

Aleknevičienė, Vilija; Vilimaitė, Karolina

Article

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*Corresponding author: Vilija Aleknevičienė, Department of Applied Economics, Finance, and Accounting, Vytautas Magnus University, K. Donelaičio g. 58, Kaunas 44248, Lithuania
E-mail: vilija.alekneviene@vdu.lt

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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Effect of ownership structure on dividend payments: Evidence from public companies in Nordic and Baltic Countries

Vilija Aleknevičienė^{1*} and Karolina Vilimaitė¹

Abstract: We investigate whether ownership structure influences the likelihood and amount of dividend payments in two groups of European Union's public companies: Nordic and Baltic. Nordic and Baltic capital markets have become increasingly integrated through Nasdaq OMX stock exchanges and harmonized by the EU corporate governance directives. However, some differences in the corporate governance system, legislation, practice, and ownership structure still exist. The study covers Nordic and Baltic companies listed on the Nasdaq OMX for the period 2013–2020. Logit and Tobit panel regressions are applied to disclose the effect of ownership structure on the likelihood and amount of dividend payments accordingly. We find that ownership concentration positively influences the likelihood and amount of dividend payments in Nordic public companies. Managerial ownership does not influence the likelihood of dividend payments but positively influences their amount. Institutional ownership does not influence the likelihood of dividend payments but negatively influences their amount. Our findings revealed that ownership structure does not have any effect either on the likelihood of dividend payments or on their amount in Baltic public companies. We disclosed that the effect of ownership structure on dividend payments is influenced by the context behind ownership structure. The results of our research will improve understanding and predict the decision-making on dividend payments and will help investors manage their portfolios, choosing between current and future consumption.

ABOUT THE AUTHOR



Vilija Aleknevičienė

Vilija Aleknevičienė is the professor at the Department of Applied Economics, Finance and Accounting, Vytautas Magnus University (VMU). Her main research interests are risk-adjusted performance of companies and farms, decision modelling in financial markets and financial behavior. Environmental protection and development of green financial sector opened a new niche for decision modelling in financial markets and assessment of changes in investors' financial behavior.

Subjects: Corporate Finance; Business, Management and Accounting

Keywords: ownership structure; dividend payments; ownership concentration; managerial ownership; institutional ownership

1. Introduction

The ownership structure is one of the most frequently studied phenomena of corporate governance. In modern companies, ownership and control are often separated and this creates the conditions for differences of interest between company managers and shareholders or controlling and minority shareholders. These interest conflicts lead to increasing agency costs, which negatively affect a company's value. As a result, companies need to implement mechanisms that reduce these costs and protect the interests and welfare of shareholders. The ownership structure is increasingly identified as an appropriate tool to mitigate conflicts arising from agency relationships, to increase the company's value, and to protect shareholders' interests such as the right to receive dividends.

The decision on dividend payments is one of the key decisions in a company, which affects the welfare of shareholders, reinvestment opportunities, present and future growth rate, agency conflicts, costs, clientele effect, etc. This decision is of interest to the company's managers, who consider dividend payments a positive indicator of their activity, shareholders, and potential investors for whom dividends are an indicator of investment return, as well as creditors trying to protect their interest against shareholders. The ownership structure is one of the essential factors influencing dividend payments in a company.

One of the most common ways to study the influence of ownership structure on dividend payments is through ownership concentration (Khalfan & Wendt, 2020; Kulathunga & Azeez, 2016; Miller et al., 2022; Pieloch-Babiarz, 2019; Setiawan et al., 2016; Tran & Le, 2019) and the type of dominant shareholder (Baker et al., 2021; Bataineh & Ntim, 2021; Kanojia & Bhatia, 2022; Le & Le, 2017; Obaidat, 2018). Previous research confirms that different ownership concentrations and types of ownership lead to different goals, needs, and management decisions of shareholders regarding dividend payments.

Ownership structure and dividend payments are closely related to the corporate governance system. For this reason, the study should be made taking into account their differences. Nazar (2021) supports such a view concluding that recent works have suggested dividend disbursements to be considerably influenced by corporate governance. Adiloglu and Vuran (2012) argue that higher compliance with corporate governance standards allows for more accountable and transparent companies for investors to choose from. That is why the issue of corporate governance and its effects on corporate performance is relevant in the capital market economy. Gillan and Starks (2003) highlighted the need for corporate governance to come from the potential conflicts of interest among stakeholders in the corporate structure. These conflicts of interest often are referred to as agency problems. According to the mentioned authors, they arise from two main sources: different stakeholders have different goals and preferences; the stakeholders have imperfect information about each other's actions, knowledge, and preferences. Lozano et al. (2016) and Kanojia and Bhatia (2022) found that companies with good corporate governance pay higher dividends than companies with weak corporate governance. Financial regulators need to improve the corporate governance framework to enhance the disbursement of dividends and mitigate the agency problem. Judge et al. (2008) showed that trying to protect investors' external governance should help governance at the company level. This is particularly important in emerging market economies as the institutional environment is insufficient to strengthen corporate governance at the company level (X. Huang et al., 2018). Even though Nordic and Baltic capital markets are becoming more and more integrated through Nasdaq OMX stock exchanges and harmonized by the EU corporate governance directives, some differences in the corporate governance system,

legislation, practice, and ownership structure still exist. Thomsen (2016) argues that Nordic corporate governance, including Nordic civil law, semi-two-tier board structures, concentrated ownership, employee representation, and low-powered managerial incentives, has been shaped by the welfare state in a way that is in line with systemic corporate governance theories. Meanwhile, Mygind (2007) points out that all the Baltic economies are moving towards a typical Continental European corporate governance system which is based on relatively concentrated block holder ownership. For Baltic public companies, a high concentration of the ownership and existence of a controlling shareholder is characteristic. Meanwhile, ownership concentration in Nordic public companies is more dispersed, and minority protection mechanisms are stronger. So, the different effects of ownership structure on dividend payments could be expected due to the differences in governance legislation and practices. Moreover, Psaros et al. (2007), using the Australian corporate governance ranking system, ranked and rated all the European Union (EU) countries on the strength of their corporate governance guidelines. The rank was the following: Finland and Sweden (3rd place), Denmark (14th place), Lithuania (18th place), Estonia, and Latvia (23rd place). Ribas-Ferrer (2016) showed that recent legal developments in the area of corporate governance of listed companies focus on transparency, the role of shareholders and investors, the duties, and responsibilities of the board of directors, and executive remuneration. Progress has been made, however, a lot of relevant subjects such as transparency on institutional investors, asset managers, and proxy advisors, and identification of shareholders remain in the terrain of recommendations or proposals.

