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Unraveling the Payout Puzzle

Exploring the Relationship between Institutional Ownership and Dividend Policy in Swedish Firms

Authors:

Christopher Milsom

Johan Nybleus

Supervisor:

Anamaria Cociorva

Abstract

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Authors: Christopher Milsom and Johan Nybleus

Advisor/Examiner: Anamaria Cociorva / Marco Bianco

Five key words: Payout Ratio, Dividend Ratio, Institutional Ownership, Corporate Governance, Agency Problem

Purpose: The purpose of this study is to investigate if institutional ownership has an impact on a firm's total payout ratio in Swedish firms.

Methodology: The study uses fixed effects models with robust standard errors clustered by firm with year effects and provides several robustness checks by altering the dependent variable in our analysis.

Theoretical perspectives: The theoretical framework of this study is based on the theories concerning payout policies and corporate governance issues, which have been applied within the context of the specific research field of the study.

Empirical foundation: The sample consists of annual data from firms listed on the Stockholm Stock Exchange (SSE Nasdaq OMX), First North, and Nordic Growth Market, covering the period from 2013 to 2022.

Conclusions: The paper finds no statistically significant evidence supporting the notion that institutional ownership has an impact on a firm's total payout ratio in Swedish firms. This holds true even when changing the dependent variable to dividend ratio. Further, the results remain consistent when only including firms with positive net income.

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Christopher Milsom

Johan Nybleus

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1. Introduction

The following section covers the background of the study, including a problem discussion regarding previous literature, the study's purpose, and the actual research question. It further provides the main findings and briefly discusses the methodology employed. Finally, the section concludes the study's contribution and outlines the sections of the study.

1.1 Background

In their seminal paper, Miller and Modigliani (1961) argue that payout policy is irrelevant to the firm value given an ideal economy. Since the publication of Miller and Modigliani's study, researchers have challenged the validity of the dividend irrelevance theory as the assumption of the ideal economy is difficult to observe due to market frictions (Rozeff, 1982). To this date, payout policy is one of the most debatable topics in the corporate finance literature. In the famous paper, Black (1976) which claims, "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together." Despite the considerable amount of theoretical and empirical literature on the subject, the payout puzzle presented by Black remains unresolved as there is no consensus between scholars even four decades after the publication. The presence of market frictions presents a significant challenge in solving the payout puzzle. These market imperfections include, for instance, transaction costs, taxation, and agency costs like information asymmetry, all of which can play a crucial role when firms determine their payout. These factors introduce complexities and challenges that need to be considered when making decisions regarding the distribution of earnings to shareholders.

The responsibility for proposing the payout during the annual general meeting lies with the board of directors. However, the ultimate decision rests with the shareholders, who exercise their voting rights to determine the outcome of the proposed payout. In this regard, institutional investors, as significant shareholders, hold substantial voting power, granting them the ability to exert influence over corporate policies, including payout decisions. Given their considerable ownership stakes and fiduciary responsibilities to their clients, institutional investors have a

vested interest in ensuring that corporate management acts in the best interests of shareholders. To fulfill this role effectively, institutional owners need to consider the impact of market frictions when exercising their voting rights on a firm's payout.

1.2 Problem and Research Question

Institutional investors have emerged as a significant and growing actor in the global financial market, managing almost $100 trillion worth of assets in OECD countries alone (The World Bank, 2015). The same applies to Sweden, where institutional investors have emerged as significant capital providers with substantial ownership stakes in many of the country's publicly listed companies (Hogfeldt, 2005). Institutional investors are known for their long-term investment horizon, professional expertise, substantial capital base, and monitoring function, making them significant players in the market. With the increasing power of institutional investors, their influence over corporate decisions, including the payout ratio, has become more pronounced.

The Swedish setting stands out internationally due to the high concentration of ownership, which has been deliberately encouraged by political regimes and corporate laws over time (Agnblad, Berglöf & Svancar, 2002). Further, Cronqvist and Nilsson (2003) suggest that the investor protection of minority shareholders in Sweden is relatively weak, and the prevalence of corporate control instruments such as dual-class shares that favor a small group of controlling shareholders could be an explanation for this. Additionally, cross-holdings and stock pyramids are also common in Sweden, which can further complicate the corporate ownership structure and make it difficult for minority shareholders to assert their rights. Holmén and Knopf (2004) argue that these types of control instruments have made it possible for a group of spheres in Sweden to control numerous firms listed in Sweden, as well as a significant portion of the Swedish stock exchange. Collectively, these factors may contribute to a lack of transparency and accountability in a firm's corporate governance, thereby potentially fostering the expropriation of minority shareholders and giving rise to agency conflicts.

The previous research regarding institutional ownership's influence on firms' payout ratio has yielded mixed results (Chang, Kang, & Li, 2016; Thanatawee, 2012; Jory, Ngo & Sakaki, 2017; Crane, Michenaud, & Weston, 2016; Short, Zhang & Keasey, 2002). However, there is a limited amount of research explicitly conducted on Swedish firms within this field. This knowledge gap is particularly interesting considering the unique characteristics of the Swedish market, together with substantial ownership stakes held by institutional investors in Swedish firms. These institutional investors, with their significant ownership positions, have the potential to exert a substantial influence on the decision-making processes related to payout ratios. Thus, it is possible that institutional investors will consider the specific Swedish context when influencing firms' payout ratios. Consequently, the results in the Swedish context may diverge from those observed in other countries, emphasizing the importance of studying the unique Swedish setting. Therefore, this study aims to contribute to the existing literature and to fill the research gap in Sweden. The following research question is evaluated:

How does institutional ownership impact a firm's total payout ratio in Swedish firms?

1.3 Methodology and Main Findings

The sample for this study includes 3214 firm-year observations from 592 publicly listed firms on the Stockholm Stock Exchange (SSE Nasdaq OMX), First North, and Nordic Growth Market. The study covers the period from 2013 to 2022. To address the research question, a fixed effects model was employed, incorporating robust standard errors clustered by firm and accounting for year effects. The main findings of this study reveals that the top 10 institutional owners have no significant impact on the total payout ratio of Swedish firms. The insignificance results persist when altering the dependent variable to dividend ratio. Furthermore, the outcome remains consistent when only considering firms with a positive net income. As a result, the study does not find empirical support for the hypothesis that institutional ownership impacts the total payout ratio of Swedish firms.

1.4 Contribution

This study contributes to the existing literature by investigating the impact of institutional ownership on the total payout ratio in Swedish firms. While previous studies conducted outside of Sweden have found a significant impact on a firm's payout ratio, the direction of these effects has been inconclusive. Further, the research conducted specifically on Swedish firms is relatively limited. Therefore, this study fills this research gap by focusing on the Swedish context, offering valuable insights, and extending our understanding of the relationship between institutional ownership and firms' payout ratios.

1.5 Structure of the Paper

The remainder of this paper is organized as follows. Section 2 provides an overview of the Swedish context, highlighting its specific characteristics. Section 3 outlines the theoretical framework employed in this study, while section 4 reviews previous empirical literature. The formulation of the study's hypothesis is presented in section 5. Moving forward, section 6 offers a description of the sample, variable definitions, and summary statistics. The empirical methodology is detailed in section 7. Section 8 presents and analyzes the results, and a robustness test is introduced in section 9. Finally, section 10 concludes the study.

2. The Swedish Context

The primary objective of this section is to highlight the significance of the Swedish context and establish it as a fundamental framework for this study.

The purpose of this section is to provide the reader with knowledge regarding how the Swedish context could influence the relationship between institutional investors and the payout ratio of Swedish firms. The Swedish context will be applied to highlight how it can potentially impact the outcomes and findings of this research.

La Porta et al. (2000) argue that effective law enforcement is crucial for mitigating agency problems that arise from insiders, such as management exploiting shareholders. Effective law enforcement encompasses various aspects, including the ability of minority shareholders to exercise their rights, such as the percentage of votes needed to call an extraordinary shareholder meeting and the existence of preemptive rights. However, the gravity of these problems varies significantly based on the country where the firm operates, as legal protections for minority shareholders differ from country to country. La Porta et al. (1998) finds that Sweden ranks in the middle range regarding investor protection in relation to other countries.

However, Cronqvist and Nilsson (2003) argue that Sweden's protection of non-controlling shareholders is relatively weak. The authors suggest that Swedish corporate law favors the rights of controlling shareholders and management by allowing for a broad range of corporate control instruments such as dual-class shares, cross-holdings and stock pyramids. These control instruments can create more severe agency problems in Sweden by giving controlling minority shareholders greater control over the company, potentially at the expense of minority shareholders. The allowance of control instruments in the Swedish market could impact shareholders such as institutional investor's ability to influence the payout ratio. However, Cronqvist and Nilsson (2003) add that for countries with weak or intermediate investor protection, concentrated vote ownership could serve as a mechanism for disciplining managers and curbing their ability to engage in expropriation.

While legal frameworks are an important aspect of investor protection, they are not the only ones that matter. Extralegal institutions like the quality of accounting practices, the transparency of financial reporting, social norms, tax compliance, and the media can also play a significant role in ensuring that investors can make informed decisions and hold management accountable. In these areas, Sweden appears to perform relatively well (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Holmén and Knopf, 2004). The extralegal institutions can play a crucial role in reducing the agency problems in Swedish firms where shareholders have relatively weak protection and are susceptible to exploitation from controlling owners. Taken together, these factors suggest that while legal protections for investors in Sweden may be relatively modest, the country's extralegal institutions may provide some degree of support for investor rights and interests. Thus, the Swedish market is interesting to examine, given that there are aspects that can increase as well as mitigate the potential agency problem within a corporation.

