 of the 2003 Finance Law. Furthermore, profits transferred by branches of non-resident foreign companies to their parent

companies are treated as dividends and are subject to the same 15% withholding tax, in accordance with Article 6 of the 2009 Finance Law.

Lastly, dividends paid by Algerian subsidiaries to non-resident individuals or legal entities are also subject to this 15% flat-rate withholding tax (Investor's Tax Guide, 2021).

2.2 Tax on Selling Shares

In Algeria, when a person (whether resident or non-resident) sells shares or equity interests they hold in a company, this transaction is subject to a registration fee of 2.5%. This registration fee is a tax collected by the tax administration when the sale is officially recorded. The purpose of this relatively moderate taxation is to facilitate transactions and encourage the distribution of dividends. In fact, in companies that are not publicly traded, it is often difficult to accurately assess the capital gain made from the sale of shares (since the real value of the shares is less transparent than for listed companies).

Regarding shares listed on the Algiers Stock Exchange, a specific tax incentive applies: dividends received and capital gains made from the sale of these shares are fully exempt from income tax. This measure was introduced in 2008 to encourage investment in the stock market and was extended in 2014 (Gliz, 2024).

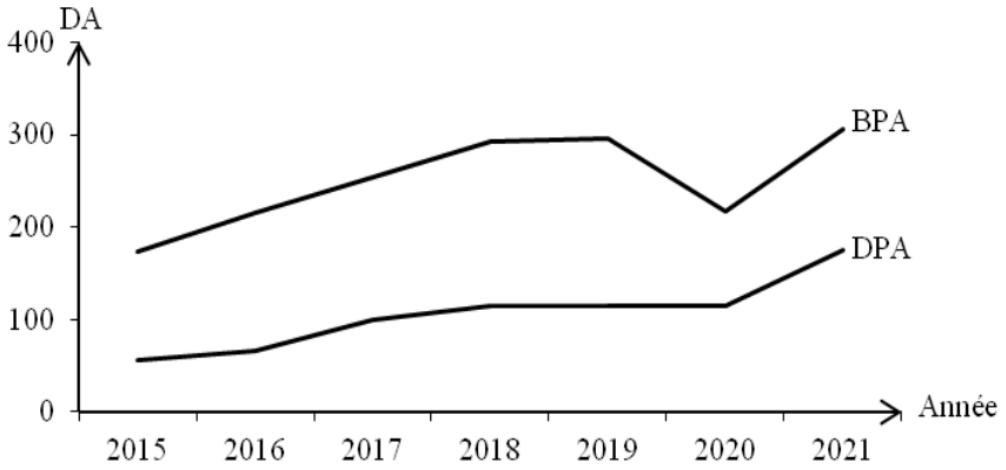
2.3 Dividend Taxation within Corporate Groups

Dividends paid by subsidiaries to their parent company are exempt from Corporate Income Tax (IBS). This exemption applies only to dividends distributed to the parent company. Since cross-shareholdings are not allowed, the parent company cannot distribute dividends to its subsidiaries (Investor's Tax Guide, 2021).

3. Earnings per Share and Dividends per Share

In Algeria, dividend distribution generally follows the evolution of corporate profits, but with a certain delay (Gliz, 2024).

Figure 1.6: Delayed Evolution of Dividends Compared to Profits: The Case of Biopharm



Source: **(Gliz, 2024, p.257)**

Conclusion

In this chapter, we established the theoretical foundation necessary for understanding firm performance and dividend policy.

We began by exploring the concept of firm performance, detailing its forms, key components, and the financial and non-financial indicators commonly used to measure it in order to evaluate the firm's overall efficiency.

Following this, we introduced the concepts of dividends and dividend policy, outlining how firms can choose between retaining earnings for reinvestment or distributing profits as dividends to shareholders and what the optimal combination of the two might be. We also discussed share repurchase and examined its potential role as a substitute for traditional cash dividends.

Finally, the chapter concluded with a legal overview of dividend distribution in the Algerian context. This section highlighted the regulatory framework and key legal considerations that firms must take into consideration when deciding on dividend payments in Algeria.

These developed elements are essential for interpreting how dividend policy may influence firm performance and serve as the groundwork for the literature review and empirical analysis presented in the next chapter.

Chapter 2

The Impact of Dividend Policy on Firm Performance: Literature Review

Introduction

The relationship between dividend policy and firm performance has been extensively studied in the field of corporate finance, it remains a topic of significant debate among scholars and practitioners with no definitive consensus. While some theories suggest that dividend policy has no effect on a firm's value (dividend irrelevance theory), others argue that it plays a crucial role in signaling a firm's financial health and future prospects, influencing shareholder wealth and stock price movements (bird in hand theory). This literature review delves into the various theoretical perspectives on dividend policy and examines empirical studies that explore the relationship between dividend payouts and firm performance.

While dividend policy is an important factor influencing firm performance, it is not the only determinant. A firm's performance is shaped by a multitude of factors, including capital structure, firm size, liquidity, and the firm's growth strategies. The interplay of these determinants highlights the complexity of measuring firm performance and underscores the need for a comprehensive approach to understanding it.

The objective of this chapter is to provide a theoretical overview of dividend policy and its influence on firm performance. It aims to explore the key theories surrounding dividend decisions and there empirical evidence. Additionally, the chapter seeks to highlight the various determinants of firm performance, emphasizing the need for a comprehensive understanding of firm performance.

The plan of this chapter is to explore in the first section the key theoretical perspectives on the impact of dividend policy on firm performance, followed in the second section by a review of empirical evidence examining how dividend distribution affects firm valuation. Lastly, we will examine in the third section other important factors determining firm performance, such as capital structure, firm size and liquidity.

Section 1: Explanatory Theories and Models of the Impact of Dividend policy on Firm Performance

Several conflicting theories and models dominate the debate on dividend policy, including Lintner's, Gordon's and Walter's models; the bird-in-the-hand theory (dividends are preferred), the tax-preference theory (capital gains are preferred) and the dividend irrelevance hypothesis, which claims that dividend policy has no effect on firm valuation. Beyond these theories, additional perspectives like the clientele effect, the agency cost hypothesis and the signaling hypothesis contribute to the complexity of the "dividend puzzle", a term introduced by Black (1976), who stated: "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together".

In this section, we will examine these theories, models, and hypotheses that explain the relationship between dividend policy and firm performance.

1. Theories Explaining the Impact of Dividend Policy on Firm Performance

Over the past few decades, various theories of dividend policy have been developed in an attempt to explain why investors may or may not be indifferent to a firm's dividend policy. The most well-known among these theories are the following:

1.1 Dividend Irrelevance Theory

The theory suggests that, under certain hypotheses, dividend policy has no impact on the value of the firm.

1.1.1 Basic Argument and Assumptions

Before the publication of Miller and Modigliani's (1961) seminal paper on dividend policy,the prevailing belief was that higher dividends increase a firm's value. M&M challenged this view by demonstrating that, under certain perfect market assumptions, dividend policy is irrelevant.

In such a market, dividend policy has no impact on a firm's stock price or cost of capital, meaning shareholder wealth remains unaffected by the firm's dividend decisions. Instead, shareholder wealth is determined by the income generated from the firm's investment decisions, not by how that income is distributed.

Modigliani and Miller's (1961) argument states that: "…given a firm's investment policy, the dividend payout policy it chooses to follow will affect neither the current price of its shares nor the total returns to shareholders" (p. 414). This means that investors evaluate firms based on

the capitalized value of their future earnings, which remains unchanged whether a company pays dividends or not. Moreover, M&M argued that investors could create "homemade" dividends by adjusting their portfolios to match their personal preferences, making all dividend policies effectively equivalent, as cited in (Al-Malkawi et al., 2010).

M&M's model also suggests that rational investors should be indifferent between dividends and capital gains. They claim that different payout policies merely divide a fixed pool of cash flows into different portions. In a market free of frictions and imperfections, the total value of these portions will always equal the value generated by the firm's investment decisions. As a result, investors should remain indifferent to any dividend policy, as altering the form of cash distribution does not change a firm's overall worth (Baker & Weigand, 2015).

According to M&M (1961, as cited in Sathvik & Nirmala, 2017), : "Under conditions of perfect capital markets, rational investors, and the absence of tax discrimination between dividend income and capital appreciation, a firm's dividend policy may have no influence on the market prices of its shares."

The M&M dividend irrelevance hypothesis is based on the following key assumptions:

-Perfect capital markets exist.

-Investors are rational.

-Information about the firm is available and costless.

-There are no flotation or transaction costs.

-No single investor is large enough to influence the price of shares.

-Taxes do not exist.

-The firm follows a fixed investment policy.

-There is no risk or uncertainty about the firm's future.

These assumptions create an idealized environment in which dividend policy has no effect on firm value, as investors can adjust their portfolios freely to match their dividend preferences.

They further assert that if a company's dividend policy matches what certain investors prefer, those investors will buy its shares. Over time, every company will attract shareholders who like its specific approach to dividends. This creates a balance in the market where firms with different dividend policies have similar valuations because investors can easily switch to companies that match their preferences. In a perfect market, changing dividend policy will not affect a company's value, as investors can simply adjust their holdings to maintain their desired income (Muriungi & Mwangi, 2020).

According to M&M, shareholders are able to create their own dividend policy. For example,

a shareholder seeking 5% dividend in a firm that does not pay dividends can create it by selling 5% of his shares. Conversely, if the company distributes more dividends than an investor's preferences, unwanted dividends can be reinvested to purchase additional shares (Ehrhardt, 2011).

1.1.2 M&M's Proof of Irrelevancy

According to Al-Malkawi et al. (2010), various studies (e.g., Bishop et al., 2000; Lease et al., 2000; Allen & Michaely, 2002) have synthesized these perspectives.

To provide a proof of irrelevance, we have to start with the dividend discount model (DDM) which states that the value of a stock is determined by future dividends discounted at the required rate of return. The idea was widely accepted before M&M's work.

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + r_t)^t} \tag{2.1}$$

Where: P_0 is the stock price at time $t = 0$ (current price), D_t is the dividends paid at period t, and r_t is the required rate of return.

In a perfect capital market, the required rate of return (r) is determined by the sum of dividends and capital gains. It can be expressed as:

$$r = \frac{D_1 + P_1 - P_0}{P_0} \tag{2.2}$$

Where: P_1 is the expected share price at the end of period 1 (the ex-dividend price of the share) and D_1 is the dividend received at the end of the period.

Rearranging equation (2.2) allows us to express the current market price of the share (P_0) as follows:

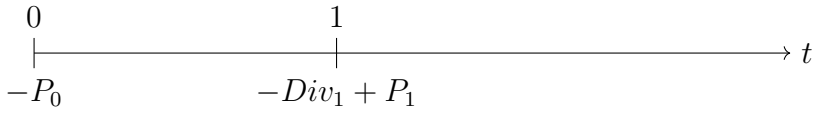
$$P_0 = \frac{D_1 + P_1}{(1 + r)} \tag{2.3}$$

(Al-Malkawi et al., 2010).

To better understand this equation, consider an investor who purchases a share at $t = 0$ at price (P_0). If the investor holds the share for one year and then selling it, he will receive at $t = 1$ a dividend (D_1) and the share expected price (P_1).

The figure illustrates how these various present and expected cash flows can be represented (Gliz, 2024).

Figure 2.1: Cash flow from buying/selling a share over one year



Source: **(Gliz, 2024, p.261)**

Let n be the number of shares outstanding at time t=0. By multiplying the equation (2.3) by n, we obtain:

$$nP_0 = V_0 = \frac{nD_1 + nP_1}{(1+r)} \tag{2.4}$$

Now, let us introduce the balance between a company's sources and uses.

Given the assumption that the market value of the firm is independent of capital structure (Modigliani and Miller, 1958), debt financing is not considered in the analysis. Schematically, a company fully financed by equity has two possible sources of financing: cash flow from operations (CF_1) and new equity financing (mP_1), where m represents the number of shares issued at $t = 1$, and two possible uses: dividend payments (nD_1) and financing investment projects (I_1).

The equality at $t = 1$ between sources and uses of funds is written as follows:

$$CF_1 + mP_1 = nD_1 + I_1 \tag{2.5}$$

Which gives:

$$nD_1 = CF_1 + mP_1 - I_1 \tag{2.6}$$

Substituting equation (2.6) into (2.4) gives the following expression of $V0$:

$$V_0 = \frac{CF_1 + mP_1 - I_1 + nP_1}{(1+r)} \tag{2.7}$$

$$V_0 = \frac{CF_1 - I_1 + (n+m)P_1}{(1+r)} \tag{2.8}$$

Since $(n + m)\ P1 = V1$:

$$V_0 = \frac{CF_1 - I_1 + V_1}{(1+r)} \tag{2.9}$$

Since dividends do not appear in equation (2.9), the firm's value is then independent of its current dividend policy (M&M, 1961, p. 414, as cited in Al-Malkawi et al., 2010).

Consequently, under the assumptions of perfect capital markets, the firm's future cash flows

from investment activities are the determinant of its value, and the firm's dividend payout policy remains independent of its valuation.

1.1.3 Criticisms of M&M's Irrelevance Theory

DeAngelo and DeAngelo (2006) question the validity of the M&M dividend irrelevance theorem, referring to it as "irrelevant", claiming that its conclusion that investment policy alone determines firm value is incorrect, as it relies on the assumption that all free cash flow is distributed. Once retention is allowed, dividend policy can influence firm value.

Black (1976) argues that since dividends are taxed more than capital gains, corporations that choose not to pay dividends seem more attractive to taxable investors, encouraging many firms to eliminate dividend payments.

1.2 The Bird-in-the-Hand Theory

The theory suggests that investors prefer the certainty of cash dividends over the uncertainty of future potential capital gains.

"Do you know the only thing that gives me pleasure? It's to see my dividends coming in." John D. Rockefeller

1.2.1 Basic Argument

The bird-in-the-hand theory asserts that dividends are relevant to a firm's valuation. According to this theory, the total return (k) consists of dividend yield and capital gains. Gordon and Lintner (1959) built on this concept by proposing that as a company's dividend payout increases, the required return (k) decreases. This is because investors may perceive higher dividends as reducing the risk associated with future earnings. However, a higher payout ratio also means fewer retained earnings for reinvestment, potentially limiting future capital gains and growth opportunities (Chariton & Falas, 1996, as cited in Bello & Olarinde, 2020).

Lintner (1962) and Gordon (1963), suggest that shareholders, being risk-averse, prefer receiving current dividends over uncertain future gains. Since dividends provide immediate and guaranteed returns, they reduce investor uncertainty and increase the firm's stock value. This theory is based on the principle that a guaranteed benefit today is more valuable than a potentially higher benefit in the future. As a result, dividend policy becomes relevant, directly influencing a firm's value, as cited in (Mike, 2017).

This theory is rooted in the proverb, "Better a bird in the hand than two in the bush". Financially, this implies that investors are generally more inclined to invest in stocks that provide immediate dividend payments rather than those that retain earnings with the promise of future benefit (Tharsika & Thaneshan, 2023).

Walter (1963, as cited in Muriungi & Mwangi, 2020) suggested that investors choose to receive dividends now in order to reinvest and earn an additional return.

1.2.2 Criticisms of Bird-in-Hand Theory

One argument supporting the preference for dividends over capital gains is that dividends are certain and provide a guaranteed return, while capital gains are uncertain. This argument is flawed. The first response is that the choice is not between receiving dividends today and uncertain capital gains in the future, but rather between receiving a dividend today and an equivalent increase in stock price today since a company's stock price drops by approximately less than the dividend on the ex-dividend day. When a firm distributes dividends, its stock price declines on the same day and investors do not gain additional value.

The second response is that a firm's overall value is driven by the cash flows generated from its investments, not how it distributes earnings. If a firm increases its payments of dividends without changing its investment strategy, it will need to raise funds by issuing new shares to compensate. As a result, investors receiving higher dividends, experience a reduction in the value of their shares, meaning their total wealth remains unchanged (Damodaran, 2014, chap. 10, p. 32).

1.3 Tax Preference Theory

The irrelevance theory does not take any tax effects into consideration. It assumes that dividends and capital gains are taxed at the same rate. However, in reality taxes differentiate between dividends and capital gains which in turn affects the firm's value.

1.3.1 Basic Argument

Al-Malkawi et al. (2010, p. 179) asserted that most investors focus on after-tax returns, meaning that taxes may impact dividend supply, as managers may adjust payout policies to align with investor tax preferences and maximize shareholder wealth by increasing earnings retention. The tax-effect hypothesis argues that lower dividend payout ratios reduce the cost of capital and enhance stock prices and that minimizing dividend payouts can contribute to maximizing firm value, under the assumption that dividends are taxed at higher rates than capital gains.

Moreover, while dividends are taxed immediately, capital gains are taxed when the stock is sold. These tax advantages make capital gains more appealing to investors who benefit from preferential tax treatment, leading them to favor firms that retain earnings rather than distribute them as dividends. As a result, such investors are willing to pay a premium for low-payout firms, which in turn lowers the cost of equity and increases stock prices.

This perspective directly contradicts the Bird-in-Hand Hypothesis and challenges the strict form of the Dividend Irrelevance Hypothesis. In many countries, dividend income is taxed more

heavily than capital gains, causing high-tax-bracket investors (investors paying higher taxes on dividends) to demand higher pre-tax risk-adjusted returns to compensate for the extra taxes they have to pay on dividend income (Al-Malkawi et al., 2010).

Before 2003, investors were subject to ordinary income tax rates on dividends, while long-term capital gains were taxed at lower rates. Jobs's and Growth's Act of 2003 equalized the tax rates on dividend income and long-term capital gains. However, stock price appreciation still has more favorable tax treatment than dividend income for two main reasons. First, due to the time value of money, taxes paid in the future have a lower effective cost than those paid immediately, meaning capital gains, even when taxed at the same rate as dividends, are never taxed earlier. Second, if an investor holds a stock until death, no capital gains tax is owed, the beneficiaries can use the stock's value on the date of death as their cost basis, effectively eliminating the capital gains tax liability. These tax advantages make companies with lower dividend payouts more attractive to investors (Ehrhardt, 2011).

Brennan (1970, p. 420) extended the Capital Asset Pricing Model (CAPM) by incorporating tax considerations to test the relationship between pre-tax risk-adjusted returns and dividend yield. His model suggests that a stock's pre-tax return must be positively and linearly related to both its dividend yield and systematic risk. This implies that investors want higher pre-tax returns for stocks with higher dividend yields to compensate tax disadvantages associated with dividend income. Brennan's model is mathematically expressed as:

$$E(R_{it} - R_{ft}) = \gamma_0 + \gamma_1 \beta_{it} + \gamma_2 (D_{it} - R_{ft}) \tag{2.10}$$

Where: R_{it} is the return on stock i in period t, R_{ft} is the risk-free rate of interest, β_{it} represents the stock's systematic risk (beta coefficient), and D_{it} denotes the dividend yield. The coefficient γ_2 is interpreted as an implicit tax bracket and is assumed to be independent of the dividend yield level. If γ_2 is statistically significant and positive, meaning that there is a tax effect, means that investors require higher pre-tax returns to hold high-dividend stocks due to the tax disadvantage of dividend income (Al-Malkawi et al., 2010).

