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Universidade de Lisboa

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MASTER´S FINAL WORK

DISSERTATION

CORPORATE OWNERSHIP STRUCTURE AND EARNINGS MANAGEMENT: EVIDENCE FROM NORDIC LISTED COMPANIES

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ABSTRACT

This study examines the relationship between corporate ownership structure and earnings management in Nordic countries. Nordic listed companies have similar ownership structures, which are characterized by a high degree of ownership concentration. Existing literature shows that ownership structure may provide an incentive to manage earnings, but on the other hand, it can restrain earnings management practices. Thus, the purpose of this study is to investigate whether and how ownership structure affects earnings management in Nordic countries. Ownership structure is measured with four variables: ownership concentration, state ownership, foreign ownership and managerial ownership. As a proxy for accruals-based earnings management, the modified Jones model (1991) developed by Dechow et al. (1995) is used. Real earnings management is measured using Roychowdhury's (2006) combined measure of two earnings management proxies. The sample consists of 195 non-financial Nordic listed companies for a five-year period, from 2015 to 2019. The results suggest that when the largest shareholder gets more control, earnings management increases. Interestingly, when the control for the five largest shareholders increases, the effect is opposite, earnings management decreases. Managerial ownership decreases earnings management in the sample firms and thus, improves earnings quality. The results show insignificant role for states and foreign owners in earnings management practices.

KEYWORDS: earnings management; accruals-based earnings management; real earnings management; ownership structure; nordic corporate governance model.

RESUMO

Este estudo examina a relação entre a estrutura de propriedade corporativa e a gestão de resultados em empresas de países nórdicos. As empresas cotadas nórdicas têm estruturas de propriedade semelhantes, que são caracterizadas por um alto grau de concentração de propriedade. A literatura existente mostra que a estrutura de propriedade pode ser influenciar a gestão de resultados positiva ou negativamente. Assim, o objetivo deste estudo é investigar se, e como, a estrutura de propriedade afeta a gestão de resultados em empresas cotadas de países nórdicos. A estrutura de propriedade é medida com quatro variáveis: concentração de propriedade, propriedade estatal, propriedade estrangeira e propriedade dos gestores. Como proxy para a gestão de resultados com base nos accruals é usada a medida dos accruals discricionários, segundo o modelo modificado de Jones (1991) por Dechow et al. (1995). A gestão de resultados através de operações reais é estimada usando uma medida combinada de duas proxies desenvolvidas por Roychowdhury (2006). A amostra é composta por 195 empresas nórdicas não financeiras listadas por um período de cinco anos, de 2015 a 2019. Os resultados sugerem que quando o maior acionista obtém mais controlo, ao gestão de resultados aumenta. No entanto, quando o controlo dos cinco maiores acionistas aumenta, o efeito é oposto, a gestão de resultados diminui. Os resultados sugerem também que a gestão de resultados diminui quando os gestores são também acionistas da empresa. Não foi encontrada evidencia de uma relação entre a gestão de resultados e a outras proxies de estrutura de propriedade.

PALAVRAS CHAVE: gestão de resultados; estrutura de propriedade; gestão de resultados com base nos accruals; gestão de resultados com base em operações reais; modelo nórdico de governança corporativa.

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GLOSSARY

AEM – Accruals-based earnings management

CEO – Chief Executive Officer

EM – Earnings management

NACE – Statistical classification of economic activities in the European Community

NCG – Nordic corporate governance

NSOE – Non-state-owned companies

OLS – Ordinary Least Squares

REM – Real earnings management

ROA – Return on assets

SOE – State-owned companies

UK – United Kingdom

US – United Stated of America

VIF – Variance Inflation Factor

1. INTRODUCTION

There are growing concerns about the effectiveness of corporate governance practices because of accounting scandals, such as the case of Enron in 2001 (Kjærland et al., 2020). Different corporate governance mechanisms, including corporate ownership structure, are expected to influence managers incentive to manage earnings because of their primary objective to monitor and control management (Benkel et al., 2006). Earnings management (EM) occurs when managers use their judgment in the financial reporting process to mislead stakeholders about the company's true performance (Healy & Wahlen, 1999) and to obtain some private gain (Schipper, 1989). The quality and reliability of the financial statement information decreases, when EM appears (Nguyen et al., 2021). Therefore, the concept of EM is of significant importance for the users of financial statements.

Previous literature shows that ownership structure affects corporate accounting behaviour, including EM (Warfield et al., 1995; Dechow et al., 1996; Guo et al., 2015; Ben-Nasr et al., 2015). It has been demonstrated that ownership structure can limit EM (Alves, 2012; Iturriaga & Hoffmann, 2005; Ali et al., 2008) but on the other hand, it can provide incentives to practice EM (Kim & Yoon, 2008; Dong et al., 2020; Al-Fayoumi et al., 2010). For example, Warfield et al. (1995) suggest that managerial ownership prevents managers to engage in EM which is consistent with the incentive alignment effect. On the contrary, following Warfield et al. (1995) study but in a different institutional setting, Gabrielsen et al. (2002) have found a negative association between managerial ownership and the information content of earnings, in line with the entrenchment effect. Additionally, ownership concentration can be seen as a good corporate governance mechanism to reduce EM because large shareholders have incentives to monitor management (Iturriaga & Hoffmann, 2005), but it can also increase EM since large shareholders can expropriate minority shareholders to create undue private benefits (Dong et al., 2020).

This study examines the effect of corporate ownership structure on EM among four major Nordic countries, more specifically Denmark, Norway, Sweden and Finland. Four different ownership structures are considered, namely ownership concentration, managerial ownership, foreign ownership and state ownership. There are studies regarding the association between EM and ownership structure in the international

setting, but not in the Nordic context. The results from previous studies do not necessarily relate to Nordic companies, as Nordic corporate governance (NCG) model differs from other countries (Lekvall, 2018). In addition to the unique NCG model, the contradictory findings from previous studies justifies further research in this area. These contradictory results may be due to the differences in the countries' institutional environments and to the fact that several different proxies have been used to measure EM and different ownership structures. For example, majority of the previous studies regarding state-ownership and EM are related to Chinese companies. Government participation in business in China differs from Nordic countries (Thomsen, 2016). Therefore, this work aims to fill this gap in the previous literature by investigating the association between EM and corporate ownership structure among the Nordic listed companies.

Theoretical framework of this work consists of agency theory and NCG model. Separation of ownership and control generates agency problems between managers and shareholders (Fama & Jensen, 1983). EM is an outcome of two related control difficulties, agency problems and information asymmetry (Beatty & Harris, 1998). Information asymmetry refers to the situation where managers have more information about the company than shareholders (Beatty & Harris, 1998). Corporate governance mechanisms seek to mitigate these agency problems (Benkel et al., 2006). Corporate ownership structure is a significant element of corporate governance practices, and an effective ownership structure is expected to constrain EM (Nguyen et al., 2021). For example, many authors, such as Guo et al. (2015) and Ben-Nasr et al. (2015) argue that foreign ownership enhances earnings quality. In the respect of state-owned companies (SOE), Ding et al. (2007) show that SOEs engage less in EM than privately-owned listed companies.

The NCG model differs from others at least in three following ways (Lekvall, 2018). Nordic countries have similar rules and norms determining how corporate governance is practiced, they have a common governance structure including strictly hierarchical governance chain of command, and Nordic listed companies have similar ownership structures (Lekvall, 2018). World Bank governance indicators show that Nordic countries are ranked highly on different governance indicators such as control of corruption, government effectiveness and voice and accountability (Thomsen, 2016). The main feature of the NCG model is that it gives large shareholders power to control and

take long-term responsibility for the company, while also creating long-term value for all shareholders (Lekvall, 2018). However, the inherent risk of the NCG model is that large shareholders may use their control to extract undue private benefits from the company (Lekvall, 2018).

The relationship between ownership structure and EM is investigated using the sample of 195 non-financial Nordic listed companies over the period of 5 years, from 2015 to 2019. Both EM strategies, accruals-based earnings management (AEM) and real earnings management (REM) are considered. AEM is measured using the modified Jones model (1991) developed by Dechow et al. (1995) and REM is measured following Roychowdhury (2006) as abnormal cash flows from operations, abnormal production costs and combined measure of these two EM proxies.

