The influence of the cost of debt, cost of equity and weighed average cost of capital on dividend policy decision: evidence from non-financial companies listed on the Frankfurt Stock Exchange

**Abstract**

Non-financial companies listed on the Frankfurt Stock Exchange face considerable difficulties due to expensive funding and the need to make complex decisions about their capital structure. These problems impact their judgments about dividend policy, resulting in ambiguity and possible inefficiency. This study draws on the bird-in-hand theory to investigate the influence of the cost of capital on dividend policy decisions among non-financial firms listed on the Frankfurt Stock Exchange, focusing on 227 companies from 2005 to 2022. The data for this study were sourced from Thomson Reuters DataStream. Employing the common shock autoregressive distributed lag (CS-ARDL) and two- step generalized method of moments (GMM) estimations, findings reveal that the cost of debt consistently negatively impacts dividend payouts and coverage ratios. In contrast, the cost of equity has an insignificant effect. Conversely, the weighted average cost of capital positively influences dividend payouts and coverage ratios but negatively influences dividend yield. All the findings supported the bird-in-hand theory except for the negative impact of WACC on dividend yield. These insights highlight the importance of considering the cost of capital and market share dynamics in dividend policy formulation. Firms should prioritize efficient debt management to sustain dividend distributions, and aligning dividend policies with overall capital structure management is crucial in this regard, providing a sense of reassurance and confidence to the firms and their stakeholders. This study provides valuable guidance for financial decision-makers navigating dividend-related strategies within corporate environments.

**Keywords** Capital, Cost, Dividend, Market share, non-financial

# Introduction

The notion of cost of capital is fundamental in financial decision-making for organizations, playing a crucial role in strategic planning and resource allocation [[35](#_bookmark41)]. The term minimum rate of return is the lowest level of profit that investors anticipate receiving from their investments in a company’s projects and initiatives. It measures the costs of acquiring funding for many parts of a company’s operations, such as expenditures in new projects, expansion efforts and daily activities [[34](#_bookmark40)]. The intricacies of the cost of capital allow companies to assess the viability and profitability of prospective investment ventures.

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profitability of prospective investment ventures. Compa- nies can determine the potential value for shareholders by analyzing the expected returns of a project or investment about the cost of capital [[138](#_bookmark144)]. The evaluation is essential for making informed decisions on the allocation of capi- tal, as it assists in prioritizing projects with the greatest probability of generating returns that surpass the cost of capital.

Dividend policy is an essential aspect of finance that regulates the allocation of profits to a firm’s shareholders [[66](#_bookmark72)]. It refers to a company’s plan for dispersing profits while considering the need for reinvestment and long- term growth. This policy is essential for balancing the interests of shareholders who want to profit from their investments and the company’s goals of keeping earnings for future growth and development projects [[70](#_bookmark76)]. Com- panies employ a dividend policy to balance distributing dividends to shareholders and keeping funds for opera- tional requirements and strategic growth prospects [[52](#_bookmark58)].

The relationship between the cost of capital and divi- dend policy is essential for organizations seeking to opti- mize their capital structure and enhance shareholder value [[43](#_bookmark49)]. The expense of acquiring funds is a vital ele- ment in making financial decisions. It is used to assess investment opportunities and determine the most effi- cient allocation of financial resources within a company [[116](#_bookmark122)]. By examining how changes in the cost of capital impact decisions on dividend policy, companies can learn about the complex choices between paying profits to shareholders and holding earnings for reinvestment [[133](#_bookmark139)]. When evaluating dividend policy, corporations must balance the desires of shareholders who want immediate profits from their investments with the need to maintain financial flexibility and support future growth plans [[37](#_bookmark43)]. The cost of capital is a crucial perspective to assess these trade-offs. When the cost of capital is high, which sug- gests that investors anticipate a significant return on their investment, companies may retain more revenues to fund internal growth prospects instead of paying out divi- dends [[109](#_bookmark115)]. In contrast, when the cost of capital is low, indicating reduced investor expectations, corporations may be more motivated to allocate earnings to sharehold-

ers through dividend payments.

Knowing how the cost of capital affects dividend policy decisions allows companies to make well-informed deci- sions about their dividend payout ratios [[10](#_bookmark16)]. Companies can balance rewarding shareholders with dividends and conserving revenues for future investment by aligning dividend payouts with the cost of capital [[100](#_bookmark106)]. Striking a balance between retaining shareholder trust, supporting long-term growth objectives and ensuring financial agil- ity and resilience in the face of market volatility is crucial. The influence of the cost of capital on dividend policy is

complex and emphasizes the significance of strategic financial decision-making for companies. Companies can strategically utilize information from the cost of capital to improve their dividend policy, resulting in increased shareholder value, strengthened investor confidence and sustained long-term growth [[136](#_bookmark142)]. Furthermore, by syn- chronizing dividend payouts with the cost of capital, com- panies can effectively allocate financial resources and take advantage of strategic growth opportunities, thus main- taining a competitive advantage in dynamic market set- tings [[3](#_bookmark9)].

There is a noticeable gap in the literature regarding empirical studies that delve into the influence of the cost of capital on dividend policy in short and long periods. While numerous studies have explored factors affect- ing dividend policy, such as tax consideration, cash flow, profitability and earnings stability [[13](#_bookmark19), [57](#_bookmark63), [131](#_bookmark137)], there is a clear need to broaden our understanding. This neces- sitates further empirical studies to explore how the cost of capital also affects dividend policy in both short- and long-run periods. Some studies have examined the impact of the cost of debt and the cost of equity on divi- dend policy decisions, with a focus on dividend payout, neglecting dividend yield and dividend coverage ratio [[49](#_bookmark55), [68](#_bookmark73), [80](#_bookmark86), [122](#_bookmark128), [59](#_bookmark65)]. A dividend payout does not give a com- plete view of a company’s financial stability and longev- ity. Hence, it should not be relied upon as the sole metric to evaluate dividend policy. Furthermore, the influence of the WACC on dividend policy decisions, particularly concerning dividend payout, cover ratio and dividend yield, remains unexplored.

Furthermore, the overlooked role of market share in influencing the relationship between various costs of capital and their impact on dividend policy decisions presents a unique research opportunity. This gap not only necessitates a direct examination of how market share might moderate this relationship but also holds the potential to provide practical advice for enterprises. The insights gained from these studies could guide organiza- tions in improving their capital structure and increasing the value for their shareholders [[139](#_bookmark145)].

Our study is guided by two key research questions: Firstly, we aim to understand how the cost of capital influ- ences dividend policy. Secondly, we explore whether mar- ket share can moderate this relationship. By addressing these questions, we aim to provide valuable insights that can inform dividend policy decisions and help practition- ers navigate the influence of market dynamics on the cost of capital–dividend policy relationship.

The research adds to the existing body of knowledge in several ways. First, we investigate how the cost of equity affects dividend payout, yield and coverage ratio. Financial analysts can use these findings to predict how

changes in the cost of equity might affect a company’s dividend policies. For instance, if a company’s cost of equity increases, it may lead to a reduction in dividend payout and yield, which could signal investors to reassess their investment decisions. This adds to the existing body of knowledge by investigating the impact of equity inves- tors’ expected returns on company dividend decisions. Companies may reduce dividend payouts and yields if they are compelled to keep more earnings to fund expan- sion due to a rising cost of equity. On the flip side, share- holders may be able to pay out larger dividends if the cost of equity drops. Understanding this relationship is one way to gain insight into the impact of equity financing costs on dividend initiatives.

Our research contributes to the theoretical under- standing of the relationship between the cost of debt and dividend payout, yield and coverage ratio and provides practical implications for financial decisions. Under- standing how these factors influence a company’s abil- ity to distribute dividends can guide financial analysts in their investment strategies. For instance, a rise in the cost of debt may necessitate a reduction in dividend cash on hand, lower payout ratios and lower dividend yields. These findings offer valuable insights into factors influ- encing dividend policies about debt servicing priorities, making them directly applicable in real-world financial scenarios.

Thirdly, our research assesses the significant influence of the WACC on dividend payout, dividend yield and dividend coverage ratio. The WACC, as a measure of the total cost of capital, directly impacts dividend policy and other financial strategies. A higher WACC could lead to a lower coverage ratio, lower yields and more conserva- tive dividend policies. This understanding of the effect of WACC on dividends is crucial for a comprehensive eval- uation of the influence of total capital costs on dividend decisions and sustainability.

Finally, our research makes a significant contribution to the field of corporate finance by investigating the mod- erating role of market share on the relationship between cost of capital and dividend policy. This study offers valu- able insights into how external market factors shape firms’ dividend policy decisions, enriching the existing literature on dividend policy and advancing our under- standing of the complex dynamics of corporate finance. The study’s findings are not only informative but also have the potential to shape future research and financial strategies.

Understanding the impact of the cost of capital on divi- dend policy choices is essential for firms, policymakers, managers, investors and stakeholders. This relationship provides valuable information on the financial factors that

influence dividend distribution plans, company decision- making and regulatory frameworks. By providing detailed insights, this research seeks to improve financial transpar- ency, boost the efficiency of capital allocation and pro- mote sustainable business growth. Ultimately, it equips stakeholders with the necessary knowledge to navigate the ever-changing corporate finance landscape efficiently.

# Literature review

**Bird‑in‑hand theory**

The bird-in-hand theory, formulated by Myron Gordon and John Lintner, provides valuable insights into the interplay between the cost of capital and a company’s dividend policy decisions [[52](#_bookmark58)]. It implies that investors prioritize receiving immediate dividends rather than taking the risk of uncertain future financial gains. The preference for dividends stems from the belief that they provide concrete and immediate profits, whereas capi- tal gains are unpredictable and may not materialize [[26](#_bookmark32)]. Companies consider this when making dividend distri- butions, considering how the cost of capital affects their decisions about dividend policies. The cost of capital signifies the minimum rate of return that investors want to invest in the company’s shares, considering the associ- ated risk level. When the cost of capital is elevated, indi- cating investors need higher returns to compensate for perceived risk, management may implement a more lib- eral dividend policy [[60](#_bookmark66)]. This is because delivering divi- dends offers investors instant profits and is less risky than potential future capital gains. Issuing dividends allows the company to attract investors and increase its stock price, thereby reducing the cost of capital [[135](#_bookmark141)].

Conversely, when the cost of capital is low, indicat- ing that investors are willing to accept reduced profits, management may choose to retain earnings rather than distribute dividends (Smith and Pennathur, [[124](#_bookmark130)]). By reinvesting profits into growth opportunities, the com- pany can achieve higher returns, thereby increasing the overall value of the company for its shareholders in the long run (Fajaria and Isnalita, [[47](#_bookmark53)]). Under these circum- stances, retaining profits may be more beneficial than distributing them as dividends. This strategy can result in higher future profits from capital appreciation and a lower cost of obtaining funds.

The bird-in-the-hand hypothesis suggests that the cost of capital influences dividend policy choices by chang- ing management’s assessment of investor preferences for immediate income versus potential future capital gains [[83](#_bookmark89)]. Companies may choose to distribute more divi- dends when the cost of capital is high and retain earnings for reinvestment when the cost is low.