In this study, we will disclose the Nordic and Baltic corporate governance context and answer whether the ownership structure has a different effect on dividend payments in Nordic and Baltic public companies. Our research results would help understand and predict the decision-making on dividend payments and help investors manage their portfolios, choosing between current and future consumption.

The research paper is organized in the following way: the literature review is done to base the relevance and novelty of the study; the research methodology is developed to assess the effect of ownership structure on dividend payments; empirical research is carried out seeking to assess the effect of ownership structure on dividend payments in the public companies of Nordic and Baltic countries; conclusions are formulated trying to present and base main findings, practical applications, research limitations and insights for future research.

2. Literature review

2.1. Nordic and Baltic corporate governance context

In recent decades, the Nordic and Baltic capital markets have become increasingly integrated through Nasdaq OMX stock exchanges. This has led to harmonized listing rules and requirements. In addition, corporate governance in Nordic and Baltic countries step by step is harmonized by the EU corporate governance directives. However, there are still some differences in the corporate governance system, legislation, practice, and ownership structure as well.

According to Corporate Governance in the Nordic Countries (2022), the Nordic model of corporate governance meets the highest international standards and differs in some respects from the Anglo-Saxon and European Continental models. Both world-leading with foreign ownership and relatively small with predominantly domestic ownership public companies in an international perspective operate in the Nordic countries. Shares with multiple voting rights are allowed, subject to restrictions set out in the company's legislation. This is the most commonly used mechanism to strengthen ownership control, primarily in Sweden but also to some extent in Denmark and Finland. In many Nordic countries, the ownership structure of companies is dispersed, with a clear separation of ownership and management functions. A relatively high proportion of Nordic public companies have one or a few large shareholders, who often play an active role in corporate governance. This has important implications for attitudes toward the role of ownership,

and the major private shareholders of such companies are generally expected to actively exercise their ownership rights and take long-term responsibility for the company. In this context, major private shareholders participate in the affairs of the company as members of the Board. However, in all countries, there should be at least two Board members who are independent of the main shareholders (in Denmark at least half of them). Ilmonen (2014) pointed out the following features of the Nordic corporate governance system: a dispersed shareholder system can lead to inadequate management monitoring; a system with controlling shareholders is vulnerable to the possibility of the incumbent shareholder gaining private benefits of control at the expense of minority shareholders; and the increasing number of politically influential institutional investors provides a mechanism for the controlling shareholders to exert their control.

The historical development of corporate governance in Baltic countries has begun after all three countries (Lithuania, Latvia, and Estonia) have reclaimed their independence in 1990. Then mass privatization of state property has been launched to transform the whole economic system. Estonia has performed the privatization process the fastest of all Baltic countries. After joining the EU in 2004, the countries had to implement EU Directives into the national law system. The national legal acts contained provisions to protect shareholder interests, regulate functions, accountability, and liability of corporate bodies, and ensure transparency of corporate governance. All countries developed national corporate governance codes for public companies. These codes were revisited after the integration of Tallinn, Riga, and Vilnius stock exchanges into Nasdaq OMX Group. According to the main characteristics of the markets, the Baltic countries correspond to the European model of corporate governance: the high concentration of ownership, most companies have a controlling shareholder, and the legal system formed by common law is the most consistent with the German corporate governance model.

Ilmonen (2014) focused on two important aspects of the Nordic and Baltic corporate governance context. The first aspect is that the political dynamic of EU-level regulation differs from national regulation in small countries. The second aspect is that EU corporate governance regulation would not be tailored to facilitate structures adopted in the Nordic countries. However, likely, EU-level regulation would not conflict with the main parameters of the Nordic corporate governance system, i.e., control structures and concentrated ownership. For example, Nordic countries have generally adopted measures to implement minority protection mechanisms regardless of EU regulation.

2.2. Ownership structure, dividend payments, and agency problem

Recently, researchers have been increasingly focused on the effect of the ownership structure on dividend payments proving the statistical significance of this factor. The ownership structure is defined as the distribution of a company's ownership in terms of voting rights and company capital, including the identity of shareholders (Al-Thuneibat, 2018). According to Yeh (2019), the ownership structure is a corporate governance mechanism that involves a conflict of interest between representatives (owners) and agents (managers). When analyzing the ownership structure of a company and its effect on dividend payments, two main aspects are commonly identified: ownership concentration and the identity of the main shareholder (Fazlzadeh et al., 2011).

Following the views of Kowerski and Wypych (2016), Kulathunga and Azeez (2016), and Sakinc and Gungor (2015), dividend payments are the result of information asymmetries between the company's shareholders and managers, and agency conflicts. Information asymmetry manifests itself in the fact that company managers have all the information about operational processes and are often reluctant to share it with shareholders (Kowerski & Wypych, 2016). As a result, dividend payments signal to shareholders about future profitability and company value growth (Sakinc & Gungor, 2015). Kulathunga and Azeez (2016) also explained information asymmetry through the Signaling theory, according to which dividend payments are important in conveying information to shareholders about the value of the company.

Agency conflicts cause agency costs. According to Le and Le (2017), the payment of dividends can reduce agency costs by reducing the internal sources of funding controlled by managers. According to Sulong and Nor (2008) and Kulathunga and Azeez (2016), higher dividends reduce a company's free cash flow, forcing managers to look for external sources of funding. External providers of finance monitor the use of funds, assess the performance of a company, facilitate shareholders' control, and reduce agency costs. For this reason, it is concluded that dividend payments are closely related to the monitoring of a company by shareholders. Lozano et al. (2016) highlighted that ownership concentration may be one of the potential corporate governance mechanisms to resolve shareholder-management conflicts, as large investors can exercise greater control over management actions. This is echoed by Setiawan et al. (2016), who argue that manager-shareholder conflict is more likely to occur in companies with dispersed ownership. Managerial control in the presence of many minority shareholders tends to be inefficient as the measures applied become too expensive. Meanwhile, the shareholders with a large number of shares can cover the costs of managerial control easier and earn a higher return on investment. However, Le and Le (2017) claim that investors with large holdings incur higher management monitoring costs than small investors, and often require higher dividend payments to compensate for these costs.