Hypotheses are tested using pooled OLS regressions with clustered standard errors at firm and year level. The results indicate that when the largest shareholder gets more control, AEM increases. Interestingly, when the control for the five largest shareholders increase, the effect is opposite, AEM decreases. This suggests that when one shareholder has significant control, they may behave opportunistically at the expense of minority shareholders. However, when the control is divided to more shareholders, large shareholders seem to monitor management efficiently. Managerial ownership decreases REM in the sample firms and thus, improves earnings quality, which is consistent with the findings of Dong et al. (2020). When managers are also shareholders of a company, they seek to maximize the wealth of the shareholders too (Ali et al., 2008). There was no significant influence of state ownership or foreign ownership on EM.

This study contributes to the existing EM literature by providing information about the association between ownership structure and EM in the Nordic context, which has not yet been studied. Furthermore, this study provides valuable views for the users of financial statements since EM affects the quality of the financial information. The results are particularly useful for the users of financial statements that are concerned about enhancing the quality of the financial information among Nordic listed companies. In addition, this study takes account both EM strategies, when several studies are focused only on AEM (Alves, 2012; Nguyen et al., 2021).

The structure of this study is as follows. The next section presents literature review and develops hypotheses based on existing literature. In the third section, research design is described, including the sample characterization, variables measurement and empirical model. The fourth section includes the results and additional analyses. The fifth section concludes the study.

2. LITERATURE REVIEW

2.1. Earnings management

Management uses accounting language defined by accounting standard setters to communicate with the company's external stakeholders (Healy & Wahlen, 1999). Earnings are produced under the accrual basis of accounting and used by large number of users to measure company performance (Dechow, 1994). Hence, earnings play an important role which may cause incentives for managers to manage earnings since managers are responsible for company's performance (Susanto, 2017). Because standards allow managers to use judgement in financial reporting, it creates opportunity for EM (Healy & Wahlen, 1999).

According to Healy and Wahlen (1999, p. 6) "Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers." Schipper (1989, p. 92) defines earnings management as "purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain".

Financial statement information provides audited and quantitative data about publicly held companies' financial position and performance (Bushman & Smith, 2003). In addition to financial accounting information being used by managers and shareholders when evaluating investment opportunities, it is also used to reduce information asymmetries between shareholders and to control managers to direct resources toward positive net present value projects (Bushman & Smith, 2003; Ben-Nasr et al., 2015). According to the Conceptual Framework for Financial Reporting issued by the IASB (2018) fundamental qualitative characteristics of the useful financial information are relevance and faithful representation, and enhancing qualitative characteristics are

comparability, verifiability, timeliness and understandability. When managers are manipulating financial statement information by practicing EM, it will give a false impression about company's performance and hence, earnings information becomes useless (Susanto, 2017). Indeed, when earnings are inconsistent with the reality, it can be harmful for the shareholders (Susanto, 2017).

Although the lack of EM does not automatically mean high-quality accounting numbers, there is a connection between EM and earnings quality (Lo, 2008). The quality of financial statements decreases when EM increases (Dechow & Skinner, 2000). In fact, there is a debate in the previous literature if EM should be considered as a fraudulent activity or not (Kassem, 2012). According to Kassem (2012), some researchers such as Watts & Zimmerman (1986) and Diana & Madalina (2007) argue that EM is not a financial reporting fraud since it is within the barriers of the accounting rules, while other researchers such as Healy & Wahlen (1999) and Jones (2011) argue that EM is just another form of fraud.

Earlier literature shows two perspectives of EM. A study from Holthausen & Leftwich (1983) shows the information perspective under which managers use discretion to provide investors their private information and expectations about the company (Beneish, 2001). Thus, the private information about performance will mitigate information asymmetries and derive more efficient contracting (Dechow, 1994). On the other hand, opportunistic perspective assumes that managers use discretion to mislead investors in order to benefit themselves, and this view prevails in the current literature (Beneish, 2001).

2.2. AEM and REM strategies

There are two ways to manage earnings, AEM and REM. AEM practices do not affect the cash flow, but REM practices have cash flow consequences (Cohen & Zarowin, 2010).

The purpose of accruals accounting is to show the real performance of the company by recognizing revenues and expenses when they incur, not when cash transactions occur (Joosten, 2012). This means that cash flows are recognized under the revenue recognition principle and the matching principle, and managers can use discretion over the recognition of the accruals (Dechow, 1994). Hence, because

accounting standards allow flexibility, accruals accounting is influenced by managerial judgement (Subramanyam, 1996). When managers are using that judgement through accounting methods and estimates, AEM is achieved (Zang, 2012). For example, recognition of impairments enables managers to practice AEM because managers use judgement and estimation when recognizing them (Gaio et al., 2021). Other AEM activities are losses from bad debts (Joosten, 2012) and changing depreciation method for fixed assets (Gao et al., 2017).

EM can also occur through operational decisions. Roychowdhury (2006) defines REM as managers' abnormal practices whose goal is to mislead stakeholders think that certain goals have been achieved in the normal course of the business. REM practices include for example delaying the level of discretionary expenses, such as development cost by postponing development projects and as a result, reported earnings increase (Joosten, 2012). Furthermore, aggressive price discounts to increase sales toward the end of the year and overproduction to lower cost of goods sold are examples of REM practices (Roychowdhury, 2006).

According to Zang (2012) companies take into consideration the cost of both EM activities and based on that, engage in more of the cheaper one. REM might be considered more costly when it comes to future company value (Gunny, 2005). Nevertheless, Graham et al. (2005) study shows that managers are more willing to practice REM than AEM although it can have negative long-term consequences. Detecting AEM is easier than detecting REM (Susanto, 2017) and AEM is at higher risk for regulators' scrutiny which may encourage managers to prefer REM (Gunny, 2005). While REM practices are controlled by the managers, AEM practices must fulfil the standards of auditors (Gunny, 2005). However, companies can manage earnings using both EM strategies (Ding et al., 2007). For that reason, this work focuses on both AEM and REM.

2.2. Ownership structure and earnings management

EM can be seen as a consequence of agency problems (Beatty & Harris, 1998). According to Jensen and Meckling (1976), agency theory comprises a relationship between principals and agents where principals (shareholders) hire agents (managers) to perform control over decision making in a way that benefits principals. However, because of information asymmetry, agents have an opportunity to behave opportunistically and

make decisions based on their own interests instead of principals (Beatty & Harris, 1998). Thus, separation of ownership and control causes agency problems between managers and shareholders (Jensen & Meckling, 1976; Fama & Jensen, 1983).

These agency problems demand mechanisms to ensure that shareholders' interests are protected (Saona et al., 2020). Corporate governance provides a framework in which suppliers of corporate finance assure themselves of achieving a return on their investment (Shleifer & Vishny, 1997). Under an agency perspective, the main objective of corporate governance is to mitigate agency problems by monitoring and controlling managers (Benkel et al., 2006). Control mechanisms can be divided into external and internal mechanisms (Bushman & Smith, 2001). Whereas corporate takeovers are recognized as one of the external mechanisms (Bushman & Smith, 2001), the board of directors (Fama & Jensen, 1983) and ownership structure are examples of internal control mechanisms (Agrawal & Knoeber, 1996). Therefore, these different corporate governance mechanisms are expected to influence managerial practice of EM because of their principal aim to monitor and control management (Benkel et al., 2006).

According to Andersen et al. (2007) Nordic countries are welfare states that are characterized by social security, strong labor unions, low economic and social inequality and high taxes (Thomsen, 2016). There are many similarities in the corporate governance frameworks between Nordic countries which justifies the concept NCG model (Lekvall, 2018). Nordic countries have resembling social, cultural and regulatory settings that determine how corporate governance is practiced, and these rules and norms are significantly different from other countries (Lekvall, 2018). In addition, Nordic countries have strictly hierarchical governance chain of command which is different from one- and two-tier models (Lekvall, 2018). The main differences are the strong power of the general meeting to control both the board and the management, and a clear separation of responsibilities between the mainly wholly non-executive board and the executive CEO[1] function (Lekvall, 2018). The NCG model emphasizes the power of large shareholders to effectively control the company in order to protect their investment, while also protecting minority shareholders (Lekvall, 2018). Coffee (2001) confirms the good protection of the minority shareholders by suggesting that Nordic countries have been able to restrict large

[1] CEO as Chief Executive Officer.

shareholders' private benefits. Furthermore, it has been claimed that the NCG model has an impact on the notable performance of Nordic companies in the international market (Lekvall, 2018). Nordic listed companies also have similar ownership structure, which is characterized by a high degree of ownership concentration (Lekvall, 2018; Thomsen, 2016).

