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Family Ties and ESG Lies:
Decoding Sustainability in Swedish Businesses

A study on Family Ownership & ESG Decoupling in Swedish Public Companies

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Abstract

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Key words: Family-ownership, ESG decoupling, Principal-agent theory, ESG performance, ESG reporting

Purpose: The purpose of this study is to examine the influence of family ownership, the role of the CEO, and the position of the chairman on ESG decoupling in Swedish firms during 2016-2022. The study aims to provide insights into the complexities of ESG decoupling within family-owned companies and contribute to the understanding of sustainability efforts in these specific ownership structures.

Method: This study runs a pooled OLS-regression on panel-data across the years 2016-2022. The dependent variables that is used is ESG decoupling and the main explanatory variable is family-ownership. Furthermore, we control for firm size, growth, ROA, leverage, MTB, percentage of independent board members and CSR committee. Additionally, we apply industry and year controls.

Theoretical perspective: The theoretical frameworks used in this study are agency theory, stakeholder theory, legitimacy theory, socioemotional wealth, additionally, the study based on previous research.

Empirical foundation: The initial sample consists of 2251 firm-observations throughout the years 2016-2022. After a dropout analysis there are 1017 observations left in the final sample, which is then analyzed in an OLS-regression.

Conclusion: The study found a significant relationship between ESG decoupling and CEO/Chairman, CEO, and Chairman. Family-owned companies have a negative correlation with the dependent variable. When a family member becomes CEO/chairman, the correlation becomes positive. All control variables, except for ROA, have a strong statistical significance with the dependent variable.

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Table of content

1. Introduction

In this introductory chapter, the background and problematization of the study are presented. Furthermore, the purpose, research questions, and limitations are outlined. The chapter concludes with the study's contributions and structure.

1.1 General Background

In recent years, the concept of corporate social responsibility (CSR) has become increasingly prevalent. CSR activities incentivise firms to go above and beyond the interests of the firm to further the social good. For example, a survey by KPMG (2022) reveals that 96% of Fortune Global 250 firms report investment in CSR activities, either in standalone reports or as part of their annual financial reports. Nordic companies have been at the forefront of CSR practices, setting the benchmark for other regions to follow, with many companies making significant investments in sustainable technology and integrated social and environmental considerations as part of their business operations (UN Global Compact, 2023). However, in an ever-changing world of regulations and expectations, it can be difficult for companies to keep track and keep their performance up to par with compliance, in other words, companies can tend to decouple their sustainable actions.

What is then ESG decoupling? ESG decoupling is a relatively new concept of CSR and ESG. Decoupling, in the context of corporate social responsibility, refers to the misalignment between a company's CSR reporting activities and its actual CSR performance. It signifies a discrepancy where a firm might engage in extensive CSR reporting without fully implementing corresponding actions or practices in reality. Decoupling can lead to a lack of credibility, transparency, and effectiveness in a company's sustainability efforts, potentially impacting its reputation and long-term value creation. Addressing decoupling is essential for organizations to ensure that their CSR commitments are reflected in their operational practices, thereby enhancing their legitimacy and sustainability in the corporate environment (Tashman, Marano & Kostov, 2019). In this study we use Environmental, Social, and Governance (ESG) and Corporate Social Responsibility (CSR) interchangeably, we are fully aware that these two concepts have different meanings but they still represent to same concept. For the ease and purpose of this study, we will consider them as the same. This is

similar to a study by Gillan, Koch & Starks (2021), which also uses the terms interchangeably.

In a report published by the Swedish Central Bureau of Statistics (SCB) on the identification of Swedish family-owned companies, it is highlighted that this type of corporate structure is predominant in the Swedish business landscape. Consequently, since family-owned companies operate in all sectors except the public sector, their share is so significant that it alone can be held accountable for approximately one-third of Sweden's total gross domestic product (GDP) (Andersson, Karlsson & Poldahl, 2017). To put this into perspective with the rest of Europe, one of the European Commission's publications on GDP per capita among the 27 EU member states shows a graph for 2021 where Sweden holds the seventh position among the member states (Eurostat, 2022). Therefore, Sweden is of considerable significance in comparison to surrounding countries, where family-owned companies constitute a substantial portion of the figures representing Sweden. The Swedish market is often categorized as having a concentrated ownership structure and is known for its big sphere ownership of large finance families like Wallenberg, Douglas, or Lundbergs. Hence, this study is conducted in a significant country for the overall economy of Europe.

What is the definition of a family-owned company? In research contexts, the definition varies between studies. The definition in the study by Andersson, Karlsson, and Poldahl (2017), as previously mentioned regarding the identification of family-owned companies in Sweden, established a definition similar to that of the EU Commission, where the founder or acquirer of the company along with their family must hold at least 25 percent of the voting rights. Additionally, at least one family member of this founder/acquirer must participate on the board of directors. Instead, this study, in line with previously established research conducted by, among others, La Porta, Shleifer, and Vishny (2000), Faccio and Lang (2002), as well as Isakov and Weisskopf (2015), has set a threshold at 20 percent (for further and more detailed reading; see section 3.2).

1.2 Problem Discussion

Family firms have certain unique characteristics when compared to non-family firms. Firstly, family owners tend to maintain undiversified portfolios due to their concentrated ownership in the firm (Anderson and Reeb, 2003). This concentrated ownership ties their wealth closely

to the firm's performance, making its success crucial for their financial well-being. Secondly, family-owned businesses typically have longer investment horizons compared to other stakeholders (James, 1999; Le Breton-Miller & Miller, 2006; Zellweger, Kellermanns, Eddleston & Memili, 2012).

These distinctive traits lead to the active involvement of family owners in firm management, given their under-diversified portfolios and emphasis on firm survival. Consequently, the agency problem between managers and shareholders in family firms, as discussed in the literature (e.g. Villalonga & Amit, 2006), is typically less severe than in non-family firms. Additionally, family owners derive value from non-financial aspects associated with their businesses. These include considering the firm as an extension of themselves, fostering a sense of identity, cultivating a positive family image and reputation (Zellweger et al., 2012; Deephouse & Jaskiewicz, 2013), exerting familial influence over the business (Gomez-Mejia et al., 2007), and accruing social capital (Arregle et al., 2007). Collectively, these non-financial benefits are termed "Socioemotional Wealth" in the literature.

According to agency theory, family-controlled firms should have fewer agency conflicts between shareholders and managers than non-family-controlled firms (Jensen and Meckling, 1976) because the large ownership stakes of controlling families imply strong monitoring of management (Anderson & Reeb, 2003). However, family control can create agency problems between controlling shareholders and minority shareholders because controlling shareholders could expropriate minority shareholders to pursue private benefits (e.g. DeAngelo & DeAngelo, 2000). In the context of CSR, controlling families can use their dominant voting rights to divert resources from CSR activities to other projects. The expropriation view thus suggests that CSR performance is lower for family firms than non-family firms. However, family firms' reputation concerns and long-term horizons suggest higher CSR performance for family firms. Family firms have greater reputation concerns than non-family firms because reputation affects not only firm performance but also the family's name (El Ghoul, Guedhami, Wang & Kwok, 2016).

The previous research mentioned above raises questions about the potential disconnection of the actual implementation and reporting of ESG initiatives, especially in family-owned companies. Family-owned businesses often operate with a unique set of dynamics where family members serve as both owners and managers, leading to questions about how this dual

role influences ESG practices. Family-owned businesses might face challenges in balancing short-term financial goals with long-term sustainability objectives, leading to ESG decoupling where reported ESG activities do not fully align with actual performance. These discrepancies raise concerns about the authenticity and effectiveness of ESG initiatives within companies and the broader implications for stakeholders, including investors, customers, and the community. Therefore this paper will examine if there is a difference in the firms that are family-owned and not family-owned when it comes to the misalignment between their ESG reporting and their actual ESG performance.

1.3 Purpose & Research question

The purpose of this paper is to examine how family ownership, CEO, and chairman roles influence ESG decoupling behaviors in Swedish firms. The findings aim to contribute to the understanding of sustainability efforts in this specific ownership structure. With this being said this study will explore the following research question:

> *Do family-owned firms have higher or lower levels of ESG decoupling compared to non-family-owned firms?*

1.4 Contribution

This paper aims to fill a critical gap in the existing literature on family ownership and ESG decoupling in Sweden. Despite Sweden's strong reputation for ESG practices, there is a lack of research on the relationship between family ownership and ESG decoupling in this context.

Sweden stands out globally for its high standards of ESG and sustainable business practices (Anderson, Broderick & Stoddard, 2020). The purpose of this paper is to examine the actual performance of family businesses in Sweden, which have a significant impact on the country's GDP. Furthermore, ESG decoupling is a relatively new field within sustainability research. This study will contribute to the understanding of this new concept by investigating how family ownership influences ESG decoupling behaviour, shedding light on the challenges and opportunities faced by family businesses striving for sustainable practices. This paper makes a clear case for understanding the complexities of family ownership, ESG performance and reporting.

1.5 What the authors do

In this paper, we investigate the effect of family ownership on ESG decoupling by constructing various pooled OLS regressions. We explore further the ownership structure of family and non-family-owned firms by also examining the influence of active ownership on ESG decoupling. The study covers the Swedish market, particularly companies listed on Nasdaq OMX Nordic Stockholm between 2016 and 2022. The study is based on a total of 220 firms and 1017 observations (Appendix 1).

1.6 The main findings

The study's main findings regarding family ownership and ESG decoupling offer valuable insights. Firstly, while family ownership does not show statistical significance concerning ESG decoupling behaviors, it suggests that different ownership structures do influence ESG performance. Notably, the study finds that family involvement, particularly when a family member assumes the CEO position, has a more pronounced impact compared to instances where family involvement is limited to a chairman role. Companies led by a family CEO exhibit a greater decoupling in ESG reporting and performance, indicating a more significant negative effect on the ESG decoupling score. Conversely, the chairman also has a negative effect but to a lesser degree. This suggests that both CEO and chairman positions influence the firm's alignment between ESG reporting and performance. These findings underscore the importance of considering the specific roles of family members within a company to comprehend their influence on ESG practices and performance.

1.7 Outline

The rest of the paper is structured as follows. The next section (section 2) will examine the previous literature and outline the theoretical frameworks used in the study. Section 3 will describe the data and sample selection, followed by section 4 which is the empirical methodology. After that, we will present the empirical findings in section 5 which will later then be discussed and analyzed in section 6. Lastly, section 7 will conclude the paper and we will also suggest further research areas that could be explored.

2. Literature review

This chapter introduces the review of previous research, followed by theories to be employed in the study. It concludes with the presentation of formulated hypotheses.

2.1 Theoretical framework

2.1.1 Agency Theory

Agency theory, which originated in economics and was subsequently adopted in organisational studies, provides a framework for analysing the relationships between principals and agents. The core premise of agency theory is the acknowledgement of potential conflicts of interest that might arise when agents, driven by self-interest or differing objectives, make decisions that do not align with the best interests of the principals (Eisenhardt, 1989).

Family-owned companies have an advantage in reducing agency costs due to the close relationship between owners and management, which allows for effective monitoring. This minimizes the risk of opportunistic behaviour and information asymmetry, thus addressing the principal-agent problem (Anderson & Reeb, 2003). Additionally, a unique principal-agent relationship can exist in family-owned companies where family members act as both owners and managers. This eliminates conflicts of interest and other agency costs if this relationship is continuous. However, in non-family-owned companies, it is more common for two different individuals to fulfil the roles of principal and agent. Overall, family-owned companies benefit from the strong bond between owners and management, while non-family-owned companies might face more challenges in maintaining effective monitoring and reducing agency costs (Anderson & Reeb, 2003; Maury, 2006).

Empirical evidence suggests that family-owned businesses tend to exhibit a more robust governance structure than other forms of companies, which confers competitive advantages in their operations (Carney, 2005). Carney (2005) identifies several advantages of family ownership, including the authority inherent in the family, a shared long-term vision for the

company's future, and a reduced dependence on external incentives or assistance, which are more prevalent in non-family-owned businesses.

Nevertheless, the dominant influence of the majority (or family) owners within a company might occasionally give rise to difficulties for minority shareholders. It is possible that majority owners prioritise their interests within the company, potentially diverting resources to benefit the family at the expense of minority shareholders (Isakov & Weisskopf, 2015; Anderson & Reeb, 2003).