According to Al-Thuneibat (2018), the ownership structure is divided into concentrated and dispersed. Sheikh et al. (2013) argued that concentrated ownership is when a small number of shareholders own a large proportion of a company's issued shares. They state that block holders are probably to be more effective in monitoring management than small shareholders (dispersed ownership) since block holders have essential investment and significant voting power to protect their investments. Gillan and Starks (2003) pointed out that there is a minimal conflict between management and shareholder representation when ownership is concentrated.

Mancinelli and Ozkan (2006), Ramli (2010), and Alabdullah (2018) observed that a high concentration of ownership leads to another problem, namely the conflict between controlling and minority shareholders due to the almost complete control of the majority shareholders and the pursuit of personal gain. In addition, dispersed ownership weakens shareholders' ability and need to monitor the performance of a company, as such shareholders do not feel a sense of ownership and control over the company when they have a small stake (Fazlzadeh et al., 2011).

Tran and Le (2019) supported the statement that companies with concentrated ownership pay lower dividends. According to the authors, the more concentrated the ownership structure, the more likely that the business is less transparent, and the shareholders are more inclined to pursue personal gains. Miller et al. (2022) reach the same conclusion: the greater the dispersion of ownership, the more dividends are paid. Khalfan and Wendt (2020) found that the effect of ownership concentration on dividend payments depends on the context of concentration. They found that the effect of ownership concentration on dividend payments varies significantly across countries. Paskelian et al. (2018) focused on government ownership concentration and highlighted that firms with low government ownership concentration make better use of cash so that relatively lower dividend payments are a positive signal about the company's prospects. Bruneckiene et al. (2020) showed that companies with low ownership concentration tend to invest more efficiently, as they are better able to see their market potential and are subject to less shareholder pressure.

Despite the controversial approaches toward the relationship between ownership concentration and dividend payments, we follow the idea that dividend payments reduce information asymmetry and agency conflicts. Moreover, according to Signaling theory, dividend payments play an important role in transmitting information to shareholders about the company's value. Finally, as Le and Le (2017) indicated, investors with large holdings incur higher management monitoring costs than small investors and may therefore require higher dividend payments to offset these costs. Based on the above views, we state the following hypotheses:

H1. Ownership concentration positively affects the likelihood and amount of dividend payments in Nordic public companies.

H2. Ownership concentration positively affects the likelihood and amount of dividend payments in Baltic public companies.

2.3. Managerial ownership and dividend payments

When analyzing the effect of the ownership structure on dividend payments, attention should also be paid to the type of shareholders prevailing in a company. The main types of shareholders are managers, institutional investors, foreign investors, and the state. Further, we focus on the managers and institutional investors.

Sulong and Nor (2009) showed that managers of a publicly held company may allocate resources to activities that are in their interest but not in the best interests of shareholders. This means that managers (agents) may engage in actions that are costly to shareholders, such as using excessive perquisites or investing too much in activities that are beneficial to managers but not profitable. Rizqia and Sumiati (2013) highlighted that managerial ownership is the result of a company's efforts to reduce agency problems. It reduces the manager's chance to act adversely and is detrimental to shareholders' interests. In addition, Kulathunga and Azeez (2016) and Tayachi et al. (2021) found a significant negative relationship between managerial ownership and dividend payout ratio. They argued that when the majority of a company is owned by managers, they tend to keep a company's resources internally for control rather than distributing them as dividends. This argument is also supported by Le and Le (2017) and Obaidat (2018). Le and Le (2017) argued that executive-controlled companies pay lower dividends because managers keep a larger share of profits within the company to benefit from favorable investment opportunities. Obaidat (2018) showed that greater managerial ownership mitigates conflict of interest, reduces agency costs, and has a negative effect on the company's dividend payments. Findings reveal that managerial ownership does not affect dividend policy (Johanes et al., 2021) or show a significant positive effect on the dividend payout ratio (Nazar, 2021). Bian et al. (2022) pointed out that higher managerial ownership can lead to higher dividend tunneling, while the positive effect of managerial ownership on dividend tunneling is more pronounced for companies with weaker minority shareholder protection.

More evidence shows that companies pay lower dividends when the managerial shareholding in companies is relatively high. This approach is based on the idea that when the majority of a firm's ownership belongs to managers, they tend to keep a company's resources internally for control. Therefore, we develop the following hypotheses:

H3. Managerial ownership has a negative effect on the likelihood and amount of dividend payments in Nordic public companies.

H4. Managerial ownership has a negative effect on the likelihood and amount of dividend payments in Baltic public companies.

2.4. Institutional ownership and dividend payments

Institutional ownership is generally defined as the ownership stake in a company's ownership structure held by institutional investors, such as insurance companies, investment and pension funds, banks, and other financial institutions. Institutional shareholders are in a better position to control the management due to their large investment size and professional approach (Lace et al., 2013), making them key players in setting dividend policy (Al-Qahtani & Ajina, 2017). Jentsch (2019) also argued that institutional investors are generally recognized as effective monitors because they make better investment decisions and monitor investee companies more closely. Nevertheless, institutional investors may pursue their interests, ultimately to the detriment of their portfolio companies.

Some researchers have shown a positive effect of institutional ownership on dividend payments (Khan, 2022; Pieloch-Babiarz, 2019; Short et al., 2002; Tran & Le, 2019), while others have shown the opposite (Daadaa & Jouini, 2018; Kowerski & Wypych, 2016; Kulathunga & Azeez, 2016). Tran and Le (2019) found evidence of a positive effect of institutional ownership on dividend payments. They argued that institutional investors will often be more transparent in management information than others. In addition, they seek to mitigate the problem of capital representatives, and these tend to pay high dividends to provide greater satisfaction to small shareholders. According to Pieloch-Babiarz (2019), the highest average dividend payout is observed in companies where institutional investors have the largest share of votes. The researcher confirmed that institutional investors prefer to invest in dividend-paying companies. According to the authors of this article, there are cases when institutional investors are required by regulatory institutions to invest only in dividend-paying companies.