2.3.1. Ownership concentration and earnings management

Small shareholders have no interest in monitoring management since they do not have a big enough stake in the company to bear all the monitoring costs (Shleifer & Vishny, 1986). Furthermore, small shareholders have no resources or access to information to monitor management (Warfield et al., 1995). For that reason, large shareholders play an important role in the control and monitor of management (Shleifer & Vishny, 1986). According to Madhani (2016) ownership concentration may mitigate agency problems because large shareholders have incentives to protect their significant investments. Similarly, Lekvall (2018) suggests that large shareholders have incentives, competence and resources to engage in their companies' governance. Consequently, a free-rider problem arises since small shareholders benefit from large shareholders efforts (Maug, 2002).

Because large shareholders have incentives to monitor management, it can be expected that ownership concentration reduces EM practices, as Dechow et al. (1996) study demonstrates. Their study provide evidence that EM is related to weaknesses in the oversight of management and companies managing earnings are less likely to have an outside blockholder monitoring management. Many authors, such as Alves (2012) and Maswadeh (2018) demonstrate that ownership concentration reduces EM and therefore improve the quality of earnings. Saona et al. (2020) study shows how concentrated ownership structure acts as a good corporate governance mechanism by constraining EM. These arguments are consistent with the efficient monitoring hypothesis, stating that large shareholders have incentives to monitor management (Alves, 2012).

Iturriaga and Hoffmann (2005) provide evidence how ownership concentration encourages large shareholders to monitor management and thus inhibits EM. They suggest that ownership concentration in Chilean companies is used because of weak investors' protection in Chile, and therefore shareholders use large shareholders to protect their interests. La Porta et al. (1998) support this notion that countries with poor investors'

protection develop substitute mechanisms to protect investors, such as ownership concentration. Nordic countries have strong law enforcements and moderate investor protection which secure shareholders from abuse by managers (La Porta et al. 1998), and therefore it might be harder for managers to engage in EM.

However, large shareholders can exercise their control to maximize their own welfare at the expense of minority shareholders (Shleifer & Vishny, 1997). Because the NCG model emphasizes the role of the general meeting in the governance chain, agency problems are more associated with the relationship between large shareholders and minority shareholders than between shareholders and managers (Lekvall, 2018). Large shareholders vote at general meetings and influence managers' decision making (Keinonen, 2021). Hence, large shareholders may encourage managers to manage earnings to create undue private benefits (Jaggi & Tsui, 2007).

Although the NCG model has a system to protect the minority shareholders' interests (Lekvall, 2018), Keinonen (2021) study shows the inherent risk of the NCG model. He suggests that large shareholders may not monitor management because of their own interest and thus, ownership concentration does not reduce agency costs. Kim and Yoon (2008) support the idea that ownership concentration tends to increase agency costs. They conclude that large shareholders' voting rights increase EM practices.

Nguyen et al. (2021) found a positive relationship between ownership concentration and EM, and therefore ownership concentration can be seen as a poor corporate governance mechanism. Moslemany and Nathan (2019) got similar results in their study. They point out how large shareholders create pressures on managers which results their engagement in EM. Also, Dong et al. (2020) demonstrate how ownership concentration reduces earnings quality because of EM. These arguments are consistent with the expropriation hypothesis, suggesting that large shareholders can take advantage of their control and extract undue private benefits and thus, expropriate minority shareholders (Alves, 2012).

Hence, there are two opposing theories regarding ownership concentration and EM. For that reason, the non-directional hypothesis is developed:

H1: *There is a relation between ownership concentration and earnings management.*

2.3.2. Foreign ownership and earnings management

Over the last few decades, Nordic countries have faced pressures to pursue similar corporate governance standards as in jurisdictions with an Anglo-Saxon common law tradition, mainly the US and the UK (Lekvall, 2018). One reason for this is that non-domestic owners have increased in the Nordic capital market, currently accounting about 40% of the market capitalization of listed companies (Lekvall, 2018). The most common foreign shareholder is either a mutual fund or other institutional investor (Dahlquist & Robertsson, 2001), which is in line with Lekvall (2018) who argues that the majority of foreign shareholders in the Nordic countries are institutional investors with US or UK origins.

Aggarwal et al. (2011) found a positive relationship between foreign institutional ownership and governance, meaning that foreign shareholders improve corporate governance practices of a company. Foreign shareholders are recognized to take a more active role in a company, while domestic shareholders with business ties with local companies can feel forced to be loyal to the managers (Aggarwal et al. 2011). The likeliness that the board has a majority of independent directors increases when there is a foreign ownership in a company (Aggarwal et al. 2011), and independent directors have been shown to limit EM because of their strict monitoring (Benkel et al., 2006; Jaggi & Tsui, 2007). Desender et al. (2014) show how foreign shareholders may shape governance practices of a company by introducing practices that are not commonly used by domestic shareholders. Their study suggests that independent directors have incentive to monitor only when there is a high foreign ownership in the company. This is related to the differences in the governance mechanisms between foreign and domestic shareholders.

Guo et al. (2015) present two hypotheses regarding the impact of foreign shareholders on REM. According to the information asymmetry hypothesis, distance makes monitoring, and thus, limiting REM for foreign shareholders difficult, whereas the knowledge spillover hypothesis suggests that foreign shareholders have superior knowledge which can limit REM (Guo et al., 2015). Their findings are in line with the knowledge spillover hypothesis, indicating that companies with higher foreign ownership engage less in EM practices and therefore, foreign shareholders can reduce agency cost. However, Kang and Kim (2009) evidence suggests that the information asymmetry,

which consist of physical distance, language barriers and differences in legal rules, among others, reduces foreign shareholders incentives to engage in governance activities in the host country. Hence, when there is a high information asymmetry, shareholders may not have resources or information to monitor management, which creates opportunities for EM (Richardson, 2000).

According to Nguyen et al. (2021) and Abubakar et al. (2020) foreign ownership decreases EM. Consistent with these arguments, Ben-Nasr et al. (2015) argue that foreign ownership improves earnings quality by reporting smaller abnormal accruals and providing higher earnings informativeness and more persistent earnings. Their findings support the notion that foreign shareholders demand more transparent accounting information to inhibit the expropriation of corporate resources by insiders or controlling shareholders (Ben-Nasr et al., 2015). Furthermore, Han et al. (2022) and Kim and Yoon (2008) recognize foreign shareholders' active role in monitoring EM and hence, reducing agency costs.

Based on these arguments, it can be expected that foreign ownership decreases EM practices. Therefore, the second hypothesis states:

H2: *There is a negative relation between foreign ownership and earnings management.*

2.3.3. Managerial ownership and earnings management

According to the agency theory, when managers do not own shares of a company, they may act in a way that differ from the interest of the shareholders (Fama & Jensen, 1983). Thus, different incentive contracts are used to align managers' interest with shareholders, including share ownership (Shleifer & Vishny, 1997). Warfield et al. (1995) investigate whether managerial ownership affects the informativeness of accounting earnings and managers' accounting choices. Their results show that managerial ownership is positively related with earnings informativeness and inversely related to magnitude of discretionary accruals. Thus, they argue that managerial ownership decreases managers' incentive to manage reported accounting numbers. Likewise, Alves (2012) and Nguyen et al. (2021) suggest that managerial ownership is negatively related to EM, meaning that shareholdings held by managers improve the quality of earnings. These arguments are consistent with the incentive alignment effect, denoting that

managerial ownership align managers' interest with shareholders' and hence, managers' opportunistic behavior decreases (Teshima & Shuto, 2008).

When managers are also shareholders of a company, their objectives start to converge with shareholders and besides maximizing their private benefits, they seek to maximize the wealth of the shareholders too (Ali et al., 2008). Consistent with this, Ali et al. (2008) results suggest that managerial ownership inhibits managers to engage in EM. Dong et al. (2020) investigate how managerial ownership affects REM and AEM, separately. They demonstrate that managerial ownership prevents managers to practice REM, which supports the incentive alignment effect. Contrary to this, they argue that managerial ownership is positively related to AEM. Therefore, these results emphasize the costs of REM and managers' different attitudes towards REM and AEM. Based on these arguments, managerial ownership can be considered as a governance mechanism to decrease managers' opportunistic behaviour to manage earnings.