Swedish institutional investors are generally subjected to equal taxation regardless of whether their income is derived from dividends or capital gains (PwC, 2023). Consequently, the tax regime has minimal influence on their preferences regarding the source of income. However, it is worth noting that the deferral of taxes only applies to capital gains, providing an advantage in that regard. Additionally, foreign investors own a significant portion of listed Swedish companies, some of whom are classified as institutional investors as can been observed in *Table 1* (SCB, 2023). It is important to consider that these foreign institutional investors might be subject to different tax regulations compared to Swedish institutional investors. As a result, the preferences of foreign investors regarding a firm's payout ratio may differ. This can give rise to clientele effects among different types of investors where firms can adjust their payout policy based on their ownership structure to assist investors in optimizing their tax liabilities (Allen, Bernardo, and Welch (2000). Moreover, companies seeking to attract specific types of investors can also tailor their payouts to align with the preferences of the targeted investor group. Therefore, the different taxation among investors can influence the firm's payout ratio.

3. Theoretical Literature Review

In this section, the most central theoretical framework of this study is presented. It includes payout theories and agency theories to help formulate the study's hypothesis.

3.1 Dividend Irrelevance Theory

The relevance of dividend policy to a firm's value is among the most discussed matters in the corporate finance literature. Miller and Modigliani (1961) suggest that dividend policy is irrelevant to firm value in an ideal economy. An ideal economy is defined by perfect capital markets, rational behavior among all investors, and perfect certainty about the prospects of every company. If these three underlying assumptions of an ideal economy hold, the value of the firm is solely determined by the firm's earnings power and investments. Thus, a firm's payout policy is irrelevant to shareholders. The underlying assumptions for an ideal economy to hold are as follows:

Perfect Capital Markets

In a perfect capital market, there are no transactions substantial enough to influence the share price at the time of the transaction. Additionally, all investors have equal and costless accessibility to information regarding the stock price, and there are no transaction costs. There are also no differences in taxation between payout and capital gains.

Rational Behaviour

The rational investor would rather have more wealth than less and is indifferent if the wealth gain comes in the form of the distribution of dividends or appreciation of their stock holdings as long as their overall wealth increases.

Perfect Certainty

Investors have perfect certainty about future investments, profits, and prospects of the companies. Thus, there is no particular need to distinguish between different financial instruments.

In the real market, the assumptions underlying the ideal economy are challenging to observe due to the presence of market imperfections such as transaction costs, taxation, and agency costs like information asymmetry. Consequently, the dividend irrelevance theory, proposed by Miller and Modigliani (1961), may not hold in practice, thereby opening up to the possibility that a firm's payout policy can exert an influence on its value. Moreover, numerous alternative theories have emerged seeking to provide explanations for a firm's payout in the presence of market imperfections. As proposed by Easterbrook (1984), the payout policy should be designed to minimize the costs associated with these market frictions.

3.2 Agency Theory

As mentioned previously, agency costs serve as market frictions that contribute to the potential invalidation of the dividend irrelevance theory. The application of agency theory facilitates an understanding of the emergence of agency conflicts within a firm and the corresponding agency costs incurred to mitigate the inherent conflict of interest. These agency costs often include structuring costs, monitoring expenses, as well as the creation of binding contracts. Residual loss, which occurs when the costs of enforcing a contract exceed the benefits derived from such enforcement, is also considered an agency cost.

The theory addresses the potential conflict of interest that emerges from the separation of ownership and control in a company. According to the theory, problems between firm owners, the principals, and its management, the agents, arise because both of the parties are assumed to be utility maximizers and only care about their own best interests (Jensen & Meckling, 1976). Furthermore, the agency relationship presents two types of agency problems which are commonly referred to as type I and type II (Jensen & Meckling, 1976; Fama & Jensen, 1983). Type I agency problems emphasize the relationship between the management, the agents, and the principals, the firm owners such as institutional owners, where the managers expropriate wealth from owners by exploiting the information asymmetry between the parties. The type I agency problem could become more pronounced in Sweden since effective law enforcement is just intermediate relative to other countries (La Porta et al., 1998). However, effective extralegal institutions could mitigate the type I agency problem (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Holmén and Knopf, 2004). The other agency problem, type II, describes the conflict of interest that arises between controlling owners and minority owners, where controlling owners take advantage of their position to maximize their own interests. (Jensen & Meckling, 1976; Shapiro 2005). Since Sweden allows for various control instruments that enhances control rights, type II agency problems could become more prominent in Swedish firms.

3.3 Stewardship Theory

The underlying assumption in the agency theory, which indicates that managers are mainly motivated by individualistic self-fulfillment, may not universally apply to all managers. Consequently, the stewardship theory emerges as a contrasting perspective to the agency theory, presenting an alternative approach to corporate governance (Davis, Schoorman & Donaldson, 1997). The theory puts forth the idea that management assumes a fiduciary duty to prioritize the interests of shareholders. Therefore, executive managers are expected to serve as stewards for the shareholders' best interests, placing paramount importance on maximizing shareholder value over their own personal interests (Donaldson & Davis, 1991; Davis, Schoorman & Donaldson, 1997). The Stewardship theory can have a dual impact on a firm's payout ratio, potentially leading to both an increase and a decrease as well as firms omitting payouts. This impact is driven by management's beliefs in determining the optimal level of payout that best serves the interest of shareholders.

3.4 Free Cash Flow Hypothesis

The free cash flow hypothesis extends the established agency theory, by particularly addressing the type I agency problem, as proposed by Jensen (1986). It suggests that the presence of accessible free cash flow within firms has the potential to create agency problems. Managers overseeing firms with significant excess free cash flow are often tempted to allocate these funds to projects that may not generate any value for shareholders. Consequently, agency costs can arise, often associated with managerial involvement in self-fulfilling endeavors aimed at enhancing their personal status rather than maximizing shareholder wealth. Managers may be motivated to invest in projects primarily for the expansion of the firm, leading to increased managerial power and dependencies often at the expense of shareholders. This can diminish the value created for shareholders. To address the issue of managerial overspending, the distribution of dividends or share repurchases is commonly employed as a tool. These actions reduce the availability of free cash flow for allocation in suboptimal projects, as proposed by Jensen (1986) and Faccio and Young (2001). Considering the Swedish context, which is characterized by a relatively weak shareholders protection, firms operating in Sweden with substantial excess free cash flow may be susceptible to more severe agency costs. However, the presence of effective extralegal institutions within the Swedish market can potentially mitigate the need for reducing the available free cash flow.

3.5 Life-Cycle Theory

The life-cycle theory incorporates the trade-off between transaction costs and agency costs associated with free cash flow, thereby providing an additional explanation for the rationale behind a firm's payout ratio. This decision involves weighing the benefits of retaining cash, such as potential savings on transaction costs, against the costs of retention, which include the risks associated with agency costs arising from free cash flow. According to DeAngelo et al., (2006), a company's decision to either retain or distribute free cash flow transforms over time as profits accrue and investment prospects dwindle. Consequently, dividends are typically issued by more mature and established companies that have fewer lucrative growth prospects compared to younger companies. This is because the agency costs associated with free cash flow for mature firms tend to outweigh the benefits of retaining cash, given their limited growth opportunities. These mature firms tend to face the challenge of effectively deploying excess

cash, thus making dividend distribution a more favorable option for maximizing shareholder value. Additionally, more mature firms are typically more established and have greater access to external capital, they often fund their investments using this type of capital rather than relying solely on retained earnings which enables a higher payout ratio. On the other hand, according to Fama and French (2001), early-stage firms characterized by lower profits, relatively small size, and significant investment opportunities tend to prioritize reinvestment and, therefore, often avoid paying dividends. Therefore, the firm's payout ratio is contingent upon its position in the life cycle, with more mature firms being more inclined to distribute a higher proportion of their profits back to shareholders.

3.6 Signaling Theory

Information asymmetry between insiders and outsiders is another market imperfection that has the potential to challenge the validity of the dividend irrelevance theory. The signaling theory puts forth the idea that a firm's payout ratio can serve as a means to communicate valuable information about its prospects, particularly when insiders possess greater access to such information compared to outside investors. In support of this, Lintner (1956) concludes that a firm’s earnings are the most important factor determining the payout ratio, with earnings prospects being reflected in the payout decisions. Thus, firms could intentionally utilize their payout ratio as a costly signaling mechanism to alter the market perception and effectively communicate their earnings prospects to shareholders (Bhattacharya, 1979; Miller & Rock, 1985). According to the signaling theory, a firm with bright prospects has a greater incentive to distribute a higher payout in order to signal its positive outlook to the market. The signaling theory provides a plausible explanation for why firms with promising growth opportunities choose to distribute dividends, despite the potential need for cash to finance investments. This serves as a means to mitigate information asymmetry regarding the firm's earnings outlook. On the other hand, firms that decrease or omit payouts may signal diminished earnings prospects. Given the presence of information asymmetry in the Swedish market, intermediate law enforcement and effective extralegal institutions could help mitigate this issue. Therefore, the costly mechanism of signaling to reduce information asymmetry may not be necessary for Swedish firms.

3.7 Catering Theory

The Catering theory contradicts the underlying assumption present in the dividend irrelevance theory about investors being rational. Baker and Wurgler (2004) claim that companies adjust their payout policy to meet the preferences of investors. When the demand is high for dividend-paying firms, and when these firms are trading at a premium, non-dividend firms may choose to cater to the demand and start paying dividends. When the opposite occurs where the demand for firms who invest in growth is high, and when non-dividend and high-growth firms trade at a premium, dividend-paying firms may choose to omit dividends in order to attract certain types of investors.

Institutional investors, characterized by their substantial ownership stakes in Swedish companies, exert significant influence over firms' payout ratios. With a goal of maximizing the value of their ownership stake, institutional investors may strategically influence the company's payout ratio to align it with market preferences. This aligns with the fundamental principle of the catering theory, which emphasizes that companies adjust their payout policies to cater to the preferences of investors in order to maximize their overall value.