In contrast, Kumar (2006) and Berezinets et al. (2017) found a negative relationship between dividend payments and institutional ownership. Kouki and Guizani (2009) and Al-Najjar and Kilincarslan (2016) argue that institutional investors monitor a company's managers closely and effectively, reducing the need to pay more dividends as a monitoring and signaling tool. Ngo et al. (2020) reported that in developed markets such as the USA, managers pay tailored dividends to satisfy the demands of large institutional shareholders while using expensive external capital to finance investment projects. The negative effect of institutional ownership on dividend payments was argued as a substitution effect between the dividend policy and the presence of institutional investors in the company's capital (these investors have the means to control and supervise the executive, and their presence encourages the company to distribute fewer dividends) (Daadaa & Jouini, 2018); the conflict between controlling and minority shareholders (Hasan et al., 2023); and the absence of an argument for a negative effect (Kowerski & Wypych, 2016; Kulathunga & Azeez, 2016).

Some findings revealed a mixed effect of institutional ownership on dividend payments in different contexts. Crane et al. (2016) argued that the positive effect of institutional ownership on dividend payout is driven by companies with higher agency costs. W. Huang and Paul (2017) highlighted the importance of studying institutional investors' preference for dividend payout policies, which is conditioned by both investment opportunities and institutional investors' style. Baker et al. (2021) revealed a negative relationship between foreign institutional investors' holdings and payout, which supports the transaction cost hypothesis. Higher holdings by domestic institutional investors are positively related to dividends, while foreign investors face additional administrative costs. Kanojia and Bhatia (2022) showed that institutional ownership has a positive effect on dividend payments in some countries and a negative effect in others.

According to Hasan et al. (2023), the literature on dividend policy focuses more on the monitoring role of institutional investors. Following the idea that institutional investors monitor companies' managers closely and efficiently, we formulate the last two hypotheses:

H5. Institutional ownership has a negative effect on the likelihood and amount of dividend payments in Nordic public companies.

H6. Institutional ownership has a negative effect on the likelihood and amount of dividend payments in Baltic public companies.

3. Methodology

3.1. Data

The initial dataset covers 56 companies listed in the main and secondary list of the Nasdaq Baltic Stock Exchange and 195 companies listed in the main and secondary list of the Nasdaq Nordic Stock Exchange in 2013 – 2020. Considering the size of public companies in the Baltic States, it was

decided to include only small capitalization companies of Nasdaq Nordic countries. The total market value of these companies' shares does not exceed €150 million (as of November 2021). Companies with a capitalization of less than €150 million dominate in the Baltic states. By choosing the mentioned research period, the companies that started listing later than in 2013 and missed data as well, are excluded from the research, i.e. balanced panel data are used. The final dataset contains annual information on 39 public companies (312 total observations) in the Baltic countries and 136 (1088 total observations) in the Nordic countries.

3.2. Models

The effect of ownership structure on the probability of dividend payments usually is estimated using Probit or logistic regression (Baker et al., 2021; Gamerschlag et al., 2011; Khan, 2022; Shah et al., 2023; Tran & Le, 2019) and the effect on the amount of dividends paid is estimated using Tobit regression model (Bataineh & Ntim, 2021; Ramli, 2010; Renneboog & Szilagyi, 2020; Tran & Le, 2019). According to Tran and Le (2019), conventional regression OLS or the so-called linear likelihood model has two limitations. Firstly, using conventional OLS can lead to a condition when evaluating the effect the probability of estimation from the model can be as low as 0% or higher than 100%. Secondly, the regression factor from the LPM model is the slope of the line from the model. The change in the ownership rate of one unit or one standard deviation will be the same in all cases. To overcome these problems, Probit or Logit regression has to be applied.

The effect of ownership structure on the likelihood of dividend payments is assessed using the Logit regression model (Pieloch-Babiarz, 2019):

$$Y = \begin{cases} 1, & \text{when } Y^* > 0 \\ 0, & \text{when } Y^* \leq 0 \end{cases}, \text{ when } Y^* = \ln \frac{P_{i,t}}{1 - P_{i,t}} = \beta_0 + \sum_{i=1}^k \beta_i X_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where: Y – binary variable (DIV) adopting the value of 1 if a company pays dividends, otherwise – 0; β_i , $i = 0, \dots, k$ – regression coefficients; X_1, X_2, \dots, X_k – independent variables; $P_{i,t}$ – the conditional likelihood that the dependent variable DIV is equal to 1 for the values of independent variables X_1, X_2, \dots, X_k .

If the Akaike criterion of the Probit regression model is two times higher than the one of the Logit regression model, we will apply the Probit model.

Then McFadden R-squared has been calculated as the measure for goodness of fit:

$$R^2_{McFadden} = 1 - \frac{\ln L_p}{\ln L_0} \quad (2)$$

where: $\ln L_p$ – the maximized likelihood for the model with all predictors; $\ln L_0$ – the maximized likelihood for the model without any predictor.

To determine the relationship between ownership structure and the amount of dividend payments, the Tobit model was used (Pieloch-Babiarz, 2019):

$$Y = \begin{cases} Y^*, & \text{when } Y^* > 0 \\ 0, & \text{when } Y^* \leq 0 \end{cases}, \text{ when } Y^* = \beta_0 + \sum_{i=1}^k \beta_i X_i + \varepsilon_i, \quad (3)$$

where: Y – dependent variable (dividends per share, DPS); the other designations as in Formula 2.

3.3. Variables

The independent variables reflect the ownership structure. The measurement of the ownership structure includes ownership concentration (CONC), managerial concentration (MANAG), and institutional concentration (INSTIT) whereas the sample contains very few companies controlled by the state as the main shareholder, and the ownership of foreign investors is difficult to estimate due to a lack of information.

Ownership concentration can be measured by different indicators: the percentage of shares held by the first large shareholder (Al-Qahtani & Ajina, 2017; Iturriaga & Crisóstomo, 2010; Lozano et al., 2016), the square of the largest shareholder's shareholding percentage (Bian et al., 2022), and the Herfindahl-Hirschman index (Baker et al., 2021; Pieloch-Babiarz, 2019). To investigate the effect of the ownership concentration on dividend payments, Gonzalez et al. (2017) constructed three different ownership-related variables: the percentage of ownership of each of the ten largest shareholders to calculate the Herfindahl ownership concentration index; the percentage of the ownership of the largest stockholder; the cumulative percentage of the ownership of the five largest shareholders. Regardless of the chosen proxy for ownership concentration, they found a statistically significant negative effect of ownership concentration on dividends. The presence of a large shareholder may lead to agency conflicts with minority shareholders, so we have chosen to measure ownership concentration as the proportion of shares held by the largest shareholder in the company.