However, incentive contracts, including share ownership, create opportunity for managers to behave opportunistically and manage accounting numbers to grow their pay (Shleifer & Vishny, 1997). Bonus schemes defined by accounting earnings are a popular way to reward managers (Healy, 1985). There is evidence that managers choose accounting procedures and accruals in order to maximize their compensation (Healy, 1985). Bergstresser and Philippon (2006) show that managers are more willing to manage earnings when their compensation is correlated with the value of stock and option holdings. Furthermore, debt contracts create incentive for EM since managers want to avoid violation of debt covenants and to reduce the constraints in debt contracts (Beneish, 2001). In addition to avoiding debt covenant restrictions, Dechow et al. (1996) study shows that in order to get external financing at low cost, managers engage in EM.

Managers may pursue non-value maximizing actions to benefit themselves at the expense of other shareholders (Al-Fayoumi et al., 2010). Al-Fayoumi et al. (2010) and Abubakar et al. (2020) provide evidence of such behaviour by indicating that managerial ownership increases managers' desire to manage earnings. Similarly, Gabrielsen et al. (2002) argue that managerial ownership is negatively related to the information content of earnings. These results are in line with the entrenchment hypothesis suggesting that

managerial ownership can be ineffective in aligning managers to act in the best interest of shareholders (Al-Fayoumi et al., 2010).

Saona et al. (2020) found an inverse U-shaped relationship between managerial ownership and EM. This result indicates that EM increases when managerial ownership increases, but only up to the critical point. After that point, EM decreases, which is consistent with the incentive alignment effect. However, Sánchez-Ballesta and García-Meca (2007) also found a non-linear relationship between managerial ownership and EM, but their results suggest that managerial ownership contributes to the informativeness of earnings and to limiting EM when share ownership by managers is not too high. When it is high, the relation reverses and managerial ownership becomes an ineffective governance mechanism. Hence, while Saona et al. (2020) argue that high managerial ownership is a corporate governance mechanism that constrains EM, Sánchez-Ballesta and García-Meca (2007) suggest that EM increases when managerial ownership is too high. These results support both the incentive alignment effect and the entrenchment effect.

Based on these contradictory conclusions regarding managerial ownership and EM, the third hypothesis is:

H3: *There is a relation between managerial ownership and earnings management.*

2.3.4. State ownership and earnings management

In many European Union member states, significant part of assets and employment comes from SOE (European Comission, 2016). Furthermore, SOE's role in the life of European citizens and businesses is major (European Comission, 2016). According to Andersen et al. (2007) Nordic countries are considered as welfare states characterized by large government sector which provides access to health services, education and social security, among others (Thomsen, 2016). While in some countries, such as in China and Singapore, governments are participating in competitive business, Nordic governments are more invested in producing welfare services (Thomsen, 2016). Norway can be considered as an exception because of their state-owned energy sector (Thomsen, 2016). Hence, SOE's role in welfare states is important since they create value for society by providing public goods and services that benefit people within the society (PwC, 2015).

Besides profit maximization, SOE's objectives usually include also social objectives (European Comission, 2016) and short-term political objectives (Shleifer and Vishny, 1994). Indeed, when institutional investors' primary objective is to maximize their wealth, government owners can aim to reduce unemployment and raise taxes as well (Borisova et al., 2012).

It is claimed that state ownership is negatively related to company valuation, which suggests that SOE may prefer to foster political purposes more than create long-term value for shareholders (Keinonen, 2021). In addition, state ownership has been shown to have negative effects on profitability and operating efficiency, as demonstrated in Boubakri et al. (2009) study. The authors also indicate that these negative effects can be moderated by the presence of sound institutional and political environments. Furthermore, they show the difference between right-wing and left-wing governments. More specifically, the authors demonstrate that negative effects on profitability are less pronounced in countries with right-wing governments.

Chaney et al. (2011) claim that politically connected companies have lower earnings quality than similar non-connected companies. Their results support the idea that politically connected companies do not feel pressure to invest in the quality of the reported accounting information because of the protection they have from politicians. Furthermore, poor accounting information quality usually has negative consequences, such as higher cost of debt (Chaney et al., 2011; Dechow et al., 1996). However, Chaney et al. (2011) suggest that politically connected companies do not face these negative consequences like non-connected companies do. Following this idea, SOE may lack interest to invest in the quality of financial reporting since their political connections serve them access to preferential financing (Ben-Nasr et al., 2015).

Borisova et al. (2012) investigate if state ownership is associated with corporate governance of companies from the European Union. Their main conclusion is that state ownership is related to lower governance quality which emphasizes the notion that SOE's objective is not always to maximize firm value. However, they point out the differences between common law and civil law countries. More specific, while state ownership is negatively related to the quality of corporate governance in civil law countries, in common law countries state ownership improves the governance quality. According to

Ben-Nasr et al. (2015) state ownership is associated with greater EM which is consistent with the political interference hypothesis. Because state is recognized to pursue political objectives, SOE may expropriate corporate resources for political purposes and to conceal this, they engage in EM practices (Ben-Nasr et al., 2015). Similarly, Nguyen et al. (2021) observe that when state ownership increases, EM increases.

On the other hand, Ding et al., (2007) study shows that non-state-owned companies (NSOE) engage in EM more than their state-owned counterparts. These results suggest that in China, privately-owned companies have pressures to exaggerate their financial performance to convince the market. However, in terms of ownership concentration, large shareholders in privately-owned companies inhibit EM practices more efficient than in SOE (Ding et al., 2007). Likewise, Dong et al. (2020) reveal that state ownership is negatively related to EM. Because SOE's objective is not only to generate profits, but includes also social responsibilities, they may not have incentives to manage earnings (Dong et al., 2020). In addition, SOE's relations to governments give them prioritized resources, such as preferential credit treatments like Brandt and Li (2003) observe, which may also decrease SOE's incentives to manage earnings (Dong et al., 2020). Furthermore, SOE may have less incentives to engage in EM because they face more public scrutiny by many parties and stakeholders than NSOE do (Capalbo et al., 2018).

Gaio & Pinto (2018) investigated the association between state ownership and EM among private and public European companies. Their results reveal the importance of capital markets when analysing the impact of state ownership on earnings quality. They argue that private SOE engage less in earnings management than private NSOE because of their lower incentives to practice EM due to government protection. However, among public firms, SOE engage in EM in a higher degree than NSOE. This result indicates that SOE's managers have pressures to give a better image of a company's performance because of the capital market forces.

Given these different arguments regarding the effect of state ownership on EM, the last hypothesis states:

H4: *There is a relation between state ownership and earnings management.*

3. METHODOLOGY

3.1. Sample characterization

The sample consists of non-financial publicly listed Nordic companies. Financial data is obtained from Orbis database. The data from corporate ownership structure is retrieved from annual reports, and if necessary, from corporate governance reports. Sample period is from 2015 to 2019, in order not to consider the possible effects of the Corona virus.

At first, all listed companies from Denmark, Norway, Sweden and Finland are selected in Orbis, except financial and insurance companies, because these companies have unique accounting rules (Nguyen et al., 2021). This study uses NACE Rev. 2 Main Section[2] for industry classification. Industries that have three or less companies withing that industry are excluded from the sample. These industries are real estate activities, public administration and defence, administrative and support service activities, transportation and storage, accommodation and food service activities, water supply, and electricity, gas, steam and air conditioning supply. All financial data is converted to the same currency, euro, using year-end exchange rates. In Finland, the currency already is euro. The initial sample is 1.471 companies.

Companies with missing financial data are excluded from the sample. Furthermore, taking into account the possible effects of outliers, the values of dependent and independent variables that are not included between the percentiles 1 and 99 are winsorized. Therefore, the final sample consists of 195 Nordic companies from 8 different sectors. The number of firm-year observations is 975.

Appendix I shows the country distribution of the sample. The most represented country is Sweden (54.87%), followed by Finland (23.08%), Norway (12.31%), and Denmark (9.74%). This does not perfectly follow the size of the respective markets since there is more listed companies in Norway than in Finland. Appendix II displays the industry distribution, following NACE Rev. 2 Main Sections classification. The most represented sector is clearly manufacturing (68.72%).

[2] NACE Rev. 2 is statistical classification of economic activities in the European Community.

3.2. Variables measurement

3.2.1. AEM

Total accruals comprise discretionary accruals and non-discretionary accruals, and when measuring EM, the discretionary accruals are of interest (Kjærland et al., 2020). This study follows the modified Jones model (Jones, 1991) as described in Dechow et al. (1995) when calculating discretionary accruals. Since there is no one way to measure discretionary accruals, the modified Jones model is chosen since several studies have used this method (Alves, 2012; Zang, 2012; Gaio & Pinto, 2018; Kim & Yoon, 2008) and it enhances comparability.