Aside from the bird-in-hand theory, dividend policy studies have also incorporated additional theories, such as the dividend irrelevance theory, the agency theory and the signaling theory. A significant contribution, the Mod- igliani–Miller dividend irrelevance theory, posits that in a perfect market, a firm’s dividend policy has no impact on its value [[107](#_bookmark113)]. However, this theory’s practical appli- cability is limited due to its assumptions of the absence of taxes, transaction costs and market inefficiencies, which do not accurately represent real-world circumstances. This stark contrast between theory and reality under- scores the need for more comprehensive theories that can better reflect the complexities of the market.

The agency theory emphasizes the conflicts of inter- est between managers and shareholders. It proposes that increasing dividends can help alleviate these conflicts by decreasing the free cash flow accessible to managers, thereby restricting their capacity to pursue self-interested actions [[75](#_bookmark81)]. While this theory is pertinent, it mainly deals with internal governance concerns rather than the exter- nal costs of financing, which is the primary concern of this study. On the other hand, the signaling theory sug- gests that alterations in dividend payments provide inves- tors with valuable insights into a company’s prospects [[11](#_bookmark17)]. While this theory emphasizes the importance of dividends in providing information, it also underscores the need for a more comprehensive understanding of divi- dend decisions, particularly the impact of financing costs, for a complete comprehension of the consequences of capital structure.

The bird-in-hand theory, which considers investor pref- erences for dividends over future capital gains, is particu- larly advantageous for this study. It sheds light on why non-financial corporations may prioritize dividend pay- ments and provides a deeper understanding of investor behavior and its link to the firm’s cost of capital, making it a crucial component of this research.

In order to properly tackle the shortcomings of the bird-in-the-hand hypothesis, the study used several dividend policy variables, including the dividend payout ratio, dividend coverage ratio and dividend yield. These metrics offer tangible, data-driven assessments of a com- pany’s dividend policy, unveiling a more detailed com- prehension of investor preferences and behaviors. The study revealed that corporations employ various tactics regarding dividend payments and retained earnings, as evidenced by the dividend payout ratio analysis. The vari- ation in payout rules indicates that investor preferences are not uniform, contradicting the assumption of the bird-in-the-hand hypothesis that all investors universally favor high dividends [[127](#_bookmark133)].

The dividend coverage ratio overcomes the constraints of the theory by evaluating the long-term viability of

dividend payments. The indicator offers insights into the ability of firms to sustain dividend payments while main- taining financial stability [[23](#_bookmark29)]. The statement emphasized that confident investors may favor a well-rounded strat- egy that guarantees long-term financial stability rather than quick, large returns, thereby questioning the over- simplified perspective of the theory. The analysis of divi- dend yield enabled the researchers to assess the appeal of dividends to stock prices across different market situ- ations [[119](#_bookmark125)]. This statistic indicated that investor prefer- ences may vary depending on stock prices and market dynamics, questioning the notion that all investors have an equal preference for dividends.

**Hypothesis development**

***The influence of cost of debt on dividend policy decision***

The dividend payout ratio, dividend yield and dividend coverage ratio are essential indicators utilized to assess a company’s dividend policy. The cost of capital can impact all of these.

The dividend payout ratio quantifies the proportion of profits allocated to stockholders as dividends. When the cost of capital is high, and investors require greater returns to offset perceived risk, management tends to retain more earnings instead of dispersing them as divi- dends [[60](#_bookmark66)]. Adopting a conservative approach ensures that the company has sufficient funds to support future growth and maintain competitiveness, resulting in a lower dividend payout ratio. Alternatively, when capital expenses are minimal, management may allocate a greater part of profits as dividends, leading to an increased divi- dend payout ratio [[31](#_bookmark37)].

The dividend coverage ratio assesses the company’s ability to pay dividends by utilizing its earnings. When the cost of capital is elevated, management prioritizes retaining earnings to maintain financial stability and enhance future growth opportunities [[112](#_bookmark118)]. Consequently, funds are scarce for distributing dividends, leading to a decreased dividend coverage ratio. Conversely, when capi- tal is inexpensive, management has more flexibility to dis- tribute dividends, resulting in higher dividend coverage ratios because earnings comfortably cover the payments made to shareholders [[79](#_bookmark85)].

The dividend yield is a metric that compares a compa- ny’s annual dividend income to its stock price. Investors expect higher returns during periods of expensive capi- tal to justify the perceived risk. Management’s reluctance to disburse dividends may decrease the dividend yield [[95](#_bookmark101)]. Conversely, when capital is inexpensive, it incentiv- izes management to allocate more dividends to attract income-seeking investors, leading to increased dividend yields.

Jiang and Jiranyakul [[68](#_bookmark73)] investigated the correla- tion between the cost of debt and dividend payout among firms listed on the New York and Shanghai Stock Exchanges. The study gathered panel data from 537 listed companies on the New York Stock Exchange and 378 firms on the Shanghai Stock Exchange from 1992 to 2008. Utilizing both random and fixed effect models, the study aimed to determine the impact of the cost of debt on dividend payouts. Results indicated a positive and sig- nificant influence of the cost of debt on dividend payouts among firms listed on the New York Stock Exchange. In contrast, a significant negative influence was observed among firms listed on the Shanghai Stock Exchange.

Farooq and Jabbouri [[49](#_bookmark55)] examine the relationship between dividend payout ratios and cost of debt in emerg- ing markets, mainly focusing on the MENA region dur- ing the period from 2005 to 2011, finding a significantly negative association between dividend payout ratios and cost of debt, suggesting that high dividend payouts reduce information asymmetries, thereby leading to lower returns demanded by creditors, with a more pronounced effect observed in firms with higher information asym- metries, indicating the greater value relevance of high dividend payout ratios in firms with limited information availability.

Lucky and Akani [[81](#_bookmark87)] investigated the impact of the cost of capital on the dividend policy of deposit money banks in Nigeria, utilizing cross-sectional data from

15 banks’ financial statements for 2010–2017. They employed retention and dividend payout ratios as proxies for dividend policy, while the cost of short-term borrow- ings was used as a proxy for the cost of debt. Adopting the fixed effect regression model following Hausman’s test, they found a positive relationship between the cost of short-term borrowings and the dividend payout ratio, indicating that an increase in the cost of short-term bor- rowings positively affects the dividend payout ratio of deposit money banks.

Likitwongkajon and Sangchan [[80](#_bookmark86)] investigate the impact of dividends on debt pricing decisions using data from Thai-listed companies from 2000 to 2016. Through panel regression analysis, the study finds no significant association between the cost of debt capital and divi- dend payouts. This result remains consistent even when alternative dividend measurements are used during periods excluding the global financial crisis. The study contributes to understanding dividend payout conse- quences by highlighting that dividend may not offer addi- tional insight when there are minimal agency conflicts of interest, particularly in a dominant family-run business environment.

A study by [[6](#_bookmark12)] found that higher levels of debt are associated with lower dividend payouts, suggesting that

firms with higher debt levels face greater financial con- straints and prioritize debt repayments over dividend distributions.

Yusof and Ismail [[135](#_bookmark141)] conducted a study that found that companies with higher debt levels are more likely to pay lower dividends. This suggests that these com- panies prioritize using their funds for debt repayment rather than distributing dividends to shareholders. Jiang and Jiranyakul [[68](#_bookmark73)] found that the expense of borrowing money has an adverse impact on the distribution of prof- its to shareholders. Companies with higher costs associ- ated with their debt are less inclined to disburse their earnings as dividends, indicating that their debt obliga- tions constrain their ability to pay dividends. Kathuo et al.

[[72](#_bookmark78)] discovered a noteworthy inverse correlation between financial leverage and dividend payout ratio. Elevated lev- els of debt result in diminished dividend disbursements due to the augmented financial obligation of servicing the loan.

A study by Nguyen Trong and Nguyen [[97](#_bookmark103)] found that companies with elevated debt levels tend to decrease their dividend disbursements. This evidence supports the assertion that companies with substantial debt pri- oritize meeting their obligations rather than delivering dividends to reduce financial risk. A study by Ahmed et al. [[4](#_bookmark10)] revealed that companies with greater debt tend to adopt more cautious approaches regarding their divi- dend policy. Firms hold earnings to maintain adequate liquidity for debt repayments due to the elevated cost of debt. A study by Malik et al. [[84](#_bookmark90)] discovered a negative correlation between the degree of debt in companies and their dividend distributions. In other words, organiza- tions with higher debt levels are more likely to have lower dividend payouts. Firms are compelled to keep earnings for debt payments due to the higher cost of debt, which reduces the funds available for dividends. Based on these discussions, we hypothesized that:

*H1* The cost of debt statistically and significantly influ- ences dividend policy decisions.

**The influence of cost of equity on dividend policy decision** The cost of equity substantially impacts decisions related to dividend policy, affecting the dividend payout ratio, dividend yield and dividend coverage ratio. These meas- ures are crucial for investors when evaluating a company’s financial well-being and appeal.

The dividend payout ratio reflects the portion of earn- ings distributed to shareholders as dividends, reflecting management’s strategy for profit allocation. When the cost of equity is elevated, which signifies that inves- tor require greater returns to offset perceived risk,

management frequently maintains a reduced divi- dend payout ratio [[15](#_bookmark21)]. This cautious approach helps safeguard profits for future investments, promoting financial stability and investor confidence. Conversely, management may opt to increase the dividend payout ratio during low equity costs to attract income-seeking investors, potentially enhancing shareholder value [[99](#_bookmark105)].

The dividend coverage ratio evaluates a company’s capacity to fulfill dividend commitments by utilizing earnings. In response to higher equity costs, manage- ment may prioritize retaining earnings to fund growth initiatives and mitigate future uncertainties, potentially resulting in a lower dividend coverage ratio [[21](#_bookmark27)]. Con- versely, a decrease in the cost of equity could lead to an improved dividend coverage ratio, indicating sufficient earnings to support dividend payments and reflecting a strong financial position [[128](#_bookmark134)].

Equity expenses also influence the dividend yield, a metric that quantifies the annual dividend income of the stock price. A higher cost of equity often cor- responds with a lower dividend yield, as investors demand higher returns to offset investment risks [[38](#_bookmark44)]. In response, management may reduce the dividend payout ratio to allocate more funds for reinvestment, lowering the dividend yield. Conversely, a decrease in the cost of equity could result in an increased dividend yield, appealing to investors seeking consistent income [[67](#_bookmark74), [101](#_bookmark107)].

The cost of equity is crucial in determining dividend policy decisions and shaping investors’ perception of a company’s financial success and appeal. Shchurina and Mustafina [[122](#_bookmark128)] studied dividend strategies in rapidly growing information technology firms, analyzing the impact of cash dividends and stock buybacks on opti- mizing the cost of capital and enhancing overall com- pany value. Their research in the technology sectors of the USA and Russia highlighted differences in dividend policies, focusing on share repurchases demonstrating positive effects on company value and financial stability, potentially reducing the cost of capital.