This discrepancy in interests can hinder minority shareholders' capacity to oversee company operations and to examine management decisions made by the controlling family (Faccio & Lang, 2002). Major shareholders, holding long-term stakes, prioritize investments that foster company growth and innovation, whereas smaller shareholders might focus on short-term cash flow and market value (Anderson & Reeb, 2003; Chrisman, Chua, & Litz, 2004). Conflicts between majority and minority shareholders can potentially result in agency costs, whereby majority owners might advance their own interests at the expense of minority shareholders (Chrisman et al., 2004; Anderson & Reeb, 2003). In family-owned firms, agency costs can arise when unqualified family members participate in management or the board (Chrisman et al., 2004). Anderson and Reeb (2003) posit that this scenario is less likely to arise in non-family-owned firms, which typically employ candidates who are suitably qualified for the role.

2.1.2 Stakeholder theory

The concept of stakeholder theory emphasises the fundamental responsibility of a business to consider the diverse interests and perspectives of all stakeholders to achieve sustainable success. The theory was first introduced by Freeman (1984), who emphasised the importance of cultivating positive relationships with a range of stakeholders, including shareholders, employees, customers, suppliers, and communities. Stakeholders are defined as individuals or groups with a direct or indirect relationship with the company, whose interests can significantly impact business decisions and outcomes (Freeman, 1984).

In today's business environment, a commitment to sustainability practices that benefit society and the environment is increasingly expected from companies (Velte, 2016). While profit

generation remains a central business objective, a broader focus that integrates stakeholders' concerns alongside economic performance is advocated for by stakeholder theory (Wan Mohammad, Zaini & Md Kassim, 2022; Qureshi, Kirkerud & Ahsan, 2020).

The lens of stakeholder theory allows for the examination of family ownership from the perspective of the intricate relationships between family members, who are key stakeholders, and the business. It can be observed that the interests of families are deeply interwoven with the success of the business in question and that this is particularly the case concerning family-owned businesses, in which cohesive relationships and shared values between the family members are of great significance. By applying stakeholder theory, we can gain profound insights into how family ownership influences companies' approaches to stakeholder engagement, ethical decision-making, and sustainability practices, ultimately shaping their ESG performance and reputation.

2.1.3 Legitimacy theory

Family ownership introduces an additional layer of complexity within the framework of legitimacy theory. Integrating family values into business practices can enhance legitimacy by demonstrating a strong commitment to societal well-being beyond financial metrics (Anderson & Reeb, 2003; Maury, 2006). Achieving legitimacy requires meeting not only financial performance targets but also addressing social goals and actively working towards them (Ashforth & Gibbs, 1990). Legitimacy theory suggests that businesses must maintain a positive reputation to establish legitimacy and gain support from stakeholders (Deegan & Unerman, 2011). However, achieving complete legitimacy is challenging due to the evolving and sometimes conflicting nature of social expectations and values (Ashforth & Gibbs, 1990).

The intersection of legitimacy theory with ESG practices highlights the significance of transparency and reporting on sustainable initiatives for safeguarding legitimacy (Deegan & Unerman, 2011). The emphasis on social responsibility within family-owned organisations has intensified due to their desire for social acceptance as legitimate and trustworthy entities by stakeholders and society (Janang, Joseph & Said, 2020). By actively engaging in ESG activities and disclosing ESG scores, family-owned businesses can effectively communicate their social responsibility efforts (Clementino & Perkins, 2020).

Family-owned businesses that prioritize sustainability and transparency tend to obtain more trust from stakeholders. ESG reports play a crucial role in external communication, showcasing the company's commitment to societal well-being and environmental stewardship (Janang et al., 2020). Thus, the adoption of ESG practices within family-owned businesses might stem from the objective of gaining social approval and reinforcing legitimacy within their operating contexts.

2.1.4 Socioemotional wealth (SEW)

Socioemotional wealth (SEW) is a term used to describe the emotional connections, reputation, and desire for control that family owners have in their businesses beyond the financial aspects. This concept is closely associated with family businesses, which are characterized by the strong emotional ties and identification that family members have towards the company (Kammerlander, 2022). The dimensions of SEW include family control, firm identification, emotional attachment, and the renewal of family bonds through succession. SEW motivates family firms to prioritize stakeholder care and engage in socially beneficial practices, such as pollution prevention efforts (Agostino & Ruberto, 2021).

Family owners, driven by SEW considerations, often demonstrate behaviors that prioritize long-term investments, sustainable stakeholder relationships, and societal contributions through enhanced environmental performance (Deephouse & Jaskiewicz, 2013). This is in contrast to non-family owners, who tend to focus more narrowly on financial goals and might allocate fewer resources to environment-friendly practices (Agostino & Ruberto, 2021).

For family owners, SEW is a critical factor shaping decision-making processes, as they aim to preserve family control and legacy within the business (Rehman, Gonenc & Hermes, 2023; Bansal & Song, 2017). This focus can sometimes lead to decisions that prioritize family interests over those of minority shareholders or other stakeholders (Rehman et al., 2023; Chua, Chrisman, & Bergiel, 2009).

Conversely, non-family owners often lack the same emotional attachment and long-term familial considerations associated with the business, prioritizing financial returns and shareholder value without the same emphasis on SEW preservation (Rehman ., 2023). These differences in priorities between family and non-family owners can significantly impact decision-making processes, especially in areas like corporate social responsibility and

strategic planning (Rehman et al., 2023; Cruz, Larraza–Kintana, Garc´es–Galdeano & Berrone, 2014).

However, recent research has even challenged the belief that only family owners possess a sense of emotional attachment and identification with their firms, known as SEW. The research suggests that both family and non-family firms can exhibit SEW-related behaviors, including a desire for control and a strong emotional connection to the company, even among non-family managers (Schickinger, Bertschi-Michel, Leitterstorf & Kammerlander, 2021; Berrone, Cruz, & Gomez-Mejia, 2012).

2.1.5 Critical reflection of theoretical frameworks

A common criticism of the above-mentioned theories is that they are based on simplified assumptions about rationality, self-interest, and normative behavior. These assumptions might not be sufficient to fully comprehend the complexities of family businesses and their unique governance dynamics. These theories often overlook the influence of emotional connections, intergenerational goals, and non-financial motivations that are integral to family businesses' decision-making processes.

The *agency theory* is a useful framework for aligning interests and reducing conflicts between principals and agents. However, its application to family-owned businesses can oversimplify the complex dynamics that exist within them. The theory assumes rational decision-making driven by self-interest, which might not fully capture the relational and emotional aspects that influence family owners' behavior.

Stakeholder theory focuses on the importance of considering the impact of organizations on society and the interests of stakeholders. In the case of family-owned businesses, however, it can be challenging to balance the interests of stakeholders with familial priorities due to the intertwined family and business identities. Moreover, the focus on multiple stakeholder interests can be complex to navigate within the context of family dynamics, potentially overlooking the central role of family values in governance decisions.

Legitimacy theory emphasizes the significance of organizational legitimacy and public trust. In the case of family-owned businesses, managing reputation and legitimacy can be

especially challenging due to the blurred boundaries between family and business. While the theory suggests symbolic actions to maintain legitimacy, they might not fully address the complexities of family governance, where values and relational dynamics play a central role.

SEW highlights the unique motivations and goals of family-owned businesses, focusing on family unity and passing the business down through generations. However, it might unintentionally lead to ESG decoupling when family priorities take precedence over broader sustainability goals. Balancing family values with external expectations while navigating potential tensions between emotional attachments and sustainability imperatives is required to integrate SEW considerations with ESG goals.

In conclusion, while each theory has its strengths and limitations, its integration forms holistic frameworks that enhance our understanding of family business governance and ESG decoupling. By acknowledging the challenges of family ownership and the complexities of ESG decoupling, this integrated theoretical framework enables a deeper analysis of how family businesses navigate sustainability challenges and governance issues in today's complex business landscape.

2.2 Empirical literature and hypothesis formulation

2.2.1 Family-ownership and ESG/CSR performance

Considering the complex agency dynamics present in ESG/CSR decisions and their implications for shareholder interests, Abeysekera and Fernando (2020) propose that family-owned and non-family-owned firms in the US might differ in their approaches to ESG/CSR. The authors suggest that family-owned firms, due to the concentrated control of the owning families, are likely to prioritize the ESG/CSR initiatives that align with shareholder wealth maximization. However, they recognize the potential for conflicts between family owners and minority shareholders, which could result in decisions that do not universally maximize shareholder wealth.

To investigate these contrasting hypotheses, the authors conducted empirical analyses, using KLD environmental rankings as a measure of ESG/CSR performance. Their findings suggest that family-owned firms exhibit a stronger tendency toward shareholder-responsive behavior

in the context of environmental investments compared to their non-family-owned counterparts (Abeysekera & Fernando, 2020).

Similar to these results Battisti, Nirino, Leonidou & Salvi (2023) show that American and European family businesses demonstrate higher social responsibility compared to non-family businesses, driven by factors such as stewardship, socioemotional wealth, and a stakeholder-oriented approach. The strong commitment of family members to the business, prioritization of long-term sustainability, and ethical decision-making contribute to their engagement in CSR practices that benefit various stakeholders. This emphasis on social value creation and ethical conduct sets family firms apart as leaders in sustainable business practices.

El Ghoul et al. (2016) examine the ESG/CSR performance of publicly traded firms across nine East Asian economies, particularly focusing on family-controlled entities. Contrary to the previously mentioned studies, their study reveals that family-controlled firms exhibit lower levels of ESG/CSR performance, a trend attributed to the expropriation hypothesis of family control, wherein conflicts of interest between family owners and minority shareholders arise. Furthermore, the authors present evidence suggesting that these firms facing greater agency issues are typically situated in countries characterized by weaker institutional frameworks.

Doshi, Jain, Sharma, Mukherjee & Kumar (2023) examine the impact of different ownership structures on the ESG scores of publicly listed companies in India. The authors find that different ownership structures matter for the ESG score. Particularly government ownership had a positive and significant impact on the ESG scores of companies in the non-finance sector, while there was an insignificant relationship with privately-owned companies. With higher government stakes leading to better ESG performance. On the other hand, private ownerships, like family ownership, were associated with a negative influence on sustainability performance, as private owners were perceived to be less concerned about sustainability issues and potentially burdensome for management

Furthermore, Stock, Pütz, Schell & Werner (2023) show that family firms implementing CSR tend to experience more benefits compared to non-family firms, with a higher overlap of family and firm correlating with increased engagement in CSR initiatives. The integration of

family resources into the firm through family influence enhances the likelihood of conducting CSR activities, positioning CSR as a strategic tool for achieving favorable outcomes within family-owned businesses.

2.2.2 Family-ownership and ESG/CSR reporting

In the European Union, all large companies and all listed companies need to disclose information about their risks and opportunities arising from social and environmental issues and the impact of their activities on people and the environment. However, these rules will become effective in 2024, which is before the study period when CSR reporting was voluntary (European Commission, n.d). One concern regarding the voluntary disclosure of CSR information is its perceived lack of credibility and the potential for impression management. Researchers generally use this to investigate the circumstances under which firms find CSR disclosure useful (Tsang, Frost & Cao, 2022). CSR-related information disseminated by firms through press releases, advertisements, financial reports, and other voluntary disclosures, including standalone CSR reports, is sometimes viewed as self-promotional, lacking in credibility, and prone to "greenwashing" (Dhaliwal, Li, Tsang, & Yang, 2012).

Christensen, Serafeim, Sikochi (2022) demonstrated that a higher level of voluntary CSR disclosure correlates with increased disagreement among raters when assessing CSR performance. Meanwhile, Pinnuck et al. (2021) noted that a substantial number of standalone CSR reports are restated, further undermining the reliability of voluntary CSR reporting. These findings raise doubts about the trustworthiness of voluntary CSR reporting.