Unlike ownership concentration, the measurement of managerial concentration is more limited. Managerial ownership was measured as the total percentage of shares directly held by non-independent executive directors, i.e., by the company's board of directors (Kulathunga & Azeez, 2016; Obaidat, 2018; Sulong & Nor, 2008). Sulong and Nor (2008) did not study the shares held by independent non-executive (outside) directors as they are expected to play a monitoring role and limit managerial opportunism. Rizqia and Sumiati (2013) measured managerial ownership in terms of the number of common shares outstanding held by commissioners and directors. According to Johanes et al. (2021), managerial ownership refers to the shareholding of the management (director and commissioner), who owns a stake in the shares and actively participates in the company's decision-making process. Nazar (2021) measured managerial ownership in terms of the number of ordinary shares owned by the board of directors to the total number of shares. In our research, the proxy for managerial ownership is the proportion of shares owned by the company's executive directors, managers, and board members.

Institutional ownership is measured by the ratio of the number of shares held by institutional investors to the total number of shares outstanding (Kanojia & Bhatia, 2022; Martono et al., 2020). Daadaa and Jouini (2018) argue that institutional investors include banks, pension funds, and insurance companies. It should be pointed out that among other institutional investors are various funds such as mutual and hedge funds.

Among the control variables, in such kind of study company size, financial leverage, return on assets, growth, retained earnings, and other variables are used. According to Al-Qahtani and Ajina (2017), larger companies have easier access to financial markets, which reduces their reliance on their funding. Typically, company size is measured by taking the natural logarithm of the company's total assets (Al-Qahtani & Ajina, 2017; Kulathunga & Azeez, 2016; Rizqia & Sumiati, 2013), but the natural logarithm of the market value of the common shares has also been used (Baker et al. (2021)). Financial leverage measures financial risk. It indicates not only how the asset of a company is financed, but also how much a company incurs fixed (interests) and variable (dividends) costs of financing. The more fixed costs are in a company, the less—variable. Financial leverage is measured as the ratio of total debt to total assets (Al-Qahtani & Ajina, 2017; Renneboog & Szilagyi, 2020; Rizqia & Sumiati, 2013; Sulong & Nor, 2008). Return on assets was used as a control variable by Al-Qahtani and Ajina (2017), Al-Thuneibat (2018), Bataineh and Ntim (2021), Jentsch (2019), and others. It is the ratio of net profit to total assets. The higher the

ratio, the better the ability to pay dividends. Another indicator of profitability is retained earnings to total assets (W. Huang & Paul, 2017), total equity (Baker et al., 2021), and per share (Gul et al., 2012). Kanojia and Bhatia (2022) argue that the higher the retained earnings, the lower the dividend payout. The company's sales growth was used as a control variable by Bian et al. (2022) and asset growth—by Lin et al. (2017).

Considering the discussed independent and control variables, the following regression model has been constructed:

$$Y^* = \beta_0 + \beta_1 \text{CONC}_{i,t-1} + \beta_2 \text{MANAG}_{i,t-1} + \beta_3 \text{INSTIT}_{i,t-1} + \beta_4 \text{SIZE}_{i,t-1} + \beta_5 \text{FL}_{i,t-1} + \beta_6 \text{ROA}_{i,t-1} + \beta_7 \text{GROWTH}_{i,t-1} + \beta_8 \text{RETA}_{i,t-1} + \sum_{j=1}^n \beta_j \text{COUNTRY}_{ij,t} + \varepsilon_{i,t-1} \quad (4)$$

where: *CONC* – ownership concentration; *MANAG* – managerial ownership; *INSTIT* – institutional ownership; *SIZE* – natural log of assets; *FL*—total debt to total assets; *ROA* – net profit to total assets; *GROWTH*—sales growth rate; *RETA* – retained earnings to total assets.

Khan (2022) argues that to overcome the endogeneity problem, explanatory variables in all estimations must be lagged using one-year time lag values. Furthermore, Renneboog and Szilagyi (2020) pointed out that the use of lagged variables allows for the elimination of any simultaneity bias, as a specific payout policy may attract investor clients and thus lead to endogeneity problems. Furthermore, the country dummies (*COUNTRY*) are used in all estimations to account for the country-specific effect. It is indicated as “Yes” in the multivariate regression estimations.

Variance inflation factors (VIF) were applied for diagnostics of multicollinearity.

4. Research results

The empirical findings are structured in the following way. Firstly, the summary statistics, correlation matrix, and multivariate regression analysis are presented and discussion is carried out using the data of Nordic public companies. Secondly, the study is carried out in the same way using the data of Baltic public companies.

4.1. Testing of the effect of ownership structure on dividend payments in Nordic public companies

60 Swedish, 38 Finnish, and 38 Danish public companies are investigated. Summary statistics of regression variables for public companies in the Nordic countries are presented in Table 1.

The mean is the higher median for all variables except *ROA* and *RETA*. It means that the distribution is skewed to the right. Nordic public companies on average paid 0.31 cents of dividends per share. Maximum *DPS* is 37 times larger than the mean. On average, the ownership concentration is about 25% with a range between 0.06%–98.60%. Institutional ownership is about twice larger than managerial ownership. The maximum values of institutional and managerial ownership are very close to each other (98.30% and 97.50% accordingly). On average, the size, measured in million euros, is about 130 with a range between 0.45–450. Financial leverage revealed that on average 23% of total assets are financed by interest-bearing debt, but there is one overborrowed company in which debt capital exceeds total assets twice. The median of *ROA* (positive) is higher than the mean, which is negative, with a range between –128%–82.4%. The mean and the median of sales growth are positive. Quite a different pattern is observed in retained earnings to total assets: the mean is negative, the median is positive, and the minimum negative value is an extremely larger maximum positive value.