4. Empirical Literature Review

This section presents an overview of previously conducted empirical studies within the field of institutional ownership's impact on the payout ratio. Further, the existing literature will be used to develop the study's hypothesis.

4.1 Limited Research in Sweden

The distinct characteristics of each country's specific context give rise to variations that may limit the direct applicability of findings from other markets to the unique context of the Swedish market. Consequently, one should be careful in making direct parallels between other countries and the Swedish context. However, to the best of our knowledge, there is a lack of accredited studies investigating the relationship between institutional ownership and the payout ratio specifically within the Swedish market. For this reason, this study relies on existing research that has explored the specific relationship between institutional investors and the payout ratio in other markets. *Table 2* provides a comprehensive summary of the existing literature pertaining to the field.

4.2 Institutional Ownership Monitoring Effect

In a company with numerous small shareholders, the benefits of monitoring management may not outweigh the costs for any individual shareholder. Due to their limited ownership stakes, small shareholders may not reap significant gains from monitoring activities while they still bear the total costs of such efforts. Hence, it is probable that only large shareholders will have sufficient incentives to undertake monitoring of the management (Shleifer & Vishny, 1986).

Since institutional investors are often major shareholders in companies, they are more likely to engage in monitoring activities. Due to their considerable ownership stakes and fiduciary responsibilities to their clients, institutional investors have a vested interest in ensuring that corporate management acts in the best interests of shareholders. Empirical research has shown

that institutional owners, with their significant ownership stakes, can serve as effective monitors of corporate managers and help mitigate the agency problem by disciplining executives (Chang, Kang, & Li, 2016). The monitoring by institutional owners can act as a substitute for using payouts as a mechanism to reduce agency problems, which can explain the negative relationship between institutional ownership and a firm's total payout ratio (Chang, Kang, and Li, 2016; Dhuhri & Diantimala, 2018; Kouki & Guizani, 2009).

4.3 Institutional Owners Use Payouts to Mitigate Agency problems

Contrary to the idea that institutional owners can serve as a substitute for payouts through monitoring, some studies have found a positive relationship between institutional owners and the payout ratio. This positive relationship is attributed to the belief that institutional ownership helps mitigate agency problems (Chang, Kang, & Li, 2016; Thanatawee, 2012; Jory, Ngo & Sakaki, 2017; Crane, Michenaud, & Weston, 2016; Short, Zhang & Keasey, 2002). Institutional investors may have a vested interest in advocating a higher payout ratio. This interest stems from the fact that a higher payout ratio reduces the cash available within a firm and that institutional investors use payout as a tool to reduce agency problems. This concept is closely tied to the agency problems associated with free cash flow, as highlighted by Jensen (1986).

Easterbrook (1984) and Short, Zhang, and Keasey (2002) also explain that dividends can play a crucial role in enhancing the external monitoring of firms, thereby reducing information asymmetry. By distributing dividends, companies are more prone to seek capital from external sources when they require funds for expansion or growth, as their internal funds may have already been distributed to investors. When firms need to seek external funds, they undergo a thorough review process by external actors such as bank lenders who will closely scrutinize and monitor the activities of the firm. This heightened external scrutiny helps mitigate agency problems within firms by reducing information asymmetry. Banks, being one of the key external actors, gain access to more comprehensive information, enabling them to assess the company's creditworthiness more effectively.

4.4 Institutional Owners Use Payout for Their Own Benefits

While the presence of institutional ownership in companies is commonly regarded as a means to mitigate agency problems, it is important to acknowledge that large institutional owners may seek to exert influence over a company's payout ratio based on their own interests, which may not always align with the interests of other minority shareholders. This can create an agency conflict between controlling and minority owners (Fama & Jensen, 1983). Short, Zhang and Keasey (2002) argue that institutional investors can have a positive influence on a firm's payout ratio due to their reliance on regular cash flow streams to support their ongoing operation. Various types of institutional investors bear ongoing liabilities that necessitate a steady income, such as pension funds that must fulfill pension obligations and cannot rely solely on capital gains. Consequently, these institutional investors have a vested interest in advocating a higher payout ratio, as it provides them with the consistent cash flows to meet their financial obligations.

Table 2: Empirical Literature Overview

Authors (Year)	Country	Period	Number of Observations	Dependent Variable	Result
Chang, Kang & Li (2016)	United States	1995-2009	31139	Dividend ratio and Total payout ratio	Negative impact
Thanatawee (2012)	Thailand	2002-2010	1927	Dividend ratio	Positive impact
Dhuhri & Diantimala (2018)	Indonesia	2012-2016	187	Dividend ratio	Negative impact
Kouki & Guizani (2009)	Tunisia	1995-2011	201	Dividend ratio	Negative impact
Jory, Ngo & Sakaki (2017)	United States	1980-2013	205874	Dividend ratio	Positive impact*
Crane, Michenaud & Weston (2016)	United States	1991-2006	18007	Total payout ratio	Positive impact
Short, Zhang & Keasey (2002)	United Kingdom	1988-1992	1055	Dividend ratio	Positive impact

Note: The table presents a comprehensive summary of prior research findings regarding the impact of institutional ownership on either the total payout ratio or dividend ratio.

***** The study from Jory, Ngo & Sakaki (2017) show that the persistence of institutional investor positively impacts firms Dividend ratio. Percentage of institutional ownership impact on firms Dividend ratio show no significant impact.

5. Hypothesis Development

In the following section, the hypothesis of this study will be developed, drawing upon previous empirical and theoretical literature as the foundation. Moreover, specific attention will be given to the Swedish context to ensure contextual relevance and applicability.

The Swedish market, characterized by relatively weak investor protection, poses the potential for greater agency problems and higher agency costs. This higher agency cost, attributable to the weak shareholder protection, may suggest a need for a higher payout ratio. However, it is worth noting that the presence of Sweden's well-functioning extralegal protection system could potentially indicate the opposite, reducing the need for a higher payout ratio. Additionally, the research conducted within the Swedish context is limited, and the empirical findings from previous studies conducted in other countries present inconsistent findings. Some studies indicate a positive association between institutional ownership and the payout ratio, while others have found a negative relationship. The theoretical literature also offers conflicting predictions regarding the influence of institutional ownership on the payout ratio. Considering the existing empirical and theoretical literature as well as the Swedish context, this study has developed a two-sided hypothesis that will enable an investigation into the relationship between institutional ownership and its impact on the payout ratio. To this end, the study has formulated the following hypothesis:

H_1: *Institutional ownership has* an *impact on a firm's total payout ratio in Swedish firms*

6. Data Description

The upcoming section will provide the study's sample description, including the definition of variables, summary statistics as well as a correlation matrix.

6.1 Sample Description

The data required to perform the various statistical tests has been obtained from Capital IQ's database. This includes information on the companies' key performance figures and the firm's ownership structure. The study's regressions and other statistical tests were conducted using the statistical software program Stata.

The sample consists of firms listed on the Swedish Stock Exchange (SSE), First North, and Nordic Growth Market. It encompasses observations from the period between 2013 and 2022 and excludes cross-listed firms whose primary listing is outside of Sweden. Furthermore, the sample does not include preference shares, which distribute dividends to specific shareholders rather than common stock shareholders. Consistent with prior research studies, this study excludes firms operating within the financial sector with SIC codes 6000-6999 and utility sectors with SIC codes 4900-4949 from the sample (Fama & French, 2001; Chang & Li, 2016; Thanatawee, 2012; Denis & Osobov, 2008; Jory, Ngo & Sakaki, 2017). This exclusion is due to the unique regulations that govern these companies, which may have an impact on their payout ratio. Additionally, firms with insufficient data, such as missing values on key performance figures or missing information regarding ownership data, have been manually excluded.

The study has an unbalanced panel structure in order to have as many observations as possible, and the final sample consists of 592 firms and 3214 firm-year observations. The main explanatory variables and all the control variables except Firm Age have been lagged by one year in relation to the dependent variable. The lagged variables are used because of time dependence since the board of directors takes into account the previous year's performance numbers when they propose the payout ratio. This approach allows us to capture the variable's effect on the dependent variable.

6.2 Variable Definition

Total Payout Ratio

To begin with, an overview of all variable definitions in this study can be observed in *Table 3*. The dependent variable used in the study is the Total Payout Ratio. The variable Total Payout Ratio consists of a ratio that summarizes the value per share of common dividends, special dividends, and share repurchases by the company during the fiscal year relative to the net income per share for the previous year. Additionally, preferential dividends are excluded from the Total Payout Ratio. The study's definition of the dependent variable aligns with previous research and is a commonly used tool to mitigate agency problem within a corporation (Jensen, 1986; Chang, Kang & Li, 2016; Crane, Michenaud, and Weston, 2016). Furthermore, it is important to note that firms are often reluctant to decrease their dividends even when firms experience a slight decline in their earnings. This phenomenon, known as dividend stickiness, can contribute to a lack of variation in absolute dividend amounts. By focusing on the Total Payout Ratio instead, the study aims to capture a higher degree of variability in the dependent variable.

Top 10 Institutional Ownership

The study's main explanatory variable is top 10 institutional ownership, which is defined as the percentage of the firm's outstanding common shares held by the top 10 institutional investors. The rationale for focusing on the top 10 institutional ownership is based on the expectation that they possess stronger incentives to engage in monitoring activities and exert a greater influence on corporate decision-making, like the payout ratio (Chang, Kang & Li, 2016). According to the data provided by Capital IQ, the following actors are classified as institutional investors: bank/investment banks, charitable foundations, corporate pension sponsors, educational/cultural endowments, family offices/trusts, government pension sponsors, hedge fund managers, insurance companies, investment managers, real estate investment trust, sovereign wealth funds, unclassified, union pension sponsors and VC/PE firms.