1.3.2 Criticisms of Tax Preference Theory

Kalay and Michaely (2000) argue that the difficulty in linking changes in tax laws to shifts in corporate dividend policies may come from a more complex, yet undeveloped, theory of tax effects. Farre-Mensa et al. (2014) support this view, finding that studies on the May 2003 dividend tax cut indicate that tax differences between dividends and capital gains have only a secondary effect on payout policy, as cited in (Muriungi & Mwangi, 2020).

This conclusion aligns with the survey evidence from Brav et al. (2008), who found that the tax rate reduction increased the likelihood of dividend initiation but its impact was of secondary

importance .Additionally, the tax cut had a smaller effect on firms that were already paying dividends. This conclusion is further supported by the fact that firms rarely cite dividend tax rates as a key reason for dividend payments. Moreover, the fact that aggregate share repurchases have grown more than dividends since the May 2003 tax cut has reinforced the view that taxes play only a secondary role in dividend decisions.

1.4 The Clientele Effect

Research indicates that some investors strongly favor cash dividends, while others are equally content holding stocks of companies that pay no dividends at all. Given the diversity of investor preferences, it is natural that over time, investors gravitate toward firms whose dividend policies align with their financial needs. The phenomenon, where investors seek companies with dividend policies that suit their preferences, is known as "the clientele effect" (Damodaran, 2014, chap. 10, p. 39).

1.4.1 Basic Argument

Miller and Modigliani (1961) argue that investors choose firms based on their dividend policies, attracting a specific type of investors. Consequently, any change in payout policy alters the firm's ownership structure. However, this shift does not affect the firm's value, as no particular investor group (or clientele) is inherently superior to another. The primary reason investors prefer different dividend yields lies in taxation levels, a concept also supported by Shefrin and Thaler (1988). According to this argument, firms with low dividend yields tend to attract investors in higher tax brackets, while those with lower tax burdens favor firms offering higher dividends. Allen and Michaely (2003) provide an extensive literature review on this topic. Additionally, M&M consider factors such as investor age and income, reasoning that "young accumulators" are more likely to prefer low or no-dividend stocks, while older or retired investors seek high dividends to sustain their purchasing power (Miller & Modigliani, 1961, p. 431).

Shefrin and Statman (1984) further suggest that the optimal dividend yield varies depending on whether the investor is an individual or a pension fund, a concept extensively explored by Elton and Gruber (1970). These authors examined the clientele effect by analyzing stock price behavior around the ex-dividend period. Assuming equal short-term and long-term tax rates, uniform taxation across all investors, and a homogeneous ownership structure, Elton and Gruber (1970) established conditions under which an investor is indifferent to buying or selling stocks before or after the ex-dividend date. However, this conclusion has been challenged due to the reality of non-homogeneous ownership structures and the existence of market participants facing different tax rates on capital gains and dividends, as cited in (du Jardin & Séverin, 2011).

1.5 The Signaling Theory

The foundation of signaling models can be traced back to Akerlof's (1970) study on the used car market, which demonstrated the costs of information asymmetry in the absence of signaling mechanisms. This was later expanded by Spence (1973, 1974), whose work on market signaling became a prototype for financial models. Spence's framework defines a signaling equilibrium, where job seekers convey their quality to potential employers. While originally developed for employment markets, Spence argued that this model could be extended to other contexts, as cited in (Frankfurter & Wood Jr, 2002).

1.5.1 Basic argument

Another argument against M&M's Dividend Irrelevance Hypothesis (DIH) is the presence of asymmetric information between managers and shareholders. M&M's model assumes that managers and shareholders have access to the same financial and operational data. However, in reality, managers who are responsible for the firm's operations usually possess insights into the company's current performance and future prospects that are not available to outside investors. This discrepancy in information can prevent the market from fully assessing the firm's intrinsic value. As a result, stock prices may not always reflect the company's true worth (Al-Malkawi et al., 2010).

To bridge this information gap, managers might communicate private information to investors, in order to help them make more informed assessments of the firm's actual value. The decision to initiate or omit dividends serves as a crucial signal to the market, with dividend initiations typically indicating positive future prospects, while dividend cuts can be interpreted as potential financial challenges (Muriungi & Mwangi, 2020).

The signaling theory, first proposed by Bhattacharya (1979) and later expanded by Miller and Rock (1985), is reinforced by a key aspect of dividend distribution: corporate management tends to avoid reducing dividends. Consequently, a company will only raise its dividends if its management is confident in maintaining them over time, reflecting positive expectations about the firm's future profitability, as cited in (Gliz, 2024).

1.6 Agency Costs and Free Cash Flow Hypothesis

Jensen and Meckling (2019) argued that the separation of ownership and control creates a potential conflict of interest between managers and shareholders. While managers are expected to act in the best interests of shareholders, their personal objectives may sometimes diverge. However, the issue of agency costs arising from the separation of management and ownership has long been recognized. Adam Smith (1937, as cited in Frankfurter & Wood Jr, 2002) criticized the management of early joint-stock companies, describing it as negligent in many activities.

1.6.1 Basic Argument

One of the key assumptions of (M&M) perfect capital market is the absence of conflicts of interest between managers and shareholders. However, in reality, this assumption is often unrealistic, particularly in firms where ownership and management are separate. In such cases, managers act as imperfect agents of shareholders (principals) because their interests may not always align. This misalignment can lead managers to engage in activities that are detrimental to shareholders, such as investing in projects that serve managerial interests rather than maximizing firm value (Al-Malkawi et al., 2010).

Jensen and Meckling (2019, p. 308) stated that: "If both parties (agent and principle) to the relationship are utility maximizers there is good reason to believe that the agent will not always act in the best interests of the principal".

Dividend payments can help mitigate these agency problems by reducing the discretionary funds available to managers, thereby limiting opportunities for inefficient spending and ensuring that excess cash is returned to shareholders (Rozeff, 1982; Easterbrook, 1984; Jensen, 1986; Alli, Khan, & Ramirez, 1993).

Another aspect of agency costs that can be influenced by dividend policy is the potential conflict between shareholders and bondholders. In this context, shareholders act as agents managing funds that also belong to bondholders. When dividends are excessively distributed to shareholders, it can be perceived as a form of wealth expropriation from bondholders (Jensen & Meckling, 1976). Since shareholders have limited liability and priority access to the company's cash flows before bondholders, creditors often seek to impose restrictions on dividend payments to protect their claims. On the other hand, shareholders favor higher dividend distributions for the same reasons (Ang, 1987).

Easterbrook (1984) proposed that dividend payments can serve as a mechanism to reduce the amount of free cash flow available to managers. He further hypothesized that by distributing dividends, managers would be obliged to seek external financing from capital markets. This process would subject them to scrutiny by investment professionals such as bankers and financial analysts, who would monitor their actions. Consequently, shareholders can oversee managerial behavior more effectively and at a lower cost, mitigating collective action problems. However, Easterbrook also suggested that higher dividend payouts could pressure managers to increase the firm's leverage, potentially raising its financial risk, as cited in (Al-Malkawi et al., 2010).

According to Jensen and Meckling (2019), a high level of retained earnings can encourage managers to prioritize their own interests rather than maximizing shareholder value. To prevent this, shareholders seek to limit the funds available to managers, reducing the risk of opportunistic behavior and ensuring that resources are used efficiently.

1.7 The Residual Theory

According to this theory, dividends are a residual and irrelevant decision, determined only after all profitable investment opportunities have been financed.

1.7.1 Basic Argument

Walter's model follows a residual approach to dividend distribution, where dividend payments depend on available investment opportunities. If a company has profitable investment options, it should retain all earnings and reinvest them. Conversely, if there are no attractive investment opportunities, the firm should distribute all its earnings as dividends. The dividend payout ratio thus varies between 0% and 100%, depending on the firm's investment opportunities.

This residual dividend approach, formalized by Walter in 1956, suggests that dividend decisions should be based on comparing the firm's return on investment (R_a) with its cost of capital (R_c). If (R_a) exceeds (R_c), reinvestment is preferable to dividend distribution. However, once all profitable investment opportunities have been exhausted, any surplus earnings should be distributed to shareholders.

Walter's model defines the stock's market value (V_c) under certain assumptions as:

$$Vc = \frac{D + \left(\frac{R_a}{R_c}\right)(E - D)}{R_c} = \frac{E}{R_c} + \frac{R_a - R_c(E - D)}{R_c^2} \tag{2.11}$$

Where: D represents dividend per share, E is the earnings per share, R_a is the return on investment and R_c represents the required rate of return. This equation highlights how dividend policy influences stock value, suggesting that an optimal dividend strategy can help maximize shareholder wealth, as cited in (Taleb, 2019).

Miller and Modigliani (1961, as cited in Smith, 2009) argue that firms should pay dividends using the cash flows left once all value-creating investments (projects with positive net present values (NPVs)) have been covered. When profitable investment opportunities remain and capital is constrained, dividend payments should be withheld, redirecting all available resources toward reinvestment. This residual dividend approach aims to enhance the optimal use of corporate capital (Jabbouri & Attar, 2018).

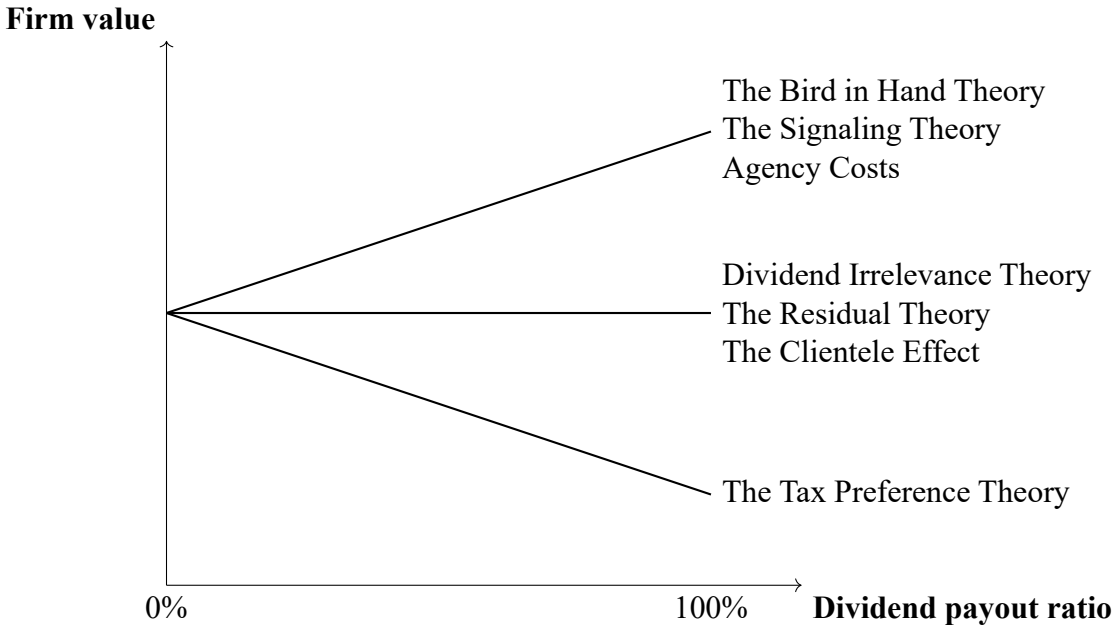
1.7.2 Criticisms of The Residual Theory

Implementing this strategy poses difficulties, especially due to the challenge of accurately forecasting future cash flows and identifying viable investment opportunities (Smith, 2009). Also one of the key challenges associated with the residual dividend policy is its potential to send unintended signals to the market. For instance, a reduction in dividends may be interpreted

as a sign that the firm has identified attractive investment opportunities, whereas a dividend increase might be viewed as an indication of limited growth prospects and a lack of profitable investment opportunities (Smith, 2009).

As a result, Smith (2009) suggests that companies rarely adhere strictly to a residual dividend model. Instead, they typically adopt a blended approach, smoothing dividend payouts while partially aligning with the principles of the residual theory, as cited in (Jabbouri & Attar, 2018).

Figure 2.2: The Link Between Firm Value and Dividend Payout Ratio



Source: **(Gliz, 2024, p.252)**

2. Models Explaining the Impact of Dividend Policy on Firm Performance

Numerous researchers in finance have developed theoretical models to examine the relationship between dividend distribution and the company's market value, each based on specific assumptions. The most common ones could be summarized as follows:

2.1 Walter's Model (1963)

Walter's model is one of the earliest theoretical frameworks that explore the relationship between dividend distribution and a company's market value.

2.1.1 Basic Argument and Assumptions

Walter's approach asserts that dividend decisions do have an impact on the firm's value. His model specifically examines the relationship between the firm's return on investment (r) and the required rate of return (k) and suggests that a firm's dividend policy should depend on there

relationship:

Growth firms (r > k): If a company earns a higher return on investment than the required rate of return, it should retain its earnings rather than distribute them as dividends. Reinvesting profits allows the firm to maximize shareholder wealth, making the ideal dividend payout zero.

Declining firms (r < k): When a company does not have profitable investment opportunities, shareholders benefit more if earnings are distributed as dividends. In this case, the optimal payout is 100%.

Normal firms (r = k): In the case when return on investment matches the required rate of return, dividend policy do not effect its market value. Shareholders receive the same return whether earnings are reinvested or paid out, meaning there is no optimal dividend payout.

Walter's model is based on several key assumptions:

-The firm relies on retained earnings to finance its investments and should not use any external sources of capital.

-The firm's internal rate of return (r) and cost of capital (k) are assumed to be constant over time.

-Earnings and dividends are assumed to remain stable while determining the firm's value.

-The firm has an infinite lifespan.

Walter also proposed a formula to determine the market price of a share:

$$P = D + \frac{r(E - D)/K_e}{K_e}$$

Where: P represents the market price per share, D is the annual dividend per share, r is the internal rate of return, E represents the earnings per share and K_e the cost of Walter's model is one of the earliest theoretical frameworks that explore the relationship between dividend distribution and a company's market value. However, equity capital (Sathvik & Nirmala, 2017).

2.1.2 Criticisms of Walter's Model

The model is based on a set of simplified assumptions, some of which are purely theoretical.

-One key assumption of Walter's model is that a company finances its investments exclusively through retained earnings, implying that external financing is not considered. This makes the model applicable only to firms that rely on equity financing, known as unleveraged companies.

-Additionally, Walter assumes that the firm's expected return on investment remains constant. In reality, this is unrealistic because any increase in investments typically leads to variations in the expected rate of return.

-Lastly, the model assumes a fixed required rate of return, ignoring the risks faced by the com-

pany and their potential impact on the market value of its shares. (Priya & Mohanasundari, 2016).

2.2 Lintner's Model (1956)

Lintner's seminal study (1956, as cited in Gliz, 2024) significantly contributed to understanding how companies decide on dividend distribution. Through interviews with managers from 28 publicly traded firms, Lintner explored the practical decision-making process behind dividend policies. His research led to several key findings:

-Companies prioritize maintaining stable dividends.

-Firms prioritize a long-term payout ratio over short-term targets.

-Managers are more concerned with changes in dividends than with their absolute level.

-Adjustments to dividends align with long-term, sustainable earnings trends rather than short-term fluctuations.

-Managers hesitate to raise dividends if there is a risk of having to cut them later.

-Firms engage in share buybacks when they accumulate excess cash or wish to adjust their capital structure by substituting equity with debt.

In (Lintner, 1956, p. 107), the target dividend D_{it}^* is determined as follows:

$$D_{it}^* = r_i p_{it} \tag{2.12}$$

Where: r_i is the target payout ratio and P_t is the current year's profits after taxes.

The change in dividend payments ΔD_t follows the equation:

$$\Delta D_{it} = a_i + c_i(D_{it}^* - D_{i(t-1)}) + u_{it} \tag{2.13}$$

Where: D_{it} and $D_{i(t-1)}$ represent the dividends paid in years t and $t-1$, respectively.

According to Lintner, the dividend distribution decision for year t depends not only on the year's profits but also on the dividend paid in the preceding year. D_{it}^* is the dividend that the company would have paid if it strictly followed its target payout ratio.

The parameter c_i represents the speed of adjustment, representing the proportion of the gap between the target dividend and last year's dividend that is adjusted in the current period, the constant a, usually positive, reflecting firms' reluctance to reduce dividends and their preference for stable or gradually increasing payouts and the variable u_{it} accounts for discrepancies between observed and expected dividend changes.

2.3 Gordon's Model (1959-1962)

Gordon is regarded as a key proponent of the traditional school. His reasoning is based on the idea that uncertainty and investors' risk aversion play a crucial role in determining stock prices in financial markets. According to Gordon, if the discount rate rises with the risk associated with cash flows and the uncertainty of these flows increases as they extend further into the future, then, all else being equal, the required rate of return on a stock's cash flows will be inversely related to the dividends paid. Consequently, dividend policy would have a direct impact on stock prices, with higher immediate dividend payments leading to a higher stock valuation.

Gordon posits that the value of a financial asset corresponds to the sum of its discounted expected earnings over its lifespan. Accordingly, the value of a stock is determined by the future dividends the company is expected to distribute. In this framework, Gordon and Shapiro (1956) introduced the following valuation formula:

$$P_0 = \sum_{t=1}^{n} \frac{D_t}{(1+k)^t} \tag{2.14}$$

Where: D_t represents the dividend paid at time t and k is the discount rate, representing the required rate of return.

The Gordon and Shapiro (1956) model assumes that shareholders are not indifferent between capital gains and dividends. Instead, investors tend to prefer dividends, as they help reduce uncertainty. Risk-averse investors perceive future dividends as riskier than current ones, meaning they should be discounted at a higher rate. This suggests that stocks offering higher dividends will be valued more highly in the market. However, estimating a stock's present value requires predicting future dividend payments, which is inherently difficult.

To simplify this process, Gordon and Shapiro (1956) proposed a formula for calculating the expected return on a stock investment. They assumed that dividends grow at a constant rate g, which must be lower than the required rate of return k .

His assumption leads to a simplified valuation formula:

$$P_0 = \frac{D_1}{k-g} \tag{2.15}$$

Where: D_1 is the dividend paid in period 1, as cited in (Taleb, 2019).

2.4 Kalay's Model (1980)

The signaling model is grounded in the concept that a firm adjusts its dividend payouts to signal its current or anticipated future condition. An increase in dividends suggests that the

company expects a rise in its cash flows, while a decrease signals the opposite.

The Kalay model of dividend distribution is based on several assumptions:

-The elemination of transaction costs, agency costs, and bankruptcy costs.

-The analysis is conducted within a single time period.

-Investors are aware that managers possess insight into both the current and future state of the firm.

-Investors are risk-averse.

According to the Kalay model, managers will not raise dividends unless they are confident that the firm's future situation will improve or remain stable. If managers were to increase dividends without such certainty, they would risk incurring unfavorable costs. As a result, managers typically distribute a conservative portion of earnings and will only raise this amount when there is a solid and sustainable improvement in the company's financial situation (Kheiri, 2024).

Section 2: Empirical Studies on the Impact of Dividend Policy on Firm Performance

In order to highlight how real-world evidence aligns with or diverges from the predictions made by theories, we aim in this section to provide a comprehensive overview of the empirical literature that either supports or contradicts the theories and models related to dividend policy that were presented in the first section.

1. Empirical Studies on Theories of Dividend Policy and Firm Performance

Empirical studies that have been conducted to support the theories discussed in the first section are presented. These studies provide practical evidence that helps validate, challenge, or refine the theoretical perspectives on the relationship between dividend policy and firm performance.