Table 2 illustrates the Pearson correlations between dependent, independent, and control variables. *DPS* is weakly positively correlated with ownership concentration and managerial ownership,

Table 1. Summary statistics of regression variables for Nordic public companies

Variable	Mean	Median	S.D.	Min	Max
DPS, Eur	0.31	0.00	1.27	0.00	11.40
CONC, %	24.80	16.30	19.70	0.06	98.60
MANAG, %	13.00	3.72	18.50	0.00	97.50
INSTIT, %	27.20	23.20	22.90	0.00	98.30
Total assets, MEur	129.76	56.71	197.74	0.45	449.74
FL	0.23	0.16	0.23	0.00	1.94
ROA, %	−2.42	1.24	18.30	−128.00	82.40
GROWTH, %	8.27	1.58	52.10	−106.00	569.00
RETA	−0.36	0.12	3.67	−102.00	5.70

and weakly negatively with institutional ownership. DPS is weakly positively correlated with SIZE and ROA, i.e., larger and more profitable companies pay more dividends, and vice versa. Retained earnings decrease after dividend payments, so these two variables are expected to be negatively correlated. However, a weakly positive correlation is observed. No association is observed between DPS and sales growth, and weakly negative—between DPS and FL: the higher the share of debt capital in total assets, the lower dividend payments. That could be explained either by lender restrictions or by companies' maintenance of a particular fixed financial cost coverage ratio to avoid financial distress.

The Logit regression model is applied to examine the effect of ownership structure on the likelihood of dividend payments. The regression results are available in Table 3. It provides estimates for the effect of ownership concentration, managerial and institutional ownership on the probability to pay dividends for Nordic public companies. The data shows that higher ownership concentration increases the likelihood of dividend payments. The fact that previous findings are controversial is mostly influenced by the measurement of ownership concentration. For example, Khalfan and Wendt (2020) estimated ownership concentration as the percentage of total equity owned by the five largest shareholders; Gonzalez et al. (2017) and Pieloch-Babiarz (2019) applied the Herfindahl-Hirschman index. That is why the interpretation of findings should be done with caution. In our case, the higher the ownership of the largest shareholder, the higher the likelihood of dividend payments. In addition, Khalfan and Wendt (2020) argued that the effect of ownership concentration on dividend payments is strongly influenced by the context behind ownership concentration.

The data in Table 3 shows that managerial ownership does not affect the likelihood of dividend payments. These findings allow us to conclude that managers are not the dominating shareholders in Nordic public companies. SIZE, ROA, and RETA have a statistically significant positive effect on the likelihood of dividend payments, and FL—negative. Sales growth is not a significant determinant. There is a bigger chance that larger and more profitable companies will pay dividends, while the effect of growth opportunities on the likelihood of dividend payments is not determined. The negative effect of financial leverage on dividend payments is related to lower liquidity and solvency of a company, and creditors' priority against shareholders in the distribution of cash flows.

The Tobit regression model is applied to examine the effect of ownership structure on the dividend payments, i.e., DPS. The regression results are available in Table 4. It provides estimates for the effect of ownership concentration, managerial and institutional ownership on the dividend payments for Nordic public companies. The data shows that ownership concentration and managerial and institutional ownership have a statistically significant effect on dividend payments.

Table 2. Correlation matrix of regression variables for Nordic public companies

	SIZE	ROA	FL	GROWTH	RETA	CONC	MANAG	INSTIT	DPS
SIZE	1.0000								
ROA	0.2501	1.0000							
FL	0.2161	-0.1420	1.0000						
GROWTH	-0.0821	0.1112	-0.0757	1.0000					
RETA	0.1737	0.2588	-0.0199	0.0338	1.0000				
CONC	-0.0614	0.0536	-0.1130	-0.0220	0.0335	1.0000			
MANAG	-0.1926	0.1382	-0.1373	0.0276	0.0778	0.0783	1.0000		
INSTIT	0.1075	0.0551	0.0760	-0.0368	-0.0512	0.1078	-0.2412	1.0000	
DPS	0.0561	0.1021	-0.1076	0.0000	0.0463	0.2484	0.2290	-0.1355	1.0000

Table 3. Estimation results of the Logit regression model for Nordic public companies

Variables	Coefficient	Z-values
Constant	-0.2126	-0.5330
CONC	0.0132***	3.254
MANAG	0.0029	0.644
INSTIT	-0.0111***	-2.806
SIZE	0.1877***	2.602
ROA	0.0614***	5.675
FL	-1.9095***	-4.449
GROWTH	-0.0027	-1.373
RETA	1.7240***	6.628
Country	Yes	
McFadden R-squared	0.2490	

Notes: The dividend payment dummy is the dependent variable; t-statistics (P-value) ***significant at 1%; **significant at 5%; * significant at 10%.

The choice of this model instead of the Probit regression model was done due to these reasons: 1) Akaike criteria are very similar: for Logit is 1109, for Probit is 1129; 2) McFadden R-squared for Logit is 0.25, for Probit is 0.24. The Variance Inflation Factor (VIF) test is further used for detecting the multicollinearity degrees between the variables. VIF for all variables ranged between 1.03 – 1.24, hence, the possibility of a multicollinearity problem was not detected.

Ownership concentration and managerial ownership positively influence DPS and institutional ownership—negatively. Analyzing the control variables, we found that SIZE, ROA, and RETA have statistically significant positive effects on dividend payments, and FL—negative. Sales growth is not a significant determinant. Our findings proved hypothesis H1, contradicted hypothesis H3, and partly proved hypothesis H5 (do not affect the likelihood but affect the amount of dividend payments). These findings are consistent with the argument that institutional investors act as a monitoring mechanism for the company's management, which generally reduces the need to pay high dividends (Hasan et al., 2023). According to Bian et al. (2022), the relationship between managerial ownership and dividend payout can be explained by two conflicting theories: Alignment theory and Entrenchment theory. Alignment theory states that managerial ownership may act as a governance mechanism. An increase in managerial ownership helps align interests between managers and shareholders because managers holding more equity will be motivated to act as owners and make decisions more clearly in the shareholders' interests. Florackis et al. (2015) found that the relationship between dividend payments and managerial ownership is negative when managerial ownership is below a certain threshold. According to the Entrenchment theory, higher levels of managerial ownership give owners more power and influence to protect their jobs or control the Board (Lafond & Roychowdhury, 2008). Bian et al. (2022) suggest that the evidence in support of this comes mainly from developed markets where companies tend to have a more balanced shareholder ownership structure and greater minority shareholder protection. So, when having more power it is not necessary to protect themselves against other shareholders through managing more internal sources of finance.