The study on CSR reporting in family and non-family firms by Campopiano and De Massis (2015) uncovered significant differences in CSR reporting practices between family and non-family firms from Italian companies. Family firms were found to have a broader range of CSR reports compared to non-family firms, with a focus on 'explicit' CSR reporting initiatives to meet external stakeholder expectations and enhance visibility and reputation. However, family firms were also observed to be less compliant with CSR standards than their non-family counterparts, indicating a difference in priorities and approaches to CSR reporting. Moreover, family firms emphasized different CSR topics in their reports, showcasing unique characteristics and goals that influence their reporting practices. These variations in the type and content of CSR reports between family and non-family firms

highlight the need for tailored reporting strategies that align with the specific traits of family-owned businesses (Campopiano & De Massis, 2015).

The implications of these findings suggest that family firms should consider their distinct attributes when engaging in CSR reporting to effectively communicate their values and enhance their legitimacy. Furthermore, the study points towards future research directions, including exploring the impact of CSR reporting on social and economic performance in the context of family influence and advocating for longitudinal and cross-country comparative analyses to deepen our understanding of these relationships (Campopiano & De Massis, 2015).

Terlaak, Kim and Roh's (2018) study explores how family-controlled business group firms in South Korea differ in their approach to environmental performance disclosure compared to non-family-controlled firms. The family-controlled firms are motivated to protect their reputations, which are closely tied to both the firm and the owning family. The perceived costs of disclosure vary based on the level of family ownership, with higher ownership levels potentially increasing the stakes in terms of control and stakeholder reactions. Family-controlled firms have been found to disclose less information about corporate governance practices and financial details compared to non-family firms. Overall, the unique characteristics of family-controlled business group firms, including their emphasis on control, reputation considerations, cost assessments, and disclosure propensities, shape their approach to environmental performance disclosure in distinct ways compared to non-family-controlled firms.

Furthermore, the study from Doshi et al (2023) also highlights that private ownership might have a negative influence on sustainability disclosure, as private owners are perceived to be less concerned about sustainability issues and can view ESG reporting as a burden for management.

2.2.3 CSR/ESG decoupling

CSR decoupling is as defined before, the misalignment between ESG reporting and actual ESG performance. An article by Tashman, Marano, and Kostova (2019) provides valuable insights into the phenomenon of CSR decoupling in emerging market multinationals on CSR decoupling in emerging market multinationals. They found that there is a significant

misalignment between the intensity of CSR reporting and actual CSR performance. This discrepancy suggests that these companies might engage in extensive CSR rhetoric without fully implementing corresponding actions. Such findings imply that there is a need for these organizations to bridge the gap between their stated CSR commitments and their operational practices to ensure credibility and effectiveness in their sustainability efforts. Addressing decoupling is crucial for enhancing transparency, trust, and long-term value creation, ultimately contributing to the overall reputation and sustainability of emerging market multinationals in the global business landscape. But despite that, many firms engage in CSR decoupling by exaggerating their activities in these disclosures (Delmas & Burbano, 2011), or selectively disclosing positive environmental actions while concealing negative ones to create a misleadingly positive impression of overall environmental performance (Marquis, Tofel & Zhou, 2016). CSR decoupling refers to a symbolic strategy whereby firms overstate their CSR performance in their disclosures to strengthen their legitimacy (Delmas & Burbano, 2011).

Moreover, Li and Wu (2020) shed light on the phenomenon of decoupling in CSR engagements. It reveals that public firms, facing stronger conflicts of interest between shareholders and stakeholders, are more prone to engaging in symbolic CSR actions without tangible benefits, leading to decoupling. In contrast, private firms demonstrate a reduction in negative ESG incident levels post-engagement, indicating a more genuine CSR approach. Understanding the drivers of decoupling, such as ownership structure and conflicting interests, is crucial for organizations to align their CSR strategies with meaningful outcomes and avoid superficial actions that do not translate into real societal impact.

Furthermore, a study by Gull, Hussain, Khan, Khan & Saeed (2023) reveals that the presence of a CSR committee on the board is linked to reduced CSR decoupling, aligning disclosure with actual performance. Committee characteristics like size, independence, and tenure influence decoupling, with larger committees and independent, long-tenured members decreasing decoupling. Industry-specific pressures also impact decoupling, especially in environmentally impactful sectors. By considering these factors and global evidence, organizations can enhance CSR governance, transparency, and accountability. Effective governance mechanisms, such as CSR committees, play an essential role in bridging the gap between CSR reporting and actual social responsibility performance, enabling better alignment and integrity in CSR practices.

2.2.4 Hypothesis development

Family-owned firms play a significant role in the business landscape, with their unique characteristics and governance structures often influencing their approach to ESG practices. Empirical research has shown different results. Some show positive results (e.g. Battisti, 2023; Gull et al., 2023) and some show negative results (e.g. El Ghoul et al., 2016; Terlaak et al. 2018; Doshi et al., 2023). Most previous empirical findings are from highly-ranked journals, which makes the studies and the results more credible. However, as mentioned before there has not, to our best knowledge, been any published research on ESG decoupling and family ownership up to this date. There have not either been studies on Sweden, only in the US, Asia and Europe as a whole. Moreover, one other crucial thing to note when considering these studies is that cultural differences can affect the results since business culture and ownership in Sweden can differ a lot from for example Asia or the US. With that being said, drawing from the theoretical frameworks and previous literature, hypotheses can be developed to explore the relationships between family ownership, active ownership, and ESG decoupling.

SEW theory emphasizes emotional attachment, reputation, and a desire for control within the firm, traits commonly found in family-owned businesses (Kammerlander, 2022). This focus on long-term sustainability and stakeholder relationships driven by SEW motivations can cause family-owned firms to prioritize ESG practices that align with their values and objectives (Deephouse & Jaskiewicz, 2013). Consequently, family-owned companies might show a lower tendency to decouple compared to non-family-owned firms.

Furthermore, the active ownership structure prevalent in family-owned businesses plays a crucial role in shaping their approach to ESG practices. Active owners within family firms are more likely to drive the adoption of ESG initiatives to enhance societal approval and reinforce legitimacy within their operating environments (Terlaak et al., 2018 & Campopiano & De Massis, 2015). This proactive approach towards ESG integration reflects a commitment to long-term sustainability and responsible business practices, reducing the likelihood of ESG decoupling in family-owned firms. Due to active ownership, implies that both the agent and principal are the same, which lowers the agency problems. The alignment of family interests in family-owned businesses contributes to a unified approach to ESG considerations. Family owners prioritize the preservation of family values and the long-term success of the business

over short-term financial gains, thus nurturing a culture of sustainability and ethical decision-making. This shared commitment to sustainable practices and stakeholder engagement further mitigates the risk of ESG decoupling in family-owned firms (Janang et al., 2020; Anderson & Reeb, 2003; Maury, 2006).

Essentially, the combination of SEW motivations, active ownership, alignment of family interests, and stakeholder orientation within family-owned firms fosters a culture of responsible business practices and long-term value creation. This ultimately leads to a reduced likelihood of ESG decoupling. This finding supports our initial hypothesis (H1):

H1: There is a negative relationship between ESG decoupling and family ownership.

Furthermore, agency theory suggests that family-controlled firms with active ownership have a higher level of monitoring of management due to the large ownership stakes held by controlling families (Chrisman et al., 2004; Anderson & Reeb, 2003). This strong monitoring mechanism can help ensure that the decisions made by managers align with the long-term interests of the family owners, including their ESG objectives. The active involvement of family owners in the day-to-day operations can enhance oversight and reduce the likelihood of decoupling between ESG intentions and actions.

In family-owned firms, the agency conflicts between managers and shareholders are typically less severe compared to non-family firms due to the alignment of interests among family members (Villalonga & Amit, 2006; Anderson & Reeb, 2003). Thus this might reduce the potential for conflicts that could lead to ESG decoupling. The shared socio-emotional wealth and reputation concerns within family firms can further mitigate agency conflicts and promote ESG alignment. With these findings in mind, another hypothesis is developed (H2):

H2: There is a negative relationship between ESG decoupling and active ownership.

3. Data and sample description

In this section, we describe the data and sample used in this paper, including the dropout. We explain the choices made regarding the dependent variable, explanatory variables and control variables. Furthermore, there is also an in-depth description of our main explanatory variable family-ownership.

3.1 Sample description

3.1.1 Geographic selection

Sweden is chosen for this study due to its leading role in sustainability initiatives. The choice is also based on the fact that Sweden has a lot of available data, especially ESG scores and ESG disclosure in Refinitiv Eikon and Bloomberg. One distinctive aspect of Sweden is its high proportion of family-owned businesses, which make up approximately half of all companies in our sample. This abundance of family-owned businesses makes it easier to access data about family ownership through the Nordic ownership database Holdings. Many of these family-owned firms are not only prominent locally in Sweden but also have a significant global presence. Additionally, while there have been numerous studies on family ownership and ESG performance in Sweden, there has been little research on family ownership and ESG decoupling.

3.2.2 Time period

The study focuses on the period from 2016 to 2022 for several compelling reasons. Firstly, these specific years were selected due to the developing nature of ESG considerations within corporate evaluations. Given that ESG metrics are still developing and not universally available for all companies, analyzing data from these recent years allows for a more accurate and relevant assessment. Moreover, there was not a substantial amount of available data on family ownership in Sweden before 2016. Additionally, the inclusion of the pandemic years, spanning from 2020 to 2022, serves to provide a broader and more diverse dataset. Although these years might present outlier figures, incorporating them offers a comprehensive view and helps capture potential shifts and impacts on business performance in response to

significant global events like the pandemic. However, the authors do not consider the pandemic as a significant factor affecting ESG performance or reporting, as considering its impact on these aspects would be minimal.

3.2.3 Other selection criteria

The authors gather data from publicly traded companies listed on NASDAQ Stockholm spanning the period from 2016 to 2022. However, a potential issue in this study is survivorship bias, where companies that have closed down or gone bankrupt are not included in the analysis. This could impact the findings because these companies might have had different characteristics compared to those still active in the market.

Another concern is selection bias, which could arise if only companies with complete data for all years during the specified timeframe are considered. This can lead to the exclusion of companies with specific traits that could influence the results. Additionally, the sample of companies selected for the study mainly consists of larger firms, as they are more likely to have readily available data. This could result in an overrepresentation of larger corporations and limit the applicability of the study's conclusions.

Another potential issue is omitted variables bias, which occurs when important variables that could affect the study outcomes are left out. Recognizing the difficulty in completely avoiding this bias, the authors have included variables that previous research has shown to be significant. Additionally, to mitigate the risk of omitted variable bias, the authors apply advanced statistical methods such as panel data analysis (Brooks, 2019), enhancing the strength and credibility of the analysis.

3.2.4 Dropout analysis

A dropout analysis is crucial for evaluating the decisions made by the authors in this study. Given that ESG considerations are still relatively new, some companies have not yet disclosed their ESG data. ESG disclosure scores were collected from Bloomberg, while the remaining data was sourced from Refinitiv Eikon, resulting in a total of 364 companies and 2251 firm-observations included in the initial dataset.

The first dropout involved companies that were delisted, which amounted to only 2 cases. The second dropout was applied to companies lacking both ESG data and information on family ownership for at least 3 years. This led to a significant impact on the study, as companies without ESG or family ownership data were predominantly from the earlier years, creating an imbalance in observations over time. Furthermore, it was observed that larger companies were more likely to have ESG ratings and invest in reporting efforts, which resulted in smaller companies being underrepresented in the study.

The third dropout criteria focused on companies missing data for one or more control variables for at least 3 years. This resulted in the exclusion of several companies from the analysis. After implementing these dropout criteria, the study was left with 220 companies for further analysis. Observations for ESG decoupling decreased from 1034 to 1017, while family ownership decreased by 55%, from 2251 to 1017 remaining observations.

Table 1: Compilation of sample

Selection	
Geography	Sweden
Time period	2016 - 2022
Companies	NASDAQ Stockholm
Dropout 1	Delisted companies
Dropout 2	Companies without ESG score, ESG disclosure score & family ownership for at least 3 years.
Dropout 3	Companies without data for control variables for at least 3 years.