A study by Gugler [[55](#_bookmark61)] revealed a negative correlation between increased equity costs and reduced dividend payouts. Companies that experience increased equity costs often choose to implement more cautious dividend strategies to handle investor expectations and maxi- mize capital allocation effectively. A study by Esqueda and O’Connor [[46](#_bookmark52)] emphasizes the important impact of equity costs on dividend policy decisions. Companies with higher shareholder-required rates of return tend to retain earnings instead of distributing them as divi- dends to promote future growth and preserve financial flexibility.

A study by Goergen et al. [[54](#_bookmark60)] found that companies make modest adjustments to their dividend payments in response to changes in predicted earnings, which are influenced by the cost of equity. Firms emphasize keep- ing earnings for investment possibilities and reducing the dividend payout ratio in response to higher costs of equity. A study by Dempsey and Sheng [[41](#_bookmark47)] high- lighted that companies modify their dividend policies in response to changes in stock costs. Increased stock costs require meticulous resource allocation, typically leading to reduced dividend disbursements, to secure long-term expansion and uphold financial stability. Based on these discussions, we assumed that:

*H2* The cost of equity statistically and significantly influences dividend policy decisions.

**The influence of weighted average cost of capital (WACC) on dividend policy decision**

The weighted average cost of capital (WACC) signifi- cantly impacts company dividend policy decisions. It reflects a company’s overall financing cost and influences investor expectations regarding dividend distributions. A higher WACC, indicating increased financing costs, often results in a decreased dividend payout ratio. This implies that management can keep a larger portion of the prof- its and allocate them toward projects that provide greater returns than the WACC, increasing the company’s value for its shareholders. In contrast, reducing the WACC decreases the financing expenses, enabling management to allocate a greater proportion of profits as dividends and thereby raising the dividend payout ratio.

Furthermore, an increase in WACC tends to reduce the dividend coverage ratio. Increased financing expenses may restrict the company’s capacity to use its earnings to make dividend payments. Conversely, a decrease in WACC improves the dividend coverage ratio because lower financing costs provide greater flexibility in using earnings to meet dividend commitments.

Lastly, a higher WACC is typically associated with a lower dividend yield. Investors demand higher returns to compensate for increased capital costs, leading to lower stock prices relative to dividends. Conversely, a decrease in WACC can result in an increased dividend yield, as lower expected profits may lead to higher stock prices relative to dividends.

A study by [[59](#_bookmark65)] on the firms in the consumer goods and agricultural sectors listed on the Indonesia Stock Exchange found that investment and funding decisions did not substantially impact firm value. However, divi- dend policy had a notable adverse effect, while the cost

of capital significantly benefited firm value. These find- ings highlight the importance of considering WACC in dividend policy decisions. Companies can optimize divi- dend distributions by effectively managing WACC while enhancing shareholder value and financial stability. Based on the information presented, we hypothesized that:

*H3* WACC statistically and significantly influences divi- dend policy decisions.

# Methodology

**Sample and data**

Germany was selected as the study’s focal point due to its robust economy, well-established financial market and substantial non-financial companies listed on the Frank- furt Stock Exchange [[121](#_bookmark127), [129](#_bookmark135)]. Its diverse industrial sec- tors and varied corporate governance practices make Germany an ideal setting to explore the impact of the cost of capital on dividend policy decisions.

The research utilized data from 227 non-financial com- panies listed on the Frankfurt Stock Exchange, covering an extensive 18-year period from 2005 to 2022. Employ- ing a purposive sampling technique ensured the selection of companies with complete financial data during this time frame, enhancing the study’s representativeness and mitigating biases related to missing data.

Thomson Reuters Eikon Datastream was the pri- mary data source, providing reliable and comprehen- sive financial information widely trusted by researchers

and practitioners [[12](#_bookmark18), [19](#_bookmark25)]. Leveraging this data source ensured consistency and standardization across the selected time frame, facilitating robust analysis and inter- pretation of the findings.

Non-financial companies were specifically targeted for analysis to focus on firms operating in various industries. Financial institutions with potentially divergent dividend policies and cost of capital dynamics due to regulatory constraints and distinct business models were excluded [[87](#_bookmark93)]. This approach aimed to yield insights applicable to a broader spectrum of industries and effectively capture the relationship between the cost of capital and dividend policy decisions.

**Dependent and independent variables**

The study utilized three dependent variables and four independent variables, as given in Table [1](#_bookmark0)

**Dependent variables**

***Dividend payout ratio***

The dividend payout ratio is a significant indicator that quantifies the percentage of a company’s profits that it distributes to its shareholders in the form of dividends. Evaluating a firm’s actions regarding its dividend policy is of utmost importance [[126](#_bookmark132)]. Gaining insight into the var- iables that influence this proportion is crucial for inves- tors and policymakers to evaluate a company’s financial health and the efficacy of its capital allocation strategies.

**Table 1** Summary of variable

**Index Variable Symbol Formulae**

Dependent variables:

1. Dividend yield DVY *DividendperShare PriceperShare*
2. Dividend payout ratio DYO Dividends per Share Earnings per Share
3. Dividend coverage ratio DCR Earnings per Share Dividend per Share

Independent variable:

1. Cost of debt CDT *Annual Interest Expense* ∗ (1 − *tax rate*)

*Total Debt*

1. Cost of equity CET *Dividendpershare* + *GrowthRateofDividends*

*stockprice*

NB: Growth Rate of Dividends is differential growth (current different—previ- ous dividend)/previous dividend \* 100

1. WACC WACC *E* × *Cost of Equity* + *D* × *Cost of Debt* × (−*Tax Rate*)

*V*

*V*

“E” represents the market value of the company’s equity “D” represents the market value of the company’s debt

“V” represents the total market value of the company (sum of equity and debt) Cost of Equity is the required rate of return on equity

Cost of Debt is the interest rate on debt Tax Rate is the corporate tax rate

100%

1. Market share MKS Companys Sales ×

Total market sales

This study aims to examine the dividend payout ratio and understand how different factors influence management’s choices regarding dividend distributions. This analysis provides valuable insights into capital allocation methods and the generation of shareholder value [[22](#_bookmark28)].

***Dividend coverage ratio***

The dividend coverage ratio assesses a company’s capac- ity to distribute dividends by utilizing its earnings, offer- ing insights into the sustainability of dividend payments and the financial robustness of the organization [[118](#_bookmark124)]. The factors influencing this ratio assist stakeholders in assessing the company’s capacity to sustain consistent dividend payments, enabling well-informed investment choices. It is crucial for assessing a firm’s financial health and stability, namely its capacity to maintain dividend payments in light of economic fluctuations or financial uncertainties [[103](#_bookmark109)].

***Dividend yield***

The dividend yield is a crucial indicator for investors seek- ing income from their investments. It indicates the yearly dividend earnings in relation to the company’s stock price [[126](#_bookmark132)]. This metric is designed to evaluate the appeal of a company’s dividend payments and aid investors in calcu- lating the prospective returns from equities that offer div- idends, consequently impacting their investing strategy. This metric is crucial for investors who emphasize gener- ating income, as it offers essential insights into the appeal of a company’s dividend payments to its stock price [[32](#_bookmark38)].

**Independent variables**

***Cost of debt***

The cost of debt pertains to the interest rate a corpora- tion incurs on its loan obligations. A firm’s borrow- ing expenses are reflected in its financial statements and impact its decisions about its capital structure [[93](#_bookmark99)]. Examining the impact of debt costs on decisions about dividend policies provides a valuable understanding of the relationship between financing choices and dividend payments, thereby influencing shareholder value [[53](#_bookmark59)]. This statistic is fundamental in evaluating a company’s decisions about its capital structure and financing meth- ods. This study investigates the relationship between borrowing expenses, dividend policy decisions and their impact on shareholder value and financial strength by analyzing this variable.

***Cost of equity***

associated with the stock investment [[61](#_bookmark67)]. Examining the influence of the cost of equity on dividend policy choices offers valuable information on the company’s attractive- ness to equity investors and its ability to maintain dividend payments [[98](#_bookmark104)]. This indicator reflects the rate of return that investors expect and their assessments of the company’s risk and potential for growth. The study aims to analyze this variable to understand the relationship between inves- tor expectations, decisions regarding dividend policy and their impact on shareholder value and competitive position in the market.

***Weighted average cost of capital (WACC)***

WACC, calculated by combining the costs of debt and equity, measures a company’s total cost of financing and is an important factor in capital planning [[134](#_bookmark140)]. The study intends to reveal the influence of a company’s overall cost of capital on its dividend distribution methods by examin- ing the relationship between WACC and dividend policy choices [[14](#_bookmark20)]. Gaining a comprehension of these dynamics provides valuable insights into the impact on shareholder value and the firm’s financial performance.

***Market share***

Market share is a measure of the proportion of total sales that a company has within its industry. This metric under- scores the relationship between a company’s competitive standing, market control and ability to generate profits and pay dividends [[69](#_bookmark75)]. Studying the correlation between market share and dividend policy decisions provides insights into how market competitiveness influences dividend payments and shareholder value. Market share is crucial in determin- ing a company’s competitive position and profitability [[24](#_bookmark30), [102](#_bookmark108)]. The study analyzes the impact of market dynamics on dividend policy decisions and their consequences for shareholder value and market positioning by analyzing this variable.

**Model specification**

Our study employed four models to examine the impact of the cost of capital on dividend policy decisions. In Model 1, denoted as Models A, B and C, we investigated the direct influence of the cost of capital on dividend policy deci- sions. Models 2, 3 and 4 delved into the interaction effect between the cost of capital components (precisely, the cost of debt, the cost of equity and the weighted average cost of capital) and market share.

## Model 1

*DPC(A*, *B*, *C)* = *β*0*nft* + *β*1*CDTnft* + *β*2*CETnft*

The cost of equity is the return rate that investors demand to invest in a company’s equity shares. It consid- ers their expected returns and their assessment of the risk

+ *β*3*WACC*

*nft*

+ *β*4*MKS*

*nft* + *ε*

## Model 2

*DPC(A*, *B*, *C)* = *β*0

*nft*

+ *β*1*CDT*

*nft*

+ *β*2*CET*

*nft*

and random effect models could not address the endo- geneity issues and cross-sectional dependence associated with panel data, leading to the selection of CS-ARDL and

## Model 3

+ *β*3*WACCnft* + *β*4*MKSnft*

+ *β*5*CDT* ∗ *MKSnft* + *ε*

GMM [[115](#_bookmark121)].

The CS-ARDL approach accounts for cross-sectional dependence, a common issue in panel data analysis [[115](#_bookmark121)]. This method allows for modeling both short-term and long-term dynamics while accommodating cross-

*DPC(A*, *B*, *C)* = *β*0*nft* + *β*1*CDTnft* + *β*2*CETnft*

+ *β*3*WACCnft* + *β*4*MKSnft*

+ *β*5*CET* ∗ *MKSnft* + *ε*

## Model 4

*DPC(A*, *B*, *C)* = *β*0*nft* + *β*1*CDTnft* + *β*2*CETnft*

+ *β*3*WACCnft* + *β*4*MKSnft*

sectional dependence among observations. Given that our dataset exhibited cross-sectional dependence in the cross-sectional tests, the CS-ARDL approach was chosen to address this issue effectively.