Total accruals are calculated using cash flow approach since many prior studies have preferred this instead of the balance sheet approach (Kjærland, 2020; Nguyen et al.,2021; Alves, 2012; Kim & Yoon, 2008) and cash flow approach should reduce measurement errors (Kjærland, 2020). Therefore, total accruals are computed as in equation (1).

(1) $$TA_{i,t} = NI_{i,t} - CFO_{i,t}$$

where $TA_{i,t}$ is total accruals in year *t* for company *i; $NI_{i,t}$* is net income in year *t* for company *i* and $CFO_{i,t}$ is cash flow from operating activities in year *t* for company *i.*

The modified Jones model (Dechow et al., 1995) is the modified version of the original Jones model (1991) and it improves the measurement of discretionary accruals (Costa & Soares, 2022). While the original Jones model presumes that discretion is not done over revenue, the modified Jones model presumes that changes in accounts receivables result from EM (Algharaballi & Albuloushi, 2008). The following modified Jones model estimates non-discretionary accruals:

(2) $$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

where $A_{i,t-1}$ is the total assets in year *t-1* for company *i*; $\Delta REV_{i,t}$ is revenues in year *t* less revenues in year *t*-1 for company *i*; $\Delta REC_{i,t}$ is accounts receivables in year *t* less accounts receivables in year *t*-1 for company *i*; $PPE_{i,t}$ is the gross property, plant and equipment in year *t* for company *i* and $\varepsilon_{i,t}$ is an error term in year *t* for company *i*.

All the variables are divided by lagged total assets to avoid heteroskedasticity (Alves, 2012) and to control for size effect (Healy, 1985).

The discretionary accruals are the residuals from the equation (2) which are also used as a proxy for AEM. The higher the level of absolute value of discretionary accruals, the greater is the level of EM (Kjærland, 2020).

3.2.2. REM

When measuring REM, large amounts of previous studies such as Zang (2012), Gao et al. (2017), Guo et al. (2015) and Cohen and Zarowin (2010) have followed methodology used by Roychowdhury (2006). This methodology combines three ways to detect REM, namely abnormal levels of operating cash flows, abnormal production costs and abnormal discretionary expenses. The model for estimating such REM practices is developed by Dechow et al. (1998) but implemented by Roychowdhury (2006).

Roychowdhury (2006) argues that managers can practice REM by offering price discounts or more lenient credit terms toward the end of the year in order to temporarily increase sales. These activities result in decreased operating cash flows in the current period and higher production costs than without such activities (Roychowdhury 2006).

Following Roychowdhury (2006) and Cohen and Zarowin (2010), the normal cash flows from operations (CFO) are estimated as a linear function of sales and changes in sales in the current period. To calculate this, following cross-sectional regression for each year and industry is used:

$$(3) \qquad \frac{\mathrm{CFO}_{i,t}}{\mathrm{A}_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{\mathrm{A}_{i,t-1}} + \beta_1 \frac{\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \beta_2 \frac{\Delta \mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \varepsilon_{i,t}$$

where $\mathrm{CFO}_{i,t}$ is cash flow from operation in year *t* for company *i*; $\mathrm{A}_{i,t-1}$ is the total assets in year *t-1* for company *i;* and $\mathrm{S}_{i,t}$ is is the total sales in year *t* for company *i* and $\Delta \mathrm{S}_{i,t}$ is the change in sales in year *t* for company *i.* According to Roychowdhury (2006), all the variables are divided by lagged total assets. The abnormal levels of CFO (REM_ABCFO) is measured as residuals from equation (3) (Guo et al., 2015). The smaller REM_ABCFO means more REM (Guo et al., 2015).

Roychowdhury (2006) states that overproduction in order to lower the cost of goods sold (COGS) and thus, increase earnings, is one way to practice REM. When increasing production, fixed costs are spread over a greater number of units, which decreases fixed costs per unit (Roychowdhury, 2006). This will decrease reported COGS if there is no increase in marginal cost per unit (Roychowdhury, 2006). However, there is production and holding costs when overproducing and it results in higher annual production costs compared to sales (Roychowdhury, 2006).

Following Roychowdhury (2006) and Cohen and Zarowin (2010), production costs are determined as the sum of COGS and the change in inventory during the year (Δ*INV*). The normal COGS is estimated as follow:

$$(4) \qquad \frac{\mathrm{COGS}_{i,t}}{\mathrm{A}_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{\mathrm{A}_{i,t-1}} + \beta_1 \frac{\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \varepsilon_{i,t}$$

where $\mathrm{COGS}_{i,t}$ is the cost of goods sold in year *t* for company *i*,

The normal inventory growth (Δ*INV*) is computed as follow:

$$(5) \qquad \frac{\Delta\mathrm{INV}_{i,t}}{\mathrm{A}_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{\mathrm{A}_{i,t-1}} + \beta_1 \frac{\Delta\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \beta_2 \frac{\Delta\mathrm{S}_{i,t-1}}{\mathrm{A}_{i,t-1}} + \varepsilon_{i,t}$$

where $\Delta\mathrm{INV}_{i,t}$ is the change in inventory in year *t* for company *i*.

Using equations (4) and (5), the normal production costs (PROD) is estimated for each industry and year as follow:

$$(6) \qquad \frac{\mathrm{PROD}_{i,t}}{\mathrm{A}_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{\mathrm{A}_{i,t-1}} + \beta_1 \frac{\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \beta_2 \frac{\Delta\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}} + \beta_3 \frac{\Delta\mathrm{S}_{i,t-1}}{\mathrm{A}_{i,t-1}} + \varepsilon_{i,t}$$

The abnormal level of production costs (REM_ABPROD) is measured as residuals from equation (6) (Zang, 2012). The higher REM_ABPROD means more REM (Guo et al., 2015). The combined measure of REM is calculated as REM_ABCFO – REM_ABPROD = REM.

3.2.3. Ownership structures

Four variables are used to measure ownership structure, namely ownership concentration, foreign ownership, managerial ownership and state ownership. Following Brunzell et al. (2014), ownership concentration is measured as the percentage of voting

rights owned by the five largest shareholders (FIVELARGEST). Second measure for ownership concentration is the percentage of votes owned by the largest shareholder (LARGEST). Furthermore, dummy variables for each ownership type are included in this study. In terms of state ownership (STATE), the dummy variable is coded as 1 if the largest owner is state and, 0 otherwise. Regarding foreign ownership (FOREIGN), the dummy variable takes 1 if the largest owner is foreign owner, and 0 if not. Finally, managerial ownership (MANAGER) is measured as the dummy variable taking 1 if the largest owner is a manager, and 0 otherwise.

3.2.4. Control variables

Several control variables are included in this study to capture other factors influencing managers engagement in EM besides ownership structure.

Many authors, such as Roychowdhury (2006), demonstrate that growth opportunities are associated with EM. More specifically, Roychowdhury (2006) found that growth opportunities are positively related to REM. Reyna (2012) suggests that high growth companies engage in EM in a higher degree because managers aim to reveal their private information about the value of future projects to shareholders. Therefore, a control variable *GROWTH* is added in the study. Equivalent to Al-Fayoumi et al. (2010), it is calculated as the percentage change in sales from year *t*-1 to year *t*. Consistent with previous arguments, it is expected that companies with higher growth practice more EM.

A variable *SIZE*, the natural logarithm of total assets, is included in this study. Larger companies may be less likely to engage in EM since they face more scrutiny from regulators and analysts (Saona et al., 2020). On the other hand, they have more complex organizational structures and a lot of economic transactions that can be manipulated (Saona et al., 2020). Thus, there is no consensus in the literature regarding the association between company size and EM.

To control for performance, a variable *ROA* (return on assets) is incorporated in this study. Many authors, such as Nguyen et al. (2021), Saona et al. (2020) and Kjærland et al. (2020), argue that better performing companies have less incentive to manage earnings. Therefore, negative relationship between financial performance and EM is expected. ROA is calculated as net income divided by total assets.

To control for the level of operating cash flows, a variable *CFO* is added in this study. Companies with higher levels of CFO, may be less likely to engage in EM (Alves, 2012; Dong et al., 2020). For that reason, negative relationship between operating cash flows and EM is expected in this study. Following Dong et al. (2020), CFO is calculated as the net cash flows from operating activities divided by beginning total assets.

Finally, it is necessary to control for the year, country and industry fixed effects in the models (Dong et al., 2020).