1.1 The Irrelevance Theory

The Miller and Modigliani (M&M) Dividend Irrelevance Proposition has provided the foundation for much subsequent research on dividend policy. However, as stated by Ball et al. (1979, p.14), "empirical tests of M&M's dividend irrelevance theorem have proven difficult to design and to conduct."

In line with the dividend irrelevance hypothesis, Black and Scholes (1974) examined the relationship between dividend yield and stock returns in order to identify the effect of dividend policy on stock prices. They constructed 25 portfolios of common stocks listed on the New York Stock Exchange (NYSE), extending the Capital Asset Pricing Model (CAPM) to test the long-run estimate of dividend yield effects. The study employed the following regression model:

$$E(\tilde{R}_i) = \gamma_0 + [E(\tilde{R}_M) - \gamma_0]\beta_i + \gamma_1 \frac{(\delta_i - \delta_M)}{\delta_M} + \epsilon_i \tag{2.16}$$

Where: $E(\tilde{R}_i)$ represents the expected return for portfolio i, $E(\tilde{R}_M)$ is the expected return on the market portfolio, γ_0 an intercept term, typically compared to the short-term risk-free rate R, β_i is the systematic risk of portfolio i, γ_1 is the impact of dividend policy, δ_i is the dividend yield on portfolio i, δ_M is the dividend yield on the market and ϵ_i is the error term.

The objective of the study was to determine whether dividend policy influences stock returns. If it does, the coefficient γ_1 should be statistically significant. If M&M's irrelevance theory holds, dividend yields should have little to no effect on stock returns. Their findings supported M&M's proposition, reinforcing the idea that in efficient markets, dividend policy does not

influence firm value, as cited in (Al-Malkawi et al., 2010).

Friend and Puckett (1964) and Black and Scholes (1974) analyzed data from the New York Stock Exchange (NYSE) and found no significant relationship between dividend payments and shareholder returns.

Kowerski (2011, p 245) analyzed the dividend decisions of companies listed on the Warsaw Stock Exchange (WSE) between 1996 and 2009, using 2,263 observations. He assessed differences in annual returns between dividend-paying and non-dividend-paying firms and found them to be statistically insignificant. This suggests that during the analyzed period, the dividend irrelevance theory held, as dividend payment decisions had no impact on annual stock returns or firm value.

The irrelevance theory is also supported by Kreidl (2020), who analyzed trading activity around ex-dividend dates for German stocks with tax-free dividends. His empirical findings show that, on average, stock prices decline on the ex-dividend date by the amount of the dividend paid. Further evidence supporting the validity of dividend irrelevance theory comes from Lesfer (1995), who found that in the United Kingdom, the introduction of the 1988 Income and Corporation Taxes Act which significantly reduced the tax differential between dividends and capital gains led to positive and significant returns becoming negative and insignificant.

Ang and Ciccone (2009) argue that for existing investors, it makes no difference whether a dividend is paid or not and the share price remains unchanged. In both cases, the total value of their portfolio remains the same, as cited in (Kowerski & Haniewska, 2022).

1.2 The Bird-in-Hand-Theory

Gordon (1959) concluded that dividends have a stronger impact on share prices than retained earnings. Additionally, he suggested that as the proportion of retained earnings increases, the required rate of return on a stock rises due to the uncertainty surrounding future earnings. In line with this, Gordon (1963) argued that higher dividend payouts reduce the cost of equity or the required rate of return on equity.

Supporting these findings, Fisher (1961), using British data from 1949 to 1957, also determined that dividends influence share prices more significantly than retained earnings, as cited in (Al-Malkawi et al., 2010).

Chen et al. (2005) conducted an empirical study on 412 publicly listed firms in Hong Kong from 1995 to 1998, yielding mixed findings on the relationship between dividend payouts and firm performance. Their analysis revealed a positive correlation between return on assets (ROA) and dividend yield, particularly in larger firms. Nissim and Ziv (2001) examined the relationship between dividend changes and future profitability over a five year period. Their findings revealed a positive correlation between dividend increases and higher income over the following

four years, as cited in (Njoku & Lee, 2024).

Endria and MochFathony (2020) found a significant positive relationship between dividend policy and firm value in financial sector companies listed on the Stock Exchange between 2013 and 2017. Their findings align with those of Egbeonu et al. (2016) and Budagaga (2017), who also reported a positive relationship between dividend policy and firm value. Dividends, as a portion of the company's net income, are distributed to shareholders in proportion to their ownership, as determined by the board of directors (Zulkifli et al., 2017). Moreover, the presence of legal certainty and strong corporate governance in dividend policy enhances investor confidence, ultimately contributing to an increase in firm value, as cited in (Boubaker, 2023).

1.3 The Tax Preference Theory

Many empirical research has focused on testing Brennan's model and exploring the connection between dividend yields and stock returns. For instance, Black and Scholes (1974) found no link between equity return and dividend yield, a result that was consistent with Miller and Scholes (1982).

Litzenberger and Ramaswamy (1979) outlined a linear relationship between the increase in equity return and dividend yield if capital gains tax is lower than dividend tax, concluding that shareholders require higher pre-tax returns to offset the impact of taxation. Miller and Scholes supported Litzenberger and Ramaswamy's findings, suggesting that investors could avoid dividend taxes by borrowing and investing in tax-exempt assets.

Some studies, such as Poterba (2004), reviewed corporate responses to taxation changes and found no significant relationship between taxation and dividend policy. However, empirical studies by Lee, Liu, Richard, and Subrahmanyam (2006) suggested a link between taxes and dividend policy. Brav, Graham, Harvey, and Michaely (2005) argued that dividend taxation is not a primary consideration in dividend decisions or the choice between dividends and share repurchases. Elton and Gruber (1970) demonstrated that investors did not prefer dividends, and instead, taxation led to a preference for capital gains, as cited in (Das, 2020).

1.4 The Clientele Effect

Empirical studies on the clientele effect hypothesis employs various approaches.

Pettit (1977), offered empirical support for the existence of a clientele effect by analyzing the portfolio holdings of 914 individual investors. His findings revealed a significant positive correlation between investors' age and the dividend yield of their portfolios, as well as a negative correlation between their income levels and dividend yield.

Another line of empirical research has explored the relationship between changes in dividends and shifts in investor clientele. Richardson, Sefcik, and Thompson (1986) examined a sample of 192 U.S. firms that initiated dividends for the first time between 1969 and 1982. Their study

aimed to determine whether the observed increase in stock trading volume following dividend initiations was primarily driven by the signaling effect or by investors from different tax clienteles adjusting their portfolios. The results indicated that the rise in trading activity was largely attributable to the informational content of the dividend announcements, with only a minor portion explained by clientele adjustments, as cited in (Al-Malkawi et al., 2010).

1.5 The Signaling Theory

Several empirical studies have provided evidence supporting the signaling hypothesis. Pettit (1972) analyzed the stock prices of 135 firms and found that a significant rise or fall in stock prices follows the announcement of a dividend increase or decrease, respectively. He concluded that dividend announcements convey meaningful information about the company's financial health to the market. Similarly, Michaely et al. (1995) examined publicly traded firms in the United States (NYSE and AMEX) and observed that announcing the suspension or initiation of dividend payments leads to an average short-term stock price decline of 7% or an increase of 3%, respectively. In the same vein, Healy & Krishna (1988) found that the market perceives dividend suspension or initiation as a signal of managers' expectations regarding future earnings changes, as cited in (Gliz, 2024).

One of the earliest empirical studies on the U.S. market was conducted by Taylor. According to Taylor (1979), while stock price fluctuations observed during periods when firms announce dividend payments may suggest that dividends act as a signal, the exact impact remains unclear. This is primarily because dividend announcements often coincide with earnings announcements, making it difficult to determine whether stock price changes are due because of dividends or profits. To address this limitation, Aharony and Swary (1980) were among the first researchers to distinguish between dividend and profit announcements. Their findings indicate that a decrease in dividend payments leads to an average stock price decline of 3.76%, while an increase in dividends results in an average price rise of 0.72%. Both results were statistically significant.

Kalay (1980) further argued that dividends serve as a tool for financial disclosure. Since dividend payments is considered a positive signal sent by managers to shareholders and maintaining high and consistent dividend payments is costly, only profitable firms can sustain them. A firm attempting to distribute high dividends without sufficient profitability would ultimately be forced to cut or eliminate them, an action that financial markets would perceive negatively. This view aligns with the conclusions of Bhattacharya (1979), Miller and Rock (1985), John and Williams (1985), and Ambarish et al. (1987).

In general, dividends are regarded as a signaling mechanism, but the interpretation of the conveyed information varies. Healy and Papelu (1988) suggested that dividends indicate future profitability, showing that dividend payments are followed by an abnormal stock price increase of 4%. Their findings, consistent with Asquith and Mullins (1983), reveal that earnings tend

to rise significantly at least a year before the first dividend payment (or decrease before its omission). Moreover, firms initiating dividend payments for the first time experience substantial profit growth in the year of payment and the following two years, this means that the decision to distribute dividends is a key managerial action. While dividend payments are perceived as positive news, their reduction or omission is often interpreted as negative by the market. In another perspective, De Angelo et al. (1992) contended that dividends itself do not constitute a signal. Instead, the trend in dividend payments over consecutive years should be considered as a signal. Their research demonstrated that firms tend to cut dividends when they perform poorly, meaning that dividends can reflect a company's financial health. A dividend reduction signals managerial concerns about the firm's future profitability and potential financial difficulties, as cited in (du Jardin & Séverin, 2011).

1.6 Agency Costs and Free Cash Flow Hypothesis

Empirical findings on whether dividends effectively reduce agency costs among a firm's stakeholders are inconclusive. This is unsurprising, as agency costs are not directly observable and challenging to link to a firm's dividend policy.

Using a large sample of U.S firms, Rozeff (1982) was among the first to formally model agency costs. His regression model can be expressed as follows:

$$\text{PAY} = \beta_0 - \beta_1\text{INS} - \beta_2\text{GROW 1} - \beta_3\text{GROW 2} - \beta_4\text{BETA} + \beta_5\text{STOCK} + \varepsilon$$

Where: PAY represents the average payout ratio over the period 1974-1980, INS is the percentage of common stock held by insiders during this period, GROW 1 and GROW 2 denote the historical and forecasted growth rates of sales (1974-1979), respectively, BETA is the firm's estimated beta coefficient as reported in the Value Line Investment Survey, STOCK is the natural logarithm of the number of shareholders at the end of the seven year period.

At the core of Rozeff's model, known as the "cost minimization model," is the idea that the optimal dividend payout occurs at the point where the sum of transaction costs and agency costs is minimized. His model incorporates INS and STOCK as proxies for agency costs, with hypothesized negative and positive signs, respectively. This suggests an inverse relationship between insider ownership and the dividend payout ratio and a positive correlation between shareholder dispersion and dividends.

A decade later, Dempsey and Laber (1992) extended Rozeff's work by analyzing data from 1981-1987, reaffirming his conclusions. Similarly, Lloyd, Jahera, and Page (1985) found strong empirical support for Rozeff's hypothesis, further validating the link between agency costs and dividend policy, as cited in (Al-Malkawi et al., 2010).

Despite the mixed empirical evidence, Megginson (1996, p. 377) asserts that "the agency

cost model is currently the leading mainstream economic model for explaining observed dividend payouts." Similarly, Allen and Michaely (2003) argue that both dividends and share repurchases serve to mitigate potential over-investment by management, supporting the agency cost hypothesis. Bøhren et al. (2012) offer some of the strongest empirical support for the notion that dividend payments help reduce agency conflicts among stakeholders, as cited in(Baker & Weigand, 2015).

1.7 The Residual Theory

Research has yielded varying levels of support for the residual dividend theory.

Lang and Litzenberger (1989, as cited in Baker & Smith, 2006) provide empirical support for the residual dividend theory. Their study finds that the market responds more strongly to dividend changes in firms with a Tobin's Q ratio of less than one which means that these firms are not achieving returns above their cost of capital. The findings imply that dividend decisions play a more crucial role for firms with limited profitable investment opportunities compared to those generating positive marginal returns on investment.

Alli et al. (1993) provide evidence of a negative relationship between dividends and investment policy, thus supporting the theory. Similarly, Yoon and Starks (1995) observe a similar correlation between changes in dividends and capital structure adjustments between 1969 and 1988, as cited in (Jabbouri & Attar, 2018).

Additionally, based on a study of 320 non-financial firms listed on the Karachi Stock Exchange in Pakistan over the period 2001 to 2006, Ahmed and Javid (2008) concluded that dividend payouts are affected by the firm's investment opportunities. The results provide partial support for the residual dividend theory.

However, some studies present evidence that contradicts the residual dividend theory. For instance, Baker et al.(1985, as cited in Jabbouri & Attar, 2018) conducted a survey based analysis of 318 firms across three industries and found that managers from these sectors did not perceive a link between investment and dividend policies. Similarly, Bhat and Pandey (1994) surveyed top executives in India and found that many managers disagreed with the residual dividend theory.

2. Empirical Studies on Models of Dividend Policy and Its Impact on Firm Performance

In the second section, we will focus on the empirical studies that explore the models discussed in the previous section, examining their application to the relationship between dividend policy and firm performance.

2.1 Walter's Model

Researches applying the Walter model are limited, primarily due to its underlying assumptions, such as a stable rate of return and constant capital costs.

Kusumanisita and Minanti (2021) tested in his study on companies within the top Consumer Goods Industry sector listed on the Sharia Stock Index (ISSI) in the period from 2016 to 2019 whether the Walter model could yield accurate results. The findings indicate that there was no significant influence between the variables of the Walter model and investment decisions in these companies.

These results align with previous research by Kosgei, which also concluded that the Walter model had no impact on investment decisions. The reason for this is that when the rate of return exceeds the capital cost, companies that do not distribute dividends tend to have the highest stock values, while companies that distribute dividends achieve the highest stock values when the rate of return is lower than the capital cost. This makes the model less reliable for determining investment decisions in such firms. Thus, the Walter model does not significantly influence investment decisions for companies listed on the ISSI in the Consumer Goods Industry, rendering it less suitable for guiding investment decisions in these companies (Kusumanisita & Minanti, 2021).

On the contrary, Ozuomba and Ezeabasili (2017, as cited in Ejem & Ogbonna, 2019), in their evaluation of 10 publicly listed firms in Nigeria, provided empirical support for Walter's dividend relevance theory.

2.2 Lintner's Model

The Lintner model for dividend distribution has been tested in numerous empirical studies, with most findings supporting its validity.

Fama and Babiak extended the analysis of dividend decisions using Lintner's model, differing from earlier studies by Lintner (1956) and Brittain (1967), which utilized aggregate earnings data, Fama and Babiak chose to use individual firm data, allowing for a more detailed examination of dividend behavior. Many dividend models assume that current dividend payments follow a distributed lag function of current and past earnings. Fama and Babiak tested this assumption and found empirical support.

Fama and Babiak used the least squares method to estimate coefficients in order to test different versions of dividend models, including those proposed by Lintner (1956) and Brittain (1967). One of the tested models included the following specification:

$$\Delta D_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 E_t + \alpha_3 A_t + \varepsilon_t$$

Where A_t represents depreciation per share as an additional explanatory variable.
Griliches (1967) proposed an alternative model by modifying Lintner's approach through the inclusion of an additional lag structure:

$$\Delta D_t = \alpha_0 + \alpha_1 D_{t-1} + \alpha_2 D_{t-2} + \alpha_3 E_t + \alpha_4 E_{t-1} + \varepsilon_t$$

Fama and Babiak found that this model did not provide any significant improvement over the partial adjustment model. Their empirical analysis revealed that no alternative model outperformed Lintner's model in explaining dividend behavior. Additionally, when comparing different versions of Lintner's model, they discovered that the version with a suppressed constant provided better predictive accuracy than the one including the constant term. Brittain's models, which incorporated both earnings and depreciation as explanatory variables, also failed to replace Lintner's model, as cited in (Laur, 2014).

2.3 Gordon's Model (1959-1962)

To empirically test his model, Gordon (1959) proposed three possible scenarios under which an investor might sell their shares: receiving both profits and dividends, receiving only dividends, or receiving only profits.

He examined these hypotheses using three regression models and cross-sectional data from firms between 1951 and 1954. The dividend hypothesis was tested with the equation:

$$P_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 Y + \epsilon_{it} \tag{2.17}$$

Where for each firm i and period t, P represents the stock price, D the dividend, and Y represents the retained earnings.

Gordon's estimation results indicated that dividends exert a stronger influence on stock prices compared to retained earnings. According to Gordon, this outcome is explained by the uncertainty associated with future earnings, as cited in (Taleb, 2019).

However, the equation (2.17) has been widely criticized for several reasons.

First, it fails to account for risk variations among firms across different industries, which may introduce an upward bias in the dividend coefficient (α_1). Stocks with higher risk tend to have lower prices and lower dividend payouts, whereas stocks with lower risk often exhibit higher payouts and higher prices.

Second, the equation considers only growth driven by investments financed through retained earnings, while ignoring growth from external financing, potentially biasing the retained earnings coefficient (α_2).

Third, since dividends exhibit greater stability compared to reported earnings, fluctuations in

short-term income are primarily absorbed by retained earnings. If stock prices and dividend payments are more strongly influenced by long-term average earnings rather than current reported income, the model may inherently favor dividends.

Finally, dividends are more precisely quantified than retained earnings, as the calculation of retained earnings relies on accounting conventions used to determine total earnings, which can introduce a systematic downward bias in the retention coefficient (α_2) (Friend & Puckett, 1964; Diamond, 1967, as cited in Al-Malkawi et al., 2010).

The stock valuation model developed by Gordon and Shapiro, despite its theoretical simplicity, has faced various criticisms, particularly from an empirical standpoint. In this regard, Shiller (1981) argued that while dividends paid in each period are easily observable, estimating the discount rate k and forecasting the long-term growth rate of dividends g remain challenging. Similarly, Higgins (1972) contended that Gordon's framework is insufficient because it suppose that dividend policy and investment policy are independent. However, in practice, dividend policy often emerges as a byproduct of a firm's investment and financing decisions, as cited in (Taleb, 2019).

2.4 Kalay's Model (1980)

It is important to acknowledge that despite the theoretical relevance of the Kalay model (1980), it has certain limitations when it comes to practice where the model fails to offer a comprehensive explanation of firms' dividend distribution behavior. It asserts that a dividend sends information only if managers face considerable penalties for reducing the promised payout. Additionally, the model remains too simplified, as it considers only two firms and two periods, and is based on assumptions that do not reflect the complexity of real-world scenarios (Laur, 2014).

Section 3: The Impact of Other Factors on Firm Performance

In addition to dividend policy, several other factors can significantly influence a firm's performance. Understanding these determinants is essential for gaining a more comprehensive view of what drives profitability and long-term success. In this section, we will explore some of the key variables that have been widely discussed in the literature as important contributors to firm performance.

1. Capital Structure

The capital structure of a firm is a key area in corporate finance, focused on finding the right balance between debt and equity to maximize profitability. This structure directly affects a firm's financial performance, though the relationship remains complex and can vary based on industry, economic context, and company-specific factors.

1.1 Definition

All businesses, whether in their early stages or well-established, need financial resources to operate effectively. Without sufficient funding, achieving operational success becomes nearly impossible. These funds may support daily operations or be allocated for future growth and expansion. These funds are commonly referred to as capital. In order to obtain the necessary capital, businesses typically rely on two main sources: internal and external. Internal sources come from within the organization, usually in the form of retained. On the other hand, external financing involves obtaining funds from outside the company, either by borrowing or by attracting new investors (Chechet & Olayiwola, 2014).