Sales Growth

In line with previous research, the study uses annual sales growth as a control variable (Dang & Yang, 2018; Holder, Langrehr, & Hexter, 1998; DeAngelo, DeAngelo, & Stulz, 2006). Based on previous research, it is expected that sales growth will have a negative impact on the payout Ratio. A firm's sales growth is closely connected with the life-cycle theory. In order for firms to grow, they need to make investments that require financing, consequently leading to a reduction in the funds available for distributing payouts to shareholders.

Total Assets

Numerous studies in the field conclude that total assets, i.e., firm size, is a critical control variable (Dang, Li & Yang, 2018; DeAngelo et al., 2006; Fama & French, 2001). The findings of these studies indicate a positive correlation between firm size and the payout ratio which can be connected to the life-cycle theory. Since larger firms are typically more established and have greater access to external capital, they often fund their investments using this type of capital rather than relying solely on retained earnings. This study uses the natural logarithm of total assets to assess the firm size, which aligns with previous research (Dang, Li & Yang, 2018; Lahir, 2018; Nuhu, 2014; Al-Najjar & Hussainey, 2009; Nazar, 2021). Utilizing the logarithmic form can reduce the variable's skewness and minimize the influence of outliers.

Leverage

Leverage can significantly impact a firm's payout ratio by reducing the excess cash and consequently limiting managers' opportunities of overspending on self-fulfilling projects. From this perspective, leverage can have a disciplinary effect on managers, where the firm must ensure it meets its debt obligation (Jensen & Meckling, 1976). Brockman and Unlu (2008) also suggest that leverage has a negative effect on the payout ratio. They argue that this relationship is because creditors demand firms to pay lower dividends to avoid the agency cost of debt and the risk that the firm defaults on its debt obligation. Thus, for firms to secure debt, the management generally accepts to distribute a lower payout. The study uses total leverage

divided by total assets, which aligns with the empirical literature (Jordan et al., 2014; Dang & Yang, 2018; Lahiri, 2018; Sumail, 2018; Nuhu, 2014).

Firm Age

The intention of using firm age as a control variable is to capture if the maturity of a firm impacts the payout ratio. The firm age can be linked to the life-cycle theory that suggests that older and more mature firms have fewer growth opportunities and tend to distribute more of the generated cash through payouts. The study calculates firm age based on the number of years since the firm was founded and uses the natural logarithm of firm age, which is consistent with previous research (Chang, Kang & Li, 2016; Thanatawee, 2012). By utilizing the natural logarithm, the variable's skewness can be reduced, and minimize the influence of outliers. Previous studies have shown that older firms, which are usually related to the firm's maturity, positively impact the payout ratio (Lahiri, 2018; Von Eije & Megginson, 2008; Dang & Yang, 2018; DeAngelo et al., 2006; Fama & French, 2001).

Market-to-Book Value (MTB)

The study employs market-to-book value (MTB) to assess a firm's potential for growth. A relatively high value of MTB indicates that the company has promising growth opportunities, while a relatively low value implies less potential for future growth. Incorporating MTB as a control variable is common practice, and several studies finds that high growth opportunities negatively impact a firm's payout ratio (Fama & French, 2001; DeAngelo et al., 2006; Lahiri, 2018; Nuhu, 2014; Al-Najjar& Hussainey, 2009; Ghosh & Sirmans, 2006; Jordan et al., 2014). The primary explanation in the literature is that firms with promising growth opportunities often choose to retain earnings instead of distributing them as dividends or buying back shares. This decision allows them to reinvest the retained earnings back into the business, funding growth initiatives aimed at generating higher returns. In contrast, the signaling theory provides an explanation for a positive impact where firms with higher growth opportunities could employ dividends as a costly signal to the market.

Free Cash Flow

In this study, the measure of free cash flow is defined as the operating cash flow after accounting for changes in working capital and subtracting capital expenditures, and it is expressed as the ratio of free cash flow to total assets. Several research papers have discovered a positive relationship between a firm's free cash flow and the payout ratio (Holder, Langrehr, & Hexter, 1998; Jordan et al., 2014; Elmagrhi et al., 2017). According to the free cash flow hypothesis, the presence of excessive cash within a firm gives rise to higher agency costs, thereby increasing the need for distributing payout. As a result, the extent of the firm's free cash flow may impact the magnitude of cash allocated for payout purposes. On the other hand, when firms have low levels of free cash flow, using dividends to mitigate agency problems becomes less necessary (Holder, Langrehr, & Hexter, 1998).

Asset Turnover Ratio (ATO)

A common measure of agency cost will be used in this study which is the asset turnover ratio (Ang et al., 2000; Sing & Davidson, 2003; McKnight & Weir, 2009; Brau, 2002; Rashid, 2015; Fleming et al., 2005; Florackis, 2008; Rashid, 2013). The asset turnover ratio is the firm's annual total revenues divided by total assets and is used as a proxy for the loss in revenues attributable to inefficient utilization of assets. The inefficient use of assets can be a result of suboptimal investment decisions such as management shirking, exerting insufficient effort, consumption of excessive perquisites, and investments in negative net present value investments which result in lower revenue. Thus, the ratio captures how effectively the firm's management deploys its assets. A low asset turnover ratio indicates that the firm's management is utilizing the assets ineffectively and vice versa. Hence, firms with agency problems will have a more insufficient assets turnover ratio compared to firms with less agency costs.

Insider Ownership

Total insider ownership is a metric that calculates the percentage of a company's shares held by private individual insiders, such as the management and board of directors. A higher rate of insider ownership implies a greater alignment of interests between insiders and other shareholders, potentially mitigating agency costs. This alignment reduces the risk of managers overspending as they may miss out on potential returns (Jensen & Meckling, 1976). As a result, insider ownership can act as a replacement for using payouts to reduce agency problem. The variable is commonly used in research to assess the agency cost of a company and is consistent with previous studies (Sumail, 2018; Al-Najjar & Hussainey, 2009; Lahiri, 2018).

6.3 Summary Statistics

Table 4 presents a summary of the statistics of the sample without any data transformations. In order to address the outliers in our variables, this study employs two techniques: winsorization and logarithmic transformation. Winsorization is applied to all variables except for firm age and total assets, whereas logarithmic transformation is specifically used for these two variables. The winsorization process involves replacing extreme values with the corresponding 5th or 95th percentiles, thereby achieving a more normal distribution. By employing these methods, the accuracy and inference of the regression results are enhanced.

The transformed summary statistics are presented in *Table 5*. The average total payout ratio is 24.866%, and the average dividend payout ratio is 21.431%. The median for both the total payout ratio and dividend payout ratio is 0%, indicating that the variables are positively skewed. This implies that there are more non-paying firms in the sample. Including firms that do not pay out in our study is essential for capturing the full impact of institutional investors on the payout ratio. By examining both paying and non-paying firms, the study is able observe the influence of institutional investors when firms transition and decide to distribute earnings through payouts. Including non-paying firms in our study is also essential for a more representative analysis of the overall population. This approach aligns with previous research and ensures a comprehensive understanding of how institutional investors shape firms' dividend decisions across the entire population.

Table 5: Summary Statistics Winsorized and Transformed

Variable name	Mean	Median	SD	Min	Max	N
Total Payout (win)	24.866	0	35.145	0	110.368	3214
Dividend Payout (win)	21.431	0	30.621	0	94.335	3214
Top10 (win)	24.459	22.874	15.375	2.386	54.59	3214
Insider (win)	16.378	10.85	16.220	.11	54.98	3214
MTB (win)	2.545	1.592	2.419	.324	8.987	3214
Total Assets (log)	6.348	6.062	2.431	.668	13.171	3214
Leverage (win)	43.24	45.8	21.358	6.63	76.9	3214
ATO (win)	.885	.832	0.623	.03	2.14	3214
FCF to TA (win)	-.06	.003	0.178	-.477	.166	3214
Revenue Growth (win)	23.703	9.965	52.735	-43.5	192.3	3214
Firm Age (log)	3.32	3.219	0.930	.693	6.023	3214

Note: The table provides summary statistic for the variables included in our sample. In the sample, all variables have been winsorized, except for Firm Age and Total Assets which has been logged. The variables in the table are: **Total Payout (win):** (Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1}$. **Dividend payout ratio (win):** Common Dividend$_t$ / Net Income$_{t-1}$. **Top10 (win):** Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1}$. **Insider (win):** Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1}$. **MTB (win):** Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1}$. **Total Assets (log):** Book Value of Total Assets$_{t-1}$. **Leverage (win):** (Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1}$. **ATO (win):** Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2. **FCF to TA (win):** (Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1}$. **Revenue Growth (win):** Total Revenue$_t$ / Total Revenue$_{t-1}$. **Firm Age (log):** Number of Years Since Founding Year.

The average top 10 institutional ownership in the sample is 24.459% compared to its median of 22.874%, which indicates that the variable is quite normally distributed. The variable revenue growth stands out in the sample with a Mean of 23.703%. The quite high growth number can be explained by the fact that this study includes firms listed on smaller exchanges, where firms often experience higher growth. The total number of firm-year observations is 3214. Dividing the firms by industry, it can be observed in *Table 6* that the sample consists of firms mainly in the manufacturing industry as well as the service industry. The manufacturing industry and the service industry have 1883 and 796 firm-year observations, respectively. Together they account for more than 80% of the firm-year observations. Lastly, as can be observed in *Table 7*, the number of firm-year observations exhibits a progressive increase with each passing year within the designated period of interest. Consequently, to maximize the number of firm-year observations, an unbalanced data set is employed in this study. The rising trend in the number of observations can be attributed, in part, to the occurrence of multiple initial public offerings (IPOs) in recent years.