3.3. Empirical models

The relation between corporate ownership structure and EM is estimated using following regressions:

(7)

$$AEM_{i,t} = \beta_0 + \beta_1 LARGEST_{i,t} + \beta_2 FIVELARGEST_{i,t} + \beta_3 MANAGER_{i,t} + \beta_4 FOREIGN_{i,t} + \beta_5 STATE_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 ROA_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} REM_{i,t} + \sum YEAR_t + \sum COUNTRY_i + \sum INDUSTRY_i + \varepsilon_{i,t}$$

(8)

$$REM_{i,t} = \beta_0 + \beta_1 LARGEST_{i,t} + \beta_2 FIVELARGEST_{i,t} + \beta_3 MANAGER_{i,t} + \beta_4 FOREIGN_{i,t} + \beta_5 STATE_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 ROA_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} AEM_{i,t} + \sum YEAR_t + \sum COUNTRY_i + \sum INDUSTRY_i + \varepsilon_{i,t}$$

where β_0 is a constant and β_1-$\beta_{10}$are the coefficients. All the variables are defined previously. Zang (2012) found that there is substitutive relation between AEM and REM. Therefore, following Cohen et al. (2008) and Dong et al. (2020), control variable REM is incorporated for the equation (7) and control variable AEM is added for the equation (8).

4. RESULTS

4.1. Descriptive Statistics

Table I reports descriptive statistics. The mean of the absolute value of discretionary accruals is 0.059 and the mean of the signed value of discretionary accruals is -0.012. This indicates that on average, Nordic listed companies manage their earnings downwardly. This suggests that managers may use cookie jar accounting or big bath accounting in Nordic companies. The mean values of REM_ABCFO, REM_ABPROD and REM are 0.001, -0.015 and 0.017, respectively. The mean value of REM is close to 0.029 reported by Abubakar et al. (2020), which suggest the presence of REM in the sample firms.

On average, largest shareholder owns 29% of the company and five largest shareholders own 52%. This emphasizes the notion that ownership structure in Nordic listed companies is characterized by a high degree of ownership concentration. The mean values of the state ownership, foreign ownership and managerial ownership are 4%, 17% and 5%, respectively. This suggests that foreign ownership is relatively high in the sample firms when compared to state ownership and managerial ownership.

Sample firms have on average, sales growth of 9% in a year. The mean value of SIZE is 12.820, ROA 3.5% and CFO 8.3%.

TABLE I. Descriptive Statistics

Variables	Obs.	Mean	Median	Std. Dev.	Min	Max
DACC	975	-0.012	-0.011	0.097	-0.387	0.450
AEM	975	0.059	0.035	0.080	0.000	0.512
REM_ABCFO	975	0.001	0.003	0.108	-0.411	0.317
REM_ABPROD	975	-0.015	0.001	0.218	-0.652	0.533
REM	975	0.017	-0.002	0.275	-0.681	0.735
LARGEST	971	0.285	0.256	0.176	0.042	0.793
FIVELARGEST	876	0.523	0.516	0.184	0.095	0.924
STATE	972	0.043	0	0.203	0	1
FOREIGN	972	0.174	0	0.379	0	1
MANAGER	972	0.045	0	0.208	0	1
GROWTH	975	0.090	0.055	0.265	-0.613	1.623
SIZE	975	12.820	12.752	2.082	8.394	17.091
ROA	975	0.035	0.055	0.173	-0.859	0.465
CFO	975	0.083	0.092	0.161	-0.777	0.491

Variables: DACC is the signed value of discretionary accruals; AEM is the absolute value of discretionary accruals; REM_ABCFO is abnormal cash flows from operations; REM_ABPROD is abnormal production costs; REM is the

aggregate measure of two REM proxies; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

4.2. Correlation Matrix

Table II reports Pearson correlation coefficients between variables. AEM is negatively and significantly correlated with SIZE, ROA and CFO. This indicates that larger, better performed companies and companies with higher levels of CFO are less likely to practice AEM.

REM is positively and significantly correlated with foreign ownership and managerial ownership. Thus, when foreign owner or manager is the largest shareholder, companies are less likely to engage in REM. GROWTH is negatively and significantly correlated with REM, which indicates that larger companies are more likely to manage earnings through real operations. There are significant and positive correlations between REM and ROA and CFO, meaning that companies with better financial performance and higher levels of CFO are less likely to practice REM.

Multicollinearity is tested using variance inflation factor (VIF). Appendix III presents results in terms of VIF values. All values regarding the independent variables for both models are clearly below five, which indicates that there is not multicollinearity between variables.

TABLE II. Pearson Correlation Matrix

Variables	(AEM)	(REM)	(LARGEST)	(FIVELARGEST)	(STATE)	(FOREIGN)	(MANAGER)	(GROWTH)	(SIZE)	(ROA)	(CFO)
AEM	1.000										
REM	0.015	1.000									
LARGEST	-0.036	-0.033	1.000								
FIVELARGEST	-0.024	-0.042	0.768***	1.000							
STATE	-0.039	-0.040	0.035	-0.061*	1.000						
FOREIGN	0.049	0.057*	-0.097***	-0.091***	-0.097***	1.000					
MANAGER	0.003	0.154***	0.148***	0.195***	-0.046	-0.100***	1.000				
GROWTH	-0.039	-0.052*	-0.001	0.064*	-0.033	-0.014	0.034	1.000			
SIZE	-0.238***	0.013	0.111***	-0.173***	0.271***	-0.118***	-0.079**	-0.121***	1.000		
ROA	-0.068**	0.297***	0.006	-0.136***	0.021	0.002	0.045	-0.021	0.318***	1.000	
CFO	-0.060*	0.395***	0.013	-0.103***	0.024	0.030	0.069**	-0.053*	0.294***	0.755***	1.000

***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: AEM is the absolute value of discretionary accruals; REM is the aggregate measure of two REM proxies; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

4.3. Regression analysis

Table III presents results of the AEM pooled OLS regression. Heteroscedasticity is tested using Breusch-Pagan Test. The result reveals that there is heteroscedasticity in the model. Hence, clustered standard errors at firm and year level are used.

Both ownership concentration variables are significantly correlated with AEM. LARGEST is positively and significantly correlated with AEM, demonstrating that when the largest shareholder gets more control, AEM increases. This is consistent with Nguyen et al. (2021) and Kim and Yoon (2008) findings that large shareholders' voting rights increase EM and thus, ownership concentration can be seen as a poor corporate governance mechanism.

On the other hand, FIVELARGEST is negatively and significantly correlated with AEM. This suggests that when the control for the five largest shareholders increases, AEM decreases. The result confirms the idea that large shareholders have incentives and resources to engage in the governance practices of their companies (Lekvall, 2018). Thus, H1 is supported.

STATE, FOREIGN and MANAGER are positively but not significantly associated with AEM. This is consistent with Maswadeh (2018) findings that foreign ownership is insignificantly related to EM and with Moslemany and Nathan (2019) findings that there is no significant relationship between managerial ownership and EM.

AEM is negatively and significantly correlated with GROWTH at 10% level and SIZE at 5% level, suggesting that larger companies and companies with growth opportunities engage in EM in a lower degree. This demonstrates that scrutiny from regulators towards larger companies decreases EM (Saona et al., 2020).

TABLE III. Results from the AEM regression

VARIABLES	Expected Signal	(1) AEM
LARGEST	+/-	0.095**
		(0.03)
FIVELARGEST	+/-	-0.093**
		(0.03)
STATE	+/-	0.001
		(0.01)
FOREIGN	-	0.002
		(0.01)
MANAGER	+/-	0.008
		(0.01)
GROWTH	+	-0.023*
		(0.01)
SIZE	?	-0.012**
		(0.00)
ROA	-	0.017
		(0.04)
CFO	-	-0.031
		(0.04)
REM		0.006
		(0.02)
Constant		0.230***
		(0.04)
Year Fixed Effects		Included
Country Fixed Effects		Included
Industry Fixed Effects		Included
Observations		876
R-squared		0.128
Adj. R-squared		0.103
P-value		0.000

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: AEM is the absolute value of discretionary accruals; REM is the aggregate measure of two REM proxies; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

Table IV reports results of the REM pooled OLS regression. Similarly, the results from the Breusch-Pagan Test reveal the presence of heteroscedasticity, so clustered standard errors at firm and year level are used for all models. The results are presented using the aggregate measure of REM, the abnormal cash flows and the abnormal production costs as dependent variables.