3.2 Variable definition

3.2.1 Dependant variable

Our dependent variable, ESG decoupling, is defined similarly to several previous studies (e.g., Tashman et al., 2019; Gull et al., 2023; García-Sánchez et al., 2021) by subtracting the firm's ESG Disclosure Score from its ESG Performance Score. The formula used is as follows:

$$ESG\ Decoupling\ =\ ESG\ Disclosure\ Score\ -\ ESG\ Performance\ Score$$

To compute ESG decoupling, ESG data were sourced from the Refinitiv Eikon and Bloomberg databases. The Refinitiv database provided information on ESG performance for all publicly traded companies on OMX Nasdaq Stockholm over the 7-year observation period, 2016-2022. Subsequently, this data was matched with ESG disclosure data from the Bloomberg database, which utilizes similar criteria for determining the disclosure score as Refinitiv Eikon. The scores range from 0 to 100, with 0 being the lowest and 100 being the highest. This methodology for collecting ESG decoupling data was also employed by a previous study by Gull et al. (2023).

3.2.2 Main explanatory variable

The study includes three regression models, where one includes the independent variable *"family ownership"*, and the other ones includes *"active family member"* as an extra control variable. Where *"active family member"* ownership is proxied by CEO/chairman, which is if a family member is a CEO or a chairman on the board in the firm that is examined. Lastly, we also separate CEO/chairman into two separate groups. But the main explanatory variable is "family-ownership" throughout all the regressions, which is a dummy variable, where "1" is if the firm is family-owned and "0" if not.

3.2.2.1 Definition of family ownership

Family-owned companies are an ambiguous ownership structure and a concept that is not uniformly defined in the literature, resulting in a lack of a general approach to defining the term and distinguishing between different types of company forms (Faccio & Lang, 2002; Anderson & Reeb, 2003; Villalonga & Amit, 2006). Some studies emphasize that the founder of the company, belonging to a family, should also be an owner, or that the company's

founder, together with relatives, are owners or active in management (Anderson & Reeb, 2003; Villalonga & Amit, 2006). Miller et al. (2007) define a family company in a similar way, although it only requires that several members from the same family, regardless of whether they are founders or not, have ownership stakes in the company or are representatives in management. However, other studies have focused on the proportion of votes held by the largest owner and whether this owner is a family or not. In a study by Benjamin Maury (2006), the author uses a voting right of 10 percent, while other studies use 20 percent (La Porta, Shleifer & Vishny, 2000; Faccio & Lang, 2002; Isakov & Weisskopf, 2015).

This study has primarily defined family-owned companies similarly to the latter studies, relying on the owner with the most voting rights. In this study, a company is considered family-owned if the owner with the most voting rights holds a stake equal to or greater than 20 percent and is also part of a family. However, companies are not classified as family-owned if the company has a single owner with more than 20 percent ownership - instead, this is classified as another large owner. Although 20 percent does not constitute a majority (given that a majority is defined as a share greater than 50 percent), an owner with this share holds significant influence over the company. In Sweden, moreover, ownership structures tend to be concentrated, meaning that a single shareholder holds a significant stake and the remaining shareholders hold considerably less (Agnblad, J., Berglöf, Högfeldt & Svancar, 2002; Faccio & Lang, 2002). In a study conducted by Laurence Bloch and Elizabeth Kremp (2002), the French ownership structure was examined, revealing that the voting blocks with the most power in French companies averaged 29.4 percent.

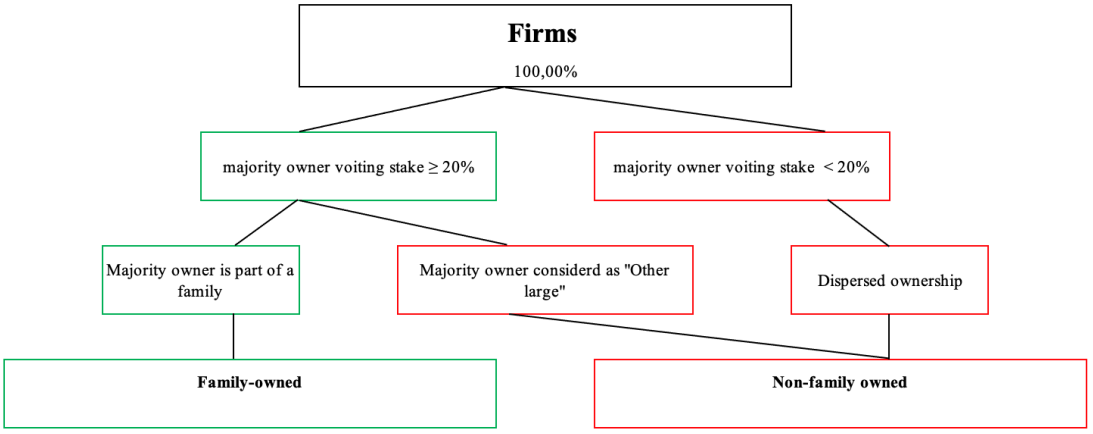
In this study, the concept of family is not interpreted literally but rather covers companies controlled by a family through foundations, companies, and multiple family members, including both spouses and blood relatives. To avoid misleading results, it is assumed, with support from previous studies (e.g. Villalonga & Amit, 2006), that a family acts as a unified entity. Therefore, this study is not limited to the largest owner acting individually, but other owners are also considered if they belong to the same family. There are several companies where the largest owner individually owns less than 20 percent, but together with other family members, they own 20 percent or more. The study addresses this definitional issue by combining all family members' stakes; if the stakes exceed or equal 20 percent, the company

is classified as family-owned; otherwise, it is classified as dispersed ownership in the company.

Another crucial factor regarding the validity of the study is the treatment of investment companies and foundations that own 20 percent or more of the votes in the company. This occurs because there are several large investment companies listed on the NASDAQ Stockholm, which in turn hold ownership stakes in other listed companies. Some of these investment companies that, in turn, hold 20 percent or more voting rights, are owned by families, including the Wallenberg and Lundin families. In summary, a family must own 50 percent of, for example, the investment company, foundation, or the company that in turn holds 20 percent of the voting rights in the scrutinized company, for that company to be classified as family-owned. For example, in 2021, the Wallenberg family owned 50.61 percent of the voting rights in the investment company Investor, which in turn held 28.37 percent of the voting rights in the company Electrolux. Therefore, Electrolux was classified as family-owned. Another illustrative example is the investment company Industrivärden, where the Lundberg family, on average, owned 27 percent of the voting rights during the observed period. This has been considered too little for Industrivärden's ownership in turn to be considered as family-owned; however, Industrivärden is considered independently as family-owned according to the definition above.

The foundations and their holdings have been classified in a similar way. An example is the FAM AB foundation (previously Foundation Asset Management), where the Wallenberg family owned 100 percent of the company through its three foundations during all observed years. FAM AB, in turn, owns other publicly traded companies, including Stora Enso, where Wallenberg owns more than 20 percent, thereby Stora Enso is also classified as a family-owned company. However, this study defines, in line with Villalonga and Amit's (2006) definition from their study, that a foundation does not need to have a direct connection to a person or family to be classified as family-owned. An example of this is the Henrik Dunkers Foundation, where most of the foundation's assets go to the city of Helsingborg, and no one with family ties sits on the board.

Figure 1: Clarification of the family-ownership variable.



Note: This picture shows how the family variable was sorted

3.2.2.2 Ownership variables

Based on the type of ownership structure, the companies in the sample are divided into three different classes - family-owned, other large and dispersed ownership. However, to facilitate the implementation of this study, only two major groups have been considered, where other large and dispersed ownership have been combined into one group, non-family-owned, while the family-owned group remains family-owned.

In the companies included in the sample, where the controlling majority owner, whether through an individual or a legal entity, has held voting rights exceeding 20 percent and consists of multiple family members through marriage or birth, it is categorized as family-owned. Similarly, if the companies in the group are owned by another entity or individual identified as part of a family upon scrutiny, they are also classified as family-owned. The classification of "Other large" also entails that the controlling majority owner has held a shareholding of more than 20 percent, but where this physical or legal majority owner is either alone or an individual owner. The companies in the sample where the majority owner's holding has been below 20 percent, regardless of whether the majority owner, through a physical or legal entity, has been a family or individual, have been classified as dispersed ownership. These latter two groups are not considered family-owned companies. With that said, this study has chosen to focus on the number of votes rather than the number of shares when assessing ownership structure. This is because many companies on the Stockholm Stock Exchange have differential voting rights, which means that the shareholder with the most shares might not necessarily have the greatest influence (Faccio & Lang, 2002).

Therefore, it provides a more objective perspective if the ownership structure is based on votes rather than the number of shares.

To account for potential influences on CSR decoupling arising from a family member serving as on the board, CEO or Chairman, we classify family-controlled firms into two categories: active ownership and non-active. Active ownership refers to that at least one family member is a member of the board of directors or management of the controlling company. Following Maury (2006), a firm is considered actively controlled if a family member occupies the positions of CEO, Honorary Chairman, Chairman, or Vice Chairman. Additionally, we introduce CEO-status and Chairman-status as independent variables to explore their potential impacts on CSR decoupling. When using the 20% cut-off level of control for the voting right, out of the 451 firm-observations that were considered family owned, 368 firm-observations have a family member as an active owner, and 204 as a CEO or Chairman (see table 2).

Table 2: Distribution Of Controlling Owner

Distribution Of Controlling Owner			
	N	1	0
Family-ownership	1017	451	566
CEO	1017	47	970
Chairman	1017	157	860
Active ownership	1017	368	649

3.2.3 Control variables

3.2.3.1 Firm size

Larger companies have their ESG ratings available and have a pronounced responsibility to conduct sustainability efforts as they are well-known to the public, which in turn has higher demands on them, and they usually have more resources available to act environmentally friendly. Larger companies also have more resources allocated for ESG performance and ESG reporting. A large company has been defined by the company's total assets for a fair representation, which aligns with previous research (Doshi et al, 2023; Christensen et al., 2022; Abeysekera & Fernando, 2020; Tashman et al, 2019; Terlaak et al., 2018; El Ghoul et

al 2016; Dhaliwal et al, 2012). To obtain a more generalized result, the authors choose to log-transform the total assets, which leads to a more normally distributed model.

3.2.3.2 Growth

This variable represents R&D divided by total assets, consistent with previous research (Abeysekera & Fernando, 2020). Although some studies used R&D divided by sales, it reflects the same concept (Tashman et al, 2019; El Ghoul et al 2016). The more growth the companies have the more competition there is in terms of priorities for capital allocation, where R&D investments take precedence over environmental initiatives. As a result, a company's environmental performance can decline despite experiencing growth. Since the resources might be prioritized for investments that give financial profits more than sustainability. Hence, there could be a negative relationship between growth and ESG performance score and ESG disclosure score. The variable is expressed as a percentage.

3.2.3.3 ROA

The variable used to measure company profitability is Return on Assets (ROA). This variable is used in other studies within the same research area (Christensen et al., 2022; Abeysekera & Fernando, 2020; Terlaak et al., 2018; El Ghoul et al 2016; Marquis et al., 2016). ROA is expressed as a percentage and is calculated by dividing net income by average total assets. Average total assets refer to the average of total assets at the beginning and end of the year. The variable is expressed as a percentage.

3.2.3.4 Leverage

Consistent with prior research, the authors have chosen to measure risk as the company's debt-to-assets ratio (Christensen et al., 2022; Abeysekera & Fernando, 2020; Terlaak et al., 2018; El Ghoul et al., 2016). This variable is calculated as total debt divided by total assets. It has been included in previous research where risk has shown a significant relationship in analyses and is considered relevant to use in the study. Leverage is a key metric for assessing a company's financial risk. The variable is expressed as a percentage.

3.2.3.5 Market to book

This variable is used as a proxy for Tobin’s Q (Battisti et al., 2023; Abeysekera & Fernando, 2020). When a firm's market value exceeds its book value, it signals investor confidence in the company's prospects, often indicating successful value creation for shareholders. In

Sweden's environmentally conscious market, where shareholders prioritize green practices, management boards are expected to align with these interests.

3.2.3.6 Board size

Previous research has found a relationship between board size and company performance. Given that it impacts overall company performance, it also affects its ESG ratings and therefore feels natural to include it in the study. With larger boards, communication within the company tends to become deficient; however, Velte (2016) found that a larger board can lead to more significant sustainability efforts. The variable is expressed in absolute terms per previous research (El Ghoul et al., 2016; Abeysekera & Fernando, 2020).