Abor (2005) defined capital structure as the mix of equity and debt. In practice, companies have a wide range of options when designing their capital structure. They may choose to take on significant debt or remain minimally leveraged. Additionally, firms can explore alternatives such as lease financing, issuing warrants or convertible bonds, entering into forward contracts, or engaging in bond swaps. With numerous types of securities available in various combinations, the central objective remains the same: to determine the optimal combination that maximizes the firm's total market value.

1.2 Theories on Capital Structure and its Impact on Firm Performance

Many studies have examined the theory of capital structure, exploring how financing decisions affect a firm's performance and stability.

1.2.1 Modigliani and Miller's Theory

The Modigliani and Miller (1958) theory suggests that, under specific assumptions, a firm's value is independent of its capital structure. In their idealized world, the capital market is considered perfect, where all parties have equal access to information, and there are no transaction costs, bankruptcy costs, or taxes. In this scenario, the choice between debt and equity becomes irrelevant, and internal and external funding can be substituted, as cited in (Ogebe et al., 2013).

This debt irrelevance theory is often considered unrealistic. In 1963, Modigliani and Miller revised their earlier assumptions by introducing taxes, developing a theory that highlighted the tax benefits of debt. This modification sparked further debates on the concept of optimal capital structure. While their theory posts that firms should rely on 100% debt financing due to significant corporate tax benefits, this is rarely seen in practice. In reality, the level of debt is influenced by the trade-off between the tax advantage and various costs. Economists take into consideration many factors such as bankruptcy costs, personal taxes, agency costs, asymmetric information, and corporate control issues as key trade-offs against the tax benefits (Iavorskyi, 2013).

1.2.2 Trade-off Theory

Developed by Scott (1977), suggests that achieving an optimal capital structure involves balancing the costs and benefits of debt financing (Gaud et al., 2005). The core of the theory is that firms typically are financed by both debt and equity. By carefully weighing the marginal costs and benefits, firms can acheive the optimal capital structure (Titman & Wessels, 1988), as cited in (Rehman, 2016).

1.2.3 Pecking Order Theory

Myers and Majluf (1984, as cited in Iavorskyi, 2013) introduced the "pecking order" theory of capital structure, which posits that firms first utilize internal funds, then debt financing, and only seek equity if additional funding is required in the project. As a result, firms that are highly profitable and generate sufficient cash flows tend to rely less on debt.

1.3 Empirical Evidence

Empirical studies on leverage and firm performance fall into two categories: one treats leverage as the dependent variable and examines its determinants, including performance, while the other views leverage as an explanatory variable and a determinant of the firm performance. We will focus on the empirical evidence in the second category as it aligns with the objective of our study, which aim to identify firms' performance determinants. Several studies have examined the impact of leverage on firm performance in developing markets. Majumdar and Chhibber (1999) found a negative relationship between leverage and profitability in India. Similarly.

Booth et al. (2001), analyzing data from 10 developing countries, observed a negative correlation between leverage and firm performance. Likewise, Onaolapo and Kajola (2010) identified a significant negative impact of leverage on financial performance indicators in Nigeria, as cited in (Iavorskyi, 2013).

On the contrary, Abor (2005) found a positive relationship between capital structure measured by short-term debt (STD) and total debt (TD) and firm performance in Ghana over the 1998–2002 period. Additionally, Arabiyan and Safari (2009), in a study of 100 Iranian listed firms from 2001 to 2007, observed that short-term and total debt positively influenced profitability (measured by ROE), while long-term debt had a negative impact on ROE, as cited in (Al-Taani, 2013).

Several other studies have reported a negative but statistically insignificant relationship between ROE and financial leverage. For instance, Khan (2012, as cited in Hashim & Hassan, 2017 found that leverage, measured by both the Total Debt to Total Assets ratio and the Short-Term Debt to Total Assets ratio, had a negative yet insignificant impact on a company's profitability as represented by ROE.

2. Firm Size

In today's word, size is widely recognized as a key determinant of firm performance as it plays a vital role in achieving success, largely due to economies of scale. Larger firms often benefit from lower production costs per unit and greater market share, giving them a competitive advantage over smaller firms.

2.1 Theories on Size and its Impact on Firm Performance

Several foundational theories in the literature aim to explain both firm growth and performance, among them, we cite the following:

2.1.1 The Penrose Theory

Edith Penrose (1959, as cited in Olawale et al., 2017) introduced a different approach to firm growth by emphasizing the managerial limits as a key constraint to firm growth. She argued that growth is limited not by an optimal size but by how efficiently a management team can handle expansion. However, the difficulty of quantifying managerial limits complicates the application of this theory in practice.

2.1.2 The Theory of Optimal Firm Size

The theory suggests that a firm's size is influenced by several key factors. One such factor is the market structure in which the firm operates whether it functions within a perfectly competitive environment or an imperfect one, such as a monopoly, oligopoly, or monopolistic

competition. According to this theory, smaller firms tend to grow more rapidly than larger ones until they achieve the minimum efficient scale (MES) of production (Olawale et al., 2017).

2.2 Empirical Evidence

Most studies examining the impact of firm size on profitability have found a positive relationship between the two variables.

One of the earliest studies on the relationship between firm size and profitability was conducted by Simon (1962), who found no statistically significant link between the two variables. In contrast, Hall and Weiss (1967), Fortune 500 firms and reported a positive relationship. On the other hand, Shepherd (1972) observed a negative correlation between firm size and profitability. Fiegenbaum and Karnani (1991), using data from approximately 3,000 firms across 83 industries between 1979 and 1987, found a positive association between firm size and profitability. Similarly, Majumdar (1997), has used data from 1,020 Indian firms, found that larger firms tend to be more profitable than smaller ones, as cited in (Doğan, 2013).

Opeyemi (2019) conducted a study that assessed the effect of firm size on performance among selected firms in Nigeria's building industry, using data from 2004 to 2017. Results showed that total sales and the age of the firm were significant predictors of return on asset (ROA), both having a positive impact. Regarding productivity, total sales and firm age also positively influenced output per labor. Additionally, firm age was the only size variable significantly affecting output per capital. These findings suggest that firm size, particularly as measured by total sales and age, contributes positively to performance in the Nigerian building industry.

3. Liquidity

Liquidity is one of the most important goals for ensuring revenue optimization and enhancing a company's financial performance.

3.1 Definition

Liquidity refers to how easily a company can turn its assets into cash in a short time without losing value. In other words, it shows the company's ability to manage its current assets and current liabilities in a way that keeps cash flow to cover short-term obligations. This helps the company keep running without problems in the future. Liquidity also plays an important role in a firm's survival, and good management is needed to ensure there is enough cash for daily operations (Hongli et al., 2019).

3.2 Empirical Evidence

Most theoretical and empirical studies suggest that liquidity may have a positive impact on firm profitability.

Lartey et al. (2013) examined the relationship between liquidity and profitability for seven banks listed on the Ghana Stock Exchange from 2005 to 2010. Adopting a descriptive and panel data approach, the study relied on secondary data extracted from financial reports to compute key liquidity and profitability ratios, the study found a very weak positive relationship between the banks' liquidity and their profitability. These findings suggest that higher liquidity does not necessarily translate into significantly improved profitability for Ghanaian banks.

Lyroudi and Lazaridis (2000) examined the link between liquidity measured by the cash conversion cycle (CCC) and the profitability of the food industry in Greece, using return on equity and net profit margin. The study found that the cash conversion cycle is positively correlated with the profitability measures.

Yameen et al. (2019) focused in his study on exploring the impact of liquidity on the profitability of pharmaceutical companies listed on the Bombay Stock Exchange (BSE). The research utilized a balanced panel data of 82 pharmaceutical companies over a period of 10 years, 2008-2017. The current ratio and quick ratio were used to measure the liquidity of the firms, while return on assets (ROA) served as the measure of profitability. The results indicated that both the current ratio and the quick ratio had a positive and significant impact on the profitability of the pharmaceutical sector.

Waswa et al. (2018) examined the relationship between liquidity management and the financial performance of the sugar industry in Kenya, using data from June 2005 to 2016. The random effects empirical model was applied to test the hypothesis linking liquidity and firm performance. The findings revealed that the current liability coverage ratio negatively affects the financial position of the firm.

4. Asset Growth

Assets represent the economic resources owned by a company that are expected to generate future benefits. Some of these assets, such as cash and accounts receivable, are classified as monetary items. Others, like inventory, land, buildings, and equipment, are physical and non-monetary. Additionally, there are non-physical assets such as patents, trademarks, and copyrights, which also contribute to the firm's value and operations.

4.1 Definition:

In contemporary times, assets are considered a crucial element of financial statements. Managers are often encouraged to acquire and accumulate more assets over time to support this growth. Asset growth refers to the increase in total assets from one year to the next (Ariyani, Pangestuti & Raharjo, 2018). When the value of assets acquired in the current year exceeds that of the previous year, it signifies asset growth in the periode. This growth typically spans both non-current and current assets, although it is often expected that non-current assets should grow more than current assets. Non-current assets usually have a direct impact on profitability, while excessive current assets, such as idle cash, can hinder profitability since they do not generate returns (Suhadak & Handayani, 2018), as cited in (Charlie & Edet, 2023).

4.2 Empirical Evidence

Rasyid (2021) examined the effect of enterprise risk management on firm performance in family firms listed on the Indonesia Stock Exchange (2010–2016). Among the control variables, asset growth was included and had a positive impact on firm performance.

Fauzi and Puspitasari (2021) analyzed companies listed on the Jakarta Islamic Index (2018–2020) and found that asset growth has a significant positive effect on financial performance, based on multiple linear regression analysis of 117 observations.

On the other hand, some studies suggest that an increase in assets does not always lead to better company performance. Among the studies, Rahman (2020), Inrawan et al. (2021), and Dumilah (2020) found that asset growth have a negative impact on firm performance, as cited in (Rizka & Ulfida, 2024).

Rizka and Ulfida (2024) conducted a study on 18 non-financial firms listed in the LQ45 index in Indonesia from 2021 to 2023 (54 observations), investigates the impact of asset growth on firm performance and explores the moderating role of asset utilization. The findings reveal that asset growth positively influences firm performance, with increased investments in assets improving operational efficiency and financial outcomes. Additionally, asset utilization significantly moderates this relationship, suggesting that firms with better asset management can enhance the benefits of asset growth. These results highlight the importance of both asset growth and efficient asset utilization for achieving optimal financial performance.

5. Asset Tangibility

In order to stay globally competitive, firms must strategically combine tangible and intangible assets. A company can achieve the same level of competitiveness using different asset combinations, depending on how effectively and efficiently they are managed (Herciu et al., 2012).

5.1 Empirical Evidence

A large number of empirical studies have examined the relationship between tangible assets and the firm's financial performance.

Irungu et al. (2018) investigated the impact of asset tangibility on the financial performance of firms listed on the Nairobi Securities Exchange. Using a panel research design, the study covered all 64 listed firms, employing a census approach for data collection and analysis. The findings revealed that asset tangibility has a positive and significant effect on financial performance, suggesting that firms are more competitive when their managers effectively combine both tangible and intangible assets.

İltaş and Demirgüneş (2020) investigates the impact of asset tangibility on the financial performance Turkish manufacturing sector's firms, the analysis spans 18 main sectors and 30 subsectors, the findings show that asset tangibility had a positive effect on financial performance up to the break point (2002), the impact of the variable on performance turned negative.

Kotšina and Hazak (2012) employed a descriptive research, utilizing both primary and secondary data. Data were collected from 319 active customers, along with an interview conducted with the branch manager. The results revealed that asset tangibility is a significant factor influencing profitability.

6. Firm Age

Biological analogies have long been present in economic, for instance, the life-cycle perspective, has been applied in order to explain dividend behavior. This line of thinking raises important questions about whether companies experience a decline in their performance and competitiveness levels or not (Loderer & Waelchli, 2010). Two perspectives could be identified regarding the evolution of firms: one view holds that as firms grow, they gain increasing dominance over their environment; the other contends that aging organizations gradually lose their ability to respond to challenges (Rossi et al., 2016).

6.1 Definition

Firm age reflects the number of years it has been established and conducting its activities within the market. Shumway (2001, as cited in Loderer & Waelchli, 2010) argues that the most economically relevant way to measure a firm's age is by counting the number of years since it was listed.

6.2 Empirical Evidence

A dynamic panel analysis conducted on a sample of 956 firms in the Croatian food industry over the period 2005–2014 provides empirical evidence that firm age has a negative impact on

performance (Pervan et al., 2017). While aging firms may benefit from accumulated knowledge, they tend to become less flexible and more constrained by established routines and accumulated rules.

Doğan (2013) conducted a study focusing on 200 companies listed on the Istanbul Stock Exchange (ISE) during the period 2008–2011. Return on Assets (ROA) has been used to measure firm profit-ability and many independent variables were used to explain it. The study found a positive impact of firm size and liquidity on firm profitability, while firm age and leverage had a negative effect on ROA.

This study focuses only on microeconomic factors to explain firm performance, looking at internal and firm-specific elements. Macroeconomic factors can also affect how firms perform, which are not covered in this re-search. However, to give a broader view, a table summarizing the main macroeconomic factors and their measurement is included in the appendices. (see appendix No. 1)

Conclusion

In this chapter, we presented a comprehensive literature review addressing the relationship between dividend policy and firm performance.

We started by introducing the key theories and models including dividend irrelevance theory, the bird in hand theory and tax preference theory. These theoretical perspectives provided a foundational understanding of the diverse views that exist regarding how dividend decisions can impact a firm's financial success.

Subsequently, we reviewed a variety of empirical research that has investigated this relationship. This allowed us to gain a broader view of how dividend policy might influence firm performance in different economic and regulatory environments, showing contradictions, and gaps in the existing literature.

To enrich the analysis, the chapter concluded by introducing other important determinants of firm performance, such as firm size, liquidity, capital structure (both long-term and short-term), asset growth and asset tangibility. These variables play also a significant role in shaping financial outcomes and they influence the overall firm performance.

This literature review serves as the theoretical and empirical foundation for the next chapter where we will evaluate the impact of dividend policy and other selected variables on firm performance in the Algerian context.

Chapter 3

The Impact of Dividend Policy on Firm Performance: Empirical Study

Introduction

The impact of dividend policy on firm performance has been a widely debated topic for many decades, yet the relationship remains complex and has different interpretations. Various theories and empirical studies have been conducted in order to explain how dividend policies influence firm performance which were presented in the previous chapters.

The complexity of this relationship highlights the need for strong analytical methods to better understand the varied effects of dividend policy on firm performance.

One widely used method for analyzing such relationships is panel data analysis, which allows researchers to examine data across as time and firms dimensions, providing more accurate and reliable results.

The objective of this chapter is to address the central research question of this study: "How does dividend policy influence the performance of large private firms in Algeria?". This will be achieved through an empirical study that examines not only the direct effect of dividend policy on firm performance but also the influence of other key determinants.

The structure of the chapter will provide an overview of the panel data methodology in the first section, then describe the research methodology and present a descriptive study of the data in the second section, before concluding with the model estimation and interpretation of results in the third section in order to address the research question.

Section 1: Overview of the Panel Data Methodology

Panel data is a type of dataset commonly used in empirical research that combines both cross-sectional and time series dimensions. It involves observing multiple entities (such as firms or countries) over several time periods. This structure provides richer information and more variability compared to purely cross-sectional or time series data.

In this section, we introduce the concept of panel data, its types and advantages and present the methodological steps that will be followed in our empirical analysis.

1. The Concept of Panel Data

In quantitative analysis of financial issues, three types of data can be used. First, time series data, which consist of observations collected over a period of time for one or more variables, second, cross-sectional data, which are collected at a specific point in time for one or more variables; and finally, panel data also known as longitudinal or cross-sectional time-series data which combine both time and cross-sectional dimensions by observing multiple entities over several time periods.

In panel data analysis, each individual or unit is observed the same number of times, so the total number of observations is equal to $N \times T$, where N represents the number of individuals and T is the number of time periods. This gives us two dimensions: the individual dimension (i= 1, 2, ..., N) and the time dimension (t = 1, 2, ..., T).

When $i = 1$ and T is large, meaning we follow a single individual over time, we have a time series dataset. Conversely, when $t = 1$ and N is large, meaning we observe many individuals at a single time point, it corresponds to cross-sectional data (Benhalima, 2019).

The general panel data regression model can be represented as follows:

$$y_{it} = \beta_0 + \beta_1 x_{it,1} + \beta_2 x_{it,2} + \cdots + \beta_k x_{it,k} + v_{it}, \tag{3.1}$$

Where: $i = 1, \ldots, N$; $t = 1, \ldots, T$; $k = 1, \ldots, K$

Where: i is the observational unit (firm, individual..), t represents the time period, i refers to the number of the explanatory variable, β_0 is the intercept term, β_k represent the coefficients associated with the explanatory variables and v_{it} is the error term.

The composite error term v_{it} in Equation (3.1) can be divided into two components: a cross-sectional unit-specific error term a_i, and an idiosyncratic error term u_{it} .

This decomposition is expressed as:

$$v_{it} = a_i + u_{it} \tag{3.2}$$

Where the unit-specific error a_i remains constant over time and the idiosyncratic error u_{it} varies across both units and time (Baltagi 2001; Greene 2003; Griffiths et al. 1993; Gujarati 2003; Maddala 2001; Wooldridge 2006).

The advantage of decomposing the error term into two components is that, by using panel data, we can potentially eliminate part of the error. This helps reduce concerns related to omitted variable bias caused by unobserved, unit-specific factors.

By substituting Equation (3.2) into Equation (3.1), we obtain the following expression:

$$y_{it} = \beta_0 + \beta_1 x_{it,1} + \beta_2 x_{it,2} + \cdots + \beta_k x_{it,k} + a_i + u_{it} \tag{3.3}$$

Equation (3.3) is known as an error component model. The time-invariant error term a_i represents unobserved factors. For example, it could refer to a state's unique culture. These factors do not vary over time and are often very difficult to measure.

Estimation methods for error component models differ based on how they handle the ai term: The pooled OLS model does not separate a_i from other errors, while the fixed effects model treats a_i as parameters to be estimated. In contrast, the random effects model assumes that a_i are random variables (Baltagi 2001; Greene 2003; Maddala 2001; Wooldridge 2006, as cited in Eom et al., 2008).

The individual-specific component captures some of the differences between units in the data (heterogeneity), which helps reduce the unexplained variation and the mean squared error. As a result, panel data models that include this component produce more efficient estimates than models that do not (Sheytanova, 2015).

2. Advantages of Panel Data

The dual dimension offered by panel data presents a significant advantage. Time series data allow the study of changes and trends over time but do not capture differences between individuals. Conversely, cross-sectional data help analyze individual differences but ignore the time-based dynamics since they lack a temporal component. Panel data make it possible to exploit both types of variation: over time and across individuals. This increase in observations, improves the accuracy of estimates and reduces the risk of multicollinearity among variables (depanel, 2012).

Panel data accounts for the heterogeneity across individuals, firms, states, or countries. Ig-

noring this heterogeneity in time-series or cross-sectional studies can lead to biased and inaccurate estimates (Baltagi, 2008).