The result of the pairwise correlation matrix can be observed in *Table 8*. When interpreting the results, the correlation between the dependent variable total payout ratio and the main explanatory variable, top 10 institutions (0.326), is positive and highly statistically significant. It can also be observed that all control variables are significantly correlated with the dependent variable. Overall, the correlations and direction between the variables are as expected, and most of the correlations exhibit high statistical significance. The control variables are highly statistically significant with the main explanatory variable top 10 institutional ownership, without any concerns regarding the magnitude of the correlation. A high correlation between independent variables, including the independent variable and the control variables, can give rise to multicollinearity, making it difficult to determine the individual effect of each variable on the dependent variable. This can lead to unstable regression coefficients, inflated standard errors, reduced statistical significance, and the possibility for overlapping explanations, potentially generating redundant or overlapping results. However, the study does not find strong evidence of multicollinearity, indicating that the variables in the dataset are not highly correlated with each other and are suitable for our regression analysis.

7. Methodology

The methodology section outlines the econometric approach employed in the study to test the formulated hypothesis. It includes the following pre-regression diagnostics, the Hausman test, and a test for heteroskedasticity which help in determining a suitable methodology. Additionally, robustness checks will be presented.

When determining the appropriate methodological approach for this study, it is important to consider and evaluate different research designs to ascertain the most suitable one. Given the panel structure of the data, several methodological approaches can be considered for testing the formulated hypothesis of this study.

Initially, the pooled-OLS model disregards the panel data structure in our study, whereby the observations are pooled across time as well as for the cross-sectional units (Woolridge, 2016). In order for the pooled-OLS to produce consistent results, it is crucial that the unobserved effect, *ai* must be uncorrelated with x_{it}, the explanatory variables. Failure to satisfy this assumption can lead to biased and inconsistent estimators, thereby introducing heterogeneity bias into the model.

To address the potential issue of heterogeneity bias that is inherent in the pooled-OLS model, the adoption of the fixed effects model presents a viable alternative (Wooldrige, 2016). The fixed effects model is a method for estimating unobserved effects panel data. The variable a_i captures all unobserved time-constant factors that influence the dependent variable, y_{it}, which remains constant over time but it can vary across units, *i*. The method allows for arbitrary correlation between the unobserved effect, a_i, and the explanatory variables x_{it} in any given time period. Consequently, any explanatory variable that remains constant over time for all units, *i*, get swept away by the fixed effects transformation for all units, *i*, and time periods, *t*, if the explanatory variable, x_{it} is constant across time, *t*.

Furthermore, the Hausman test will be employed in order to assist in the selection between using fixed effect estimators and random effect estimators on the explanatory variables that vary across units and time (Wooldrige, 2016). The null hypothesis of this test is that the random effect model is the more suitable choice compared to the fixed effect model under the current specification. The result is reported in *Table 9*, where the Chi2 statistics and associated p-value lead to the rejection of the null hypothesis. This implies that the fixed effect model is more appropriate than the random effects model. The methodological choice aligns with previous empirical studies within the field (Chang, Kang & Li, 2016; Short, Zhang & Keasey, 2002; Jory, Ngo & Sakaki, 2017).

Additionally, the modified Wald statistic for groupwise heteroskedasticity in the fixed effect model will be utilized to assess the reliability of the estimated standard eros for inference (Greene, 2003). The null hypothesis of this test is that the residuals are homoscedastic. As observed in *Table 10*, the Chi2 statistics and the associated p-value of 0.0000, indicate the rejection of the null hypothesis of homoscedasticity. This implies that the study has obtained evidence against homoscedasticity (constant variance). As a result, the estimated standard errors cannot be considered reliable for inference. Therefore, in order to address this issue, the regression models in this study will use robust clustered standard errors by the firm. Furthermore, year effects are incorporated to capture any time-specific factors that could influence the dependent variable, total payout ratio.

Denis (2015) argues that there is no perfect solution to address the endogeneity problem in empirical corporate finance, as all methodological approaches have inherent limitations. However, by carefully considering the research design, one can narrow down the issue of endogeneity, thereby enhancing the reliability and validity of the results. In this study, several approaches have been adopted to mitigate the endogeneity problem. Firstly, the use of lagged variables has been employed, which has become a common approach in corporate finance to partially address the issue of endogeneity (Roberts & Whited, 2013). By incorporating lagged variables, the probability of a reverse causality relationship between the dependent variable and the other variables is mitigated.

Additionally, the fixed effect model has been employed as a means to mitigate the endogeneity problem. Roberts and Whited (2013) point out that omitted variables are a prevalent cause of endogeneity in empirical corporate finance and that the omitted variables are an issue because of the considerable heterogeneity. The fixed effect model partially addresses this issue by accounting for firm-specific omitted variables that remain constant over time (Denis, 2015; Roberts & Whited, 2013).

Furthermore, to deal with measurement error, this study will use two distinct models with different dependent variables as part of a robustness test. Additionally, the study will incorporate variables that have been used in previous empirical studies within the field. By incorporating multiple dependent variables and utilizing established variables, the robustness of the findings is enhanced. The fixed effects model with the dependent variable Total Payout Ratio will be denoted as Model 1, while the fixed effects model with the alternative dependent variable, dividend ratio, will be denoted as Model 2. To test the formulated hypothesis, the study employs a fixed effects model with robust standard errors clustered by firm, incorporating year effect. The models are specified as follows:

Fixed Effects (Hypothesis 1)

$$Payout\ Ratio = \beta_0 + \beta_1\ Top10\ Institutional\ Ownership + \beta_2\ Insiders + \beta_3\ MTB + \beta_4\ Total\ Assets\ (log) + \beta_5\ Leverage + \beta_6\ ATO + \beta_7\ FCF\ to\ TA + \beta_8\ Revenue\ Growth + \beta_9\ Firm\ Age\ (log) + \lambda Year\ controls + u_{it} \quad \textit{(Equation 1)}$$

Fixed Effects (Hypothesis 1)

$$Dividend\ Ratio = \beta_0 + \beta_1\ Top10\ Institutional\ Ownership + \beta_2\ Insiders + \beta_3\ MTB + \beta_4\ Total\ Assets\ (log) + \beta_5\ Leverage + \beta_6\ ATO + \beta_7\ FCF\ to\ TA + \beta_8\ Revenue\ Growth + \beta_9\ Firm\ Age\ (log) + \lambda Year\ controls + u_{it} \quad \textit{(Equation 2)}$$

Chang, Kang & Li (2016) and Thanatawee (2012) only include firms with a positive net income in their study within the field. This selection criterion is relevant because the decision to distribute payouts is, in the long run, contingent upon the firm's net income. Additionally, institutional investors are more likely to use dividends as a tool for reducing agency problems if firms have a positive net income. As seen in *Table 11*, our sample consists of 1391 firm-year observations where firms report a negative net income. Therefore, this study will begin by doing a univariate analysis to test differences in means between the two groups with a t-test. The result is reported in *Table 11*, the associated p-value of 0 indicates a significant difference between the mean for firms with a positive net income and firms with a negative net income. Consequently, the study plans to conduct the same fixed effect models as in Models 1 and 2. However, only firms with positive net income will be included in Models 3 and 4, as a robustness check. This choice takes into account the potential impact of substantial investments on firms' cash flow, which may result in temporary decreases in free cash flow that do not reflect the normal cash generation of the firm. By using net income as a measure, the study avoids the influence of short-term fluctuations caused by substantial investments and instead captures the overall financial performance and profitability of the firm. Furthermore, dividing the sample based on a firm's net income is in line with previous research (Chang, Kang & Li, 2016; Thanatawee, 2012).

8. Result and Analysis

The forthcoming section will present the regression results obtained from the specified models and assess whether the findings offer support for the formulated hypotheses. Moreover, a comprehensive analysis of the results will be conducted, including a comparison with previously empirical literature within the field.

Table 12 provides the study's results for the regression models (1)-(2), which are reported in columns (1)-(2). The results from regression Model 1 shows that the main explanatory variable, top 10 institutional ownership, has a coefficient of -0.002. However, the impact from top 10 institutional owners on a firm's total payout ratio is not statistically significant. Therefore, the study finds no support for our hypothesis that institutional ownership has an impact on a firm's total payout ratio in Swedish firms. In Model 1, the relationship between the variable leverage and the total payout ratio is negative and highly statistically significant. Additionally, both variables, revenue growth and firm age, show a weak significant impact on the total payout ratio. The other control variables in the regression do not significantly impact the dependent variable.

Further, to evaluate the robustness of the findings obtained in Model 1, the study re-estimates the regression model. In Model 2, a change is implemented by replacing the dependent variable from the total payout ratio to the dividend ratio. Notably, the outcome obtained from Model 2 aligns closely with the result observed in Model 1. Specifically, the main explanatory variable top 10 institutional ownership, remains insignificant. Thus, the findings indicate that the impact of the top 10 institutional ownership on a firm's total payout ratio remains consistent across both measures. One noteworthy difference is that the variable MTB shows a positive and weakly statistically significant impact. Leverage and revenue growth shows the same direction and significance, while firm age is now significant at a five percent level.

Table 12: Regression Results for Model 1 and 2

	(1)	(2)
Variable	**Total Payout Ratio**	**Dividend Payout Ratio**
Top10 (win)	-0.002	0.011
	(0.076)	(0.066)
Insider (win)	0.058	0.043
	(0.084)	(0.069)
MTB (win)	0.474	0.493*
	(0.306)	(0.277)
Total Assets (log)	1.165	1.020
	(1.220)	(1.000)
Leverage (win)	-0.146***	-0.106***
	(0.042)	(0.037)
ATO (win)	2.799	2.375
	(3.032)	(2.448)
FCF to TA (win)	2.565	-0.273
	(3.523)	(3.123)
Revenue Growth (win)	-0.013*	-0.010*
	(0.007)	(0.005)
Firm Age (log)	11.680*	13.696**
	(6.871)	(6.113)
Constant	-11.319	-22.552
	(21.095)	(18.437)
Observations	3,214	3,214
Standard Errors	Clustered (Firm)	Clustered (Firm)
Industry Effects	No	No
Year Effects	Yes	Yes
R-squared	0.074	0.080
Number of Firms	592	592

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table presents the results of regression Models (1) and (2). Model 1 uses the total payout ratio as the dependent variable, while Model 2 employs the dividend ratio as the dependent variable. Both models include year effects to account for time-specific factors. The models incorporate robust standard errors clustered by firm.