MANAGER is positively and significantly related with REM, which indicates that companies with managerial ownership are less likely to engage in EM through operational decisions. This is consistent with the incentive alignment effect, suggesting that managerial ownership aligns managers' interest with shareholders' and thus, managers' engagement in EM decreases (Teshima & Shuto, 2008). Since managers are aware of the fact that REM may decrease future company value, it makes sense for managers to avoid REM considering that they are also owners of the company. Furthermore, In the Nordic countries, managerial pay is typically more fixed and lower than in other countries, especially in the U.S (Thomsen, 2016). Since management compensation packages are recognized as a common incentive for EM (Healy & Wallen, 1999), Nordic companies' managers may not have similar incentives to manage earnings. This result supports H3.

LARGEST, FIVELARGEST and STATE are negatively but not significantly associated with REM. This means that ownership concentration and state ownership decrease earnings quality in the sample firms, but these relations are insignificant. FOREIGN is positively but insignificantly related with REM.

CFO is positively and significantly related to REM, which suggests that companies with higher levels of CFO are less likely to practice REM. This is consistent with the results of Dong et al. (2020).

MANAGER is negatively and significantly correlated with REM_ABPROD. This indicates that when manager is the biggest owner, companies are less likely to practice EM through overproduction. This result supports the result from REM regression that managerial ownership enhances earnings quality in the sample firms.

TABLE IV. Results from the REM regression

VARIABLES	Expected Signal	(2) REM	(3) REM_ABCFO	(4) REM_ABPROD
LARGEST	+/-	-0.008	0.060	0.045
		(0.14)	(0.05)	(0.13)
FIVELARGEST	+/-	-0.039	-0.065	-0.011
		(0.12)	(0.05)	(0.10)
STATE	+/-	-0.008	0.039	0.053
		(0.09)	(0.02)	(0.08)
FOREIGN	+	0.028	0.012	-0.013
		(0.04)	(0.01)	(0.03)
MANAGER	+/-	0.191**	0.024	-0.169**
		(0.06)	(0.02)	(0.05)
GROWTH	-	-0.033	-0.028	-0.004
		(0.04)	(0.02)	(0.03)
SIZE	?	-0.020	-0.006	0.013
		(0.01)	(0.01)	(0.01)
ROA	+	0.068	-0.034	-0.134
		(0.14)	(0.05)	(0.10)
CFO	+	0.683**	0.482***	-0.115
		(0.15)	(0.07)	(0.10)
AEM		0.051	-0.017	0.002
		(0.14)	(0.04)	(0.09)
Constant		0.220	0.059	-0.169
		(0.16)	(0.07)	(0.11)
Year Fixed Effects		Included	Included	Included
Country Fixed Effects		Included	Included	Included
Industry Fixed Effects		Included	Included	Included
Observations		876	876	876
R-squared		0.245	0.435	0.149
Adj. R-squared		0.223	0.419	0.125
P-value		0.000	0.000	0.000

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: AEM is the absolute value of discretionary accruals; REM is the aggregate measure of two REM proxies; REM_ABCFO is abnormal cash flows from operations; REM_ABPROD is abnormal production cost; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales, SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

4.4. Additional analyses

In this section, additional test is performed in order to analyse not only the dimension, but also the direction of AEM. Hence, signed value of discretionary accruals (DACC) is used as a dependent variable. The results are presented in Appendix IV.

As it can be observed, FIVELARGEST is positively and significantly at 10% level correlated with DACC. This shows that companies with concentrated ownership are engaging income increasing accruals instead of income decreasing accruals. STATE and FOREIGN are positively but insignificantly related with DACC, indicating that companies with state ownership and foreign ownership are using income increasing accruals, but the result is not significant. MANAGER is negatively but insignificantly associated with DACC, demonstrating that companies with managerial ownership are using income decreasing accruals. However, this result is not significant.

There is a positive and significant correlation between DACC and ROA, and a negative and significant correlation between DACC and CFO. These results suggest that better performing companies are using income increasing accruals, while companies with higher cash flows are using income decreasing accruals.

In addition, the sample is divided into two, companies that practice income-increasing EM and companies that practice income-decreasing EM. The results are presented in Appendix V. The results show that there are more firm-year observations in the respect of companies that use income decreasing accruals. LARGEST is negatively and significantly correlated with negative discretionary accruals (NEG_DACC) and FIVELARGEST is positively and significantly correlated with NEG_DACC. MANAGER is negatively and significantly correlated with positive discretionary accruals (POS_DACC). This suggests that when the largest owner is manager, positive discretionary accruals decrease. Furthermore, when the largest shareholder is foreign owner, POS_DACC increase at 10% significance level.

4.4.1. Robustness analysis

In order to test the robustness of the results, companies belonging to the industry "manufacturing" are excluded from the sample since that industry dominates in the sample (68.72%).

The results are presented in Appendix VI. As it can be observed, the results have some differences compared to main analysis. LARGEST is positively related with AEM and FIVELARGEST is negatively related with AEM, as is in the main analysis. However, these relations are insignificant in this analysis. MANAGER is positively related with REM, as is in the main analysis, but the relation is insignificant in this analysis.

Further analyses are performed with different models. The results of the Hausman Test indicate that the fixed effect model is used for AEM, DACC and REM regressions. In the respect of REM_ABCFO and REM_ABPROD, random effect model is used. Therefore, five more regressions are performed with robust standard errors. The results are presented in Appendix VII. There are differences compared to the main analysis. However, managerial ownership is negatively and significantly correlated with REM_ABPROD which is consistent with the main analysis. The different results from different models is in line with other studies (for example Nguyen et al., 2021).

5. CONCLUSION

This study examines the association between ownership structure and EM using the sample of 195 non-financial Nordic listed companies. Existing literature suggests that ownership structure can constrain EM and thus, act as a good corporate governance mechanism (Alves, 2012; Iturriaga & Hoffmann, 2005; Ali et al., 2008). In turn, ownership structure can create incentives to engage in EM practices (Kim & Yoon, 2008; Dong et al., 2020; Al-Fayoumi et al., 2010). Since there is evidence that ownership structure affects EM but there is no consensus in the existing literature whether the relation is positive or negative, non-directional relations are expected in this study. As an exception, foreign ownership is expected to decrease EM practices.

Results reveal that when the largest shareholder gets more control, AEM increases. This result is consistent with the expropriation hypothesis, stating that large shareholders can take advantage of their control and maximize their own welfare at the expense of minority shareholders (Alves, 2012). Interestingly, when the control for the five largest shareholders increases, the effect is opposite, AEM decreases. This suggests that when the control is divided to more shareholders, large shareholders monitor management efficiently. This is in line with the efficient monitoring hypothesis (Alves, 2012). Therefore, H1 is supported. Managerial ownership decreases REM in the sample firms and thus, improves earnings quality, which is consistent with the findings of Dong et al. (2020) and in line with the incentive alignment effect (Teshima & Shuto, 2008). This means that H3 is supported. There was no significant influence of state ownership or foreign ownership on EM. Thus, H2 and H4 are not supported. The absence of

significant coefficients between AEM and REM in all regressions suggest that Nordic listed companies are not using these two EM strategies as substitutes.

Results of the control variables suggest that GROWTH and SIZE are negatively and significantly correlated with AEM. This suggests that larger companies and companies with growth opportunities engage in EM in a lower degree. CFO is positively and significantly related with REM, suggesting that companies with higher levels of CFO are less likely to practice REM.

Since the NCG model differs from other countries' corporate governance practices (Lekvall, 2018), this study complements the existing literature by investigating the association between ownership structure and EM in the Nordic context. The findings reveal the importance of managerial ownership in constraining EM practices in Nordic listed companies. Furthermore, when companies have multiple large shareholders, earnings quality improves compared to when companies only have one large shareholder or only small shareholders.

The limitation of this study is the lack of information regarding the five largest shareholders in Danish companies. Majority of the Danish companies report the information only if the shareholder owns five percent or more. Therefore, the information about five largest shareholders is not always available. For this reason, the number of observations in terms of variable FIVELARGEST is lower than expected. Furthermore, the number of companies with state ownership and managerial ownership is quite low making the results ungeneralizable.

Future research should expand this study by considering more alternative ownership structures such as family-, institutional- or investment fund ownership since this study only accounts for ownership concentration, managerial ownership, state ownership and foreign ownership. This would capture a more complete set of ownership structures in Nordic countries. This study only considers the largest shareholders, but future research could create a more complete picture by including a larger variety of owners.