Unlike traditional time series methods, which often require long sequences of data, at least 30 observations, panel data allows for meaningful analysis even with shorter time periods. This is beneficial because obtaining data over a long time period is not always possible; second, it may not be appropriate to apply the same model over a long timeframe due to possible structural changes. Panel data overcomes these issues by compensating short temporal data with the richness of cross-sectional information. One advantage of panel data over cross-sectional analysis is that the inclusion of time-related observations enhances the precision of the estimates. As discussed earlier, panel data analysis offers several advantages. However, it also poses some challenges, particularly in data collection since it involves following the same firms over time (Sheytanova, 2015).

3. Types of Panel Data

Panel data could be long or short, balanced or unbalanced, fixed or rotating.

3.1 Long and Short Panel Data

A short panel includes a large number of entities (N), it provides a broader cross-sectional information but covers only a few time periods (T), while a long panel includes fewer entities but spans a longer time period (Cameron & Trivedi, 2009, p. 230).

3.2 Balanced and Unbalanced Panel Data

In a balanced panel, each entity has data recorded for every time period. This means that the dataset forms a complete table, resulting in a total of $N \times T$ observations. In contrast, an unbalanced panel occurs when some entities have missing data for certain time periods, and the total number of observations is less than $N \times T$. Although modern statistical software can analyze both types, unbalanced panels can make estimations more complex.

3.3 Fixed and Rotating Panel Data

When the same entities are observed throughout all time periods, the panel is referred to as a fixed panel (Greene, 2008, p. 184, as cited in Park, 2011). In contrast, if the group of entities changes over time it is called a rotating panel.

4. The Methods of Panel Data Estimation

Once the data is determined to be heterogeneous, individual effects can generally be modeled in two main ways: fixed effects or random effects. The fixed effects model accounts for individual-specific characteristics that do not vary over time, while the random effects model assumes that these individual effects are randomly distributed and uncorrelated with the explana-

tory variables.

4.1 The Fixed Effects Model:

The fixed effects model assumes that the relationship between the dependent variable and the explanatory variables remains consistent across all individuals. Given N individuals observed over T_i time periods and K explanatory variables, the model is expressed as follows:

$$y_{it} = a_i + \sum_{k=1}^{K} \beta_k x_{k,it} + \varepsilon_{it} \tag{3.4}$$

Where: $i = 1, \ldots, N$ and $t = 1, \ldots, T_i$ (depanel, 2012)

This method accounts for the "individuality" of each cross-sectional unit by allowing the intercept to vary across units. This is shown by the intercept a being indexed by i, meaning it can differ between individuals due to their unique characteristics. In essence, the model assumes and incorporates the heterogeneity that exists among individuals. The term "fixed effects" reflects the fact that, while the intercept differs from one individual to another, it remains constant over time for each individual (Benhalima, 2019).

4.1.1 Fixed Effects Estimation Methods

There are different approaches to estimating a fixed effects model, including The Least Squares Dummy Variable (LSDV) method and the "within" estimation technique.

The Least Squares Dummy Variable (LSDV) method: In this method, the model is specified as follows:

$$y_{it} = a_i + \sum_{i=1}^{n} A_i + \beta_1 x_{1,it} + \beta_2 x_{2,it} + \cdots + \beta_k x_{k,it} + \varepsilon_{it} \tag{3.5}$$

Where A_i are dummy variables that take the value 1 for the i^{th} individual across all time periods and 0 otherwise.

The model can be estimated using Ordinary Least Squares (OLS), treating the a_i components as coefficients of these dummies. To avoid perfect multicollinearity, the overall intercept must be excluded from the model. Although this method is hard to use when dealing with a large number of individuals.

The Within-group Method: This method estimates the model by first calculating the mean of each variable for each individual over time. These mean values replace the original variables in the model, removing the individual-specific component.

By subtracting the means from the original data, the individual effects are eliminated, and the model focuses on the deviations around the individual means. This results in a model without a constant term and allows for consistent estimation of the coefficients.

However, a drawback of the within-group method is the loss of the intercept term and the inability to include time-invariant variables, even if they vary across individuals. Additionally, since the dependent variable is adjusted by its mean, its variance is reduced, which could lead to increased measurement error bias if present (Sheytanova, 2015).

4.2 The Random Effects Model

This model assumes that the individual-specific effect a_i can be decomposed into two components: $a_i = a + \mu_i$

Where a represents a common fixed effect across all individuals, and μ_i is an unobserved, individual-specific random component capturing factors such as managerial quality in the context of firm-level panel data.

This decomposition leads to a random effects model with composite error terms:

$$y_{it} = \alpha + \sum_{k=1}^{K} \beta_k X_{kit} + \mu_i + \varepsilon_{it}, \quad \text{for } i = 1, \ldots, N \text{ and } t = 1, \ldots, T_i \tag{3.6}$$

The random effects model is also referred to as the error components model. In this framework, the intercept and slope coefficients are constant across individuals or time periods; any variation arises solely from individual-specific errors rather than from differences in intercepts or slopes. By modeling heterogeneity as part of the error term, the random effects model reduces the number of parameters to estimate. However, if the individual-specific effects are correlated with the regressors, the model yields inconsistent estimates (Greene, 2008, pp. 200–201, as cited in Park, 2011).

4.2.1 Random Effects Estimation Methods

A random effects model is estimated using Generalized Least Squares (GLS) when the covariance structure for each individual, denoted as Σ is known. However, when Σ is unknown, the Feasible Generalized Least Squares (FGLS) or Estimated Generalized Least Squares (EGLS) method is employed to estimate the full variance-covariance matrix V . Several approaches can be used to estimate FGLS, including the maximum likelihood method and simulation techniques (Baltagi & Cheng, 1994, as cited in Park, 2011).

5. Specification Tests of the Data-generating Process

When working with panel data, two main specification tests are typically used: the Fisher test, which assesses the homogeneity of individual constants and the Hausman test, which helps determine whether fixed or random effects should be used.

5.1 Heterogeneity Test

This test aims to determine whether the data are homogeneous or heterogeneous. This involves testing whether the model's coefficients are equal across individuals. If the coefficients are the same, the model is considered homogeneous meaning there are no individual-specific characteristics. However, if the coefficients differ, the model is seen as heterogeneous (Hurlin, Zayati) reflecting the presence of unique traits specific to each individual. This test thus helps identify whether individual-specific effects are present or not in the data, as cited in (Benhalima, 2019).

5.1.1 General Testing Procedure

We consider a sample of T observations collected from N individual units. For each unit i, we observe two processes over time: the dependent variable $\{y_{it}\}$ and a set of explanatory variables $\{x_{it}\}$.

The behavior of y_{it} is described by the following linear model, which applies to every individual i and time period t,$\forall i \in \mathbb{N},\ \forall t \in \mathbb{Z}$:

$$y_{i,t} = \alpha_i + \beta_i' x_{i,t} + \varepsilon_{i,t} \tag{3.7}$$

Where $\alpha_i \in \mathbb{R}$, $\beta_i = (\beta_{1,i},\ \beta_{2,i},\ \ldots,\ \beta_{K,i})'$ is a $(K, 1)$ column vector.
Accordingly, we consider a vector of K explanatory variables: $\mathbf{x}_{i,t} = (x_{1,i,t},\ x_{2,i,t},\ \ldots,\ x_{K,i,t})$'

$\varepsilon_{i,t}$ is an error term assumed to be independent and identically distributed ($i.i.d$) with a mean of zero and a variance equals to σ_ε^2 , $\forall i \in [1; N]$.

This setup allows the parameters α_i and β_i to vary across individuals, reflecting possible differences in behavior or characteristics. However, these coefficients are assumed to remain constant over time for each individual.

-In a first step, we test the hypothesis of a perfectly homogeneous structure, meaning that both the constants and coefficients are identical across individuals:

$H_0^1 : \beta_i = \beta,\ \alpha_i = \alpha \quad \forall i \in [1, N]$

$H_a^1 : \exists (i, j) \in [1, N],\ \beta_i \neq \beta_j$ or $\alpha_i \neq \alpha_j$

The test yields the following conclusions:

If the null hypothesis H_0^1 of homogeneity is accepted, we obtain a fully homogeneous pooled model:

$$y_{it} = \alpha + \beta' x_{i,t} + \varepsilon_{i,t} \tag{3.8}$$

However, if the null hypothesis is rejected, we proceed to a second step in order to identify

whether the heterogeneity arises from the coefficients β_i.

-The second step involves testing the hypotheses:

$H_0^2 : \beta_i = \beta \quad \forall i \in [1, N]$

$H_a^2 : \exists (i, j) \in [1, N],\ \beta_i \neq \beta_j$

If the null hypothesis H_0^2 of coefficient homogeneity is rejected, the panel structure is then rejected as well and the model would take the following form:

$$y_{i,t} = \alpha + \beta_i' x_{i,t} + \varepsilon_{i,t} \tag{3.9}$$

On the other hand, if the null hypothesis H_0^2 of coefficient homogeneity is accepted, the panel structure is retained, and a third step is carried out to determine whether the constants α_i have an individual-specific dimension.

-The third step of the procedure involves testing the equality of the N individual constants α_i, assuming that the coefficients β_i are common across all individuals:

$H_0^3 : \alpha_i = \alpha \quad \forall i \in [1, N]$

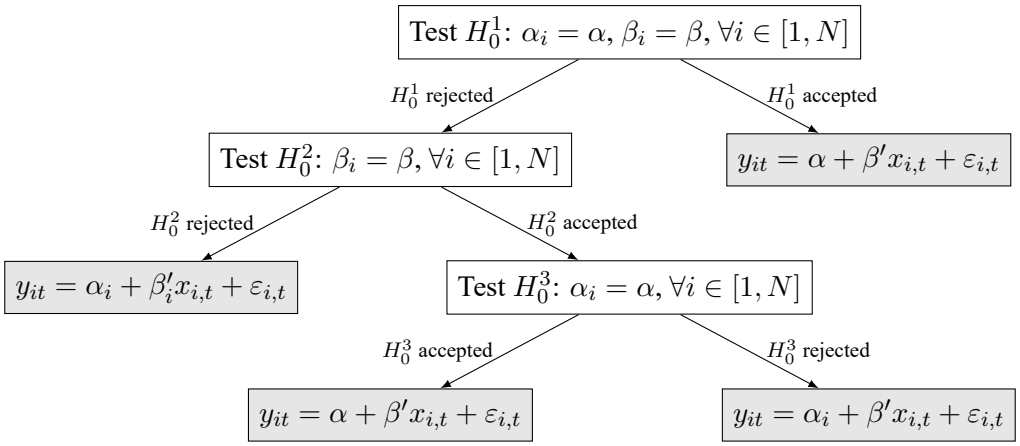
$H_a^3 : \exists (i, j) \in [1, N],\ \alpha_i \neq \alpha_j$

If the null hypothesis H_0^3, indicating homogeneity of the constants α_i, is rejected, the resulting model is a panel model with individual effects:

$$y_{i,t} = \alpha_i + \beta' x_{i,t} + \varepsilon_{i,t} \tag{3.10}$$

However, if the null hypothesis H_0^3 is accepted, we obtain a completely homogeneous panel structure (pooled model) (Hurlin, n.d.).

Figure 3.1: General Procedure for Homogeneity Testing



Source: **(Hurlin, n.d., p. 11)**

5.1.2 Construction of Tests Statistics

We will present the construction of the various Fisher tests used in this procedure.

Test of Total Homogeneity: It involves testing Hypothesis H_0^1. The corresponding Fisher statistic, F_1, is expressed as follows:

$$F_1 = \frac{(\text{RSS}_r - \text{RSS}_u) \,/\, [(N-1)\,(K+1)]}{\text{RSS}_u / \,[NT - N(K+1)]} \tag{3.11}$$

Where $(N{-}1)(K{+}1)$ and $NT{-}N(K{+}1)$ degrees of freedom, and K explanatory variables, RSS_u represents the sum of squared residuals from the unrestricted model (3.7), and RSS_r refers to the sum of squared residuals from the restricted model (3.8).

Test of homogeneity of slopes β_i: This test involves testing Hypothesis H_0^2. The corresponding Fisher statistic, F_2, is expressed as follows:

$$F_2 = \frac{(\text{RSS}'_r - \text{RSS}_u) \,/ [K(N-1)]}{\text{RSS}_u / \,[NT - N(K+1)]} \tag{3.12}$$

Where $K(N{-}1)$ and $NT{-}N(K\,+\,1)$ degrees of freedom, RSS_u represents the sum of squared residuals from the unrestricted model (3.7), and RSS'_r is the sum of squared residuals from the restricted model (3.10).

Test of homogeneity of intercepts α_i: It involves testing Hypothesis H_0^3. The corresponding Fisher statistic, F_3, is given by the following formula:

$$F_3 = \frac{(\text{RSS}_r - \text{RSS}'_r)/(N-1)}{\text{RSS}'_r / \,[N(T-1) - K]} \tag{3.13}$$

Where $(N{-}1)$ and $N(T{-}1){-}K$ degrees of freedom, RSS_r refers to the sum of squared residuals from the pooled model (3.8), while RSS'_r denotes the sum of squared residuals from the model with individual effects (3.10). (Khouiled, 2018).

5.2 Hausman Test

The Hausman specification test (1978) is a general econometric tool used to address various specification issues. Its most frequent application is in panel data analysis, where it helps determine whether individual effects should be modeled as fixed or random.

The Hausman test evaluates the presence of correlation between individual-specific effects and the explanatory variables (Hurlin, n.d.). The test procedure consists of the following steps:

-Definition of the Null and Alternative Hypotheses:

(H_0): There is no correlation between the individual-specific error term and the explanatory

variables in the panel data model. $\text{cov}(\alpha_i, x_{it}) = 0$: The random effects model is appropriate.

(H_1): There exists a statistically significant correlation between the individual-specific error term and the explanatory variables. $\text{cov}(\alpha_i, x_{it}) \neq 0$: The fixed effects model is appropriate.

-The selection of a probability of first type error, commonly 0.05.

-Computation of the Hausman Statistic using the following formula:

$$H_1 = (\hat{\beta}^{RE} - \hat{\beta}^{FE})' \left[\text{Var}(\hat{\beta}^{RE}) - \text{Var}(\hat{\beta}^{FE})\right]^{-1} (\hat{\beta}^{RE} - \hat{\beta}^{FE}) \tag{3.14}$$

Where $\hat{\beta}^{RE}$ is the vectors of estimated coefficients from the random effects and $\hat{\beta}^{FE}$ is the vectors of estimated coefficients from fixed effects models. Under the null hypothesis, the statistic follows a chi-squared distribution with k degrees of freedom, where k is the number of factors.

-The calculated Hausman statistic is compared to the critical value of the chi-squared distribution at the specified significance level and degrees of freedom. If the test statistic exceeds the critical value, the null hypothesis is rejected indicating the presence of endogeneity. Otherwise, the random effects model is preferred (Sheytanova, 2015).

6. Econometric Tests

In order to determine the relevance of the model, the following tests are used:

6.1 The Test of Random Individual Effects

The Breusch-Pagan test, or Lagrange Multiplier (LM) test, is used to empirically assess whether a random effects structure is appropriate in a panel data model.

The hypotheses tested are:

$H_0 : \sigma_\mu^2 = 0$ (no individual-specific random effect)

$H_1 : \sigma_\mu^2 \neq 0$ (presence of an individual-specific random effect)

Where, $\mu_i \sim N(0, \sigma_\mu^2)$ and σ_μ^2 represents the variance of the individual-specific error component.

The test statistic is calculated using the residuals from an Ordinary Least Squares (OLS) estimation and is given by:

$$LM = \frac{NT}{2(T-1)} \left[\frac{\sum_{i=1}^{N} \left(\sum_{t=1}^{T_i} \hat{\varepsilon}_{it}^2 \right)^2}{\sum_{i=1}^{N} \sum_{t=1}^{T_i} \hat{\varepsilon}_{it}^2} - 1 \right]^2 \rightarrow \chi^2(1) \tag{3.15}$$

This statistic follows a chi-squared distribution with 1 degree of freedom ($\chi^2(1)$). If the p-value exceeds 5%, we do not reject the null hypothesis, indicating that the random effects structure is

not statistically justified (depanel, 2012).

6.2 The Test of Multicollinearity

In multiple regression analysis, multicollinearity refers to the presence of linear relationships between the independent variables. Collinearity describes a situation where two variables are nearly perfect linear combinations of each other. Multicollinearity arises when several independent variables in the model are not only strongly correlated with the dependent variable but also have significant correlations among themselves (Shrestha, 2020).

6.2.1 Pairwise Correlations

A common method for detecting multicollinearity is to examine the correlation matrix of the independent variables. High correlations (values close to ± 1) between variable pairs may indicate the presence of multicollinearity. However, it's important to note that multicollinearity can still exist even when all pairwise correlations appear low. This is because linear dependencies may involve combinations of more than two variables (Multicollinearity, 2022).

6.2.2 Variance Inflation Factors $\mathbf{VIF_s}$

Another common method for detecting multicollinearity is through the calculation of the Variance Inflation Factors VIF_s

It is calculated using the following formula where the tolerance is the inverse of the VIF:

$$VIF = \frac{1}{1 - R^2} = \frac{1}{\text{Tolerance}}$$

-A VIF value of 1 indicates that the predictor is not correlated with any other variables, suggesting no multicollinearity.

-When $1 < VIF < 5$, it reflects a moderate level of correlation, which typically does not pose serious problems.

-Values in the range of 5 to 10 suggest a high degree of correlation among variables.

-If VIF exceeds 10, it indicates severe multicollinearity, meaning the regression coefficients are likely to be unstable and poorly estimated (Shrestha, 2020).

6.3 Autocorrelation Test

The presence of serial correlation in panel data models can lead to biased standard error estimates, making the regression results less accurate and statistically unreliable.

To detect whether the residuals are serially correlated, we use the Wooldridge test for serial correlation in panel data.

This test evaluates the following hypotheses:

H_0: No serial correlation

H_1: Serial correlation exists

If the p-value from the test is below 5%, we reject the null hypothesis and conclude the presence of the autocorrelation in the model.

6.4 Homoscedasticity Test

Homoscedasticity refers to the situation in statistics where the variance of the model's errors remains constant across all observations. Its opposite, heteroscedasticity, occurs when this variance varies from one observation to another.

Most statistical models assume homoscedasticity, meaning that the errors are identically and independently distributed with a constant variance. In linear regression, if the residuals are heteroscedastic, the estimates produced by the ordinary least squares (OLS) method are no longer the best linear unbiased estimators (BLUE). This means they may be biased or inefficient, and the estimated standard errors of the coefficients can be misleading, leading to incorrect inferences. When there is a suspicion that the error variances are not constant, a heteroscedasticity test should be performed.

These tests typically involve the following hypotheses:

H_0: The residuals are homoscedastic.

H_1: The residuals are heteroscedastic.

Section 2: Research Methodology and Descriptive Study

In this section, we will present the sample used in the study and outline the variables employed in the empirical analysis, including the dependent and the selected explanatory variables. We specify the hypotheses related to the impact of each explanatory variable on firm performance, based on prior empirical research and we provide a descriptive analysis of the variables used in the study in order to offer an initial understanding of the data.