CS-ARDL requires variables to have a first-order integration (I (1)) or be cointegrated. This allows for considering common shocks and analyzing long-term associations while accounting for short-term dynamics

+ *β*5*WACC* ∗ *MKS*

*nft* + *ε*

[[117](#_bookmark123)]. This guarantees that the observed connections are not false or misleading because of non-stationarity. It is

where DPC is the dividend policy decision, “DVY” denotes the dividend payout ratio (A), “DYO” denotes dividend coverage ratio (B) and “DCR” denotes dividend yield (C), “CDT” denotes cost of debt, CET denotes cost of equity, WACC denotes “WACC,” “nf” denotes non- financial companies and “t” denotes years.

# Estimation methods

The study utilized two estimation methods: common shock autoregressive distributed lag (CS-ARDL) and two-step generalized method of moments (GMM), comparing them to the a vector autoregression (VAR) model, the fixed effect and the random effect model. The results in Table [2](#_bookmark1) indicate the presence of cross-sectional dependence, a crucial factor in the selection of estima- tion methods. It has been outlined that the VAR, fixed

presented as:

*yit* = *αi* + *β*1*yi*, *t* − 1 + *γ* 1*xit* + *δ*1*zt*

+ Σ *φ*ij yi, t − j − *αi* + *‹*it

*P*−1

*I* −1

where

* yit is tfle dependent variable for unit i at time t.
* αi is tfle individual-specific intercept.
* β1 is tfle coefficient of tfle lagged dependent variable yi, t − 1
* γ1is tfle coefficient of tfle contemporaneous explana- tory variable xit.
* δ1 is tfle coefficient of tfle common sflock zt.
* Φij are coefficients capturing tfle lagged effects of yit
* ϵit is tfle error term.

**Table 2** Cross-sectional independence tests and heterogeneity test

**Model 1: Dividend payout ratio (A) Model 1: Dividend coverage ratio**

**(B)**

**Model 1: Dividend yield (C)**

*Types of tests*

Pesaran’s test 92.956 (0.000)\*\*\* 63.381(0.000)\*\*\* 70.612 (0.000)\*\*\* Friedman’s test 2148.227(0.000)\*\*\* 1589.212 (0.000)\*\*\* 2012.629 (0.000)\*\*\* Frees’ test 4.703 (0.000)\*\*\* 2.545(0.000)\*\*\* 4.255 (0.000)\*\*\* *Heterogeneity test (Peseran–Yamagata*

*test)*

Δ-tilde stat 8..496 (0.000)\*\*\* 21.738 (0.000)\*\*\* 6.983 (0.000)\*\*\*

Δadj-tilde stat 10.346 (0.000)\*\*\* 27.472 (0.000)\*\*\* 13.972 (0.000)\*\*\*

\*\*\**p* < .01, \*\**p* < .05

On the other hand, the two-step GMM technique was employed to tackle endogeneity problems that may arise in panel data analysis [[16](#_bookmark22), [17](#_bookmark23)]. This method uses instru- mental variables to help control for potential biases caused by endogeneity and simultaneously provides robustness checks for our findings. By employing the GMM approach, we aimed to ensure the reliability and validity of our results in the presence of potential endo- geneity concerns [[18](#_bookmark24)].

The effectiveness of two-step GMM depends on the soundness of the instruments employed during the esti- mate procedure. To ensure that these instruments suc- cessfully capture the fluctuation in the explanatory variables that are independent of the error structure, they must be correlated with the endogenous variables of interest while remaining uncorrelated with the error terms [[88](#_bookmark94)]. The model assumes overidentification, which occurs when the number of instruments exceeds the number of endogenous variables. This leads to improved efficiency and consistency in estimating the parameters. It is presented as:

interdependence among cross-sectional units. Addition- ally, the Peseran–Yamagata test was utilized to assess coefficient homogeneity.

The null hypothesis for both sets of tests posits the absence of cross-sectional dependence or heterogeneity, while the alternative hypothesis suggests their presence. Across all models (A, B and C), the *p*-values associated with the tests are extremely low (0.000), indicating statis- tical significance at the 1% level. Consequently, the null hypothesis is rejected in favor of the alternative hypoth- esis, indicating the presence of cross-sectional depend- ence and coefficient heterogeneity across the panel data.

The presence of cross-sectional dependence suggests that observations within the panel may not be independ- ent, potentially resulting in biased coefficient estimates. This phenomenon indicates that activities within one company may affect others, complicating traditional regression analyses. Consequently, addressing this issue requires the adoption of more sophisticated method- ologies to ensure the validity of regression results. We employed the CS-ADRL and GMM techniques to tackle

*θ GMM* = *argminθ* 1 Σ*N* g*(*yi, xi, Zi*)* *W* 1 Σ*N* g*(*yi, xi, Zi*)*

*N*

*i*−1

*N*

*i*−1

where

this challenge. These methodologies are designed to account for the interdependence among observations

* *θ*^ GMM is tfle two-step GMM estimator of tfle

within panel datasets, allowing for more accurate estima-

parameter vector θ.

* W is a weigflting matrix tflat optimizes tfle efficiency of tfle estimator.

Table [2](#_bookmark1) provides the results of cross-sectional depend- ence tests and heterogeneity tests conducted to assess the interdependence among cross-sectional units and the homogeneity of coefficients across these units, respec- tively. These tests aim to uphold the regression model’s validity and ensure the estimated coefficients’ reliability. Cross-sectional dependence tests, including Pesaran’s, Friedman’s and Frees’, were employed to evaluate

tion of regression coefficients.

# Results and discussions

Table [3](#_bookmark2) presents the descriptive statistics of all the vari- ables utilized in this study. A dividend payout ratio of 44.142% indicates that, on average, companies allocate a significant portion of their earnings as dividends to shareholders. This suggests a commitment to distributing profits to investors, potentially enhancing investor con- fidence and attracting dividend-seeking investors [[110](#_bookmark116)]. With a mean dividend coverage ratio of 2.695, compa- nies, on average, have earnings 2.695 times higher than

**Table 3** Descriptive statistics

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Obs** | **Mean** | **Std. Dev** | **Min** | **Max** | **Skew** | **Kurt** | **VIF** | **1/VIF** |
| Dividend payout ratio | 4086 | 44.142 | 22.07 | 23 | 100 | .445 | 2.693 | – | – |
| Dividend coverage ratio | 4086 | 2.695 | 1.728 | .672 | 6.248 | .803 | 2.58 | – | – |
| Dividend yield | 4086 | 3.142 | 3.603 | 1.241 | 90.91 | 1.254 | 1.132 | – | – |
| Cost of debt | 4086 | 4.127 | 2.948 | 1.016 | 10.751 | 1.125 | 3.227 | 4.286 | .233 |
| Cost of equity | 4086 | 30.503 | 26.764 | 1.23 | 88.613 | .926 | 2.767 | 1.065 | .939 |
| WACC | 4086 | 4.097 | 3.05 | .803 | 10.888 | 1.099 | 3.18 | 4.886 | .205 |
| Market share | 4086 | 0.001 | .001 | 0.0001 | .010 | 1.586 | 3.403 | 1.021 | .98 |

the amount required to cover dividend payments. This signifies a healthy financial position, indicating that com- panies possess adequate earnings to sustain dividend payouts over time, which could foster investor trust and support long-term shareholder value [[138](#_bookmark144)].

The mean dividend yield of 3.142% reflects the aver- age return on investment from dividends, indicating the income generated from their investments in dividend- paying stocks. The mean cost of debt of 4.127% denotes the average interest rate companies pay on their debt obligations. A higher mean cost of debt may imply higher borrowing costs for companies, potentially impacting profitability and financial flexibility [[130](#_bookmark136)].

Similarly, the average return investors want for hold- ing ownership in the company is represented by the mean cost of equity, which is 30.503%. A higher average cost of equity indicates that investors want greater returns to offset the perceived risk associated with investing in the company’s equity. The WACC, calculated as 4.097%, rep- resents the company’s average cost of financing, consider- ing both debt and equity. A lower WACC indicates lower financing costs, which could enhance profitability and investment attractiveness.

Finally, the mean market share, albeit small at 0.001, provides insight into the average proportion of the mar- ket captured by the company. Although they may appear unimportant, fluctuations in market share over time can affect the company’s competitive standing and long-term growth prospects [[96](#_bookmark102)].

Variables with kurtosis values less than 3, such as dividend payout ratio, cost of equity, dividend yield and dividend coverage ratio, exhibit platykurtic distributions [[120](#_bookmark126)]. This indicates that their tails are lighter than those of a normal distribution. On the other hand, variables with kurtosis values greater than 3, including the cost of debt, WACC and market share, demonstrate leptokurtic distributions [[85](#_bookmark91)]. This suggests that their tails are heav- ier than those of a normal distribution.

The variance inflation factor (VIF) measures mul- ticollinearity among independent variables in regres- sion. VIF values below 5 indicate acceptable levels of

multicollinearity. All variables have VIF values below

1. [[12](#_bookmark18)], suggesting no significant multicollinearity. For instance, dividend yield and market share have VIFs of 1, indicating a low correlation with other variables. Cost of debt and WACC have VIFs around 4.286 and 4.886, respectively, indicating low multicollinearity. Overall, the absence of significant multicollinearity suggests reliable regression coefficient estimates.

Table [4](#_bookmark3) presents the correlation matrix results, com- plementing the variance inflation factor (VIF) analysis and confirming the absence of multicollinearity among the independent variables. The correlation coefficients between the independent variables (columns 4 to 7 and rows 4 to 7) are below the widely accepted threshold of

0.70 [[16](#_bookmark22), [17](#_bookmark23)]. This finding further strengthens the conclu- sion that multicollinearity is not a significant concern in the regression model. The correlation matrix underscores that the independent variables are not highly correlated with each other, as evidenced by the correlation coeffi- cients below the threshold value. This outcome bolsters the reliability of the regression results and instills greater confidence in the validity of the derived findings.

Table [5](#_bookmark4) presents the results of panel unit root tests conducted to assess the variables’ stationarity. These tests determine whether the variables exhibit unit root behavior, indicating non-stationarity, or are stationary over time. Two methods, Levin, Lin and Chu, and cross- sectional augmented IPS (CIPS), were utilized to evaluate the variables’ stationarity. The null hypothesis for both tests is that the variables contain unit roots, suggesting non-stationarity. Conversely, the alternative hypothesis is that the variables are stationary.