3.2.3.7 Percentage of independent board members

The proportion of independent board members is an interesting variable for analysis because the members' primary role is to satisfy stakeholders and their objectives. This variable is sourced from Refinitiv Eikon, where companies themselves have reported the percentage of independent board members. The proportion of independent board members is defined as members who have no affiliation with the company or its major shareholders. With a higher proportion of independent members, the risk of management oversight being compromised decreases, as the primary interest aligns with the goals of shareholders. Since this variable has been relevant in previous research, the authors choose to include it (Abeysekera & Fernando, 2020).

3.2.3.8 CSR Committee Board

The presence of a CSR Committee Board is expressed as a dummy variable, with 1 representing its existence and 0 representing its absence. Having a CSR Committee Board is expected to have a positive correlation with both the ESG performance score and ESG disclosure score, resulting in less decoupling. (Gull et al, 2023)

Table 3: Compilation of variables

Type of variables	**Variable**	**Definition**	**Name in regression**
Dependant	ESG-decoupling (0-100)	ESG disclosure score - ESG performance score	ESG Decoupling

Explanatory	Family ownership	Value of 1 if the company is family owned, 0 if not	Family_dummy
Explanatory	CEO/Chairman	Value of 1 if a family member is a CEO/Chairman, 0 if not	CEO/Chairman
Explanatory	CEO	Value of 1 if a family member is a CEO, 0 if not	CEO
Explanatory	Chairman	Value of 1 if a family member is a Chairman, 0 if not.	Chairman
Control	Firm size (Log)	Natural logarithm of total assets	Size
Control	Growth (%)	R&D/Total assets	Growth
Control	ROA (%)	Return on Assets	ROA
Control	Leverage (%)	Debt-to-assets	Leverage
Control	Market to Book (x)	(Total assets + market value - total shareholders equity)/total assets	MTB
Control	Board size	The absolute number of board members	Board size
Control	Percentage of independent board members (%)	Number of independent board members/ number of board members	Independent board members
Control	CSR Committee Board	Value of 1 if the company has a CSR committee, 0 if not.	CSR committee

4. Methodology

This chapter introduces the methodology used in this paper. We explain the econometric design and how we test for robustness. This section also introduces the applied regression models which are based on the hypothesis presented earlier.

4.1. Econometric design

4.1.1. Univariate analysis and correlation

In the univariate analysis, the study presents summary statistics that provide an overview of the sample distribution of the variables which later will be used in the regression analysis. The study has also conducted a mean-comparison test. Furthermore, the variable's correlation will also be examined based on Pearson's correlation matrix. The objective of the correlation analysis is to gain initial insights into the underlying relationships between the different variables.

4.1.2. Multivariate analysis - Pooled OLS regression

As this paper aims to investigate the causal relationship between the level of sustainability decoupling and ownership structure, along with the effect of active ownership, our multivariate analysis relies on pooled ordinary least squares (OLS) regressions. In econometrics, OLS is commonly used on pooled cross-sectional data (Woolridge, 2016). The study uses pooled ordinary least squares regression with controls for country, industry, and year. Previous studies such as Cronqvist & Nilsson (2003) and Himmelberg, Hubbard & Palia (1999) have incorporated fixed effects in their regressions, which are commonly utilized to account for potential unobserved firm-specific characteristics that remain constant over time. However, due to the consistent nature of our primary explanatory variable and the lack of within-firm changes from the family to the non-family category, it is unnecessary to introduce any additional fixed effects in the regressions (Villalonga & Amit, 2006). Furthermore, consistent with standard practice in empirical studies, we address heteroskedasticity by applying clustered robust standard errors, as panel data typically exhibit clustering in the variances of variables. An OLS-regression opens up opportunities to test whether differences exist between companies owned by families or not, and whether the

variation observed is random or significant. However, this model requires that a couple of fundamental assumptions are met for the results to be credible and precise (Brooks, 2019). Which will be further explained in the next section (4.2).

For H1, the regression model(s) is shown as follows:

$$(1)\ ESG\ decoupling_{i,t} = \beta_0 + \beta_1 Family\_dummy_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \\ + \beta_4 Growth_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 MTB_{i,t} + \beta_7 Boardsize_{i,t} + \\ + \beta_8 CSRcommittee\_dummy_{i,t} + \beta_9 Indepedentboardmembers_{i,t} + \\ + \gamma\ industry\ controls + \lambda yearcontrols + \epsilon_{i,t}$$

To test how active ownership affects the ESG decoupling, the paper introduces one more control variable, the variable CEO/chairman which is a dummy where 1 is if the family member is the CEO or sits as the chairman on the board of the firm, and 0 otherwise.

$$(2)\ ESG\ decoupling_{i,t} = \beta_0 + \beta_1 Family\_dummy_{i,t} + \beta_2 CEO/chairman\_dummy_{i,t} + \\ + \beta_3 Size_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 Growth_{i,t} + \beta_6 Profitability_{i,t} + \beta_7 MTB_{i,t} + \\ + \beta_8 Boardsize_{i,t} + \beta_9 CSRcommittee\_dummy_{i,t} + \\ + \beta_{10} Indepedentboardmembers_{i,t} + \gamma\ industry\ controls + \lambda yearcontrols + \epsilon_{i,t}$$

Here the dependent variable *ESG decoupling* is the difference between the ESG reporting score and ESG performance score. *Size* is proxied total assets, which have been logged. To measure the firm *leverage* ratio, total debt is divided by total assets. The variable *Growth* is measured by dividing the firm's research and development cost investments by total assets. For the variable *profitability*, *return on assets* is used as a proxy. *MTB* is market to book, to proxy for market value. Furthermore, all of the accounting variables like ROA, MTB, and leverage are winsorized at the 1st and 99th percentile, in order to reduce the skewness of the outliers. Moreover, the variable *Independent board member* is a measure of the degree of how independent the board members are from 0%-100%.

In order to further examine the effect of active ownership, the paper also separates the *CEO* and *Chairmen* into two different variables and runs regressions on them separately.

$$(3)\ ESG\ decoupling_{i,t} = \beta_0 + \beta_1 Family\_dummy_{i,t} + \beta_2 CEO\_dummy_{i,t} + \beta_3 Size_{i,t} +$$

$$+ \beta_4 Leverage_{i,t} + \beta_5 Growth_{i,t} + \beta_6 Profitability_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Boardsize_{i,t} +$$
$$+ \beta_9 CSRcommittee\_dummy_{i,t} + \beta_{10} Indepedentboardmembers_{i,t} +$$
$$+ \gamma industrycontrols + \lambda yearcontrols + \epsilon_{i,t}$$

(4) $$ESG\ decoupling_{i,t} = \beta_0 + \beta_1 Family\_dummy_{i,t} + \beta_2 Chairman\_dummy_{i,t} + \beta_3 Size_{i,t} +$$
$$+ \beta_4 Leverage_{i,t} + \beta_5 Growth_{i,t} + \beta_6 Profitability_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Boardsize_{i,t} +$$
$$+ \beta_9 CSRcommittee\_dummy_{i,t} + \beta_{10} Indepedentboardmembers_{i,t} +$$
$$+ \gamma industrycontrols + \lambda yearcontrols + \epsilon_{i,t}$$

4.1.3 Normal distribution

In these types of financial studies, there is a risk of various systematic errors. An important assumption within the Ordinary Least Squares (OLS) model is that the residuals for the sample should be normally distributed. The data used in the study fundamentally deviates from normal distribution. Hence, several measures are required in order to mitigate the error term as effectively as possible. Moreover, this assumption is particularly crucial to test when examining smaller populations, as is the case in this study (Brooks, 2019). The measures taken include, among others, transforming variables such as logarithmic transformation and winsorizing.

4.1.4 Heteroskedasticity

In order to figure out if the data is heterogenic the study constructed a so-called White test (Appendix 2). The results from this test show a p-value of 0.0001, implying that the null hypothesis of homoscedasticity can be rejected, thus suggesting that the variance is not constant. If this is not adjusted, the standard errors will be misleading, resulting in incorrect significance levels (Bailey, 2019). To address this issue, the study utilizes clustered robust standard errors in the regression.

4.2 Robustness

Robustness of the results is ensured by constructing several additional tests and commonly used methods. Initially, a White test was conducted to detect and mitigate potential heteroskedasticity in the regression results, which might impact the reliability of our

estimates. Furthermore, a Hausman test (Appendix 3) was tabulated to determine whether fixed effects or random effects were better suited for our panel regression. However, as mentioned before the paper will only use random effects for robustness, and not fixed effects.

The paper also utilizes several control variables, as mentioned before (section 3.2.3), in the regressions to account for potential factors that can be misleading or alternative explanations for the relationship between the independent and dependent variables. Furthermore, including control variables improves the accuracy and precision of the regression model by reducing the omitted variable bias.

5. Empirical results

In this chapter, the empirical results are presented. The section starts with the summary statistics of the final sample, including a correlation table of all the relevant variables to the analysis. After that, the different regression models are illustrated.

5.1 Univariate analysis

5.1.1 Summary statistics

Table 4: Summary statistics

	N	Mean	Median	SD	Min	Max
ESG decoupling	1017	-11.801	-11.856	13.012	-49.805	36.622
Family-ownership	1017	.443	0.000	.497	0	1
Active ownership	1017	.362	0.000	.481	0	1
CEO/chairman	1017	.189	0.000	.392	0	1
Board size	1017	8.567	8.000	2.6	4	20
Size (log)	1017	9.939	9.935	1.855	4.592	14.754
Growth	1017	.014	0.000	.048	0	.579
Leverage (win.)	1017	.269	0.255	.162	0	.781
MTB (win.)	1017	2.397	1.441	3.054	.43	21.713
ROA (win.)	1017	.051	0.052	.142	-1.064	.473
CSR Committee	1017	.599	1.000	.49	0	1
Indept. board member	1017	67.855	66.667	18.65	12.5	100

Note: this table shows an overview of the study's sample with a total of 1017 observations. The variables MTB (market-to-book), leverage (total debt/total assets) and ROA (return on assets) have been winsorized at the 1st and 99th percentile and size (total assets) has been logarithmized.

From table 4 one can see that the mean ESG decoupling score is -11.80, with a median of -11.86. The range of ESG decoupling scores spans from -49.8 to 36.62, which indicates that Swedish firms, on average, do not decouple that much, they actually underreport compared to their actual performance. In terms of ownership, the table shows that the firms in the sample are 44% family and the rest 56% consist of non-family-owned companies. Further, the family involvement can be seen in the table, where 36% of the family firms also have at least one active member on the firm's boards (active ownership) and 19% of the families also have a family member as a CEO or a chairman, which means that the families in these firms have even more influence.

Moreover, the average board size consists of eight directors, the minimum is four and the maximum is 20, which is a lot for Sweden with max 13 board members. Nevertheless, one has to take into consideration that some firms listed on the Swedish stock exchange have headquarters elsewhere like Switzerland or the US. The CSR committee is also a dummy, in the table the mean is 60%, which indicates that 60% of the Swedish firms have a CSR committee, and the average percentage of independent board members is 67.9%. This indicates that a majority of Swedish firms have an independent source for monitoring, which might also explain why, on average, Swedish firms do not decouple their sustainability actions.

Table 5: Summary statistics with ESG decoupling sorted by industry

ESG decoupling	Mean	Median	SD	Min	Max
Automobiles and Parts	-16,55	-17,81	15,00	-38,14	6,98
Banks	-17,46	-17,06	7,47	-30,40	-4,37
Basic Resources	-9,65	-9,36	9,55	-32,87	11,04
Construction and Materials	-10,82	-14,12	12,33	-29,15	36,62
Consumer Products and Services	-14,08	-13,50	9,82	-32,37	13,46
Energy	5,94	1,03	11,68	-8,84	27,60
Financial Services	-7,17	-5,66	11,44	-30,41	15,70
Food, Beverage and Tobacco	-5,51	-4,81	10,37	-22,26	14,46
Health Care	-16,38	-14,45	12,59	-48,14	9,74
Industrial Goods and Services	-9,02	-8,41	14,19	-49,80	24,76
Media	-20,09	-21,23	11,51	-33,09	7,43
Personal Care, Drug and Grocery Stores	-14,23	-7,78	14,49	-42,83	2,39
Real Estate	-10,69	-9,18	13,44	-35,57	15,54
Retail	-20,96	-24,21	10,16	-36,31	8,40
Technology	-8,98	-9,07	12,54	-33,32	20,92
Telecommunications	-22,66	-26,67	9,98	-36,40	1,63
Travel and Leisure	-9,19	-10,43	12,84	-29,13	24,21
Total	-11,80	-11,86	13,01	-49,80	36,62

Note: This table illustrates the degree of ESG decoupling sorted by the industries available in the sample.