1. Sample Presentation

In this study, we utilize a sample consisting of panel data from 61 large private Algerian firms, observed over the period spanning from 2019 to 2023. The panel data structure enables a comprehensive analysis by incorporating the two key dimensions: a cross-sectional dimension, which captures variations across the firms, and a time-series dimension, which reflects changes over time within each firm. The use of panel data is particularly well-suited for assessing the impact of financial variables on firm performance, as it increases the degrees of freedom and reduces multicollinearity among explanatory variables.

We excluded banks and insurance companies from our sample, as their dividend policies differ significantly from those of private firms.

2. Data Collection and Sources

As part of the research process, data were obtained from the Sidjilcom platform, an official online service managed by the National Center of the Commercial Register (CNRC). The platform was consulted in order to obtain relevant corporate and financial data, the fiscal balance sheet and the income statement provided the required data for our analysis.

3. Presentation of Variables

The dependent variable, along with the selected independent variables used in the statistical analysis and their respective measurement methods, are defined as follows:

3.1 Dependent Variable

The dependent variable is the central variable of the study, it is the variable that the research aims to explain and analyze. In this study, firm performance is treated as the dependent variable and is measured using the Return on Assets (ROA) , an indicator that reflects the firm's ability to efficiently use its assets to generate net income, it is calculated using the following formula:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

This ratio is used in many empirical studies, such as those by: (Opeyemi, 2019), (Yameen et al., 2019), (Boubaker, 2023), (Njoku & Lee, 2024) and (Tharsika & Thaneshan, 2023).

3.2 Independent Variables

The independent variables are the set of factors that are expected to influence or explain changes in the dependent variable.

3.2.1 Dividends (DIV)

Dividend policy is considered the primary factor in this study and is represented by the ratio of dividends paid, which serves as the main independent variable.

The ratio shows how much of a company's profit is given back to shareholders in the form of dividends, and what portion is kept within the company. This makes it an easy and direct way to understand the company's dividend policy.

It is calculated using the following formula:

$$\text{DIV} = \frac{\text{Dividend}_n}{\text{Net Income}_{n-1} + \text{Retained Earnings}_{n-1}}$$

This indicator was employed in the study conducted by (Allal & Benilles, 2020).

The majority of studies have found that dividends impact positively firm performance, therefore, we propose the following hypothesis:

$\boldsymbol{H_1}$:**Dividend policy has a positive impact on firm performance.**

3.2.2 Liquidity (LIQ)

Liquidity refers to a company's ability to quickly convert its assets into cash without significant loss in value.

In this study, we aim to examine the impact of liquidity on firm performance, using the following ratio:

$$\text{LIQ} = \frac{\text{Cash and Cash Equivalents}}{\text{Total Assets}}$$

This ration was used in many studies such as: (Belkacemi, 2019) and (Lartey et al., 2013).

Many studies have found that liquidity positively impacts firm performance. Therefore, we propose the following hypothesis:

$\boldsymbol{H_{2a}}$: **Liquidity has a positive influence on firm performance.**

3.2.3 Financial Leverage (FL)

Including financial leverage ratio in the study provides a broader understanding of the firm's financial structure and allows us to account for the potential influence of financing choices on overall firm performance.

The firm's leverage is measured as follows:

$$\text{Total debt to total assets} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

This ratio is commonly used in many empirical studies, such as in the works of (Bousbaa, 2021), (Eloundou & CHI, 2024) and (Saleem & Alifiah, 2017).

Many studies have indicated a negative relationship between leverage and firm performance. Therefore, the hypothesis is:

$\boldsymbol{H_{2b}}$:**Leverage has a negative impact on firm performance.**

3.2.4 Asset Tangibility (TANG)

Asset tangibility represents the proportion of a firm's physical assets within its total assets. It is calculated as follows:

$$\text{TANG} = \frac{\text{Fixed Asset}}{\text{Total Asset}}$$

This ratio has been widely used in empirical research to measure the extent of a firm's tangible assets, such as in the studies of (Eloundou & CHI, 2024) and (Irungu et al., 2018).

Many studies have found that asset tangibility positively influences firm performance. Based on this, the following hypothesis is proposed:

$\boldsymbol{H_{2c}}$: **Asset tangibility has a positive impact on firm performance.**

3.2.5 Firm Size (SIZE)

Firm size is measured using the following formula:

$$\text{SIZE} = \log\big(\text{Total Assets}\big)$$

This indicator was used in many studies, such as those by (Wirama et al., 2024), (Lukusa, n.d.) and (Paviththira, 2015).

The majority of studies have found that firm size positively impacts firm performance, therefore, we propose the following hypothesis:

$\boldsymbol{H_{3a}}$:**Firm size has a positive effect on firm performance.**

The table below illustrates the selected explanatory variables, their measurements, and their hypotheses on their influence on firms performance.

Table 3.1: List of Explanatory Variables

Variables	Abbreviations	Measurement	Expected Sign
Dividends	DIV	$\frac{\text{Dividend}_n}{\text{Net Income}_{n-1}+\text{Retained Earnings}_{n-1}}$	H_1: $+$
Liquidity	LIQ	$\frac{\text{Cash and Cash Equivalents}}{\text{Total Assets}}$	H_{2a}: $+$
Financial Leverage	FL	$\frac{\text{Total Debt}}{\text{Total Assets}}$	H_{2b}: $-$
Asset Tangibility	$TANG$	$\frac{\text{Fixed Asset}}{\text{Total Asset}}$	H_{2c}: $+$
Firm Size	$SIZE$	$\log(\text{Total Assets})$	H_3: $+$

Source: **Elaborated by the student**

4. Model Specification

The primary objective of this research is to investigate the impact of the explanatory variables: dividend policy (DIV), financial leverage (FL), firm size ($SIZE$), liquidity (LIQ), and asset tangibility ($TANG$) on firm performance, which is measured using the Return on Assets (ROA).

In order to achieve this, the study employs the following econometric model:

$$ROA_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 LIQ_{it} + \beta_3 FL_{it} + \beta_4 TANG_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \qquad (3.16)$$

Where: $i = 1...61$ is the index of firms, $t = 1..5$ is the index of periods, β_0 is the intercept, β_k where $k = 1..5$ are the coefficients of the explanatory variables and ε_{it} is the error term.

5. Descriptive Statistics of the Model

Before presenting the results of the model estimation, it is essential before that to provide some descriptive statistics for the variables used in the analysis and analyzing the correlation and the multicollinearity among them.

Descriptive statistics offer a preliminary insight into the characteristics of the dataset by summarizing key information such as the mean and the minimum and maximum values of each variable.

5.1 Descriptive Analysis of the Model's Variables

The table below presents a descriptive statistics for all variables included in the model. (see appendix No. 02)

Table 3.2: Descriptive statistics of the model's variables

Variable	Obs	Mean	Std. Dev	Min	Max
ROA	305	0.074394	0.090035	-0.28815	0.778841
DIV	305	0.244462	0.457621	0	3.492063
LIQ	305	0.156066	0.184174	0.000497	0.91261
FL	305	0.478754	0.279356	0.015693	0.984427
TANG	305	0.212284	0.220411	0	0.840522
SIZE	305	9.50974	0.681686	7.892768	11.45866

Source: **Output of the STATA 13.0 software**

The table above shows that all variables have 305 observations, indicating a complete panel dataset.

A standard deviation of 0.090035 means that ROA values are fairly close to the mean (0.074394) for most observations. However, some firms have negative ROA (-0.28815) indicating a negative net income, while others show high ROA values up to 0.778841.

The average dividend payout ratio among the companies in the sample is 24.4462%, meaning that, on average, firms paid out 24.4462% of their prior period's net income plus retained earnings as dividends. A value exceeding 1 indicates that dividend payments in the current period surpassed the prior period's net income combined with retained earnings. Furthermore, the standard deviation of 0.457621 reflects significant diversity in dividend payout behavior across firms. This variability is further evidenced by the wide range of dividend payout ratios, from a minimum of 0 to a maximum of 3.492063.

A standard deviation of 0.184174 indicates that liquidity values are fairly close to the mean (0.156066). Values range from 0.000497 to 0.91261, suggesting some firms have very low liquidity while others have relatively high liquidity.

Financial leverage exhibits noticeable variability, ranging from very low levels in some firms (0.015693) to high leverage in others (0.984427).

Asset Tangibility displays moderate variability. The range from 0 to 0.840522 shows that some firms have no tangible assets while others hold a high proportion.

The average size is 9.50974, with a standard deviation of 0.681686, showing moderate spread. The range from 7.892768 to 11.45866 indicates that firms vary significantly in size, from smaller to larger enterprises.

5.2 Correlation Matrix

Examining the correlations between different variables is important for understanding the potential relationships among them. The table below displays the correlations between the dependent variable (ROA) and all other explanatory factors, as well as the correlations among the explanatory variables themselves. (see appendix No. 03)

Table 3.3: Correlation matrix between model variables

Variable	ROA	DIV	LIQ	FL	TANG	SIZE
ROA	1					
DIV	0.2264*	1				
LIQ	0.2475*	0.069	1			
FL	-0.3705*	-0.1199*	-0.0809	1		
TANG	-0.1107	0.0148	-0.2962*	-0.0096	1	
SIZE	-0.0473	0.1579*	-0.1807*	0.2528*	0.2632*	1

Source: **Output of the STATA 13.0 software**

The dependent variable ROA shows a significant positive correlation with dividends (0.2264) and liquidity (0.2475), suggesting that firms with higher dividend payouts and greater liquidity have better performance. It has significant negative correlations with leverage (-0.3705) and tangibility (-0.1107), indicating that higher leverage and tangibility tend to reduce performance. The weak negative correlation with size (-0.0473) suggests a non statistically significant relationship.

Dividend policy is positively and significantly correlated with size (0.1579), implying that larger firms tend to pay more dividends, and negatively correlated with leverage (-0.1199), suggesting that higher debts may limit dividend payouts.

Liquidity shows a significant positive correlation with ROA (0.2475) but a weak and non-significant correlation with dividends (0.069), and a negative correlation with size.

Financial leverage is negatively correlated with ROA and dividends, reinforcing that higher

leverage is linked to lower performance and reduced dividends, while it is positively correlated with size (0.2528).

Tangibility is negatively correlated with performance (-0.1107) and with liquidity (-0.2962), suggesting that firms with more tangible assets may have lower performance and liquidity, but it is positively correlated with size (0.2632).

Firm size is positively correlated with financial leverage and tangibility, but it is negatively correlated with liquidity (-0.1807), indicating lower liquidity in bigger firms.

The relationships among the explanatory variables indicate no multicollinearity concerns, as no variable is correlated with another at a level exceeding 80%. This observation supports the appropriateness of the variable selection, though we will conduct a supplementary multicollinearity analysis using the Variance Inflation Factor VIF to confirm.

5.3 VIF Test

The Variance Inflation Factor (VIF) is a widely used diagnostic tool in regression analysis to assess the presence of multicollinearity, a common problem where explanatory variables are highly correlated with each other. Multicollinearity can lead to unreliable or unstable results, making it difficult to determine the individual effect of each variable on the dependent variable. (see appendix No. 04)

Table 3.4: Variance Inflation Factor (VIF) Results

Variable	VIF	1/VIF
size	1.22	0.8212299
tang	1.16	0.8588773
liq	1.12	0.890738
fl	1.11	0.901095
div	1.07	0.938815
Mean VIF	1.14	

Source: **Output of the STATA 13.0 software**

According to the table above, The maximum VIF is 1.22 and the minimum is 1.07 with a mean of 1.14. All VIF values are well below 10, indicating no significant multicollinearity concerns among the variables.

Section 3: Model Estimation and Results Interpretation

In this section, we will present the results of the econometric tests conducted using STATA 13 software. These tests including those for multicollinearity, autocorrelation, heteroskedasticity, and other relevant diagnostic checks that are essential to ensure the accurancy of the analysis.

After establishing the adequacy of the data and model conditions, we will introduce the final econometric model used in the study and the equation of the model will be presented to clearly outline the relationships between the key variables. Finally, we will interpret the results of the analysis, discussing their implications and how they contribute to understanding the impact of dividend policy and the other selected variables on firm performance in large private Algerian firms.

1. Data Modeling and Model Validation

For this study, we use a panel data regression method, looking at 61 firms over a five-year period. This approach helps us to see differences across companies and changes over time, making our analysis strong and clear. An important finding is that the VIF test done on the five variables we're studying, shows no multicollinearity among them, so we can keep all the factors in our model. We follow a set of steps to build and check the model using STATA 13 software while executing the specific econometric tests.

1.1 Specification Tests

It is essential to determine whether the data-generating process is homogeneous or heterogeneous using the Fisher test. Subsequently, the Hausman test should be employed to determine whether these individual effects are best modeled as fixed effects or random effects.

The detailed results of the tests conducted using the STATA software will be provided in the appendices, and only the summary of these results would be presented below.

1.1.1 Fisher Test

The test is conducted in order to differentiate between the individual and the common effect. The Fisher test is based on the following hypotheses:

H_0 : Absence of individual effects.

H_1 : Presence of individual effects.

Under the null hypothesis H_0, the computed Fisher statistic follows a Fisher distribution. The null hypothesis is rejected if the calculated statistic is greater than the critical value found in the Fisher distribution table. The results of the test are as follows: (see appendix No. 05)

Table 3.6: Fisher Test Results

Fisher Test	
$F(19, 173)$	10.15
Prob $> F$	0.0000

Source: **Output of the STATA 13.0 software**

The Fisher probability (Prob > F = 0.0000) is lower than 5% meaning that it is statistically significant. This indicates the presence of individual effects, whether fixed or random.

1.1.2 Hausman Test

After confirming that the model exhibits specific individual effects, the next step is to determine whether these effects are fixed or random. To address this, we use the Hausman test:
H_0 : The presence of fixed effects

H_1 : The presence of random effects

The results of the Hausman test are as follows: (see appendix No. 06)

Table 3.6: Hausman Test Results

Hausman Test	
$Chi2(5)$	7.34
Prob $> Chi2$	0.1964

Source: **Output of the STATA 13.0 software**

The test probability is greater than 5%, which indicates the presence of random effects in the model. To further confirm the existence of random effects, the Breusch-Pagan test is conducted to evaluate the following hypotheses:

H_0 : Absence of random effects: $\sigma_\mu^2 = 0$
H_1 : Presence of random effects: $\sigma_\mu^2 \neq 0$

The following table summarizes the results of the test: (see appendix No. 07)

Table 3.7: Breusch-Pagan Test Results

Breusch-Pagan Test	
$Chi2(1)$	49.14
Prob $> Chi2$	0.0000

Source: **Output of the STATA 13.0 software**

With a Chi-squared probability of 0.0000, which is significantly lower than 5% significance threshold, the null hypothesis H_0 is rejected. Consequently, this confirms the presence of random effects.

1.2 Autocorrelation Test

In order to test for autocorrelation in the error terms, we apply the Wooldridge test which is based on the following hypotheses:

H_0 : Absence of autocorrelation.

H_1 : Presence of autocorrelation.

The test results are presented in the following table: (see appendix No. 08)

Table 3.8: Autocorrelation Test Results

Autocorrelation Test	
H_0	no first-order autocorrelation
$F(1, 60)$	0.182
Prob $> Chi2$	0.6715

Source: **Output of the STATA 13.0 software**

1.3 Heteroscedasticity Test

This test is used to test whether the model suffers from a heteroscedasticity problem or not. It is based on the following hypotheses:

H_0 : Absence of heteroscedasticity.

H_1 : Presence of heteroscedasticity.

Results are presented as follows: (see appendix No. 09)

Table 3.9: Heteroscedasticity Test Results

Heteroscedasticity Test	
Likelihood-ratio test	LR chi2(60) = 338.01
(Assumption: homosk nested in hetero)	0.0000

Source: **Output of the STATA 13.0 software**

The test yields a p-value of 0.0000, which is significantly below 5% . As a result, the null hypothesis H_0 is rejected, indicating the presence of heteroscedasticity in the model.

We will employ the Panel-Corrected Standard Errors (PCSE) method, a method proposed by (Beck & Katz, 1995) as an alternative to the feasible generalized least squares approach (FGLS) in order to address the problem of heteroscedasticity and to estimate the final model more accurately, as it shows its accuracy in the presence of complex error structures (Beck & Katz, 1995).

The PCSE estimator has gained significant popularity, as demonstrated by over 2,000 cita-

tions in Web of Science, providing applied researchers with a wide array of options for selecting a panel data estimator (Moundigbaye et al., 2018).

2. Presentation and Interpretation of Estimation Results

We will analyze the results obtained from the regression model estimations, which assess the impact of the selected variables on ROA. Next, we will precisely interpret the coefficients of the explanatory variables in this model, examining whether their signs align with the research hypotheses and with the findings of the majority of previous empirical studies.

The regression results, obtained using the PCSE method, are presented in the table below: (see appendix No. 10)

Table 3.10: Regression Results Using the PCSE Method

Variable	Expectation	Coefficient	P-value
DIV	+	0.0314353	0.001***
LIQ	+	0.0968601	0.000***
FL	-	-0.1142745	0.000***
TANG	+	-0.0314888	0.002***
SIZE	+	0.0096601	0.024**
cons		0.0211219	0.574
Model Statistics			
R-squared			0.2217
Wald chi2			178.65
Prob > chi2			0.0000***
Number of obs			305

Notes: Significance levels: *p<0.10, **p<0.05, ***p<0.01.

Source: **Output of the STATA 13.0 software**

The Model Equation:

$$ROA_{it} = 0.0211219 + 0.0314353DIV_{it} + 0.0968601LIQ_{it} - 0.1142745FL_{it} - 0.0314888TANG_{it} + +0.0096601SIZE_{it}\varepsilon_{it} \tag{3.17}$$

The table above shows a total number of observations = 305 (61*5) which form the basis of our regression analysis. The R-squared value equals 0.2217 indicating that approximately 22.17% of the variation in the dependent variable ROA is explained by the selected independent variables in the model.

Furthermore, Wald chi2 = 178.65 and the Prob > chi2 = 0.0000, which is highly significant, meaning that the model's explanatory variables are significant in explaining the dependent variable and the model demonstrates a reasonable level of explanatory power.

The relationship between the independent variables and the dependent variable can be explained as follows:

Dividends:

The results of our study show a significant positive impact of dividend distribution on ROA with a p-value of 0.001 and a coefficient of 0.03, indicating that a 1% increase in dividend distribution leads to a 0.03 increase in firm performance. It is important to note that dividend payout ration is the main independent variable in this study. The findings suggest that a higher DPR leads to better performance, meaning that companies distributing higher dividends have showed improved performance, which validates the Hypothesis H_1.

These results are compatible with the Bird-in-the-Hand theory, which suggests that shareholders prefer dividends that represent the guaranteed benefit over a potential higher benefit in the future, with the signaling theory, which argues that dividends are considered a signal to investors who are less informed about the firm's financial health compared to mangers, dividend distribution is interpreted as a sign of positive future prospects, while cutting them could be interpreted as a sign of possible financial difficulties, and with the agency cost, which argues that the separation of ownership and control in the company could lead to a conflict of interest between managers and shareholders, dividends could reduce the available funds for managers , thereby limiting the funds available to them.

As a result, the positive impact of dividend distribution on Algerian firm performance could be driven by signaling financial health, reducing agency costs or and meeting investor preferences.

These results are confirmed by the majority of studies, such as those by (Enekwe et al., 2015), (Jamaludin et al., 2023) and (Suresh & Pooja, 2020) who found that the DPR has a statistically significant effect on ROA.