The tests were conducted at both the variables’ lev- els and first differences. Results indicate that the null hypothesis of unit roots is rejected at the 1% significance level for all variables, as indicated by the extremely low *p*-values (0.000). These findings suggest that all vari- ables are stationary in their levels or first differences. The results of the panel unit root tests affirm the data’s suit- ability for further analysis and modeling.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4** Matrix of correlations |  | | | | | | |
| **Variables** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** |
| (1) Dividend payout ratio | 1.000 |  |  |  |  |  |  |
| (2) Dividend coverage ratio | – 0.416 | 1.000 |  |  |  |  |  |
| (3) Dividend yield | 0.191 | – 0.289 | 1.000 |  |  |  |  |
| (4) Cost of debt | – 0.030 | – 0.005 | 0.069 | 1.000 |  |  |  |
| (5) Cost of equity | 0.042 | – 0.009 | 0.096 | 0.049 | 1.000 |  |  |
| (6) WACC | 0.001 | – 0.016 | 0.058 | 0.507 | – 0.048 | 1.000 |  |
| (7) Market share | – 0.004 | – 0.048 | 0.019 | – 0.131 | – 0.042 | – 0.128 | 1.000 |

**Table 5** Panel unit root tests

**Variable Levin, Lin and Chu Cross‑sectional augmented IPS (CIPS)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Levels** | **1st difference** |  | **Levels** | **1st difference** |
| Dividend payout ratio | – 16.621 (0.000)\*\*\* | – 16.621 (0.000)\*\*\* |  | – 26.190 (0.000)\*\*\* | – 26.190 (0.000)\*\*\* |
| Dividend coverage ratio | – 11.126 (0.000)\*\*\* | – 47.067 (0.000)\*\*\* |  | – 26.050 (0.000)\*\*\* | – 49.122 (0.000)\*\*\* |
| Dividend yield | – 17.730 (0.000)\*\*\* | – 2.497 (0.000)\*\*\* |  | – 24.577 (0.000)\*\*\* | – 47.826 (0.000)\*\*\* |
| Cost of debt | – 12.336 (0.000)\*\*\* | – 17.562 (0.000)\*\*\* |  | – 22.273 (0.000)\*\*\* | – 46.261 (0.000)\*\*\* |
| Cost of equity | – 17.318 (0.000)\*\*\* | – 4.343 (0.000)\*\*\* |  | – 26.630 (0.000)\*\*\* | – 49.922 (0.000)\*\*\* |
| WACC | – 9.967 (0.000)\*\*\* | – 12.596 (0.000)\*\*\* |  | – 21.894 (0.000)\*\*\* | – 45.662 (0.000)\*\*\* |
| Market share | – 26.795 (0.000)\*\*\* | – 21.859 (0.000)\*\*\* |  | – 26.347 (0.000)\*\*\* | – 45.767 (0.000)\*\*\* |
| \*\*\**p* < .01, \*\**p* < .05 |  |  |  |  |  |

Table [6](#_bookmark5) presents the outcomes derived from the CS- ARDL models, applied to analyze the relationships among the variable’s dividend payouts ratio, dividend coverage ratio and dividend yield. These models offer val- uable insights into both short-run and long-run dynam- ics among the variables, facilitating a comprehensive understanding of their interplay and potential influences on the dependent variable.

**The effect of cost of capital on dividend payout ratio**

First and foremost, the analysis of the dynamic panel variable, represented by the lag of dividend payout included in the regression model as an independent variable, yielded a positive but insignificant impact on the dividend payout ratio. Malik et al. [[84](#_bookmark90)] suggests that while historical dividend trends play a role in decision- making, factors such as current financial performance, investment opportunities and management strategy have a more significant impact on determining current dividend policy.

Secondly, the study revealed that the cost of debt exerts a negative and statistically significant influence on the dividend payout ratio in the short and long run. This is consistent with the findings by Farooq and Jab- bouri [[49](#_bookmark55)] and supports the study’s hypothesis. This observation, contrasting with the results of Jiang and Jiranyakul [[68](#_bookmark73)] and Lucky and Akani [[81](#_bookmark87)], has signifi- cant implications for corporate financial decision-mak- ing. It suggests that companies may prioritize paying down their debts rather than providing dividends when faced with high borrowing costs, a strategic preference that may be based on the need to maintain creditwor- thiness and financial stability, especially during times of economic uncertainty [[33](#_bookmark39)].

Based on the bird-in-hand theory, companies prior- itize providing consistent dividend payments to meet the expectations of investors who desire immediate income [[73](#_bookmark79)]. Increased debt expenses decrease the

amount of money that can be used for dividend pay- ments, which may cause companies to lower dividend payouts to manage their financial obligations success- fully. The findings strongly support the bird-in-hand argument, suggesting that a rise in the cost of borrow- ing is associated with reduced dividend distributions [[8](#_bookmark14)]. The congruence observed indicates that compa- nies prioritize financial stability and sustain continu- ous dividend payments, even in the face of increased debt costs, to meet investor preferences [[74](#_bookmark80)]. The find- ings emphasize the importance of companies being responsive to investor demands for consistent income streams, reinforcing the need to manage dividend poli- cies carefully.

Thirdly, the study also revealed that the cost of equity had a negative but insignificant effect on the dividend payout ratio in both the short and long run. The findings do not support the study’s hypothesis. Kania [[71](#_bookmark77)] empha- sizes that while shareholders’ desired returns influence dividend choices, factors such as investment prospects and financial constraints may exert a stronger influence than the cost of equity. Companies might opt to retain earnings instead of distributing dividends to finance promising projects, especially when the cost of equity is high relative to potential returns on investment [[36](#_bookmark42)].

As per the bird-in-hand theory, investors prefer receiv- ing present dividends rather than relying on uncertain future capital gains [[91](#_bookmark97)]. Consequently, companies often distribute dividends according to their capacity to pro- duce consistent profits and uphold investor trust. This empirical observation suggests that companies tend to distribute smaller dividends when the cost of equity increases. This significant financial decision carries weight and supports the bird-in-hand argument [[91](#_bookmark97)]. This is because increased equity costs might decrease the amount of assets available for dividends, forcing com- panies to prioritize stockholders’ returns over dividend distributions.

**Table 6** Common shock autoregressive distributed lag (CS-ARDL)

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**Variables Dividend payout ratio Dividend coverage ratio Dividend yield**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  **Short‑run est** | **Model 2** | **Model 3** | **Model 4** |  | **Model 1**  **Short‑run est** | **Model 2** | **Model 3** | **Model 4** |  | **Model 1**  **Short‑run est** | **Model 2** | **Model 3** | **Model 4** |
| DPO, DCR, | 0.004 (0.012) | 0.003 (0.012) | 0.003 (0.012) | 0.003 (0.012) |  | – 0.014 | – 0.014 | – 0.015 | – 0.014 |  | – 0.017 | – 0.017 | – 0.017 | – 0.017 (0.012) |
| DVY (−1) |  |  |  |  |  | (0.012)\*\*\* | (0.012) | (0.012) | (0.012) |  | (0.012) | (0.012) | (0.012) |  |
| Cost of debt | – 1.182\*\*\* | – 1.165\*\*\* | – 1.182 | – 1.157\*\*\* |  | – 0.048\*\* | – 0.051\*\*\* | – 0.047\*\*\* | – 0.050\*\* |  | 0.059 (0.061) | 0.063 (0.063) | 0.058 (0.061) | 0.062 (0.062) |
|  | (0.217) | (0.218) | (0.217) | (0.217) |  | (0.023) | (0.023) | (0.023) | (0.024) |  |  |  |  |  |
| Cost | – 0.003 | – 0.002 | – 0.003 | – 0.002 |  | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) |  | 0.006\*\*\* | 0.006\*\*\* | 0.007\*\*\* | 0.006\*\*\* |
| of equity | (0.011) | (0.011) | (0.011) | (0.011) |  |  |  |  |  |  | (0.002) | (0.002) | (0.002) | (0.002) |
| WACC | 0.746\*\*\* | 0.760\*\*\* | 0.750 (0.207) | 0.757\*\*\* |  | 0.049\*\*\* | 0.046\*\*\* | 0.046\*\*\* | 0.045\*\* |  | – 0.024 | – 0.022 | – 0.022 | – 0.020 (0.061) |
|  | (0.204) | (0.208) |  | (0.209) |  | (0.022) | (0.023) | (0.022) | (0.023) |  | (0.061) | (0.061) | (0.061) |  |
| Market share | 0.308\* (0.178) | 0.331 (0.218) | 0.182 (0.186) | 0.367 (0.225) |  | – 0.544\*\*\* | – 0.785\*\*\* | – 0.681\*\*\* | – 0.809\*\*\* |  | 0.184 (0.194) | 0.110 (0.220 | 0.202 (0.214) | 0.191 (0.228) |
|  |  |  |  |  |  | (0.137) | (0.199) | (0.153) | (0.187) |  |  |  |  |  |
| Cost of debt  \* Market share |  | – 0.189  (0.330) |  |  |  |  | – 0.121\*\*\* (0.029) |  |  |  |  | 0.661 (0.462) |  |  |
| Cost  of equity \* Market share |  |  | 0.168 (0.180) |  |  |  |  | 0.103 (0.200) |  |  |  |  | – 0.597\*\*\* (0.267) |  |
| WACC \* Mar- ket share |  |  |  | – 0.246  (0.364) |  |  |  |  | 0.793 (0.415) |  |  |  |  | – 0.887\*\* (0.454) |
|  | Long-run est |  |  |  |  | Long-run est |  |  |  |  | Long-run est |  |  |  |
| Cost of debt | – 1.175\*\*\* | – 1.157\*\*\* | – 1.175 | – 0.237 |  | – 0.047\*\*\* | – 0.050\*\*\* | – 0.045\*\*\* | 0.778 (0.408) |  | 0.057 (0.061) | 0.061 (0.063) | 0.056 (0.061) | – 0.834\*\* |
|  | (0.221) | (0.221) | (0.220) | (0.358) |  | (0.022) | (0.023) | (0.022) |  |  |  |  |  | (0.443) |
| Cost | – 0.003 | – 0.002 | – 0.003 | – 1.149\*\*\* |  | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) | – 0.049 |  | 0.005\*\*\* | 0.006\*\*\* | 0.007\*\*\* | 0.060 (0.062) |
| of equity | (0.011) | (0.011) | (0.010) | (0.221) |  |  |  |  | (0.023) |  | (0.002) | (0.002) | (0.002) |  |
| WACC | 0.756\*\*\* | 0.770\*\*\* | 0.760 (0.213) | 0.767\*\*\* |  | 0.047\*\*\* | 0.045\*\* | 0.044\*\*\* | 0.043 (0.023) |  | – 0.023 | – 0.022 | – 0.021 | – 0.020 (0.060) |
|  | (0.211) | (0.214) |  | (0.216) |  | (0.022) | (0.022) | (0.022) |  |  | (0.061) | (0.061) | (0.060) |  |
| Market share | 0.315\* (0.182) | 0.331 (0.219) | 0.188 (0.188) | 0.366 (0.225) |  | – 0.536\*\*\* | – 0.778\*\*\* | – 0.674\*\*\* | – 0.800 |  | 0.175 (0.191) | 0.935 (0.021) | 0.182 (0.206) | 0.175 (0.221) |
|  |  |  |  |  |  | (0.134) | (0.193) | (0.149) | (0.183) |  |  |  |  |  |
| Cost of debt  \* Market share |  | – 0.182  (0.326) |  |  |  |  | 0.723\*\* (0.367) |  |  |  |  | – 0.610  (0.451) |  |  |
| Cost  of equity \* Market share |  |  | 0.160 (0.183) |  |  |  |  | 0.122 (0.193) |  |  |  |  | – 0.571\*\*\* (0.261) |  |
| WACC \* Mar- ket share |  |  |  | – 0.002  (0.011) |  |  |  |  | 0.001 (0.001) |  |  |  |  | 0.006\*\*\* (0.002) |
| Number  of observa- tions | 4067 | 4067 | 4067 | 4067 |  | 4067 | 4067 | 4067 | 4067 |  | 4067 | 4067 | 4067 | 4067 |