The variables in the table are: Total Payout (win): (Common Dividendt + Special Dividendt + Share Repurchaset) / Net Incomet-1. Dividend payout ratio (win): Common Dividendt / Net Incomet-1. Top10 (win): Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investorst-1. Insider (win): Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firmt-1. MTB (win): Market Value of the Firmt-1 / Book Value of Total Assetst-1. Total Assets (log): Book Value of Total Assetst-1. Leverage (win): (Total Current Liabilitiest-1 + Total Long-Term Liabilitiest-1) / Total Assetst-1. ATO (win): Total Revenuest-1 / (Total Assetst + Total Assetst-1) / 2. FCF to TA (win): (Operating Cash Flowt-1 – Capital Expenditurest-1 – Change in Net Working Capitalt-1) / Total Assetst-1. Revenue Growth (win): Total Revenuet / Total Revenuet-1. Firm Age (log): Number of Years Since Founding Year.

Despite the rising institutional ownership levels in Swedish firms and the average institutional ownership of 24.459% observed in our sample, our findings indicate that institutional ownership does not exert a significant influence on firm's total payout ratio. It is noteworthy that nearly one-fourth of the shares are held by the top 10 institutional owners, making the insignificant impact on the payout ratio somewhat surprising. Especially since the results of this study contradict prior studies conducted in other countries, which demonstrate a significant impact from institutional investors on the total payout ratio, although the direction of the impact is mixed (Chang, Kang, & Li, 2016; Thanatawee, 2012; Crane, Michenaud, & Weston, 2016; Short, Zhang & Keasey, 2002).

One plausible reason behind the insignificant results can be attributed to the inherent heterogeneity across markets. Each market has its unique characteristics, which can introduce variation in the results. The allowance of various control instruments in the Swedish market enables some shareholders to have greater influence over the payout decisions than other investors. If these control instruments are less common among institutional investors, it might impact their influence negatively. This would also, to some extent, explain why previous studies in other countries where the utilization of control instruments is less common find that institutional investors have a significant impact on a firm's payout. Further, the institutional investors within the variable top 10 institutional ownership could have different preferences regarding the payout, consequently vouch for the payout ratio that aligns with their own best interests. On an individual basis, the institutional investor has relatively limited power and influence over a firm's total payout ratio, which could explain their insignificant impact. Another possible explanation for the insignificant results is that there are different types of institutional investors that may be indifferent regarding the payout. For instance, institutional investors primarily focused on momentum trades, short-term trading, or index funds may potentially be included within the variable.

Further, the lack of significant results could be attributed to the composition of our sample, which consists of 1885 firm-year observations that do not payout. The inclusion of these non-paying firms introduces minimal variation in the dependent variable, thereby potentially influencing the significance of the result.

9. Robustness

The section presents the results and analysis of the study's robustness test, which includes two additional regressions focusing exclusively on firms reporting a positive net income.

As observed in *Table 13*, the results for the robustness test (3)-(4), are reported in columns (1)-(2). The results of Models 3 and 4 exhibit a resemblance to Models 1 and 2, where the top 10 institutional ownership is still insignificant even after only including firms with a positive net income.

To begin with, when analyzing the findings, it is evident that the results in regression Models 3 and 4 remain consistent regardless of the specific ratio applied. This aligns with the observed results between Models 1 and 2, where there was no difference in the outcome when changing the measure of the dependent variable. Even after refining the sample by including only firms with a positive net income, the results remain consistent with the previous regression. This implies that the top 10 institutional investors still do not exert a significant impact on the firm's payout ratio. The robustness shows that the results are unaffected by variations in the measurement of the dependent variable or the inclusion of only firms with positive net income.

Table 13: Regression Results for Model 3 and 4

	(3)	(4)
Variable	**Total Payout Ratio**	**Dividend Payout Ratio**
Top10 (win)	0.068	0.072
	(0.133)	(0.117)
Insider (win)	0.097	0.090
	(0.178)	(0.143)
MTB (win)	0.805	1.158
	(0.870)	(0.779)
Total Assets (log)	2.462	3.776
	(2.878)	(2.427)
Leverage (win)	-0.320***	-0.208**
	(0.115)	(0.101)
ATO (win)	-2.240	0.126
	(6.110)	(4.915)
FCF to TA (win)	4.540	-2.248
	(11.371)	(9.761)
Revenue Growth (win)	-0.057*	-0.050**
	(0.031)	(0.022)
Firm Age (log)	0.623	5.449
	(15.066)	(13.815)
Constant	48.149	5.154
	(51.413)	(45.550)
Observations	1,823	1,823
Standard Errors	Clustered (Firm)	Clustered (Firm)
Industry Effects	No	No
Year Effects	Yes	Yes
R-squared	0.151	0.164
Number of Firms	353	353

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table presents the results for regression Models (3) and (4), which only include firms with positive net income. Model 3 uses the total payout ratio as the dependent variable, while Model 4 employs the dividend ratio as the dependent variable. Both models include year effects to account for time-specific factors. The regressions adopt robust standard errors clustered by firm.

The variables in the table are: Total Payout (win): (Common Dividendt + Special Dividendt + Share Repurchaset) / Net Incomet-1. Dividend payout ratio (win): Common Dividendt / Net Incomet-1. Top10 (win): Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investorst-1. Insider (win): Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firmt-1. MTB (win): Market Value of the Firmt-1 / Book Value of Total Assetst-1. Total Assets (log): Book Value of Total Assetst-1. Leverage (win): (Total Current Liabilitiest-1 + Total Long-Term Liabilitiest-1) / Total Assetst-1. ATO (win): Total Revenuest-1 / (Total Assetst + Total Assetst-1) / 2. FCF to TA (win): (Operating Cash Flowt-1 – Capital Expenditurest-1 – Change in Net Working Capitalt-1) / Total Assetst-1. Revenue Growth (win): Total Revenuet / Total Revenuet-1. Firm Age (log): Number of Years Since Founding Year.

10. Conclusion

In the following section, the result of the study will be summarized, and its contribution in light of the existing literature. Further, the study's shortcomings will be discussed together with recommended future research.

In conclusion, the purpose of this study is to examine the impact of institutional ownership on the total payout ratio in Swedish firms, filling a research gap in the existing literature that has primarily focused on other markets. By exploring the unique characteristics of the Swedish market, this study aims to contribute valuable insights into the broader body of literature conducted outside of Sweden. The sample consists of 3214 firm-year observations and 592 firms for publicly listed firms on the Stockholm Stock Exchange (SSE Nasdaq OMX), First North, and Nordic Growth Market from 2013 to 2022. The research question was addressed by employing a fixed effects model with robust standard errors clustered by firm with year effects.

The findings of this study indicate that the top 10 institutional owners do not exert a significant impact on the total payout ratio of Swedish firms. This lack of significance holds true when changing the dependent variable to dividend ratio. Additionally, consistent results are observed when considering only firms with a positive net income. Consequently, there is no support for the hypothesis that institutional ownership has an impact on a firm's total payout ratio in Swedish firms. Contrary to prior research conducted in other countries, which demonstrates a significant influence of institutional owners on either the total payout ratio or dividend ratio, albeit with varying directional effects. Despite the insignificant results, the findings of this study provide a deeper understanding of the relationship between institutional investors and payout behavior in the Swedish context, offering valuable implications for both researchers and practitioners interested in this field.

It is essential to note that the top 10 institutional owners encompass various types of institutional investors, not all of whom engage in monitoring activities or attempt to influence the firm's payout ratio. Some institutional investors may have investment strategies that differ from conducting thorough fundamental analysis. These investors may prioritize short-term profits, exhibit high portfolio turnover, or engage in momentum trades. A shortcoming of this study is that it does not account for the influence of these different types of institutional investors and their specific impacts on the firm's payout ratio.

Based on the findings of this study, there are several pathways for future research that can contribute to a deeper understanding of the relationship between institutional investors and firms' total payout ratios in light of the Swedish context. First, it would be valuable to investigate the distinct effects of various types of institutional investors, such as pension funds, mutual funds, or hedge funds, on the total payout ratio. As the preferences of each specific institutional investor vary, their impact on a firm's payout ratio may differ significantly. Exploring the specific preferences and investment strategies of each institutional investor could provide valuable insights into how they influence the payout ratio. Additionally, the authors encourage future research to investigate the role of institutional investors' voting power in shaping the total payout ratio. Given the numerous control instruments that exist in the Swedish market, it would be interesting to examine how institutional investors' ability to exercise their voting rights impacts firms' payout ratios.