Liquidity:

The results of the model show a significant positive impact of liquidity on firm performance, with a p value of 0.0000 and a coefficient of 0.09 which means that a 1% change in the liquidity ratio leads to a 0.09 change in theROA. This result confirms our sub-hypothesis H_{2a}. The increase in the liquidity ratio is associated with improved profitability in Algerian firms, this rise in liquidity reduces liquidity risk, which in turn enhances the Return on Assets.

This positive impact of liquidity supports the Pecking Order Theory, which argues that firms prioritize internal financing and that higher liquidity allows firms to avoid costly external funding, thereby improving performance.

These findings are confirmed by many empirical studies, such as (Bourke, 1989), (Lartey et al., 2013) and (Doğan, 2013).

Financial Leverage:

There is significant negative relation between financial leverage measured by total debts over total assets on ROA with a p-value of 0.0000 and a coefficient of -0.11 indicating that when holding all other variables constant, an increase in the financial leverage ratio by 1 unit is associated with a decrease of 0.11 units in the ROA. This result confirms our sub-hypothesis H_{2b}. When the companies rely on debt for financing, high real interest rates can put their future financial stability at risk. However, managers of profitable firms often seek to avoid the obligations associated with debt, leading them to rely on internal financing. This behavior results in a negative correlation between profitability and leverage (Rajan & Zingales, 1995).

These findings do not support the free cash flow theory but they do align with the pecking order theory which argues that firms prefer internal financing and only use debt when necessary. As a result, more profitable firms tend to have lower leverage, while higher debt levels may indicate financial constraints rather than improved efficiency. According to Jensen's (1986, as cited inIavorskyi, 2013) Free Cash Flow Hypothesis, debt can enhance performance only if an efficient market exists. In Algeria, as in Ukraine, such a market is largely ineffective, limiting debt's disciplinary role. Consequently, we observe a negative relationship between leverage and firm performance, which supports the Pecking Order Theory rather than the Free Cash Flow Hypothesis.

The results of this study are in the same direction with the following studies: (Doğan, 2013), (Iavorskyi, 2013) and (Bousbaa, 2021).

Assets Tangibility:

Our findings reveal a statistically significant negative relationship between asset tangibility and ROA, with a p-value of 0.002 and a coefficient of -0.03, suggesting that a 1% increase in asset tangibility is associated with a 0.03 decline in firm performance. This result contradicts our sub-hypothesis H_{2c}, which expected a positive relationship between asset tangibility and firm performance.

The negative effect of tangibility can be explained by the fact that some components of a firm's tangible assets such as land and buildings do not directly contribute to the production of goods for sale, and others are subject to depreciation over time, reducing their long-term value and efficiency.

The findings of our study are consistent with those of (Odusanya et al., 2018), (Vătavu, 2014), (Lazăr, 2016) and (Pratheepan, 2014).

Firm Size:

The regression analysis reveals that size significantly influences ROA, showing a positive cor-relation with a P-value of 0.024, indicating that larger firms tend to achieve better perfor-

mance which confirms our sub-hypothesis H_3. Larger companies are often able to leverage their size to negotiate more favorable input prices, thereby reducing average costs and enhancing profitability. According to signaling theory, a greater firm size sends a positive signal to the market, suggesting stronger financial stability and better overall performance (Sudrajat, Daud, et al., 2020).

The positive impact can be explained by the fact that larger firms tend to operate more efficiently than smaller ones, as they benefit from economies of scale (Doğan, 2013).

Most studies examining the effect of firm size on profitability have found a positive relationship between the two such as: (Khan et al., 2019), (Opeyemi, 2019) and (Stierwald, 2009).

Conclusion

The purpose of this study, conducted on a sample of 61 large private Algerian firms over the period from 2019 to 2023, is to examine the impact of dividend policy on firm performance.

The first section provided an overview of panel data methodology and its relevance for analyzing complex economic relationships over time. The second section outlined the research methodology, describing the variables selected and the data used, as well as some statistical tools applied to test the study's hypotheses. In the final section, we presented the statistical tests and the estimated model along with a detailed interpretation of the results, aiming to explain the link between explanatory variables and firm performance.

The findings of this study indicate that dividend policy has a statistically significant positive impact on firm performance as measured by return on assets (ROA). Among the explanatory variables, the liquidity and firm size were found to have a positive influence on performance, while leverage and asset tangibility had a significant negative impact. These results suggest that dividend decisions, play a crucial role in shaping the financial performance of large private firms in Algeria.

General Conclusion

The primary objective of our study was to investigate the impact of dividend policy on firm performance. Through this research, we aimed to better understand how decisions related to dividend distribution can influence a firm's financial outcomes. By focusing on large private firms in the Algerian context, the study provides insights that may assist managers, investors, and policymakers in making informed decisions regarding dividend policy.

In order to respond effectively to our research problem, we structured our dissertation into two main parts: the first part is theoretical and consists of two chapters, while the second part, presented in the third chapter, consists of the empirical study.

Based on the theoretical framework, several conclusions can be drawn. Firm performance is a multidimensional concept that can be measured using different indicators such as ROA and ROE, dividend policy is a key financial decision, as it plays a crucial role in balancing the interests of shareholders by influencing investment choices. Theoretical perspectives on the relationship between dividend policy and performance are diverse; while the bird-in-the-hand theory suggests a positive relationship, the tax preference theory implies a preference for lower payouts, and the Modigliani and Miller theory argues for irrelevance under perfect market conditions. Empirical studies in the literature present mixed findings, indicating that there is evidence supporting each different theory. Additionally, other determinants such as liquidity, firm size, leverage, firm age and asset tangibility have shown varying degrees of association with firm performance with empirical studies reporting mixed results, highlighting the complexity of the performance dynamic.

The second part of the dissertation was dedicated to the empirical investigation which allowed us to draw conclusions based on real data and offer practical insights for financial decision-making within Algerian firms.

The results of the last chapter indicate a positive impact of dividend distribution on firm performance, which supports and validates our first hypothesis H_1, meaning that the more firms distribute dividends, the more their performance tends to improve. This finding aligns with several theoretical and empirical studies that suggest that dividend policy plays a significant role in enhancing firm performance such as the bird in hand theory, agency costs and the signaling theory.

In addition, the results also reveal a positive impact of liquidity on firm performance, confirming that firms with higher levels of liquidity are generally more capable of achieving better financial outcomes. On the other hand, leverage and asset tangibility were found to have a negative impact on performance, indicating that a higher dependence on debt financing and a higher proportion of tangible assets may harm the firm's profitability. These results confirm our second hypothesis H_2 which states that the other financial determinants have a significant impact on the performance of large private Algerian firms.

Firm size was found to have a positive impact on firm performance confirming our hypothesis H_3 and to be positively correlated with dividend policy, confirming that larger firms have better performance and tend to pay more dividends.

This study provides contributions in three main axes: theoretical, methodological, and managerial.

On the theoretical axe, our study has contributed in the overall understanding of firm performance and dividend policy in general, and in the Algerian context in particular. Different theories and models that explain this relationship were presented, as well as previous empirical research on the topic, in order to explain and understand the relationship between firm performance and dividend policy, as well as the others selected explanatory variables.

In terms of methodology, we employed panel data analysis, which captures both the cross-sectional and time-series dimensions of the data. This approach was chosen for the empirical study because it provides more accurate and reliable results, enhancing the robustness of the findings and improves the explanatory power of the model, allowing us to control for unobserved heterogeneity across firms and observe changes over time.

The main managerial contribution of this research lies in its ability to guide decision-making related to dividend distribution. By providing empirical evidence on the relationship between dividend policy and firm performance, this study offers managers, particularly in large private Algerian firms, valuable insights to help them develop strategies that align dividend decisions with the financial health and growth objectives of their firms. It also offers them a better understanding of how various factors, including firm size, liquidity, leverage, and asset tangibility can influence performance and allowing them to make more informed and effective dividend policy choices.

It is critical to acknowledge the limitations and obstacles encountered in this research. One major challenge was the difficulty in data collection, particularly due to the limited availability of financial data for large private Algerian firms. Moreover, the study was conducted using a dataset covering the period from 2019 to 2023 a timeframe marked by the COVID-19 pandemic, which may have influenced the financial performance and dividend behavior of firms. This external shock could limit the generalizability of the findings. Additionally, the research process was constrained by a short timeframe, which limited the depth of analysis and the possibility of expanding the study further.

For future research, we suggest incorporating macroeconomic factors such as inflation, interest rates, and exchange rates into the study of the impact of dividend policy on firm performance. Including these variables would provide a more comprehensive understanding of how external economic conditions influence corporate financial decisions and performance outcomes. Furthermore, given that the present study covers the period from 2019 to 2023, a timeframe sig-

nificantly affected by the COVID-19 pandemic, future research could specifically investigate the impact of such external shocks on dividend behavior and firm performance. A comparative study between public and private firms, or between Algerian firms and those in other economic or institutional contexts, could also highlight noticeable differences in the effects of dividend policy.

References

Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in ghana. *The journal of risk finance*, *6*(5), 438–445.

Ahmed, H., & Javid, A. Y. (2008). The determinants of dividend policy in pakistan.

Allal, N., & Benilles, B. (2020). Les déterminants de la distribution de dividendes le cas des banques privées algériennes. *Dirassat Journal Economic Issue*, *11*(2), 457–472.

Al-Malkawi, H.-A. N., Rafferty, M., & Pillai, R. (2010). Dividend policy: A review of theories and empirical evidence. *International Bulletin of Business Administration*, *9*(1), 171–200.

Al-Taani, K. (2013). The relationship between capital structure and firm performance: Evidence from jordan. *Journal of Finance and Accounting*, *1*(3), 41–45.

Anuar, A. Z. W., Haniff, M. N., & Azero, M. (2023). Determinants of dividend policy: Evidence from malaysian public listed companies. *International Journal of Academic Research in Business and Social Sciences*, *13*(4), 357–370.

Baker, H. K., & Smith, D. M. (2006). In search of a residual dividend policy. *Review of Financial Economics*, *15*(1), 1–18.

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

Baltagi, B. H. (2008). Econometric analysis of panel data. *Rohn Wiley*.

Barneto, P., & Gregorio, G. (2009). *Finance: Manuel et applications* (2nd ed.). Dunod.

Bartoli, A., & Blatrix, C. (2015). *Management dans les organisations publiques-4e édition: Défis et logiques d'action*. Dunod.

Beck, N., & Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. *American political science review*, *89*(3), 634–647.

Belkacemi, M. (2019). Les déterminants de la structure du capital: Étude empirique sur un échantillon d'entreprises privées algériennes. *Revue des reformes Economique et intégration dans l'économie mondiale*, *13*(1), 139–160.

Bello, A., & Olarinde, M. O. (2020). Relevance of dividends (the bird in hand theory) analysis of nigeria banking sector 2000-2014. *International Journal of Economics, Commerce and Management*, *8*(1), 143–160.

Benhalima, I. (2019). *L'impact de la gouvernance bancaire sur la performance financière* [Doctoral dissertation, Ecole Supérieure de Commerce-Mouloud Kacem Naït Belkacem].

Black, F. (1976). The dividend puzzle. *Journal of portfolio management*, *2*(2), 5–8.

Bonaimé, A., & Kahle, K. (2024). Share repurchases. *Handbook of corporate finance*, 176–222.

Boubaker, R. (2023). Dividend policy and firm value evidence of tunisian firms. *5*(1), 100–125.

Bourke, P. (1989). Concentration and other determinants of bank profitability in europe, north america and australia. *Journal of banking & Finance*, *13*(1), 65–79.

Bousbaa, H. (2021). The impact of capital structure on the performance of algerian companies: Econometric study on industrial companies during the period (2013-2018). *7*(1), 185–198.

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.

Brennan, M. J. (1970). Taxes, market valuation and corporate financial policy. *National tax journal*, *23*(4), 417–427.

Charlie, S. S., & Edet, J. P. (2023). Asset growth and profitability of listed manufacturing companies in nigeria: Evidence from post adoption period of ifrss. *Management*, *4*(1).

Chechet, I. L., & Olayiwola, A. B. (2014). Capital structure and profitability of nigerian quoted firms: The agency cost theory perspective. *American International Journal of Social Science*, *3*(1), 139–158.

Damodaran, A. (2014). *Applied corporate finance*. John Wiley & Sons.

Das, P. K. (2020). Dividend policy and taxation—a review. *Journal of Research in Business, Economics and Management*, *14*(3), 2703–2710.

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

depanel, E. D. D. (2012). Module n.

de Wet, J. (2013). Earnings per share as a measure of financial performance: Does it obscure more than it reveals? *De Wet, JH v H*, 265–275.

Doğan, M. (2013). Does firm size affect the firm profitability? evidence from turkey. *Research journal of finance and accounting*, *4*(4), 53–59.

du Jardin, P., & Séverin, E. (2011). Dividend policy.

Egbunike, C. F., & Okerekeoti, C. U. (2018). Macroeconomic factors, firm characteristics and financial performance: A study of selected quoted manufacturing firms in nigeria. *Asian Journal of Accounting Research*, *3*(2), 142–168.

Ehrhardt, M. C. (2011). *Financial management: Theory and practice*. USA.

Ejem, C. A., & Ogbonna, U. G. (2019). Modelling dividend policy and firms' value relations in nigeria. *International Journal of Economics and Financial Issues*, *9*(6), 171.

Eloundou, E. F., & CHI, P. C. (2024). The effects of dividend policy on capital structure of companies in cameroon. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *5*(4), 106–123.

Enekwe, C. I., Nweze, A. U., & Agu, C. (2015). The effect of dividend payout on performance evaluation: Evidence of quoted cement companies in nigeria. *European Journal of Accounting, Auditing and Finance Research*, *3*(11), 40–59.

Eom, T. H., Lee, S. H., & Xu, H. (2008). 32introduction to panel data analysis: Concepts and practices.

Erragragui, S., & Aoufir, M. (2023). Les déterminants de la performance des entreprises: Revue de littérature. *Revue du contrôle, de la comptabilité et de l'audit*, *7*(3).

Fauzi, A. F., & Puspitasari, E. (2021). Pengaruh struktur modal, ukuran perusahaan, likuiditas dan pertumbuhan aset terhadap kinerja keuangan perusahaan yang terdaftar di jakarta islamic index (jii) periode 2018-2020. *Jurnal Ilmiah Edunomika*, *5*(02), 457833.

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

Fu, L., Singhal, R., & Parkash, M. (2016). Tobin's q ratio and firm performance. *International research journal of applied finance*, *7*(4), 1–10.

Georgopoulos, B. S., & Tannenbaum, A. S. (1957). A study of organizational effectiveness. *American sociological review*, *22*(5), 534–540.

Gliz, A. (2024). *Finance d'entreprise en algérie*.

Gnaoui, I., & Moutahaddib, A. (2024). Modèles fondamentaux et composantes de la performance des entreprises. *Revue Internationale du Chercheur*, *5*(3).

Hall, J. H., & Brummer, L. (1999). The relationship between the market value of a company and internal performance measurements. *Available at SSRN 141189*.

Harrison, J. S., & Freeman, R. E. (1999). Stakeholders, social responsibility, and performance: Empirical evidence and theoretical perspectives. *Academy of management Journal*, *42*(5), 479–485.

Hashim, S., & Hassan, H. H. (2017). The impact of capital structure on financial performance of malaysian public listed construction firms. *International Journal of Advanced Research and Publications (IJARP)*, *1*(3), 195–206.

Herciu, M., Ogrean, C., & Belascu, L. (2012). Leveraging tangible and intangible assets by using a possible firm competitiveness index. *Global business and economics review*, *14*(1-2), 115–124.

Hongli, J., Ajorsu, E. S., & Bakpa, E. K. (2019). The effect of liquidity and financial leverage on firm performance: Evidence from listed manufacturing firms on the ghana stock exchange. *Research Journal of Finance and Accounting*, *10*(8), 91–100.

Hurlin, C. (n.d.). *L'économétrie des données de panel: Modèles linéaires simples*.

Iavorskyi, M. (2013). The impact of capital structure on firm performance: Evidence from ukraine. *Kyiv School of Economics*, *36*.

İltaş, Y., & Demirgüneş, K. (2020). Asset tangibility and financial performance: A time series evidence. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *6*(2), 345–364.

Irungu, A. M., Muturi, W., Nasieku, T., & Ngumi, P. (2018). Effect of asset tangibility on financial performance of listed firms in the nairobi securities exchange. *Journal of Finance and Accounting*, *2*(3), 55–74.

Issor, Z. (2017). La performance de l'entreprise: Un concept complexe aux multiples dimensions. *Projectics/Proyéctica/Projectique*, *17*(2), 93–103.

Jabbouri, I., & Attar, A. E. (2018). The dividend paradox: A literature review. *International Journal of Markets and Business Systems*, *3*(3), 197–221.

Jamaludin, J., Singhb, B., & Sufarc, S. B. (2023). Effect of dividends policy on firms size, leverage and performance.

Jensen, M. C., & Meckling, W. H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance* (pp. 77–132). Gower.

Khan, K., Lamrani, H. C., & Khalid, S. (2019). The impact of dividend policy on firm performance: A case study of the industrial sector. *Risk Governance & Control: Financial Markets & Institutions*, *9*(3).

Kheiri, A. (2024). Dividend policy and its impact on the value of economic institutions:«a case study of the saidal group 2017-2022». *15*(2), 153–168.

Khouiled, B. (2018). Tests of homogeneity in panel data with eviews.

Kotšina, S., & Hazak, A. (2012). Does investment intensity impact company profitability? a cross-country empirical study. *Proceedings from the 2nd International Conference on Economics, Trade and Development IPEDR*, *36*.

Kowerski, M., & Haniewska, L. (2022). The miller–modigliani dividend irrelevance theory as a warning for investors looking for quick profits from investments in companies paying dividends. *Financial Internet Quarterly*, *18*(4), 77–88.

Kusumanisita, A. I., & Minanti, F. H. (2021). Stock valuation analysis of dividend discount model, free cash flow to equity and walter model in investment decision. *Agregat: Jurnal Ekonomi dan Bisnis*, *5*(1), 78–96.

Lartey, V. C., Antwi, S., & Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in ghana. *International journal of business and social science*, *4*(3), 48–56.

Laur, B. (2014). Dividend policy and the lintner model: Why do firms pay dividends? *Available at SSRN 3524290*.

Laux, J. A. (2011). Topics in finance, part vii: Dividend policy.

Lazăr, S. (2016). Determinants of firm performance: Evidence from romanian listed companies. *Review of Economic and Business Studies (REBS)*, (17), 53–69.

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American economic review*, *46*(2), 97–113.

Loderer, C., & Waelchli, U. (2010). Firm age and performance.

Lukusa, J. M. (n.d.). Impact de la structure financière sur la performance: Tests empiriques sur les données de panel des petites et moyennes entreprises congolaises.

Lyroudi, K., & Lazaridis, Y. (2000). The cash conversion cycle and liquidity analysis of the food industry in greece. *Available at SSRN 236175*.

Mike, G. D. (2017). *Dividend and dividend policy* [Doctoral dissertation, Faculty of Management Sciences, University of Jos].

Mitra, G., Gupta, V., & Gupta, G. (2023). Impact of macroeconomic factors on firm performance: Empirical evidence from india. *Investment Management & Financial Innovations*, *20*(4), 1.