*(2024) 10:99*

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**Table 6** (continued)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Dividend payout ratio** |  |  |  | **Dividend coverage ratio** |  |  |  | **Dividend yield** |  | | |
|  | **Model 1 Model 2**  **Short‑run est** | **Model 3** | **Model 4** |  | **Model 1 Model 2**  **Short‑run est** | **Model 3** | **Model 4** |  | **Model 1**  **Short‑run est** | **Model 2** | **Model 3** | **Model 4** |
| R-squared | 0.97 0.97 | 0.97 | 0.97 |  | 0.97 0.97 | 0.97 | 0.97 |  | 0.97 | 0.97 | 0.97 | 0.97 |
| R-squared (MG) | 0.56 0.56 | 0.56 | 0.56 |  | 0.42 0.42 | 0.42 | 0.42 |  | 0.46 | 0.46 | 0.46 | 0.46 |
| Root MSE | 14.54 14.55 | 14.54 | 14.54 |  | 1.31 1.32 | 1.31 | 1.31 |  | 2.63 | 2.63 | 2.63 | 2.63 |
| ECT | – 0.996\*\*\* − 0.997\*\*\* | – 0.997 | – 0.997\*\*\* |  | – 1.014\*\*\* − 1.014\*\*\* | – 1.015\*\*\* | – 1.014 |  | – 1.017\*\*\* | – 1.017\*\*\* | – 1.017 | – 1.017\*\*\* |
|  | (0.012) (0.012) | (0.012) | (0.012) |  | (0.012) (0.012) | (0.012) | (0.012) |  | (0.012) | (0.012) | (0.012) | (0.012) |

\*\*\* *p*<.01, \*\* *p*<.05, \* *p*<.1

Conversely, the analysis uncovered that the WACC has a positive and significant influence on the dividend payout ratio in both the short and long run, supporting the study’s hypothesis. Companies may modify their divi- dend policies in reaction to fluctuations in the WACC to indicate their financial well-being and uphold investor trust. Nevertheless, an overreliance on distributing divi- dends to control the WACC could restrict the allocation of funds toward growth prospects, which could impact the company’s long-term profitability [[76](#_bookmark82)]. Companies may strategically manage dividend distributions with reinvestment efforts to maximize shareholder value while assuring long-term growth.

The bird-in-hand theory suggests that companies tend to prioritize the payment of stable dividends in order to fulfill investor expectations for a reliable source of income [[132](#_bookmark138)]. The results indicate that a rise in WACC is linked to greater dividend distributions. This might be understood as companies continuing or raising their divi- dend payments despite facing higher financing expenses. These findings support the bird-in-hand theory, which suggests that companies prioritize providing current rev- enue to shareholders, even if it means incurring higher capital expenses [[114](#_bookmark120)].

Moreover, the results indicated that market share has a positive and significant impact on the dividend pay- out ratio in both the short and long run, supporting the study’s hypothesis. This finding, while highlighting the potential for companies with a greater portion of the market to reward shareholders and indicate their domi- nance, also raises a cautionary note. Excessive dividend payments might hinder innovation and investing in market expansion, which can have a negative impact on future growth prospects [[92](#_bookmark98), [94](#_bookmark100)]. It is crucial for compa- nies to strike a balance between rewarding shareholders and investing in future growth.

Furthermore, the interaction between the cost of debt and market share was found to have a negative and insig- nificant impact on the dividend payout ratio in both the short and long run. Similarly, the interaction between the cost of equity and market share had a positive but insig- nificant effect on the dividend payout ratio in both time horizons. The findings indicate that financing costs and market position influence dividend decisions, but firm- specific strategies and industry dynamics may have a stronger influence that overrides these considerations.

**The effect of cost of capital on dividend coverage ratio** First and foremost, the analysis of the dynamic panel variable, represented by the lag of the dividend coverage ratio included in the regression model as an independ- ent variable, revealed a significant negative impact on

the dividend coverage ratio. These findings are of utmost importance as they indicate that previous dividend cov- erage performance could negatively impact present cov- erage levels, potentially signaling financial difficulties or alterations in business operations (Mehdi et al., [[86](#_bookmark92)]).

Moreover, the cost of debt demonstrated a negative and significant influence on the dividend coverage ratio in both the short and long periods, supporting the study’s hypothesis. These findings confirm the alignment of a rise in debt costs with a decrease in the dividend cov- erage ratio, supporting the bird-in-hand argument. As Michaely and Roberts [[89](#_bookmark95)] assert, higher debt costs result in reduced funds for dividend distribution. Consequently, companies may need to cut their dividend payments to efficiently manage their financial obligations.

This discovery has significant implications, suggest- ing that increased debt expenses can pressure cash flows, reducing dividend coverage. Companies may prioritize fulfilling their debt obligations instead of making dividend payments to retain financial stability and maintain the confidence of creditors [[77](#_bookmark83)]. The persistent adverse and substantial impact of debt costs on the dividend coverage ratio, observed over short and long time frames, implies that elevated loan costs might pressure cash flows, result- ing in less dividend coverage [[51](#_bookmark57)]. Possible factors con- tributing to this situation may include escalated interest expenses, elevated debt service requirements or concerns regarding preserving creditworthiness [[137](#_bookmark143)].

Furthermore, the effect of the cost of equity on the divi- dend coverage ratio was positive but insignificant in both the short and long periods. The findings do not support the hypothesis of the study. The findings suggest that cor- porations play a crucial role in satisfying investor expec- tations by prioritizing dividend payments when stock costs rise, as evidenced by a larger dividend coverage ratio. This statement is consistent with the bird-in-hand theory, which proposes that companies should sustain or enhance dividend payments to satisfy investor expecta- tions for consistent income, even in the face of increased stock costs [[5](#_bookmark11)].

Although the needed returns of shareholders might affect dividend decisions, other factors, such as invest- ment possibilities or preferences for capital structure, may have a greater impact than the costs associated with equity [[39](#_bookmark45)]. The marginal impact of the cost of equity on the dividend coverage ratio, which is not statistically significant, may be attributed to other prevailing cir- cumstances. Although shareholders’ needed returns can have an impact, other factors, such as investment oppor- tunities or strategic decisions on capital structure, might reduce the influence of equity costs on dividend coverage [[109](#_bookmark115)].

Moving forward, the WACC exhibited a positive and significant impact on the dividend coverage ratio in both the short and long periods. The findings do support the hypothesis of the study. The results indicate that a rise in WACC is linked to a greater dividend coverage ratio, which supports the bird-in-hand theory. This suggests that even though there are increased capital expenses (debt and equity), companies play a crucial role in pri- oritizing and distributing dividends to fulfill investors’ expectations for consistent income. The theory also justi- fies the enterprises’ decisions to retain or increase divi- dend payments, especially in the face of growing capital expenses [[7](#_bookmark13)]. This demonstrates a dedication to fulfilling investor desires for consistent revenue streams, bolster- ing shareholder trust and contentment.

These findings indicate that WACC can impact the choices made regarding dividend payouts, indicating financial well-being or adjusting capital allocation strat- egies to fulfill investor demands [[30](#_bookmark36)]. WACC having a positive and significant influence on the dividend cover- age ratio in both short and long durations suggests that alterations in WACC can affect decisions regarding divi- dend payouts. Possible factors may include modifications in capital allocation strategies, endeavors to communicate financial stability to investors or fluctuations in borrowing costs impacting judgments on the total capital structure [[40](#_bookmark46), [42](#_bookmark48)].

Additionally, market share indicated a negative and significant influence on the dividend coverage ratio in short and long periods. Companies with a greater por- tion of the market may choose to invest more in expan- sion opportunities rather than distributing dividends to stay competitive and maintain their position as leaders in the market [[133](#_bookmark139)]. This might result in a decrease in divi- dend coverage. The study conducted by Olaniyi and Shah

[[103](#_bookmark109)] reveals that firms with larger market shares tend to prioritize reinvestment in growth opportunities rather than dividend payouts. This is evidenced by the negative and significant impact of market share on the dividend coverage ratio, in both the short and long term. This may be motivated by strategic choices to sustain competitive- ness and market dominance, hence diminishing dividend coverage.

Moreover, the moderating effects of market share on the relationship between the cost of debt and the divi- dend coverage ratio revealed contrasting impacts. While negatively significant in the short run, the effect became positively significant in the long run. This implies that the relationship between debt expenses and market share can change due to adaptations in funding approaches or mar- ket circumstances. The divergent effects of market share on the correlation between the cost of debt and dividend coverage ratio may be attributed to changing financing

tactics or market circumstances. In the shorter term, companies may pay off their debts more to have enough cash available or to deal with urgent financial difficulties [[29](#_bookmark35)]. However, a larger market share may indicate better financial well-being in the long term, leading to a more vital ability to pay dividends [[123](#_bookmark129)].

Lastly, the moderating effects of market share on the relationships between the cost of equity and WACC with the dividend coverage ratio were positive but insig- nificant in both periods. This implies that market share may not significantly influence the relationship between equity and capital costs and dividend coverage.

**The effect of cost of capital on dividend yield**

Firstly, the analysis of the dynamic panel variable, rep- resented by the lag of dividend yield included in the regression model as an independent variable, revealed an insignificant negative impact on the dividend yield. This suggests that past dividend yield may not significantly influence current dividend yield levels, indicating that other factors may substantially affect dividend payout decisions [[100](#_bookmark106)].

Secondly, the cost of debt was found to have a positive and insignificant impact on dividend yield in both the short- and long-run periods. The findings do not support the hypothesis of the study. The results indicate that a rise in the cost of borrowing is linked to a greater dividend yield, which is consistent with the bird-in-hand argument. Brockman and Unlu [[28](#_bookmark34)] indicate that even though corpo- rations have to pay more in debt expenses, they continue or raise their dividend payments to satisfy investor expec- tations for immediate cash, thus improving the dividend yield. The observed positive impact suggests that compa- nies proactively handle their debt financing to guarantee adequate cash flows for distributing dividends. Addition- ally, this may suggest that companies have enough profit- ability or cash reserves to handle increased debt expenses while still being able to distribute dividends [[25](#_bookmark31)].

Several factors can explain these findings, including advantageous debt terms, strategic financial management and effective cash flow management tactics [[125](#_bookmark131)]. These aspects help reduce the influence of debt costs on divi- dend yield [[56](#_bookmark62)]. Alternatively, companies may prioritize dividend payments to uphold investor trust, even in the face of increased costs associated with debt.