When examining how companies report their ESG activities compared to their actual performance in different industries, we find that most industries tend to be conservative in their reporting - they often do not fully disclose everything they are doing. However, the energy sector stands out as the exception. This is the one industry where there is a clear disconnection between what companies report and what they are actually doing, indicating that they are indeed decoupling, with an average of 5.94. This makes sense because the energy industry is recognized for its significant impact on the environment, with emissions and other operations that can harm the environment. The industry that has the highest score of decoupling is construction and material and the lowest minimum is industrial goods and

services. The food, beverage and tobacco industry is the one that is closest to 0 on average (mean of -5.51), which means that this industry has the least misalignment between their ESG reporting and their ESG performance.

Table 6: Summary statistics with family ownership sorted by industry

Family-ownership	N	N%	Mean	Family-owned	Non-family
Automobiles and Parts	33	3,24%	0%	0	33
Banks	36	3,54%	33%	12	24
Basic Resources	98	9,64%	48%	47	51
Construction and Materials	90	8,85%	46%	41	49
Consumer Products and Services	72	7,08%	60%	43	29
Energy	15	1,47%	73%	11	4
Financial Services	66	6,49%	76%	50	16
Food, Beverage and Tobacco	14	1,38%	79%	11	3
Health Care	91	8,95%	34%	31	60
Industrial Goods and Services	186	18,29%	49%	92	94
Media	18	1,77%	11%	2	16
Personal Care, Drug and Grocery Stores	19	1,87%	74%	14	5
Real Estate	93	9,14%	38%	35	58
Retail	32	3,15%	72%	23	9
Technology	75	7,37%	25%	19	56
Telecommunications	42	4,13%	36%	15	27
Travel and Leisure	37	3,64%	14%	5	32
Total	1017	100,00%	44%	451	566

Note: In the table above, the ownership structure is sorted across various industries included in the study's sample. In the final sample, we have 1017 observations. Out of these, 44% are tied to family ownership, totalling 451 observations, while the remaining 566 observations are linked to non-family ownership.

Table 6 shows how the ownership structure is across different industries. The industry that has the most observations that are considered family-owned is industrial goods and services, with a total of 92 observations, but it is also the industry that has the most observations of the full sample (186 observations). Furthermore, the industry of food, beverages, and tobacco has the highest ratio of family ownership, with approximately 79% of the observations being considered family-owned. Although this industry has the fewest observations in our sample, with only 14 observations. The industry of financial services also has a high ratio of family ownership, about 76% and 50 observations. This makes sense because many of the Swedish family companies are owned by big finance families such as the Wallenberg or Lundberg, which often are owned through other financial companies. On the other hand, the industry of automobiles and parts has no family-owned observation and all 33 observations are considered non-family-owned.

5.2 Pairwise Correlation Table

Table 7: Correlation table

Variables	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14
(1) ESG decoupling	1.000													
(2) Family_dummy	0.161	1.000												
(3) Active ownership	0.113	0.839	1.000											
(4) CEO	0.133	0.227	0.258	1.000										
(5) Chairman	0.076	0.468	0.555	-0.084	1.000									
(6) CEO/chairman	0.134	0.540	0.630	0.419	0.866	1.000								
(7) Board size	-0.275	0.139	0.151	-0.161	0.043	-0.039	1.000							
(8) Size (Log)	-0.244	0.112	0.145	0.123	0.101	0.154	0.532	1.000						
(9) Growth	-0.086	-0.079	-0.093	-0.057	-0.086	-0.107	-0.000	-0.184	1.000					
(10) MTB (win.)	-0.007	-0.022	-0.011	0.050	-0.048	-0.020	-0.147	-0.237	0.073	1.000				
(11) Leverage (win.)	0.041	-0.082	-0.062	0.069	-0.081	-0.038	-0.062	0.204	-0.122	-0.169	1.000			
(12) ROA (win.)	-0.028	0.082	0.089	0.006	0.054	0.052	0.042	0.067	-0.204	0.184	-0.193	1.000		
(13) CSR committee	-0.376	-0.101	-0.085	-0.061	-0.081	-0.102	0.243	0.330	-0.070	-0.124	0.139	0.022	1.000	
(14) Indep. board member	-0.141	-0.280	-0.241	0.060	-0.122	-0.083	-0.420	-0.145	0.086	0.033	-0.018	-0.029	0.011	1.000

Note: This table shows the correlation between the different variables used in the study. (3) Active ownership means that at least one family member is actively involved in the board/management (further readings see section 3.2.2.2). (4) *CEO* is when the CEO of the firm is a family member, the same goes with (5) *Chairman* but if a family member is a chairman of the firm's board instead. (6) *CEO/chairman* is the combined variable of (4) and (5).

To check for multicollinearity, the study conducts a correlation matrix on the independent variables. Multicollinearity occurs when two or more independent variables are correlated with each other. If multiple variables show a high correlation, it implies that they are measuring the same thing. This leads to misleading results, and the regression will show incorrect values, making it difficult to assess which variables affect the dependent variable (Edling & Hedström, 2003).

Table 7 reveals that the two variables with the highest correlation are ownership variables and active ownership. The variable *"family_dummy"* shows a positive correlation with the variable *"active ownership"*. This suggests that most companies owned by a family have at least one family member on the board. The correlation between *"family_dummy"* and *"active ownership"* is very high, at 84%, which is over Brooks's (2019) rule of thumb of 80%. Due to this, the study chose to exclude the latter variable due to the high correlation, which could potentially introduce biases to the results. A high correlation is also present when it comes to the variable *"CEO/chairman"*, with a correlation of 54%. But when we separate them into two separate categories the correlation decreases to 23% for the variable *"CEO"* and 46.8% for the variable *"Chairman"*.

Furthermore, from Table 7 the correlation between "*ESG decoupling"* and "*family_dummy"* is 16.1%, which implies that family ownership and ESG move in the same direction. In line with this the three other explanatory variables "*CEO", "*c*hairman"*, and "a*ctive ownership"* also have a positive correlation with "*ESG decoupling"* (13.3%, 7.6% and 11.3% respectively), which sets a solid ground for us in the regressions.

5.3 POLS regression models

5.3.1 ESG decoupling & Family ownership

Table 8: OLS-regression on family-ownership

Dep.Var: ESGdecoupling	(1) Base	(2) Stand. robust	(3) Industry & Year
Family_dummy	0.056	0.056	-0.499
	(0.757)	(0.760)	(0.766)
Size (log)	-0.572**	-0.572**	-0.935***
	(0.250)	(0.225)	(0.279)
Growth	-24.083***	-24.083***	-14.202*
	(7.840)	(6.999)	(7.387)
MTB (win.)	-0.339***	-0.339***	-0.169
	(0.123)	(0.108)	(0.109)
Leverage (win.)	4.285*	4.285*	7.033***
	(2.395)	(2.358)	(2.185)
ROA (win.)	-0.513	-0.513	-2.155
	(2.675)	(2.532)	(2.305)
CSR committee	-8.057***	-8.057***	-7.962***
	(0.783)	(0.807)	(0.845)
Board size	-1.366***	-1.366***	-1.048***
	(0.185)	(0.179)	(0.188)
Independent board members	-0.176***	-0.176***	-0.163***
	(0.022)	(0.022)	(0.021)
Constant	22.343***	22.343***	25.301***
	(2.912)	(2.899)	(3.984)
Observations	1,017	1,017	1,017
Adjusted R-squared	0.249	0.249	0.333
Industry effects	No	No	Yes
Year effects	No	No	Yes

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

Note: In this table, we test H1 by conducting a pooled OLS regression with both period and industry controls. In models (2) and (3) we also apply clustered standard robust errors, whereas model (1) is only a base model and only includes the control variables. The dependent variable is *ESG decoupling*. The main independent variable is *family_dummy*. The controls included are *Size* (Total assets), *Growth* (R&D/total assets), *MTB* (market-to-book), *Leverage* (Total debt/total assets), *ROA* (return-on-assets), *CSR committee, Board size* and *Independent board members.* There are in total 1017 observations included in the regression.

The overarching conclusion drawn from the above regression in Table 8 is that there is no significant difference between the two ownership types. However, most of the controls show a high significance across the three models, even when controlling for year and industry with clustered robust standard errors across. In Model (3) size has a high statistically significant coefficient of -0.935, which indicates that bigger firms on average tend to decouple less. In line with this is also the variable growth, which implies that high-growth firms tend to decouple less, on average -14.2 points with a 10% significance level. Having a CSR committee will also make the firms decouple less, as seen in column 3 of Table 8, which implies that firms with a CSR committee decouple on average 7.96 points (p-value < 0.01) less than firms that do not have a CSR committee, these results are in-line to the study by Gull et al. (2023). On the contrary, firms that have a higher leverage ratio on average will decouple more, than less leveraged firms. This variable shows a coefficient of 7.03 at the 1% significance level.

5.3.2 ESG decoupling & CEO / chairman

Table 9: OLS-regression with CEO/chairman

Dep.Var: ESGdecoupling	(1) Base	(2) Stand. robust	(3) Industry & Year
Family_dummy	-1.530*	-1.530*	-2.262**
	(0.886)	(0.928)	(0.907)
CEO/chairman	3.770***	3.770***	4.242***
	(1.112)	(1.135)	(1.146)
Size (log)	-0.765***	-0.765***	-1.025***
	(0.256)	(0.222)	(0.276)
Growth	-22.967***	-22.967***	-13.055*
	(7.806)	(6.909)	(7.344)
Board size	-1.239***	-1.239***	-0.970***
	(0.187)	(0.180)	(0.185)
MTB (win.)	-0.340***	-0.340***	-0.180*
	(0.122)	(0.103)	(0.102)
Leverage (win.)	4.781**	4.781**	7.894***
	(2.387)	(2.346)	(2.206)
ROA (win.)	-0.356	-0.356	-2.075
	(2.662)	(2.609)	(2.342)
CSR committee	-7.850***	-7.850***	-7.874***
	(0.782)	(0.796)	(0.841)
Independent board member	-0.177***	-0.177***	-0.162***
	(0.022)	(0.022)	(0.021)
Constant	22.955***	22.955***	26.712***
	(2.902)	(2.861)	(3.997)
Observations	1,017	1,017	1,017
Adjusted R-squared	0.257	0.257	0.342
Industry effects	No	No	Yes
Year effects	No	No	Yes

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

Note: In this table, we added an additional variable, CEO/chairman to test the second

hypothesis (H2). Except for this change, we use the same control variables, control for both year and industry, and apply clustered standard robust errors.

In contrast to Table 8, the introduction of additional controls for CEO/chairman yields noteworthy findings, as observed in column 3 of Table 9. Here, the family_dummy variable exhibits significance at the 5% level. Notably, the coefficient retains its negative direction, yet its magnitude increases to -2.26. This suggests a more pronounced effect of ownership structure on the misalignment between ESG reporting and ESG performance. On average, family-owned firms display a lower degree of decoupling compared to their non-family counterparts, with a difference of 2.26 points.

Remarkably, the CEO/chairman variable manifests a positive coefficient of 4.24 (column 3), with a p-value of 0.01. These results suggest that while family firms typically demonstrate lower decoupling tendencies, heightened family involvement correlates with an increased degree of decoupling, particularly when compared to scenarios where the family solely assumes a controlling ownership role. Despite these findings, the control variables remain relatively consistent with those in Table 8, highlighting the moderate robustness and reliability of our regressions.