Moundigbaye, M., Rea, W. S., & Reed, W. R. (2018). Which panel data estimator should i use?: A corrigendum and extension. *Economics*, *12*(1), 20180004.

Multicollinearity, D. (2022). Diagnosing multicollinearity.cornell statistical consulting unit.

Muriungi, A., & Mwangi, M. (2020). Dividend theory and empirical evidence: A theoretical perspective.

Nguyen, C. (2023). Macroeconomic factors and firm performance–the case in the stock. *Science & Technology Development Journal: Economics-Law & Management*, *7*(1), 4000–4007.

Njoku, O. E., & Lee, Y. (2024). Revisiting the effect of dividend policy on firm performance and value: Empirical evidence from the korean market. *International Journal of Financial Studies*, *12*(1), 22.

Nurmadi, R., & Novietta, L. (2022). The effect of profitability and liquidity on firm value with dividend policy as moderating variable. *Accounting and Business Journal*, *4*(1), 62–74.

Odusanya, I. A., Yinusa, O. G., & Ilo, B. M. (2018). Determinants of firm profitability in nigeria: Evidence from dynamic panel models. *SPOUDAI-Journal of Economics and Business*, *68*(1), 43–58.

Ogebe, P., Ogebe, J., & Alewi, K. (2013). The impact of capital structure on firms' performance in nigeria.

Olawale, L. S., Ilo, B. M., & Lawal, F. K. (2017). The effect of firm size on performance of firms in nigeria. *Aestimatio: The IEB International Journal of Finance*, (15), 68–87.

Onyeogo, S. (2017). *Impact of dividend policy on corporate performance in nigeria* [Doctoral dissertation, Faculty of management sciences, delta state university, abraka].

Opeyemi, A. (2019). The impact of firm size on firms performance in nigeria: A comparative study of selected firms in the building industry in nigeria. *Asian Development Policy Review*, *7*(1), 1–11.

Oubya, G. (2016). *Contribution à l'étude des déterminants de la performance de l'entreprise: Impact de la création de valeur pour le client sur la performance des entreprises hôtelières en tunisie* [Doctoral dissertation, COMUE Université Côte d'Azur (2015-2019)].

Pacini, K., Mayer, P., Attar, S., & Azam, J. (2017). Macroeconomic factors and firm performance in the united kingdom. *Journal of Smart Economic Growth*, *2*(3), 1–11.

Park, H. M. (2011). Practical guides to panel data modeling: A step-by-step analysis using stata. *Public Management and Policy Analysis Program, Graduate School of International Relations, International University of Japan*, *12*, 1–52.

Paviththira, R. (2015). Impact of dividend policy on corporate profitability: Evidence from listed beverage food and tobacco companies on colombo stock exchange (cse) in sri lanka. *12th International Conference on Business Management (ICBM)*.

Pervan, M., Pervan, I., & Ćurak, M. (2017). The influence of age on firm performance: Evidence from the croatian food industry. *Journal of Eastern Europe Research in Business and Economics*, *2017*(1), 1–10.

Pratheepan, T. (2014). a panel data analysis of profitability determinants: Empirical results from sri lankan manufacturing companies. *International Journal of Economics, Commerce and Management*, *2*(12).

Priya, P. V., & Mohanasundari, M. (2016). Dividend policy and its impact on firm value: A review of theories and empirical evidence. *Journal of Management Sciences and Technology*, *3*(3), 59–69.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? some evidence from international data. *The journal of Finance*, *50*(5), 1421–1460.

Rasyid, R. (2021). The influence of enterprise risk management on firm performance of family firms with the moderating effect of managerial ownership. *Seventh Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2021)*, 517–525.

Rehman, O. U. (2016). Impact of capital structure and dividend policy on firm value. *Journal of Poverty, Investment and Development*, *21*(1), 40–57.

Rizka, N. R., & Ulfida, D. (2024). Asset growth and firm performance: The moderating role of asset utilization. *BAJ: Behavioral Accounting Journal*, *7*(2), 118–135.

Rossi, M., et al. (2016). The impact of age on firm performance: A literature review. *Corporate Ownership & Control*, *13*(2), 217–223.

Saleem, F., & Alifiah, M. N. (2017). The effect of earnings management on dividend policy in pakistan. *Sains Humanika*, *9*(1-3).

Sathvik, S., & Nirmala, J. (2017). Dividend decisions and firm value: A literature review on dividend theories and select empirical studies. *Journal of Library and Information Studies*, *7*(3), 246–254.

Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American journal of applied mathematics and statistics*, *8*(2), 39–42.

Smith, D. M. (2009). Residual dividend policy. *Dividends and dividend policy*, *1*, 115–126.

Stierwald, A. (2009). Determinants of firm profitability-the effect of productivity and its persistence. *Melbourne Institute of Applied Economic and Social Research*, *25*.

St-Pierre, J., Lavigne, B., & Bergeron, H. (2005). Les indicateurs de performance financière et non financière: Complémentarité ou substitution? étude exploratoire sur des pme manufacturières. *Comptabilité et Connaissances*, CD–Rom.

Sudrajat, J., Daud, Z. M., et al. (2020). The effect of firm's size on corporate performance. *International Journal of Advanced Computer Science and Applications*, *11*(5).

Suresh, N., & Pooja, M. (2020). A study on determinants of dividend policy and its impact on financial performances: A panel data analysis for indian listed firms. *Journal of Seybold Report ISSN NO*, *1533*, 9211.

Taleb, L. (2019). Politique de distribution de dividendes dans le cadre d'un marché parfait: Une revue de la littérature (dividend policy in perfect market: A literature review). *Available at SSRN 3313799*.

Tangen, S. (2003). An overview of frequently used performance measures. *Work study*, *52*(7), 347–354.

Taouab, O., & Issor, Z. (2019). Firm performance: Definition and measurement models. *European Scientific Journal*, *15*(1), 93–106.

Tharsika, K., & Thaneshan, G. (2023). Impact of dividend policy on firm performance: Evidence from sri lankan listed companies.

Tran, Q. T. (2024). *Dividend policy: A business perspective*. Emerald Publishing Limited.

Vătavu, S. (2014). The determinants of profitability in companies listed on the bucharest stock exchange. *Annals of the University of Petrosani. Economics*, *14*(1), 329–338.

Venanzi, D. (2011). Financial performance measures and value creation: The state of the art.

Waswa, C. W., Mukras, M. S., & Oima, D. (2018). Effect of liquidity on financial performance of the sugar industry in kenya.

Wirama, D. G., Krisnadewi, K. A., Artini, L. G. S., & Ardiana, P. A. (2024). Dividend policy and residual dividend theory: Evidence from indonesia. *Asian Journal of Accounting Research*, *9*(3), 201–216.

Yameen, M., Farhan, N. H., & Tabash, M. I. (2019). The impact of liquidity on firms' performance: Empirical investigation from indian pharmaceutical companies. *Academic journal of interdisciplinary studies*, *8*(3), 212–220.

Zekri, L., et al. (2020). *Les principaux déterminants de la politique de dividendes des grandes entreprises privées algériennes* [Doctoral dissertation].

Zsidó, K. E. (2015). Historical overview of the literature on business performance measurement from the beginning to the present. *Apstract: Applied Studies in Agribusiness and Commerce*, *9*(3), 39–46.

Appendices

Appendix Nº 01: Table of Macroeconomic variables:

Variables	Measurement	Previous studies
Interest rate	The official lending rate during a year	(Egbunike & Okerekeoti, 2018), (Pacini et al., 2017)
Inflation rate	The annual change in the consumer price index (CPI)	(Egbunike & Okerekeoti, 2018), (Nguyen, 2023), (Mitra et al., 2023)
Exchange rate	The official exchange rate during a year	(Egbunike & Okerekeoti, 2018), (Pacini et al., 2017), (Mitra et al., 2023)
Gross domestic product	The annual change in GDP (GDP = Consumption + Investment + Government spending + Net exports)	(Egbunike & Okerekeoti, 2018), (Nguyen, 2023), (Mitra et al., 2023)
Rate of domestic debt interest payments to the net new borrowing	$\frac{\text{Domestic debt interest payments}}{\text{Net new borrowing}}$	(Pacini et al., 2017)
Rate of domestic debt interest payments to total income tax	$\frac{\text{Domestic debt interest payments}}{\text{Total income tax}}$	(Pacini et al., 2017)

Source: **Elaborated by the student**

Appendix Nº 02: Descriptive analysis of variables

```
. summarize roa div liq fl tang size

Variable |       Obs      Mean       Std. Dev.    Min        Max
---------|-----------------------------------------------------------
roa      |       305    .0743939     .090035  -.2881545    .778841
div      |       305    .2444624    .4576206          0   3.492063
liq      |       305    .1560663    .1841744    .000497     .91261
fl       |       305    .4787541    .2793564   .0156931   .9844265
tang     |       305    .2122835    .2204112          0    .840522
---------|-----------------------------------------------------------
size     |       305     9.50974    .6816855   7.892768   11.45866
```

Appendix Nº 03: Correlation matrix between model variables

```
. pwcorr roa div liq fl tang size , star(5)

     |     roa      div      liq       fl     tang     size
-----|------------------------------------------------------
roa  |   1.0000
div  |   0.2264*  1.0000
liq  |   0.2475*  0.0690   1.0000
fl   |  -0.3705* -0.1199* -0.0809   1.0000
tang |  -0.1107   0.0148  -0.2962* -0.0096   1.0000
size |  -0.0473   0.1579* -0.1807*  0.2528*  0.2632*  1.0000
```

Appendix Nº 04: Variance Inflation Factor (VIF) Results

```
. regress roa div liq fl tang size

Source   |       SS       df       MS              Number of obs =     305
---------|------------------------------           F(  5,   299) =   17.03
Model    |  .546215934     5  .109243187           Prob > F      =  0.0000
Residual |  1.91809779   299  .006415043           R-squared     =  0.2217
---------|------------------------------           Adj R-squared =  0.2086
Total    |  2.46431372   304  .008106295           Root MSE      =  .08009

------------------------------------------------------------------------------
roa   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------|---------------------------------------------------------------------
div   |   .0314353   .0103602     3.03   0.003     .0110472    .0518234
liq   |   .0968601   .0264277     3.67   0.000     .0448523    .1488679
fl    |  -.1142745   .0173228    -6.60   0.000    -.1483647   -.0801844
tang  |  -.0314888     .02249    -1.40   0.163    -.0757476      .01277
size  |   .0096601   .0074358     1.30   0.195    -.0049731    .0242932
_cons |   .0211219   .0682603     0.31   0.757    -.1132096    .1554534
------------------------------------------------------------------------------
```

```
. vif

Variable |       VIF       1/VIF
---------|----------------------
size     |      1.22    0.821299
tang     |      1.16    0.858773
liq      |      1.12    0.890738
fl       |      1.11    0.901095
div      |      1.07    0.938815
---------|----------------------
Mean VIF |      1.14
```

Appendix Nº 05: Fisher Test Results

```
. xtreg roa div liq  fl tang size, fe

Fixed-effects (within) regression               Number of obs      =       305
Group variable: firm                            Number of groups   =        61
R-sq:  within  = 0.0574                         Obs per group: min =         5
between = 0.0881                                               avg =       5.0
overall = 0.0627                                               max =         5

                                                F(5,239)           =      2.91
corr(u_i, Xb)  = -0.5254                        Prob > F           =    0.0143

------------------------------------------------------------------------------
roa     |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------|---------------------------------------------------------------------
div     |   .0150213   .0119398     1.26   0.210    -.0084994    .0385421
liq     |   .0255287   .0549918     0.46   0.643    -.0828019    .1338593
fl      |  -.1435028   .0413096    -3.47   0.001    -.2248801   -.0621255
tang    |  -.0294811   .0710274    -0.42   0.678    -.1694008    .1104387
size    |   .0851422   .0386116     2.21   0.028     .0090797    .1612047
_cons   |  -.6679817    .365772    -1.83   0.069     -1.38853    .0525669
--------|---------------------------------------------------------------------
sigma_u |  .07572115
sigma_e |  .06673669
rho     |  .56281768   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(60, 239) =     3.19             Prob > F = 0.0000

. estimates store fixed
```

Appendix Nº 06: Hausman Test Results

```
. xtreg roa div liq  fl tang size, re

Random-effects GLS regression                   Number of obs      =       305
Group variable: firm                            Number of groups   =        61

R-sq:  within  = 0.0389                         Obs per group: min =         5
between = 0.3701                                               avg =       5.0
overall = 0.2175                                               max =         5

                                                Wald chi2(5)       =     42.81
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
roa     |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------|---------------------------------------------------------------------
div     |   .0227356    .010487     2.17   0.030     .0021814    .0432898
liq     |   .0785153   .0340912     2.30   0.021     .0116979    .1453328
fl      |  -.1196188   .0228996    -5.22   0.000    -.1645011   -.0747365
tang    |   -.042654   .0311685    -1.37   0.171    -.1037431    .0184352
size    |   .0149618   .0107005     1.40   0.162    -.0060108    .0359344
_cons   |  -.0193778   .0990071    -0.20   0.845    -.2134281    .1746725
--------|---------------------------------------------------------------------
sigma_u |  .04525312
sigma_e |  .06673669
rho     |  .31497402   (fraction of variance due to u_i)
------------------------------------------------------------------------------


. estimates store random


. hausman fixed random

            ---- Coefficients ----
     |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
     |     fixed        random       Difference          S.E.
-----|------------------------------------------------------------------------
div  |    .0150213     .0227356       -.0077143        .0057081
liq  |    .0255287     .0785153       -.0529867        .0431497
fl   |   -.1435028    -.1196188        -.023884        .0343815
tang |   -.0294811     -.042654        .0131729        .0638234
size |    .0851422     .0149618        .0701804        .0370993
------------------------------------------------------------------------------
                     b = consistent under Ho and Ha; obtained from xtreg
      B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

           chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                   =        7.34
         Prob>chi2 =      0.1964
```

Appendix Nº 07: Breusch-Pagan Test Results

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

roa[firm,t] = Xb + u[firm] + e[firm,t]

   Estimated results:
              |       Var     sd = sqrt(Var)
--------------|---------------------------------
    roa       |   .0081063        .090035
    e         |   .0044538       .0667367
    u         |   .0020478       .0452531

Test:   Var(u) = 0
                     chibar2(01) =    49.14
                   Prob > chibar2 =   0.0000
```

Appendix Nº 08: Autocorrelation Test Results

```
. xtserial roa div liq size fl tang

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
  F(  1,      60) =      0.182
         Prob > F =      0.6715
```

Appendix Nº 09: Heteroscedasticity Test Results

```
. xtgls roa div liq size fl tang,  igls panels (heteroskedastic)

Iteration 1: tolerance = .04616
Iteration 2: tolerance = .02600691
Iteration 3: tolerance = .01091089
Iteration 4: tolerance = .00312123
Iteration 5: tolerance = .00193999
Iteration 6: tolerance = .0017372
Iteration 7: tolerance = .0012879
Iteration 8: tolerance = .00109039
Iteration 9: tolerance = .00082608
Iteration 10: tolerance = .00057811
Iteration 11: tolerance = .00038516
Iteration 12: tolerance = .00024882
Iteration 13: tolerance = .00015769
Iteration 14: tolerance = .00009877
Iteration 15: tolerance = .00006144
Iteration 16: tolerance = .00003808
Iteration 17: tolerance = .00002356
Iteration 18: tolerance = .00001456
Iteration 19: tolerance = 9.007e-06
Iteration 20: tolerance = 5.573e-06
Iteration 21: tolerance = 3.452e-06
Iteration 22: tolerance = 2.140e-06
Iteration 23: tolerance = 1.328e-06
Iteration 24: tolerance = 8.252e-07
Iteration 25: tolerance = 5.131e-07
Iteration 26: tolerance = 3.194e-07
Iteration 27: tolerance = 1.989e-07
Iteration 28: tolerance = 1.240e-07
Iteration 29: tolerance = 7.734e-08


Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   no autocorrelation

Estimated covariances      =        61          Number of obs      =       305
Estimated autocorrelations =         0          Number of groups   =        61
Estimated coefficients     =         6          Time periods       =         5
                                                 Wald chi2(5)       =    533.97
Log likelihood             =  509.2483          Prob > chi2        =    0.0000


------------------------------------------------------------------------------
roa   |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------|-----------------------------------------------------------------------
div   |    .021962   .0040514     5.42   0.000     .0140214    .0299026
liq   |   .0699127   .0083791     8.34   0.000     .0534899    .0863355
fl    |  -.0855284    .004927   -17.36   0.000    -.0951851   -.0758718
tang  |  -.0213582   .0085531    -2.50   0.013     -.038122   -.0045943
size  |   .0180881   .0028236     6.41   0.000     .0125539    .0236223
_cons |  -.0910652   .0260066    -3.50   0.000    -.1420372   -.0400931
------------------------------------------------------------------------------


. estimates store hetero

. xtgls roa div liq  fl tang size, igls
```

```
Iteration 1: tolerance = 0


Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation

Estimated covariances      =         1          Number of obs      =       305
Estimated autocorrelations =         0          Number of groups   =        61
Estimated coefficients     =         6          Time periods       =         5
                                                Wald chi2(5)       =     86.85
Log likelihood             =  340.2429          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
roa   |      Coef.   Std. Err.      z    P>|z|      [95% Conf. Interval]
------|-----------------------------------------------------------------------
div   |   .0314353   .0102578     3.06   0.002     .0113304    .0515402
liq   |   .0968601   .0261664     3.70   0.000     .0455748    .1481454
fl    |  -.1142745   .0171516    -6.66   0.000    -.1478911    -.080658
tang  |  -.0314888   .0222677    -1.41   0.157    -.0751327    .0121551
size  |   .0096601   .0073623     1.31   0.189    -.0047698    .0240899
_cons |   .0211219   .0675856     0.31   0.755    -.1113434    .1535872
------------------------------------------------------------------------------


. estimates store homosk

. local df = e(N_g) - 1

. lrtest hetero, df(60)

Likelihood-ratio test                                 LR chi2(60) =    338.01
(Assumption: homosk nested in hetero)                 Prob > chi2 =    0.0000
```

Appendix Nº 10: Regression Results Using the PCSE Method

```
 . xtpcse roa div liq  fl tang size

 Linear regression, correlated panels corrected standard errors (PCSEs)

 Group variable:   firm                          Number of obs      =       305
 Time variable:    year                          Number of groups   =        61
 Panels:           correlated (balanced)         Obs per group: min =         5
 Autocorrelation:  no autocorrelation                           avg =         5
                                                                max =         5
 Estimated covariances      =      1891          R-squared          =    0.2217
 Estimated autocorrelations =         0          Wald chi2(5)       =    178.65
 Estimated coefficients     =         6          Prob > chi2        =    0.0000

 ------------------------------------------------------------------------------
       |            Panel-corrected
 roa   |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
 ------|-----------------------------------------------------------------------
 div   |   .0314353   .0092813     3.39   0.001     .0132443    .0496262
 liq   |   .0968601   .0268007     3.61   0.000     .0443316    .1493886
 fl    |  -.1142745   .0116537    -9.81   0.000    -.1371154   -.0914336
 tang  |  -.0314888   .0102148    -3.08   0.002    -.0515095   -.0114682
 size  |   .0096601     .00427     2.26   0.024     .0012911     .018029
 _cons |   .0211219   .0375521     0.56   0.574     -.052479    .0947228
 ------------------------------------------------------------------------------
```