Moreover, the cost of equity exhibited a positive and significant impact on dividend yield in both the short- and long-run periods, supporting the study’s hypothesis. The research findings strongly support the bird-in-hand argument, suggesting that a rise in the cost of equity is indeed associated with an increase in the dividend yield. According to Dong et al. [[44](#_bookmark50)], corporations choose to sustain or enhance dividend payments even when faced

with rising equity costs to satisfy investor expectations for consistent revenue. The positive impact suggests that companies proactively oversee equity financing to secure sufficient funds for dividend payouts. Additionally, these findings suggest that companies have robust profitability or financial reserves to withstand increased equity costs while still being able to distribute dividends [[1](#_bookmark7)].

Greater equity costs might result in higher dividend yields as companies aim to meet their shareholders’ return expectations [[50](#_bookmark56)]. Possible contributing factors to this phenomenon include companies modifying their dividend policy to appeal to potential investors or dem- onstrating their financial robustness by consistently dis- tributing dividends [[65](#_bookmark71)].

Furthermore, the weighted average cost of capital (WACC) had a negative and insignificant impact on dividend yield in both the short- and long-run periods. The findings do not support the hypothesis of the study. When the WACC increases, it can have an adverse effect on the dividend yield. Companies may encounter difficul- ties continuing dividend payments at the same levels as before [[59](#_bookmark65)]. These findings contradict the bird-in-hand theory, which asserts that companies prioritize the pro- vision of stable dividend payments in order to fulfill investor expectations for a reliable source of income. The discovery suggests that companies give more importance to utilizing cash for purposes like paying off debts, mak- ing capital investments or funding internal projects than distributing dividends when confronted with increased capital expenses [[64](#_bookmark70)]. It may also indicate that compa- nies modify their dividend policy based on financial goals to optimize their capital structure or maintain financial sustainability.

This finding indicates that variations in WACC may not substantially impact judgments regarding dividend payouts. Possible variables contributing to this phenom- enon may involve the intricate interaction of numerous elements influencing the WACC, such as fluctuations in borrowing expenses, capital composition or risk charac- teristics [[2](#_bookmark8), [62](#_bookmark68)]. These factors may not directly correlate with dividend yield variations.

Additionally, market share had a positive and insignif- icant influence on dividend yield in both the short- and long-run periods. This suggests that having a dominant position in the market or a larger market share does not always lead to higher dividend yields. Possible fac- tors for this phenomenon may include companies giving higher importance to reinvesting in growth prospects rather than distributing dividends to sustain or increase their market presence or dividend policies being influ- enced by market conditions regardless of market share [[105](#_bookmark111)].

Regarding the moderating effect between the cost of debt and market share, it displayed a positive and insig- nificant impact on dividend yield in the short run but a negative and insignificant impact in the long run. Rafique

[[108](#_bookmark114)] indicates that the correlation between debt costs and dividend yield is subject to fluctuations over time, which can be attributed to shifts in market dynamics, financial strategy or economic situations.

Lastly, the interaction between the cost of equity and market share had a negative and significant impact on dividend yield in both the short and long run. This find- ing suggests that firms with higher market share prioritize reinvestment in growth opportunities over dividend dis- tributions, leading to lower dividend yields despite higher equity costs.

The interaction between WACC and market share was observed to have a negative and significant impact on dividend yield in the short run and a positive and signifi- cant impact in the long run. This suggests that the rela- tionship between WACC and dividend yield may vary depending on the time horizon, influenced by changes in borrowing costs, investment opportunities or market conditions.

# Assessing the GMM model fitness

The AR (1) test yields a statistically significant result, while the AR (2) test does not achieve statistical signifi- cance. This outcome validates the model, and the insig- nificant result of the AR (2) test highlights the absence of autocorrelation correction [[16](#_bookmark22), [17](#_bookmark23), [78](#_bookmark84)]). Similarly, the Sargan–Hansen test evaluates the model’s overidentify- ing restrictions. Insignificant Sargan test results suggest the absence of such restrictions, while Hansen test values falling between 10 and 30 also indicate no overidentifying restrictions [[113](#_bookmark119)].

However, assessing the Hansen test carefully for results below 10 or above 30 is vital. Values below 10 may indicate potential issues with underidentification, requiring addi- tional instruments, while values exceeding 30 may suggest overfitting, necessitating a review of instrument validity and model complexity [[113](#_bookmark119)]. Fortunately, all our model results adhere to these criteria, indicating no overidentify- ing restrictions and no concerns related to underidentifi- cation or overfitting. This outcome instills confidence in the models’ robustness and reliability, ensuring they accu- rately capture the underlying data relationships without introducing biases or limitations associated with overi- dentifying restrictions, underidentification or overfitting.

Table [7](#_bookmark6) displays the outcomes of the two-step robust- ness GMM analysis. This approach addressed endogene- ity concerns by introducing lagged independent variables and incorporating the dependent variable as a dynamic

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**Table 7** Two-step robustness generalized method of moments (GMM)

**Variables Dividend payout ratio Dividend coverage ratio Dividend yield**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** |  | **Model 1** | **Model 2** | **Model 3** | **Model 4** |  | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| DPO, DCR, | 0.134\*\*\* | 0.134\*\*\* | 0.225\*\*\* | 0.222\*\*\* |  | 0.220\*\*\* | 0.212\*\*\* | 0.213\*\*\* | 0.216\*\*\* |  | 0.348\*\*\* | 0.345\*\*\* | 0.348\*\*\* | 0.349\*\*\* |
| DVY (−1) | (0.009) | (0.009) | (0.019) | (0.020) |  | (0.013) | (0.013) | (0.013) | (0.013) |  | (0.001) | (0.001) | (0.001) | (0.001) |
| Cost of debt | 0.140 (0.209) | 0.087 (0.209) | 0.429\*\*\* | 0.400\*\*\* |  | −0.213\*\*\* | −0.198\*\*\* | −0.215\*\*\* | −0.208\*\*\* |  | −0.060\*\*\* | −0.070\*\*\* | −0.011\*\*\* | −0.023\*\*\* |
|  |  |  | (0.178) | (0.181) |  | (0.030) | (0.030) | (0.031) | (0.030) |  | (0.022) | (0.023) | (0.001) | (0.001) |
| Cost | 0.012 (0.009) | 0.014 (0.009) | 0.019\* (0.010) | 0.014 (0.010) |  | −0.007\*\*\* | −0.007\*\*\* | −0.008\*\*\* | −0.007\*\*\* |  | 0.022\*\*\* | 0.022\*\*\* | 0.020\*\*\* | 0.022\*\*\* |
| of equity |  |  |  |  |  | (0.001) | (0.001) | (0.001) | (0.001) |  | (0.001) | (0.001) | (0.001) | (0.001) |
| WACC | – 0.139 | – 0.121 | – 0.364\*\* | – 0.389\*\*\* |  | 0.212\*\*\* | 0.219\*\*\* | 0.218\*\*\* | 0.221\*\*\* |  | 0.015 (0.017) | 0.010 (0.018) | 0.001 (0.017) | 0.001 (0.018) |
|  | (0.151) | (0.153) | (0.170) | (0.174) |  | (0.028) | (0.029) | (0.029) | (0.029) |  |  |  |  |  |
| Market share | 0.123\*\*\* | 0.120\*\*\* | 0.127\*\*\* | 0.136\*\*\* |  | 0.184 (0.391) | 0.576 (0.442) | 0.273 (0.359) | 0.630 (0.451) |  | 0.467\*\*\* | 0.305\*\*\* | 0.383\*\*\* | 0.281\*\*\* |
|  | (0.011) | (0.022) | (0.026) | (0.032) |  |  |  |  |  |  | (0.039) | (0.034) | (0.032) | (0.032) |
| Cost of debt  \* Market share |  | – 0.220  (0.430) |  |  |  |  | – 0.150\* (0.078) |  |  |  |  | 0.499\*\*\* (0.095) |  |  |
| Cost  of equity\* Market share |  |  | – 0.204  (0.147) |  |  |  |  | 0.334\* (0.165) |  |  |  |  | 0.119\*\*\* (0.013) |  |
| WACC \* Mar- ket share |  |  |  | – 0.202  (0.342) |  |  |  |  | – 0.449  (0.299) |  |  |  |  | – 0.655\*\*\* (0.286) |
| Interest rate | 0.480\*\*\* | 0.535\*\*\* | – 0.428\*\*\* | – 0.347\*\*\* |  | 0.083\*\*\* | 0.097\*\*\* | 0.084\*\*\* | 0.084\*\*\* |  | – 0.044\*\*\* | – 0.090\*\*\* | – 0.054\*\*\* | – 0.015 (0.001) |
|  | (0.215) | (0.214) | (0.148) | (0.149) |  | (0.023) | (0.023) | (0.023) | (0.023) |  | (0.015) | (0.016) | (0.014) |  |
| Inflation | – 0.638\*\*\* | – 0.638\*\*\* | – 0.120\* | – 0.145\*\*\* |  | 0.013 (0.012) | 0.009 (0.012) | 0.011 (0.012) | 0.011 (0.01) |  | – 0.158\*\*\* | – 0.142\*\*\* | – 0.153\*\*\* | – 0.149\*\*\* |
|  | (0.092) | (0.093) | (0.065) | (0.067) |  |  |  |  |  |  | (0.009) | (0.008) | (0.008) | (0.008) |
| Exchange | – 0.067 | – 0.072 | – 0.030 | 0.019 (0.047) |  | 0.002 (0.006) | 0.005 (0.006) | 0.003 (0.006) | 0.004 (0.006) |  | 0.148\*\*\* | 0.158\*\*\* | 0.147\*\*\* | 0.135\*\*\* |
| rate | (0.059) | (0.059) | (0.049) |  |  |  |  |  |  |  | (0.005) | (0.005) | (0.005) | (0.004) |
| Number  of observa- tions | 3630 | 3630 | 3630 | 3630 |  | 3630 | 3630 | 3630 | 3630 |  | 3630 | 3630 | 3630 | 3630 |
| AR (1) | 0.001 | 0.000 | 0.002 | 0.000 |  | 0.003 | 0.000 | 0.005 | 0.000 |  | 0.002 | 0.004 | 0.000 | 0.000 |
| AR (2) | 0.423 | 0.452 | 0.478 | 0.507 |  | 0.341 | 0.378 | 0.389 | 0.409 |  | 0.670 | 0.689 | 0.699 | 0.794 |
| Sargan Test | 0.555 | 0.568 | 0.598 | 0.599 |  | 0.723 | 0.735 | 0.789 | 0.771 |  | 0.801 | 0.822 | 0.845 | 0.791 |
| Hansen Test | 0.123 | 0.128 | 0.135 | 0.142 |  | 0.221 | 0.234 | 0.287 | 0.290 |  | 0.289 | 0.127 | 0.256 | 0/267 |
| Industry dummies | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |
| Year dum- mies | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |

\*\*\* *p*<.01, \*\* *p*<.05, \* *p*<.1

panel variable. Additionally, it served as a robustness test by integrating three additional variables (interest rate, inflation and exchange rate) to evaluate the robustness of the findings. Unlike the CS-ARDL, which examined find- ings in both the short and long run, GMM provided an overarching assessment of the results.