Table 10: OLS-regression with CEO

Dep.Var: ESGdecoupling	(1) Base	(2) Stand. robust	(3) Industry & Year
Family_dummy	-0.641	-0.641	-1.076
	(0.776)	(0.795)	(0.792)
CEO	7.170***	7.170***	6.527***
	(1.966)	(1.692)	(1.856)
Size (log)	-0.797***	-0.797***	-1.144***
	(0.256)	(0.227)	(0.284)
Growth	-24.134***	-24.134***	-14.077*
	(7.793)	(6.955)	(7.432)
MTB (win.)	-0.376***	-0.376***	-0.205**
	(0.123)	(0.103)	(0.102)
Leverage (win.)	4.064*	4.064*	7.325***
	(2.381)	(2.356)	(2.175)
ROA (win.)	-0.232	-0.232	-1.754
	(2.660)	(2.586)	(2.337)
CSR committee	-7.906***	-7.906***	-7.670***
	(0.780)	(0.795)	(0.838)
Board size	-1.199***	-1.199***	-0.951***
	(0.189)	(0.183)	(0.189)
Independent board member	-0.179***	-0.179***	-0.166***
	(0.022)	(0.022)	(0.021)
Constant	23.435***	23.435***	26.891***
	(2.910)	(2.878)	(4.020)
Observations	1,017	1,017	1,017
Adjusted R-squared	0.258	0.258	0.340

Robust standard errors in parentheses

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

Table 11: OLS-regression with Chairman

Dep.Var: ESGdecoupling	(1) Base	(2) Stand. robust	(3) Industry & Year
Family_dummy	-0.445	-0.445	-1.225
	(0.840)	(0.859)	(0.858)
Chairman	1.557	1.557	2.235*
	(1.136)	(1.169)	(1.203)
Size (log)	-0.603**	-0.603***	-0.911***
	(0.251)	(0.225)	(0.280)
Growth	-23.614***	-23.614***	-13.635*
	(7.844)	(6.980)	(7.338)
MTB (win.)	-0.331***	-0.331***	-0.162
	(0.123)	(0.108)	(0.108)
Leverage (win.)	4.546*	4.546*	7.401***
	(2.401)	(2.363)	(2.207)
ROA (win.)	-0.510	-0.510	-2.251
	(2.674)	(2.552)	(2.317)
CSR committee	-8.002***	-8.002***	-8.012***
	(0.784)	(0.807)	(0.845)
Board size	-1.349***	-1.349***	-1.040***
	(0.185)	(0.179)	(0.187)
Independent board member	-0.176***	-0.176***	-0.161***
	(0.022)	(0.022)	(0.022)
Constant	22.358***	22.358***	25.478***
	(2.910)	(2.900)	(3.990)
Observations	1,017	1,017	1,017
Adjusted R-squared	0.250	0.250	0.335

Robust standard errors in parentheses

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

Note: In these two tables above (Tables 10 & 11), we separate the CEO and chairman from the combined variable CEO/chairman used in Table 9.

To further explore the impact of family involvement in the Swedish firm traded on the NASDAQ stock exchange, we opted to further separate the active ownership variable. In column 3 of Table 10 and Table 11, we observe that family involvement, particularly in the role of CEO, exerts the strongest influence compared to instances where family involvement is limited to a chairman position. Column 3 in Table 10 demonstrates that firms led by a CEO who is a family member exhibit a greater decoupling by 6.5 points (1%). Conversely, Column 3 of Table 11 reveals that the chairman variable only yields a coefficient of -2.24 at the 10% significance level, indicating a lower magnitude but the same directional effect. This suggests that both forms of family involvement impact the firm's misalignment between ESG reporting and ESG performance, but when the controlling family-owner also assumes the CEO role, it exerts the most pronounced negative impact on the ESG decoupling score.

However, the main independent variable, family ownership, does not show any statistical significance in either Table 10 or Table 11, mirroring the findings of the initial regression presented in Table 8.

5.3.3 Robustness test

Table 12: Robustness test with RE and clustered robust standard error

Dep.Var: ESGdecoupling	Model (1)	Model (2)	Model (3)	Model (4)
Family_dummy	-0.187	-0.842	-0.493	-0.545
	(1.409)	(1.539)	(1.444)	(1.489)
Size (log)	-2.232***	-2.240***	-2.316***	-2.213***
	(0.456)	(0.453)	(0.458)	(0.460)
Growth	-23.308**	-22.940**	-23.312**	-23.039**
	(11.011)	(10.934)	(10.990)	(10.978)
Board size	0.066	0.073	0.089	0.065
	(0.218)	(0.218)	(0.220)	(0.217)
MTB (win.)	-0.259**	-0.260**	-0.264**	-0.258**
	(0.107)	(0.105)	(0.106)	(0.106)
Leverage (win.)	1.773	1.891	1.881	1.853
	(4.291)	(4.286)	(4.280)	(4.294)
ROA (win.)	-1.358	-1.368	-1.323	-1.376
	(1.520)	(1.495)	(1.518)	(1.507)
CSR committee	-6.729***	-6.725***	-6.687***	-6.739***
	(0.886)	(0.887)	(0.889)	(0.887)
Independent board member	-0.126***	-0.126***	-0.127***	-0.125***
	(0.025)	(0.025)	(0.025)	(0.025)
CEO/chairman		3.899*		
		(1.603)		
CEO			6.553*	
			(3.431)	
Chairman				2.015
				(1.525)
_cons	26.519***	26.584***	27.214***	26.344***
	(5.828)	(5.876)	(5.820)	(5.909)
Observations	1017	1017	1017	1017
Pseudo R^2	.z	.z	.z	.z
Standard errors	Clustered	Clustered	Clustered	Clustered
Method	RE	RE	RE	RE

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1

Note: In this table, we apply random effects and clustered robust standard error to the regression models used in the previous tables to test for robustness. Model (1) is with only the main independent variable *family_dummy* and controls. Model (2) adds the variable *CEO/chairman.* Model (3) has *CEO* instead and lastly, model (4) with solely *Chairman*.

From this table we can conclude that our results from previous regressions are moderately robust. When random effects and clustered standard errors are introduced into the model, the variables that are significant remain significant, although at a slightly lower level, which is expected. However, there is no substantial change in the coefficients of the variables. For example, in model 3 in Table 12 the CEO variable has a significant (10%) coefficient of 6.55, which is pretty similar to the results in Table 10. Similarly, the coefficient for the combined variable CEO/chairman remains relatively consistent with the values in Table 9 (3.9 and 4.2, respectively). Consequently, it can be concluded that our regression results are reasonably reliable and robust.

6. Multivariate analysis & discussion

In this section, the empirical findings are analyzed and discussed based on the paper's previously presented theoretical framework and research.

6.1 ESG decoupling & Family ownership

In our research, we conduct a panel data structure to analyze our firms' data between 2016-2022. Although there are studies on the relationship between family ownership and ESG/CSR performance as well as ESG/CSR reporting, there is no research on family ownership and ESG decoupling in Sweden. We began with a base regression model that only included the *family_dummy* variable (Table 8, model 3). However, this regression did not show any statistically significant results. However, indicated a negative trend with a negative coefficient. To extend the model, we added the *CEO/chairma*n variable, which resulted in both variables, *family_dummy* and *CEO/chairman,* becoming significant (Table 9, model 3). We then separate the *CEO* and *Chairman* and run separate regressions for each to examine the analysis in more detail, which also showed statistically significant results (Table 10, model 3 & Table 11, model 3). Our findings on control variables related to ESG performance, such as leverage, growth, and MTB are consistent with previous studies that indicate negative correlations (e.g. Doshi et al, 2023; Abeysekera & Fernando, 2020; El Ghoul et al 2016). Additionally, our research indicates that family-owned companies tend to decouple less and prioritize reputation and legitimacy, which aligns with prior research (Terlaak et al., 2018 & Campopiano & De Massis, 2015).

Model 3 in Table 9 shows a 5% significance for the explanatory variable with a decrease in -2.262 points of ESG decoupling score when the firm is family-owned. The negative coefficient implies a misalignment between the ESG disclosure score and the ESG performance score, indicating that the family-owned firms decouple less than the non-family-owned firms. This finding supports our hypothesis that there is a negative correlation between family-owned firms and ESG decoupling.

The negative finding is consistent with previous research that suggests family-controlled firms disclose less information about corporate governance practices and financial details

compared to non-family firms (Terlaak et al., 2018). It is also aligned with the study conducted by Doshi et al (2023), which highlights that private ownership might have a negative influence on sustainability disclosure, as private owners are perceived to be less concerned about sustainability issues and might view ESG reporting as a burden for management. Hence, family-owned firms do not allocate as many resources to ESG reporting. Furthermore, the ESG disclosure score is based on seven indicators. However, research shows that only a few companies report all of them (Corporate Knight, 2020). Sustainability reporting is becoming more and more crucial to protect valuable assets, and investors and insurers rely on the available data to allocate investments and price premiums. However, some essential information regarding significant risks such as climate change transition and litigation is not being adequately disclosed. This underreporting of sustainability policies and performance by the world's largest companies hinders investors' access to data (Corporate Knight, 2020). In Sweden, not all companies are legally required to disclose ESG indicators. However, companies meeting certain criteria in compliance with the Swedish Annual Account Act are mandated to disclose non-financial information (Finansinspektionen, 2022). However, there is no standardized report on how to disclose ESG activities, which could explain why the reporting rate is low. Additionally, Campopiano & De Massis (2015) found that family firms have a broader range of CSR reports than non-family firms, but are less compliant with CSR standards. This highlights the need for tailored reporting strategies that align with the unique characteristics of family-owned businesses in particular.

The topic under discussion is ESG decoupling and its significance in family-owned firms. According to agency theory, family-owned firms have lower agency costs due to reduced need for monitoring. This could mean that ESG reporting might not be necessary. Moreover, there are costs and resources associated with additional reporting, so eliminating them could be beneficial for the firms. If the actual ESG performance is strong, excessive reports might not be needed to achieve a good ESG disclosure score, and being overly transparent might not be necessary. The lower ESG decoupling observed in family-owned firms may be due to the lack of information asymmetry between owners and managers. With family members holding key positions in both ownership and management, there is greater alignment of interests, leading to transparency and trust. Additionally, the long-term perspective inherent in family ownership encourages a more integrated approach to ESG, resulting in stronger alignment between ESG reporting and performance.

Furthermore, according to stakeholder theory, companies face significant costs when engaging in sustainability efforts and communicating their initiatives to stakeholders. To justify these costs, companies need to see tangible benefits. One possible explanation for why companies choose to act sustainably and decouple less might be related to the stakeholder theory. By being open and transparent, companies can obtain an ESG rating and gain legitimacy with their stakeholders. Family interests are deeply intertwined with the success and sustainability of the enterprise. Therefore, cohesive relationships and shared values are essential within family-owned businesses. Sweden's strong sustainability ethos influences its business culture, especially among investors, stakeholders and family-owned companies. Hence, there is a genuine interest in ESG activities, which leads to less ESG decoupling. Further, these stakeholders might prioritize actual ESG performance over transparency, seeing reports as mere paperwork. Family-owned companies, often large enough to attract investors without emphasizing ESG transparency, focus on what they believe is important and prioritize actual ESG performance over extensive reporting. Thus, their emphasis on actual ESG performance outweighs the need for detailed reporting.

Legitimacy theory intersects with ESG practices, as companies ensure their legitimacy by being transparent and reporting sustainable initiatives. Family-owned businesses can enhance their social responsibility image by actively participating in ESG activities and disclosing scores. The focus on social responsibility has grown within family-owned firms seeking acceptance and trust from stakeholders and society. This is positive as it implies that family-owned firms decouple less than non-family-owned firms. It is also a safe margin for companies to avoid appearing to decouple, as this could send a negative signal to stakeholders. Firms should be cautious and avoid accidentally ruining their legitimacy. A study conducted by Terlaak et al in 2018 showed that family-controlled firms are motivated to protect their reputations, which are closely tied to both the firm and the owning family.

SEW emphasizes the non-financial motivations of family owners in businesses, leading them to prioritize stakeholder care and socially beneficial practices like pollution prevention (Agostino & Ruberto, 2021). Family owners, influenced by SEW, prioritize long-term investments, sustainable relationships, and societal contributions through environmental performance. SEW shapes decision-making to preserve family control and legacy (Rehman et al., 2023; Bansal & Song, 2017). As mentioned earlier, it is essential for families to maintain

their reputation because they prioritize long-term investments. Therefore, there are fewer incentives for them to decouple because they want to avoid scandals and protect the family's reputation. It is widely agreed that for long-term investments and societal contributions, a company's ESG performance would be more important than its ESG disclosure score. This is because actual ESG activities bring more value to the firms. Thus, companies should allocate more resources towards improving their ESG performance rather than just reporting it. This way, they can make a genuine contribution to society, and their stakeholders can notice their actions instead of just reading reports. This could explain the misalignment between the ESG performance score and the ESG disclosure score.