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Appendices

Table 1: Shareholder Structure in Companies Quoted on Swedish Marketplace

Year	Non-financial corporations	Financial corporations				General government			Households	Non-profit institutions		Rest of the world
		Investment corporations	Investment funds	Insurance companies and pension funds	Other financial corporations	Central government	Local government	Social security funds		Corporations	Households	
2022 dec	14,6	6,9	12,4	7,5	1,6	0,7	0,0	2,6	12,1	2,0	1,6	37,8
2022 jun	15,4	6,5	11,9	7,2	1,5	0,8	0,0	2,4	12,1	2,0	1,5	38,6
2021 dec	16,1	6,0	12,0	7,0	1,7	0,6	0,0	2,3	12,0	1,8	1,4	39,0
2021 jun	14,2	5,9	12,2	7,1	1,4	0,7	0,0	2,5	12,4	2,2	1,5	39,9
2020 dec	13,6	6,0	12,4	7,3	1,4	0,8	0,0	2,5	12,3	2,2	1,5	39,9
2020 jun	13,1	6,6	12,0	7,3	1,5	0,9	0,0	2,6	12,1	2,4	1,6	39,7
2019 dec	14,0	6,2	12,6	7,4	1,6	1,0	0,0	2,3	11,8	2,5	1,7	38,9
2019 jun	13,6	6,0	12,6	7,6	1,6	1,2	0,0	2,4	11,8	2,5	1,7	39,2
2018 dec	13,0	6,0	12,5	7,7	1,8	1,3	0,0	2,4	11,9	2,5	1,8	39,1
2018 jun	12,0	5,9	12,4	7,6	1,9	1,2	0,0	2,4	11,1	2,1	1,8	41,5
2017 dec	12,4	5,9	12,2	7,6	2,2	1,1	0,0	2,5	11,2	2,2	1,8	40,8
2017 jun	12,5	5,8	12,7	7,7	2,3	1,1	0,0	2,5	11,6	2,4	1,9	39,6
2016 dec	12,8	5,4	12,4	7,8	2,2	1,1	0,0	2,6	11,9	2,3	1,9	39,4
2016 jun	13,7	5,3	12,2	7,6	1,9	1,3	0,0	2,7	12,3	2,3	1,8	38,8
2015 dec	13,5	5,3	11,9	7,5	1,9	1,4	0,0	2,5	11,9	2,3	1,8	40,0
2015 jun	12,2	5,6	11,7	7,6	2,4	1,6	0,0	2,5	11,2	2,4	1,8	41,0
2014 dec	12,4	5,6	11,8	8,1	2,2	1,8	0,0	2,6	11,1	2,5	1,9	39,9
2014 jun	12,0	5,5	12,1	8,2	2,0	1,9	0,0	2,6	11,2	2,3	2,1	40,0
2013 dec	11,9	5,4	11,7	8,0	1,9	2,0	0,0	2,8	10,9	2,2	2,2	41,0
2013 jun	11,4	5,4	11,8	8,2	2,0	2,5	0,0	3,0	10,9	2,2	2,2	40,5
2012 dec	11,5	5,5	11,5	8,3	2,3	2,9	0,0	2,8	10,8	1,9	2,2	40,3

Note: The table displays ownership of shares in companies quoted on Swedish exchanges from December 2012 to December 2022, represented as a percentage of the total value (SCB, 2023**)**

Table 2: Empirical Literature Overview

Authors (Year)	Country	Period	Number of Observations	Dependent Variable	Result
Chang, Kang & Li (2016)	United States	1995-2009	31139	Dividend ratio and Total payout ratio	Negative impact
Thanatawee (2012)	Thailand	2002-2010	1927	Dividend ratio	Positive impact
Dhuhri & Diantimala (2018)	Indonesia	2012-2016	187	Dividend ratio	Negative impact
Kouki & Guizani (2009)	Tunisia	1995-2011	201	Dividend ratio	Negative impact
Jory, Ngo & Sakaki (2017)	United States	1980-2013	205874	Dividend ratio	Positive impact*
Crane, Michenaud & Weston (2016)	United States	1991-2006	18007	Total payout ratio	Positive impact
Short, Zhang & Keasey (2002)	United Kingdom	1988-1992	1055	Dividend ratio	Positive impact

Note: The table presents a comprehensive summary of prior research findings regarding the impact of institutional ownership on either the total payout ratio or dividend ratio.

***** The study from Jory, Ngo & Sakaki (2017) show that the persistence of institutional investor positively impacts firms Dividend ratio. Percentage of institutional ownership impact on firms Dividend ratio show no significant impact.

Table 3: Variable Definition

Variable Name	Definition	Source
Dependent		
Total Payout (win)	(Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1}$	Capital IQ
Dividend Payout (win)	Common Dividend$_t$ / Net Income$_{t-1}$	Capital IQ
Main Explanatory		
Top10 (win)	Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1}$*	Capital IQ
Control		
Insider (win)	Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1}$	Capital IQ
MTB (win)	Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1}$	Capital IQ
Total Assets (log)	Book Value of Total Assets$_{t-1}$	Capital IQ
Leverage (win)	(Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1}$	Capital IQ
ATO (win)	Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2	Capital IQ
FCF to TA (win)	(Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1}$	Capital IQ
Revenue Growth (win)	Total Revenue$_t$ / Total Revenue$_{t-1}$	Capital IQ
Firm Age (log)	Number of Years Since Founding Year	Capital IQ

Note: The table provides an overview of the study's variables as well as their definitions and data source. The variables in the table are: **Total Payout (win):** (Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1}$. **Dividend payout ratio (win):** Common Dividend$_t$ / Net Income$_{t-1}$. **Top10 (win):** Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1}$. **Insider (win):** Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1}$. **MTB (win):** Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1}$. **Total Assets (log):** Book Value of Total Assets$_{t-1}$. **Leverage (win):** (Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1}$. **ATO (win):** Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2. **FCF to TA (win):** (Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1}$. **Revenue Growth (win):** Total Revenue$_t$ / Total Revenue$_{t-1}$. **Firm Age (log):** Number of Years Since Founding Year.

* The following actors are classified as institutional investors: bank/investment banks, charitable foundations, corporate pension sponsors, educational/cultural endowments, family offices/trusts, government pension sponsors, hedge fund managers, insurance companies, investment managers, real estate investment trust, sovereign wealth funds, unclassified, union pension sponsors and VC/PE firms.

Table 4: Summary Statistics

Variable name	Mean	Median	SD	Min	Max	N
Total Payout	25.265	0	149.290	-5823.379	1048.438	3214
Dividend Payout	23.546	0	95.611	-3900	1048.438	3214
Top10	24.807	22.874	16.471	.006	89.11	3214
Insider	16.801	10.85	17.407	0	91.15	3214
MTB	2.911	1.592	4.315	.012	81.452	3214
Total Assets	9988.507	429.15	36815.403	1.95	525000	3214
Leverage	43.597	45.8	22.318	.497	99.9	3214
ATO	.931	.832	0.889	0	29.5	3214
FCF to TA	-.069	.003	0.262	-5.385	3.743	3214
Revenue Growth	130.519	9.965	2197.968	-99.6	81300	3214
Firm Age	43.243	25	48.072	2	413	3214

Note: The table provides summary statistics for the variables included in our sample without any data transformations. The variables in the table are: **Total Payout:** (Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1}$. **Dividend payout ratio:** Common Dividend$_t$ / Net Income$_{t-1}$. **Top10:** Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1}$. **Insider:** Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1}$. **MTB:** Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1}$. **Total Assets:** Book Value of Total Assets$_{t-1}$. **Leverage:** (Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1}$. **ATO:** Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2. **FCF to TA:** (Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1}$. **Revenue Growth:** Total Revenue$_t$ / Total Revenue$_{t-1}$. **Firm Age:** Number of Years Since Founding Year.

Table 5: Summary Statistics Winsorized and Transformed

Variable name	Mean	Median	SD	Min	Max	N
Total Payout (win)	24.866	0	35.145	0	110.368	3214
Dividend Payout (win)	21.431	0	30.621	0	94.335	3214
Top10 (win)	24.459	22.874	15.375	2.386	54.59	3214
Insider (win)	16.378	10.85	16.220	.11	54.98	3214
MTB (win)	2.545	1.592	2.419	.324	8.987	3214
Total Assets (log)	6.348	6.062	2.431	.668	13.171	3214
Leverage (win)	43.24	45.8	21.358	6.63	76.9	3214
ATO (win)	.885	.832	0.623	.03	2.14	3214
FCF to TA (win)	-.06	.003	0.178	-.477	.166	3214
Revenue Growth (win)	23.703	9.965	52.735	-43.5	192.3	3214
Firm Age (log)	3.32	3.219	0.930	.693	6.023	3214

Note: The table provides summary statistic for the variables included in our sample. In the sample, all variables have been winsorized, except for Firm Age and Total Assets which has been logged. The variables in the table are: **Total Payout (win):** (Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1}$. **Dividend payout ratio (win):** Common Dividend$_t$ / Net Income$_{t-1}$. **Top10 (win):** Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1}$. **Insider (win):** Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1}$. **MTB (win):** Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1}$. **Total Assets (log):** Book Value of Total Assets$_{t-1}$. **Leverage (win):** (Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1}$. **ATO (win):** Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2. **FCF to TA (win):** (Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1}$. **Revenue Growth (win):** Total Revenue$_t$ / Total Revenue$_{t-1}$. **Firm Age (log):** Number of Years Since Founding Year.

Table 6: Distribution by Industry

Industry	Non-Paying Firms	Paying Firms	Total	Proportion (%)
Agriculture, Forestry, Fishing	1	3	4	0.12%
Mining	41	21	62	1.93%
Construction	13	64	77	2.40%
Manufacturing	1219	664	1883	58.59%
Transportation & Public Utilities	73	46	119	3.70%
Wholesale Trade	27	98	125	3.89%
Retail Trade	46	62	108	3.36%
Finance, Insurance, Real Estate	0	0	0	0.00%
Services	454	342	796	24.77%
Public Administration	11	29	40	1.24%
Total	**1885**	**1329**	**3214**	**100,00%**

Note: The table displays the distribution of the study's sample categorized according to Standard Industrial Classification (SIC) codes. Additionally, it provides a detailed breakdown of paying and non-paying firms for each industry. The finance and utility sector have been excluded from the sample as they are regulated differently than other industries.

Table 7: Distribution by Year

Year	Non-Paying Firms	Paying Firms	Total	Proportion (%)
2014	88	116	204	6.35%
2015	104	126	230	7.16%
2016	115	149	264	8.21%
2017	152	151	303	9.43%
2018	210	165	375	11.67%
2019	244	174	418	13.01%
2020	349	98	447	13.91%
2021	309	164	473	14.72%
2022	314	186	500	15.56%
Total	**1885**	**1329**	**3214**	**100.00%**

Note: The table presents the distribution of the study's sample by year, provides a comprehensive breakdown of paying and non-paying firms for each respective year.