4.2. Testing the effect of ownership structure on dividend payments in Baltic public companies

The second part of empirical research is dedicated to companies listed on Nasdaq Baltic Stock Exchange. 19 Lithuanian, 11 Estonian, and 9 Latvian public companies are investigated. Summary statistics of regression variables for public companies in Baltic countries are presented in Table 5. The mean is the higher median for all variables except ROA, RETA, and FL. It means that the distribution is skewed to the right. The mean and median of FL are equal. Baltic public companies on average paid 0.10 cents in dividends per share. Maximum DPS is 25 times larger than the mean. The average ownership concentration is about 39% with a range between 4.44%-100%.

Table 4. Estimation results of Tobit regression model for Nordic public companies

Variables	Coefficient	Z-values
Constant	−3.0020***	−7.735
CONC	0.0272***	7.218
MANAG	0.0203***	5.022
INSTIT	−0.0097**	−2.496
SIZE	0.2600***	3.690
ROA	0.0541***	6.266
FL	−1.9170***	−4.458
GROWTH	−0.0027	−1.593
RETA	0.9215***	4.598
Country	Yes	
Chi-square	227.126	
P-value	0.0000	

Dividends per share is the dependent variable; t-statistics (P-value)

*** significant at 1%; ** significant at 5%; * significant at 10%

Institutional ownership is about three times larger than managerial ownership. Maximum institutional ownership (97.50%) is larger than maximum managerial ownership (70.50%). The average size, measured in million euros, is about 140 with a range between 1.09–868. Financial leverage revealed that on average 23% of total assets are financed by interest-bearing debt with the range between 0.00–0.74. The median ROA (3.64%) is higher than the mean (3.13%) with a range between −38.00%–35.50%. The mean and median of RETA are very close to each other. There are some companies with negative RETA.

Comparative analysis of summary statistics of variables in Nordic and Baltic public companies revealed that Nordic public companies on average pay 3 times more DPS than Baltic public companies. Ownership concentration is approximately 1.5 times higher in Baltic public companies. These companies also have slightly higher institutional ownership, but managers are slightly more engaged in the governance of Nordic countries. The average size of Baltic companies is a bit larger, but capital structure management decisions and taking of financial risk are the same because financial leverages are equal. ROA is 5.5 times larger in Baltic companies, and RETA is 5.4 times larger. Sales growth is slightly higher in Nordic companies.

Table 6 illustrates the Pearson correlations between dependent, independent, and control variables. DPS is weakly negatively correlated with ownership concentration and managerial

Table 5. Summary Statistics of regression variables for Baltic public companies

Variable	Mean	Median	S.D.	Min	Max
DPS, Eur	0.10	0.00	0.30	0.00	2.55
CONC, %	39.10	31.90	28.20	4.44	100.00
MANAG, %	10.20	0.44	16.90	0.00	70.50
INSTIT, %	31.40	20.40	31.00	0.00	97.50
Total assets, MEur	139.67	76.82	165.66	1.09	868.23
FL	0.23	0.23	0.17	0.00	0.74
ROA, %	3.13	3.64	9.09	−38.00	35.50
GROWTH, %	7.13	1.09	54.70	−99.10	637.00
RETA	0.18	0.20	0.30	−1.21	0.78

Table 6. Correlation matrix of regression variables for Baltic public companies

	SIZE	ROA	FL	GROWTH	RETA	CONC	MANAG	INSTIT	DPS
SIZE	1.0000								
ROA	0.2301	1.0000							
FL	0.0522	-0.2884	1.0000						
GROWTH	0.0325	0.0498	-0.0040	1.0000					
RETA	0.2530	0.5271	-0.5245	-0.0424	1.0000				
CONC	0.1212	-0.0286	0.0372	0.0071	0.0343	1.0000			
MANAG	-0.1564	0.1193	-0.0141	-0.0251	0.1094	-0.0700	1.0000		
INSTIT	0.1052	0.1611	-0.1261	-0.0157	0.1780	-0.2253	-0.1888	1.0000	
DPS	0.2098	0.2303	-0.0302	-0.0227	0.1258	-0.0204	-0.1384	0.0634	1.0000

Table 7. Estimation results of the Logit regression model for Baltic public companies

Variables	Coefficient	Z-values
Constant	-5.6264***	-6.023
CONC	-0.0032	-0.551
MANAG	0.0050	0.538
INSTIT	0.0021	0.415
SIZE	1.0375***	6.490
ROA	0.0587**	2.444
FL	-0.4505	-0.378
GROWTH	0.0025	0.733
RETA	-0.7056	-0.805
Country	Yes	
McFadden R-squared	0.2580	

Dividends per share is the dependent variable; t-statistics (P-value)

*** significant at 1%; ** significant at 5%; * significant at 10%

Table 8. Estimation results of the Tobit regression model for Baltic public companies

Variables	Coefficient	Z-values
Constant	-1.3030***	-6.331
CONC	-0.0009	-0.688
MANAG	-0.0025	-1.141
INSTIT	-0.0003	-0.395
SIZE	0.2127***	6.691
ROA	0.0137***	2.676
FL	-0.2074	-0.849
GROWTH	-0.0004	-0.521
RETA	-0.0911	0.476
Country	Yes	
Chi-square	70.40	
P-value	0.0000	

Dividends per share is the dependent variable; t-statistics (P-value)

*** significant at 1%; ** significant at 5%; * significant at 10%

ownership and weakly positively correlated with institutional ownership. An opposite tendency is confirmed for Nordic companies. DPS is weakly positively correlated with SIZE, ROA, and RETA. A negative and weak association is observed between DPS and FL and growth as well. VIF for all variables ranged between 1.01 – 1.45, hence, the possibility of a multicollinearity problem was not detected.

Table 7 provides estimates for the effect of ownership concentration, managerial ownership, and institutional ownership on the likelihood to pay dividends for Baltic public companies. The data shows that there is no statistically significant effect of ownership concentration, managerial ownership, and institutional ownership on the likelihood of dividend payments. Only SIZE and ROA have statistically significant positive effects on the likelihood of dividend payments. McFadden's R-squared for the Logit model is 21.63%.