6. REFERENCES

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7. APPENDICES

APPENDIX I. Sample distribution by country

Country	Obs.	Percent
Denmark	95	9.74
Finland	225	23.08
Norway	120	12.31
Sweden	535	54.87
Total	975	100%

APPENDIX II. Sample distribution by sector of activity

Industry	Obs.	Percent
A - Agriculture, forestry and fishing	20	2.05
B - Mining and quarrying	35	3.59
C - Manufacturing	670	68.72
F - Construction	25	2.56
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	90	9.23
J - Information and communication	80	8.21
M - Professional, scientific and technical activities	35	3.59
Q - Human health and social work activities	20	2.05
Total	975	100%

APPENDIX III. Variance Inflation Factors AEM and REM

AEM Variables	VIF
FIVELARGEST	2.992
LARGEST	2.946
CFO	2.373
ROA	2.229
SIZE	1.471
REM	1.244
MANAGER	1.108
STATE	1.104
FOREIGN	1.053
GROWTH	1.019
Mean VIF	1.754

REM Variables	VIF
FIVELARGEST	3.028
LARGEST	2.974
ROA	2.228
CFO	2.183
SIZE	1.548
STATE	1.104
AEM	1.091
MANAGER	1.083
FOREIGN	1.050
GROWTH	1.023
Mean VIF	1.731

APPENDIX IV. Results from the DACC regression

VARIABLES	(5) DACC
LARGEST	-0.011
	(0.02)
FIVELARGEST	0.040*
	(0.02)
STATE	0.009
	(0.01)
FOREIGN	0.002
	(0.01)
MANAGER	-0.007
	(0.01)
GROWTH	0.030
	(0.03)
SIZE	0.001
	(0.00)
ROA	0.695***
	(0.04)
CFO	-0.616***
	(0.06)
REM	-0.018
	(0.01)
Constant	-0.038
	(0.04)
Year Fixed Effects	Included
Country Fixed Effects	Included
Industry Fixed Effects	Included
Observations	876
R-squared	0.717
Adj. R-squared	0.701
P-value	0.000

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: DACC is the signed value of discretionary accruals; REM is the aggregate measure of two REM proxies; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

APPENDIX V. Results from the NEG_DACC and POS_DACC regressions

VARIABLES	(6) NEG_DACC	(7) POS_DACC
LARGEST	-0.046**	0.044
	(0.01)	(0.05)
FIVELARGEST	0.050**	0.026
	(0.01)	(0.03)
STATE	0.01	0.013
	(0.01)	(0.01)
FOREIGN	-0.004	0.016*
	(0.01)	(0.01)
MANAGER	-0.009	-0.021**
	(0.01)	(0.01)
GROWTH	0.016	0.017
	(0.01)	(0.03)
SIZE	0.004**	-0.004*
	(0.00)	(0.00)
ROA	0.534***	0.540***
	(0.03)	(0.03)
CFO	-0.513***	-0.484***
	(0.04)	(0.10)
REM	-0.009	0.005
	(0.01)	(0.02)
Constant	-0.080*	0.069*
	(0.03)	(0.03)
Year Fixed Effects	Included	Included
Country Fixed Effects	Included	Included
Industry Fixed Effects	Included	Included
Observations	529	347
R-squared	0.748	0.768
Adj. R-squared	0.736	0.752
P-value	0.000	0.000

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: NEG_DACC is the negative value of discretionary accruals; POS_DACC is the positive value of discretionary accruals; REM is the aggregate measure of two REM proxies; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

APPENDIX VI. Results from the robustness test

VARIABLES	(8) AEM	(9) DACC	(10) REM	(11) REM_ABCFO	(12) REM_ABPROD
LARGEST	0.029	-0.058	-0.018	0.042	0.043
	(0.03)	(0.03)	(0.24)	(0.05)	(0.21)
FIVELARGEST	-0.01	0.109*	0.047	-0.065	-0.109
	(0.05)	(0.04)	(0.21)	(0.07)	(0.15)
STATE	-0.042*	0.002	0.002	0.019	0.026
	(0.02)	(0.02)	(0.14)	(0.04)	(0.11)
FOREIGN	0.022	0.002	0.064	0.041*	-0.023
	(0.02)	(0.01)	(0.06)	(0.02)	(0.04)
MANAGER	0.040*	-0.013	0.192	0.063**	-0.125
	(0.02)	(0.01)	(0.10)	(0.02)	(0.09)
GROWTH	-0.036	0.100*	-0.099	-0.064	0.039
	(0.03)	(0.04)	(0.11)	(0.03)	(0.08)
SIZE	0.002	0.004	0.020	0.008	-0.014
	(0.00)	(0.00)	(0.02)	(0.01)	(0.02)
ROA	0.16	0.888***	0.029	-0.080*	-0.106
	(0.11)	(0.08)	(0.18)	(0.03)	(0.16)
CFO	-0.057	-0.865***	0.588*	0.440***	-0.156
	(0.10)	(0.12)	(0.25)	(0.05)	(0.23)
REM	-0.025	0.002	-	-	-
	(0.02)	(0.02)			
AEM	-	-	-0.307	-0.088	0.240
			(0.24)	(0.07)	(0.20)
Constant	0.005	-0.041	-0.332	-0.151	0.208
	(0.05)	(0.06)	(0.29)	(0.07)	(0.25)
Year Fixed Effects	Included	Included	Included	Included	Included
Country Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Observations	275	275	275	275	275
R-squared	0.239	0.755	0.202	0.395	0.143
Adj. R-squared	0.172	0.734	0.132	0.342	0.068
P-value	0.000	0.000	0.000	0.000	0.001

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: AEM is the absolute value of discretionary accruals; DACC is the signed value of discretionary accruals; REM is the aggregate measure of two REM proxies; REM_ABCFO is abnormal cash flows from operations; REM_ABPROD is abnormal production cost; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.

APPENDIX VII. Results from the fixed effect and random effect models

VARIABLES	(13) AEM	(14) DACC	(15) REM	(16) REM_ABCFO	(17) REM_ABPROD
LARGEST	-0.089	-0.067	-0.166	0.009	0.141
	(0.11)	(0.08)	(0.14)	(0.03)	(0.10)
FIVELARGEST	0.012	0.054	0.107	-0.005	-0.062
	(0.09)	(0.06)	(0.15)	(0.04)	(0.08)
STATE	-0.143	-0.036	0.089*	0.024	0.000
	(0.13)	(0.04)	(0.05)	(0.02)	(0.04)
FOREIGN	-0.003	-0.006	0.039	0.019	-0.006
	(0.01)	(0.01)	(0.03)	(0.01)	(0.02)
MANAGER	0.089	0.016	0.068	0.008	-0.102**
	(0.08)	(0.03)	(0.05)	(0.02)	(0.04)
GROWTH	-0.042**	0.022	-0.043	-0.039***	-0.024
	(0.02)	(0.02)	(0.03)	(0.01)	(0.02)
SIZE	-0.016	-0.018	0.032	-0.003	0.001
	(0.02)	(0.02)	(0.02)	(0.00)	(0.01)
ROA	0.143**	0.725***	0.117	-0.016	-0.123***
	(0.07)	(0.05)	(0.07)	(0.04)	(0.04)
CFO	0.138**	-0.597***	0.625***	0.445***	-0.090**
	(0.06)	(0.07)	(0.10)	(0.07)	(0.04)
REM	-0.053	0.011	-	-	-
	(0.04)	(0.03)			
AEM	-	-	-0.133	-0.049	0.116**
			(0.10)	(0.06)	(0.05)
Constant	0.272	0.227	-0.471*	0.007	-0.017
	(0.19)	(0.20)	(0.25)	(0.05)	(0.09)
Observations	876	876	876	876	876
R-squared	0.136	0.729	0.298	0.348	0.076
P-value	0.000	0.000	0.000	0.000	0.000

Robust standard errors are in parenthesis. ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Variables: AEM is the absolute value of discretionary accruals; DACC is the signed value of discretionary accruals; REM is the aggregate measure of two REM proxies; REM_ABCFO is abnormal cash flows from operations; REM_ABPROD is abnormal production cost; LARGEST is the percentage of votes owned by the largest shareholder; FIVELARGEST is the percentage of votes owned by the five largest shareholders; STATE is dummy variable that takes "1" if the largest shareholder is state and "0" otherwise; FOREIGN is dummy variable that takes "1" if the largest shareholder is foreign owner and "0" otherwise; MANAGER is dummy variable that takes "1" if the largest shareholder is manager and "0" otherwise; GROWTH is the percentage change in sales; SIZE is the natural logarithm of total assets; ROA is net income divided by total assets; and CFO is cash flows from operating activities divided by beginning total assets.