**The effect of cost of capital on dividend payout ratio**

First and foremost, the study discovered positive and sig- nificant impact of including the dividend payout ratio as a dynamic panel variable implies that past dividend payout ratios positively influence current payout decisions. Main- taining consistent dividend policies can bolster investor confidence and their view of the company’s financial well- being, which may increase shareholder value [[104](#_bookmark110)].

Secondly, the positive but statistically insignificant impact of the cost of debt on the dividend payout ratio sug- gests that while higher debt costs theoretically could exert pressure on firms to distribute dividends, other overriding factors may influence this relationship [[7](#_bookmark13)]. These findings align with previous studies by Jiang and Jiranyakul [[68](#_bookmark73)] and Lucky and Akani [[81](#_bookmark87)], indicating that firms may prioritize debt servicing or other financial commitments over divi- dend payments, possibly to maintain financial flexibility or creditworthiness [[90](#_bookmark96)]. However, this also implies that excessive reliance on debt financing may not necessarily hinder dividend distributions.

Furthermore, the positive and insignificant effect of the cost of equity on the dividend payout ratio indicates that shareholder expectations for returns may not directly dictate dividend policies. While maintaining shareholder satisfaction is essential, firms may prioritize other strate- gic considerations, such as investment opportunities or capital allocation priorities. This suggests that firms can maintain flexibility in their dividend policies while pursu- ing growth and profitability objectives [[27](#_bookmark33)].

Moreover, WACC had a negative and insignificant impact on the dividend payout ratio suggests that changes in overall capital costs may not significantly affect divi- dend distribution decisions. Firms may adjust dividend policies based on factors other than the overall cost of capital, such as profitability, growth prospects or liquidity needs. This implies that companies can maintain dividend stability even in fluctuating market conditions without being overly influenced by changes in capital costs [[9](#_bookmark15)].

Lastly, market share’s positive and significant influence on the dividend payout ratio suggests that firms with larger market shares strategically use dividends to reward shareholders and maintain market confidence. This may signal financial strength and stability, enhancing investor perception and market positioning. It implies that firms can leverage their market dominance to create share- holder value through dividend distributions [[63](#_bookmark69)].

Additionally, the moderation analysis between financ- ing costs and market share, revealing negative and insig- nificant impacts on the dividend payout ratio, suggests that while the interaction between these factors may influence dividend decisions, their combined effect may not significantly alter dividend policies. Other factors, such as regulatory environments, competitive pressures or internal financial objectives, may have a more pro- nounced influence. This implies that firms should con- sider a holistic approach to dividend policy formulation, considering various internal and external factors to maxi- mize shareholder value and maintain financial stability.

**The effect of cost of capital on dividend coverage ratio** First and foremost, the incorporation of the lag of the dividend coverage ratio as a dynamic panel variable in the regression model revealed a significant positive impact on the dividend coverage ratio. This suggests that previ- ous dividend coverage performance significantly influ- ences current coverage levels, indicating continuity or stability in dividend programs. Continuity in this context refers to a financial system’s consistent and uninterrupted operation. This stability is important as it instills trust and assurance in investors, which, in turn, can increase the number of investors. Consequently, this can have a posi- tive impact on the performance of stocks [[111](#_bookmark117)].

Secondly, the analysis unveiled a substantial negative and significant impact of the cost of debt on the dividend coverage ratio. Increased debt expenses limit compa- nies’ capacity to sustain dividend distributions, requiring them to prioritize debt repayment over dividends to pre- serve financial stability and fulfill obligations to creditors [[48](#_bookmark54)]. This constraint could indicate financial hardship to investors, resulting in reduced trust, higher borrowing expenses and even challenges in obtaining funding.

Furthermore, the significant negative impact of the cost of equity on the dividend coverage ratio suggests that firms may face pressure to reduce dividend payouts in response to increased equity costs, potentially to pre- serve capital or address market uncertainties [[45](#_bookmark51)]. This pressure may result in reduced shareholder returns and decreased investor interest in the company’s stock.

Moreover, WACC exhibited a noteworthy positive and significant effect on the dividend coverage ratio. Therefore, changes in total capital costs affect deci- sions regarding dividend payouts, indicating changes in preferences for capital structure or investment strat- egies to meet investor expectations [[58](#_bookmark64)]. Efficiently managing capital costs is essential for maintaining div- idend sustainability and instilling confidence in inves- tors, which could enhance the firm’s cost of capital and valuation.

Market share emerged as a significant driver of the dividend coverage ratio, with a positive and substantial impact. Firms with larger market shares strategically leverage dividends to reward shareholders and maintain market dominance, enhancing investor confidence and market positioning [[20](#_bookmark26)].

Lastly, the moderating effect between the cost of debt and market share revealed a negative and significant impact on the dividend coverage ratio, highlighting the complex interplay between financial metrics and market dynamics. Similarly, the positive and significant moder- ating effect between the cost of equity and market share suggests that market share may mitigate the adverse impact of increased equity costs on dividend coverage. However, the interaction between WACC and market share yielded a negative and insignificant effect on the dividend coverage ratio, indicating that market share may not significantly influence the relationship between WACC and dividend coverage.

**The effect of cost of capital on dividend yield**

First and foremost, incorporating dividend yield as a dynamic panel variable in the regression model revealed a significant positive impact on dividend yield, indicating that past dividend yield performance influences current dividend yields positively. According to Pelcher [[106](#_bookmark112)], cor- porations that consistently increase dividend distributions over time boost investor trust and indicate financial sta- bility. This can attract more investors and improve stock performance.

Secondly, the analysis unveiled a significant negative impact of the cost of debt on dividend yield. Increased debt costs limit firms’ capacity to sustain dividend pay- outs as they prioritize debt servicing to ensure financial stability and fulfill creditor obligations [[29](#_bookmark35)]. This restric- tion could indicate financial difficulties to investors, resulting in less trust, higher borrowing expenses and dif- ficulties financing future expansion efforts.

Furthermore, the cost of equity exhibited a significant positive impact on dividend yield. Although expenses may be higher, companies may still view dividends as a valuable method of involving shareholders. Nevertheless, increased equity expenses could lead to declining share- holder profits, resulting in unhappiness among share- holders or a loss in investor enthusiasm for the company’s stock. This could weaken the company’s ability to seek funding and support its expansion endeavors [[82](#_bookmark88)].

Moreover, the WACC showed a positive but insignifi- cant influence on dividend yield, suggesting that changes in WACC may not significantly affect dividend pay- outs. Efficiently controlling capital expenses is essential for preserving the ability to pay dividends and ensuring investors’ trust. This can have an impact on the overall

value of the company and its long-term stock perfor- mance [[109](#_bookmark115)].

Lastly, market share emerged as a significant driver of dividend yield. Larger market shares strategically utilize dividends to reward shareholders and maintain market dominance, enhancing investor confidence and market positioning.

Additionally, the moderation analysis revealed that market share may influence the relationship between financing costs and dividend payouts, allowing firms with larger market shares to mitigate adverse effects on divi- dend yields. However, larger market shares may exacer- bate the adverse effects of changes in WACC on dividend payouts, underscoring the importance of managing capi- tal costs and market positioning.

# Conclusion

This study sheds crucial light on the role of the cost of capital in shaping dividend policy decisions among non-financial companies listed on the Frankfurt Stock Exchange. Germany was strategically selected as the focal point of investigation due to its robust economy, well- established financial markets and comprehensive regu- latory framework. Collectively, these factors provide an ideal environment for examining how the cost of capital influences dividend policy within a competitive business landscape.

Leveraging Germany’s dynamic economy, diverse industries and stringent corporate governance standards, the study aimed to gain valuable insights into the intricate dynamics of financial decision-making within corpora- tions. To achieve this, a purposive sampling strategy was employed, resulting in the selection of 227 non-financial companies listed on the Frankfurt Stock Exchange. The study utilized data from 2005 to 2022 from Thomson Reuters Datastream. Employing two estimation methods, the CS-ARD and GMM, the findings unveiled significant insights into the relationship between the cost of capital and dividend policy.

The results revealed that the cost of debt consist- ently exerts a negative and significant influence on both the dividend payout ratio and dividend coverage ratio across various time frames. Conversely, although the impact of the cost of equity on these ratios was nega- tive, it remained statistically insignificant. In contrast, the WACC emerged as a significant factor, positively and significantly influencing both the dividend coverage ratio and dividend payout ratio over both short and long peri- ods. Additionally, market share was identified as another critical determinant, consistently demonstrating a posi- tive and significant impact on both the dividend payout ratio and dividend coverage ratio. These findings under- score the importance of considering the cost of capital

and market share dynamics in formulating dividend poli- cies, offering valuable insights for financial decision- makers and stakeholders in navigating dividend-related strategies within corporate settings.

**Managerial implication**

Effective debt management is crucial for maintaining dividend payments, as demonstrated by the significant adverse influence of debt expenses on dividend indica- tors over time and its harmful impact on dividend yield in the short term. It is crucial to swiftly address con- cerns about the cost of equity to strengthen shareholder trust and promote value development. This is particu- larly important considering the large negative effect of equity costs on long-term dividend metrics and their favorable impact on short-term dividend yield. Compa- nies’ management should prioritize managing their debt structures and closely monitoring the costs of equity in order to guarantee the implementation of sustainable dividend programs.

It is crucial to align dividend policies with manag- ing the overall capital structure. This is evident from the significant impact of the weighted WACC on divi- dend metrics throughout different periods. Financing decisions must also be aligned with dividend plans to maximize shareholder returns and preserve financial stability. To ensure the long-term sustainability of divi- dend payments, efficient management should regularly examine the components of WACC and make informed decisions regarding capital allocation.

Effective deployment of dividends to compensate shareholders and strengthen market position is crucial for sustained corporate success. The favorable influence of market share on dividend metrics highlights the sig- nificance of utilizing dividends as a means of investor involvement and distinguishing oneself in the market. This strategy approach can develop investor confidence, enhance market competitiveness and promote consist- ent growth in the changing company environment. Companies should deliberately employ dividends as a component of their investor relations and market posi- tioning strategies to increase shareholder value and improve their position in the market.

**Limitation of the study**

Some companies did not have data for the entire year used in this study. This could be attributed to the fact that some companies were incorporated after 2005, resulting in a lack of data for that specific year. As a result, these companies were excluded from the analy- sis, which limited the sample size to 227. However,

despite the limitation in sample size, it did not signifi- cantly impact the study’s outcomes or findings.

**Abbreviations**

CS-ARDL Common shock autoregressive distributed lag GMM Two-step generalized method of moments WACC Weighted average cost of capital

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**Author contributions**

RA conceived the study, and downloaded and analyzed the data. LA wrote the introduction and literature. HIMA did the methodology and discussion of the results. HAO did the conclusion, managerial implication and proofreading.

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**Availability of data and materials**

The data associated with the study will be made available upon reasonable request from the corresponding author.

**Declarations**

**Ethics approval and consent to participate**

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**Competing interests**

The authors declare that they have no competing interests.

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