The Tobit regression model is applied to examine the effect of ownership structure on dividend payments. The regression results are available in Table 8. The statistical significance of variables included

in the Tobit model is the same as in the Logit model: there is no statistically significant effect of ownership concentration, managerial and institutional ownership on the dividend payments. Only two control variables are significant: SIZE and ROA. We reject all three hypotheses: H2, H4, and H6.

The different effect of ownership structure on dividend payments in Nordic and Baltic companies mostly depends on the governance legislation and practices. According to Mateescu (2015), the Organisation for Economic Cooperation and Development (OECD) released a set of best practices regarding corporate governance mechanisms in 1999 (revised in 2004). These principles aim to help national corporate governance authorities implement effective national corporate governance codes. A study of emerging countries by Hermes et al. (2007) found that in most cases their corporate governance codes are quite similar. The similarity is influenced by external forces such as integration into the global economy, the opening of stock markets to foreign investors, the growing role of foreign institutional investors, and recommendations from international organizations to improve corporate governance practices. Nevertheless, companies in developed European countries tend to adhere very broadly to national corporate governance codes (Bianchi et al., 2011). Adiloglu and Vuran (2012) argue that given the increasing importance of corporate governance practices worldwide and the development of financing through stock markets, companies in emerging countries are increasingly trying to adapt to the requirements of their national corporate governance codes. Companies that are highly compliant with national corporate governance codes send a signal to investors that they are more accountable and transparent. Hermes et al. (2007) stated that the introduction of these codes in European emerging countries is driven by the desire of companies to list on stock markets rather than by the perception that their implementation would improve corporate activity and management.

Despite the similarities of companies' governance legislation and practices in emerging countries, Mygind (2007) found that internal factors such as the institutions in each country, led to some differences between the codes. It is stated in the Estonian Human Development Report *Baltic Way(s) of Human Development: Twenty Years On* (2010) that Estonia is characterized by a strong orientation towards a clear definition of the roles of owner and manager. In joint-stock companies, there is a mandatory two-tier governance system (supervisory board and management board). According to The European Bank for Reconstruction and Development (EBRD), the quality of governance in Estonia is slightly better than in Latvia and Lithuania. Typical conflicts are between owners and managers rather than between shareholders or their groups due to the restriction of their interests.

Conclusions

This study examines the effect of ownership structure on the likelihood and amount of dividend payments in two groups of European Union's public companies—Nordic and Baltic—for the period 2013–2020. Recently the Nordic and Baltic capital markets have become more and more integrated through Nasdaq OMX stock exchanges and harmonized by the EU corporate governance directives. However, some differences in the corporate governance system, legislation, practice, and ownership structure still exist.

Our findings showed that ownership concentration in Nordic public companies is more dispersed than in Baltic public companies. The share of managerial ownership is larger in Nordic public companies, however, the share of institutional ownership is higher in Baltic public companies. The research results revealed that higher ownership concentration increases the likelihood of dividend payments, but managerial ownership and institutional ownership do not affect it in Nordic public companies. Meanwhile, ownership concentration and managerial ownership positively influence dividend payments, and institutional ownership hurts them. Such results are supported by the idea that investors with large holdings incur higher management monitoring costs than small investors, so they often demand higher dividend payments to offset these costs. Furthermore, high ownership concentration causes conflict between controlling and minority shareholders, so dividend payments mitigate this conflict. This conclusion is based on primary data analysis which revealed that in most cases Nordic public companies have a lot of minority shareholders with the ownership not being concentrated. Even though a system with controlling shareholders is vulnerable to the extraction of private benefits of

control by the incumbent shareholder at the cost of minority shareholders, the increase of institutional investors with political influence provides a monitoring mechanism concerning controlling shareholders. It should be pointed out that we measured managerial ownership as the percentage of shares owned by the company's executive directors, managers, and board members. This measurement does not show how much managerial ownership is dispersed or concentrated. According to the Entrenchment theory, a higher level of managerial ownership provides the owners with more power and influence to protect their employment or control the board but the power is acquired when the manager becomes a controlling shareholder. We see this as the limitation of our research.

We disclosed that ownership concentration and managerial and institutional ownership do not affect either the likelihood or the amount of dividends paid in the Baltic public companies. According to the main characteristics of the markets, the Baltic countries correspond to the European model of corporate governance, i.e., high concentration of ownership and existence of the controlling shareholder. Meanwhile, ownership concentration in Nordic public companies is more dispersed, and minority protection mechanisms are stronger. Considering corporate governance, we suppose that the main reasons for the differences in the effect of ownership structure on dividend payments in Nordic and Baltic public companies are caused by different governance legislation and practices.

Our research has some biases. Firstly, only surviving companies are included in the sample ignoring the companies that are canceled or bankrupt during the research period. Secondly, we included only small capitalization companies of Nasdaq Nordic countries. Thirdly, the companies missing the data during the research period were eliminated.

Our research results have practical applicability. Firstly, investors should take into account ownership structure when making investment decisions. If investors take priority for current consumption, they will invest in dividend-paying companies. So, they should focus on the companies with higher ownership concentration and managerial ownership and lower institutional ownership in Nordic countries. Meanwhile, if investors take priority for future consumption, i.e., capital gain, their focus should be the opposite. Secondly, investors can anticipate dividend payments by examining the ownership structure of the companies. Thirdly, financial analysts and consultants should consider the ownership structure in their investment advice and consultations.

This research is limited only to ownership concentration, managerial and institutional ownership. Future research could be oriented toward choosing other types of ownership (foreign, public, state, etc.) and different measurements of ownership concentration, clustering institutional investors, and focusing on the controlling managers-shareholders. Taking into account the differences in the effect of ownership structure on dividend payments in Nordic and Baltic public companies, the maturity of companies could be chosen as a control variable. Considering the similarities and differences between Baltic public companies, future research could be focused on the study of the effect of ownership structure on dividend payments in each country. Now such research is limited due to the small number of available observations.

Author details

Vilija Aleknevičienė¹
E-mail: vilija.alekneviene@vdu.lt
ORCID ID: <http://orcid.org/0000-0002-6501-8792>
Karolina Vilimaitė¹

¹ Department of Applied Economics, Finance, and Accounting, Vytautas Magnus University, Kaunas, Lithuania.

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