Table 8: Pearson's Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Total Payout (win)	1.000										
(2) Dividend Payout (win)	0.939***	1.000									
(3) Top10 (win)	0.326***	0.303***	1.000								
(4) Insider (win)	-0.081***	-0.069***	-0.317***	1.000							
(5) MTB (win)	-0.142***	-0.154***	-0.092***	0.122***	1.000						
(6) Total Assets	0.245***	0.239***	0.136***	-0.222***	-0.145***	1.000					
(7) Leverage (win)	0.242***	0.262***	0.199***	-0.078***	-0.386***	0.187***	1.000				
(8) ATO (win)	0.384***	0.408***	0.173***	0.150***	-0.204***	-0.020	0.514***	1.000			
(9) FCF to TA (win)	0.472***	0.462***	0.350***	-0.073***	-0.289***	0.156***	0.323***	0.492***	1.000		
(10) Revenue Growth (win)	-0.174***	-0.172***	-0.116***	0.069***	0.195***	-0.088***	-0.162***	-0.090***	-0.196***	1.000	
(11) Firm Age	0.356***	0.359***	0.281***	-0.281***	-0.268***	0.375***	0.289***	0.180***	0.342***	-0.182***	1.000

**** p<0.01, ** p<0.05, * p<0.1*

Note: The table displays Pearson's Correlation Matrix between the variables in the sample: Total Payout Ratio, Dividend Payout Ratio, Top 10 Institutional Ownership, Total Insider Ownership, Market-to-Book-Value (MTB), Total Assets, Leverage, Asset Turnover (ATO), Free Cash Flow to Total Assets, Revenue Growth, Firm Age. The variables in the table are: **(1) Total Payout (win):** (Common Dividend$_t$ + Special Dividend$_t$ + Share Repurchase$_t$) / Net Income$_{t-1.}$ **(2) Dividend payout ratio (win):** Common Dividend$_t$ / Net Income$_{t-1.}$ **(3) Top10 (win):** Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investors$_{t-1.}$ **(4) Insider (win):** Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firm$_{t-1.}$ **(5) MTB (win):** Market Value of the Firm$_{t-1}$ / Book Value of Total Assets$_{t-1.}$ **(6) Total Assets (log):** Book Value of Total Assets$_{t-1.}$ **(7) Leverage (win):** (Total Current Liabilities$_{t-1}$ + Total Long-Term Liabilities$_{t-1}$) / Total Assets$_{t-1.}$ **(8) ATO (win):** Total Revenues$_{t-1}$ / (Total Assets$_t$ + Total Assets$_{t-1}$) / 2. **(9) FCF to TA (win):** (Operating Cash Flow$_{t-1}$ – Capital Expenditures$_{t-1}$ – Change in Net Working Capital$_{t-1}$) / Total Assets$_{t-1.}$ **(10) Revenue Growth (win):** Total Revenue$_t$ / Total Revenue$_{t-1.}$ **(11) Firm Age (log):** Number of Years Since Founding Year

Table 9: The Hausman Test

$Chi^2(17)$	68.863
Prob > Chi^2	0.0000

Note: The table presents the results of the Hausman test. The null hypothesis is that the random effect model is more suitable.

Table 10: Modified Wald Statistic for Groupwise Heteroskedasticity in Fixed Effects Model

	Chi2 statistic	Prob>Chi2
H_0: Homoskedasticity	592	0.0000

Note: The table illustrates the outcome of the Modified Wald statistic. The null hypothesis of this test is that the residuals are homoskedastic.

Table 11: Test of Differences in Mean

	Positive NI		Negative NI			
Variable	**N**	**Mean**	**N**	**Mean**	**Difference (0-1)**	**p-value**
Total Payout Ratio	1823	43.839	1391	0	43.839	0.0000

Note: The table presents the results of the univariate analysis, which tests for differences in means in firms' payout ratios between firms with positive net income and firms with negative net income.

Table 12: Regression Results for Model 1 and 2

	(1)	(2)
Variable	**Total Payout Ratio**	**Dividend Payout Ratio**
Top10 (win)	-0.002	0.011
	(0.076)	(0.066)
Insider (win)	0.058	0.043
	(0.084)	(0.069)
MTB (win)	0.474	0.493*
	(0.306)	(0.277)
Total Assets (log)	1.165	1.020
	(1.220)	(1.000)
Leverage (win)	-0.146***	-0.106***
	(0.042)	(0.037)
ATO (win)	2.799	2.375
	(3.032)	(2.448)
FCF to TA (win)	2.565	-0.273
	(3.523)	(3.123)
Revenue Growth (win)	-0.013*	-0.010*
	(0.007)	(0.005)
Firm Age (log)	11.680*	13.696**
	(6.871)	(6.113)
Constant	-11.319	-22.552
	(21.095)	(18.437)
Observations	3,214	3,214
Standard Errors	Clustered (Firm)	Clustered (Firm)
Industry Effects	No	No
Year Effects	Yes	Yes
R-squared	0.074	0.080
Number of Firms	592	592

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table presents the results of regression Models (1) and (2). Model 1 uses the total payout ratio as the dependent variable, while Model 2 employs the dividend ratio as the dependent variable. Both models include year effects to account for time-specific factors. The models incorporate robust standard errors clustered by firm.

The variables in the table are: Total Payout (win): (Common Dividendt + Special Dividendt + Share Repurchaset) / Net Incomet-1. Dividend payout ratio (win): Common Dividendt / Net Incomet-1. Top10 (win): Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investorst-1. Insider (win): Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firmt-1. MTB (win): Market Value of the Firmt-1 / Book Value of Total Assetst-1. Total Assets (log): Book Value of Total Assetst-1. Leverage (win): (Total Current Liabilitiest-1 + Total Long-Term Liabilitiest-1) / Total Assetst-1. ATO (win): Total Revenuest-1 / (Total Assetst + Total Assetst-1) / 2. FCF to TA (win): (Operating Cash Flowt-1 – Capital Expenditurest-1 – Change in Net Working Capitalt-1) / Total Assetst-1. Revenue Growth (win): Total Revenuet / Total Revenuet-1. Firm Age (log): Number of Years Since Founding Year.

Table 13: Robustness Regression Results for Model 3 and 4

	(3)	(4)
Variable	**Total Payout Ratio**	**Dividend Payout Ratio**
Top10 (win)	0.068	0.072
	(0.133)	(0.117)
Insider (win)	0.097	0.090
	(0.178)	(0.143)
MTB (win)	0.805	1.158
	(0.870)	(0.779)
Total Assets (log)	2.462	3.776
	(2.878)	(2.427)
Leverage (win)	-0.320***	-0.208**
	(0.115)	(0.101)
ATO (win)	-2.240	0.126
	(6.110)	(4.915)
FCF to TA (win)	4.540	-2.248
	(11.371)	(9.761)
Revenue Growth (win)	-0.057*	-0.050**
	(0.031)	(0.022)
Firm Age (log)	0.623	5.449
	(15.066)	(13.815)
Constant	48.149	5.154
	(51.413)	(45.550)
Observations	1,823	1,823
Standard Errors	Clustered (Firm)	Clustered (Firm)
Industry Effects	No	No
Year Effects	Yes	Yes
R-squared	0.151	0.164
Number of Firms	353	353

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table presents the results for regression Models (3) and (4), which only include firms with positive net income. Model 3 uses the total payout ratio as the dependent variable, while Model 4 employs the dividend ratio as the dependent variable. Both models include year effects to account for time-specific factors. The regressions adopt robust standard errors clustered by firm.

The variables in the table are: Total Payout (win): (Common Dividendt + Special Dividendt + Share Repurchaset) / Net Incomet-1. Dividend payout ratio (win): Common Dividendt / Net Incomet-1. Top10 (win): Fraction of Common Shares Outstanding Owned by the Top 10 Institutional Investorst-1. Insider (win): Fraction of Common Shares Outstanding Owned by the Management and the Board of the Directors in the firmt-1. MTB (win): Market Value of the Firmt-1 / Book Value of Total Assetst-1. Total Assets (log): Book Value of Total Assetst-1. Leverage (win): (Total Current Liabilitiest-1 + Total Long-Term Liabilitiest-1) / Total Assetst-1. ATO (win): Total Revenuest-1 / (Total Assetst + Total Assetst-1) / 2. FCF to TA (win): (Operating Cash Flowt-1 – Capital Expenditurest-1 – Change in Net Working Capitalt-1) / Total Assetst-1. Revenue Growth (win): Total Revenuet / Total Revenuet-1. Firm Age (log): Number of Years Since Founding Year.

Equation 1: Regression Model 1 and 3

$$Payout\ Ratio = \beta_0 + \beta_1\ Top10\ Institutional\ Ownership + \beta_2\ Insiders + \beta_3\ MTB + \beta_4\ Total\ Assets\ (log) + \beta_5\ Leverage + \beta_6\ ATO + \beta_7\ FCF\ to\ TA + \beta_8\ Revenue\ Growth + \beta_9\ Firm\ Age + \gamma Industry\ controls + \lambda Year\ controls + u_{it}$$

Equation 2: Regression Model 2 and 4

$$Dividend\ Ratio = \beta_0 + \beta_1\ Top10\ Institutional\ Ownership + \beta_2\ Insiders + \beta_3\ MTB + \beta_4\ Total\ Assets\ (log) + \beta_5\ Leverage + \beta_6\ ATO + \beta_7\ FCF\ to\ TA + \beta_8\ Revenue\ Growth + \beta_9\ Firm\ Age + \gamma Industry\ controls + \lambda Year\ controls + u_{it}$$