Furthermore, it is a concern in agency theory that family interests might be prioritized over the interests of minority shareholders or other stakeholders (Chrisman et al., 2004; Anderson & Reeb, 2003). Our findings suggest that family-owned firms exhibit less ESG decoupling, likely because their long-term perspective and control over business decisions allow them to easily implement and maintain genuine ESG activities. This commitment to sustainability, while potentially at odds with the short-term interests of minority shareholders, reflects a broader, more integrated approach to stakeholder engagement, ensuring the long-term health and reputation of the firm. On the other hand, in the context of Sweden, where sustainability is highly valued, it could be possible that both minority shareholders and family owners may share a green mindset, reducing potential conflicts over ESG initiatives.

6.2 ESG decoupling & CEO/chairman, CEO, Chairman

In Table 9, model 3, we introduced the variable *CEO/Chairman* and found a significant positive correlation. This is in contrast to our findings for the variable *family_dummy*, which had a negative correlation. Surprisingly, the direction of the correlation changes when there is more involvement of family members. This decoupling behaviour is interesting and important to note. An argument can be made that when a family member becomes the CEO or Chairman of a company, they do not only represent the interests of their own family but also the interests of the stakeholders. This creates a higher incentive for them to act in a way that benefits both parties, which could lead to a potential separation between the interests of the family and the company, therefore increasing the misalignment between reporting and performance.

To further investigate the involvement of family members, we divided this involvement into two levels - CEO and chairman - and investigated their impact on ESG decoupling. It's worth noting that both the CEO and chairman showed a positive significance, with the CEO having a significance of 1% and the chairman having a significance of 5%. However, the coefficient for the CEO is higher than that of the chairman, suggesting that there is more ESG decoupling with the CEO compared to the chairman.

When a family member is the CEO of the company, the decoupling is 6.527 points more than when there is no family member as the CEO (table 10). This can be explained by the fact that CEOs find it easier to engage in ESG decoupling due to their significant control over daily operations and strategic decisions. Additionally, they have stronger incentives to do so, as decoupling can lead to immediate personal gains through performance-based bonuses and other short-term financial rewards tied to operational success. Moreover, when a family member is the chairman of the company, the decoupling is 2.235 points more than when there is no family member as the chairman. The chairman's primary responsibility is to meet stakeholder expectations and provide transparency and accountability. They represent more of the stakeholders' interest than the CEO and have fewer incentives to decouple. We also considered the possibility that family CEOs prioritize short-term sustainability over legacy-building and short-term gains, while family chairmen focus a little more on stability and continuity. This might explain the higher coefficients observed for family CEOs compared to family chairmen. Overall, our analysis provides insight into how family involvement at different levels can impact decoupling and sheds light on the complex dynamics at play in corporate decision-making.

6.3 ESG decoupling & control variables

The analysis reveals some interesting insights regarding the relationship between various control variables and the dependent variable. Financial metrics and governance metrics form the major control variables, and all except *ROA* display strong statistical significance with the dependent variable in all regression models controlled for firm and years effect from Table 8 to Table 11. While previous studies have found mixed results about the impact of financial metrics on performance, our analysis indicates that all performance metrics show a negative correlation with the dependent variable, except for *leverage*. In terms of governance metrics,

all control variables show a negative correlation with low coefficients, with every additional independent board member and board size decreasing the decoupling score by 0.155 and 1 points, respectively.

One interesting finding is the significant correlation between the *CSR committee board* and *leverage* with the dependent variable. The regression models indicate a 1% significance for both variables, with coefficients of -7 and 7 decoupling points, respectively. This finding is reasonable because the presence of a CSR committee board reduces the incentives for decoupling because of the monitoring it provides. In contrast, the more leverage a company has, the higher the incentives to decouple. This could be because companies need to demonstrate good financial health to maintain competitive loan terms and conditions, or to attract more loans.

Other control variables also show statistical significance but with lower coefficients. For example, a 10% increase in *firm size* is associated with a decrease in decoupling score by around 1 point, and the effect is statistically significant with 10%. This indicates that larger firms have more resources to invest in environmental impact and are under more scrutiny to perform. Another interesting variable is *growth*, which shows a high decrease in decoupling per 1% increase. Specifically, a 1% increase in growth leads to a decrease in decoupling score by approximately 13 to 14 points. Given that larger firms are under more scrutiny to perform, it is not surprising that a 1% increase in size is associated with a decrease in approximately 1 decoupling score. Finally, the *MTB* variable has 10% significance in the base regression, 5% significance in the regression with *CEO* (table 10, model 3), and no significance in the regression with *Chairman* (table 11, model 3). The coefficient is not high, around a decrease of 0.18 to 0.2 ESG decoupling points.

7. Conclusion

The final section of the paper presents the main conclusions from the paper's findings and answer the research question. We also mention potential shortcomings and suggest future research areas.

7.1 Conclusion

The study aims to explore the impact of family ownership on ESG decoupling compared to non-family-owned firms, as well as the influence of family involvement, particularly when family members have CEO or chairman roles. Our findings suggest that family-owned firms generally show lower levels of ESG decoupling compared to non-family-owned counterparts. This aligns with our initial hypothesis (H1), suggesting a negative correlation between family ownership and ESG decoupling. However, our analysis reveals an interesting trend, the more actively involved the family is in the firm's day-to-day operations, the more likely they are to experience ESG decoupling. Specifically, when family members have CEO or chairman roles, the correlation between family involvement and ESG decoupling becomes statistically significant and positive (Table 9-11). This unexpected finding contradicts our formulated hypothesis (H2) and leads us to reject it.

Our regression models demonstrate statistically significant relationships, except for the standalone regression between family ownership and ESG decoupling (Table 8). Notably, control variables, except for ROA, exhibit strong statistical significance with the dependent variable, further validating the robustness of our analysis.

The thesis contributes by deepening our understanding of ESG decoupling in family-owned firms and validating the role of agency theory, legitimacy theory, stakeholder theory and SEW in reducing decoupling. Practical implications include guiding family businesses to align ESG objectives with operations, thereby strengthening sustainability practices. However, the unexpected finding of increased decoupling with higher family involvement contradicts existing theories.

7.2 Shortcomings

It is worth noting that one limitation of our research is the small number of observations. However, due to our focus on Sweden between 2016-2022, there is not much we can do about it. Limited data is available on family ownership before 2016, and there is no data on ESG disclosure or performance scores after 2022. Therefore, the sample size we have is normal for research in Sweden.

There is a concern regarding the high correlation between the variables of *family ownership* and *CEO/chairman*, which stands at 54%. However, this correlation is still below the threshold of 80%, as defined by Brooks (2019). To mitigate this problem, we have separated *CEO* and respective *chairman* into two distinct variables. As a result, the correlation is not as high, and we were able to obtain statistically significant results for all our regression models.

7.3 Future research

It could have been relevant to repeat a similar study in the future. Since ESG is a relatively new concept, ESG ratings have been more frequent from 2019 onwards, as evidenced in the dropout analysis. In the future, the ratings should be more established and widespread, allowing for a new study with a greater number of observations. This could lead to more generalizable results. ESG decoupling is also a new concept, hence there is a lot of space for research. Future research could use the Diff-in-diff method and see before and after the EU directive of complying with the sustainable report, in a different market for example Germany. Also, further investigate the involvement of family members on board and why it indicates a different direction.

Furthermore, it could be investigated whether there is a correlation over a longer span of years, as societal changes take time. Over a longer period, patterns can be discerned. Considering that ESG data is lacking in many companies, the authors believe it would have been relevant to study the relationship further in the future over an extended timeframe.
One interesting finding is that all other control variables have a strong statistical significance with the dependent variable, since ESG decoupling is a new concept, it would be worth it to expand research on control variables and ESG decoupling. All in all, there is much more to investigate.

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9. Appendix

Appendix 1. Study's full sample

All firms included on the study's full sample (after dropout) between 2016-2013 (220 companies and 1017 observations)

Cap	Company Name	Cap	Company Name
Large	AAK AB (publ)	Large	Instalco AB
Large	ABB Ltd	Mid	International Petroleum Corp
Mid	AQ Group AB	Large	Intrum AB
Mid	AcadeMedia AB	Large	Investor AB
Large	AddLife AB	Mid	Inwido AB (publ)
Mid	Addnode Group AB (publ)	Large	JM AB
Large	Addtech AB	Large	K-Fast Holding AB
Mid	Africa Oil Corp.	Mid	Karnov Group AB (publ)
Large	Afry AB	Large	Kindred Group PLC
Large	Alfa Laval AB	Large	Kinnevik AB
Mid	Alimak Group AB (publ)	Mid	Knowit AB (publ)
Mid	Alligo AB	Large	L E Lundbergforetagen AB (publ)
Mid	Ambea AB (publ)	Large	Lagercrantz Group AB
Large	Arion banki hf.	Large	Lifco AB (publ)
Large	Arjo AB (publ)	Mid	Lime Technologies AB (publ)
Large	Assa Abloy AB	Large	Lindab International AB
Large	AstraZeneca PLC	Large	Loomis AB
Large	Atlas Copco AB	Mid	Lucara Diamond Corp
Large	Atrium Ljungberg AB	Mid	Lundin Gold Inc.
Mid	Attendo AB (publ)	Large	Lundin Mining Corporation
Large	Autoliv Inc.	Large	Medicover AB
Large	Avanza Bank Holding AB	Mid	Meko AB
Large	Axfood AB	Mid	Midsona AB
Large	BICO Group AB	Small	MilDef Group AB
Mid	BTS Group AB	Large	Millicom International Cellular S.A.
Mid	Balco Group AB	Large	Mips AB
Mid	Beijer Alma AB	Mid	Modern Times Group MTG AB
Large	Beijer Ref AB (publ)	Large	Mycronic AB (publ)
Mid	Bergman & Beving AB	Large	NCAB Group AB (publ)
Mid	Betsson AB	Large	Ncc AB
Mid	Better Collective A/S	Mid	Nederman Holding AB
Large	Bilia AB	Small	Nelly Group AB (publ)
Large	Billerud AB (publ)	Mid	New Wave Group AB
Mid	Biogaia AB	Large	Nibe Industrier AB
Large	Biotage AB	Small	Nilorngruppen AB
Small	Bjorn Borg AB	Mid	Nobia AB
Large	Boliden AB	Large	Nolato AB
Mid	Bonava AB (publ)	Large	Nordea Bank Abp
Small	Bong AB	Mid	Nordic Paper Holding AB
Mid	Boozt AB	Mid	Nordic Waterproofing Holding AB
Large	Bravida Holding AB	Large	Nordnet AB (publ)
Large	Bufab AB (publ)	Mid	Note AB (publ)
Mid	Bulten AB	Large	Nyfosa AB
Large	Bure Equity AB	Mid	OEM International AB
Mid	Byggmax Group AB	Mid	Oncopeptides AB
Mid	CTT Systems AB	Mid	Orexo AB
Large	Castellum AB	Large	Orron Energy AB
Mid	Catella AB	Large	Pandox AB
Large	Catena AB	Large	Peab AB
Mid	Catena Media PLC	Small	Prevas AB
Mid	Cavotec SA	Mid	Proact IT Group AB
Mid	CellaVision AB	Mid	Probi AB
Mid	Cibus Nordic Real Estate AB (publ)	Small	Profilgruppen AB
Mid	Clas Ohlson AB	Small	Projektengagemang Sweden AB
Mid	Cloetta AB	Large	Ratos AB
Mid	Concentric AB	Mid	Rejlers AB (publ)
Small	Concordia Maritime	Mid	Resurs Holding AB (publ)
Mid	Coor Service Management Holding AB	Mid	Rottneros AB
Large	Corem Property Group AB	Large	SAS AB

Small	Dedicare AB (publ)
Mid	Dios Fastigheter AB
Large	Dometic Group AB (publ)
Small	Doro AB
Mid	Duni AB
Small	Duroc AB
Mid	Dustin Group AB
Large	EQT AB
Mid	Eastnine AB (publ)
Mid	Elanders AB
Large	Electrolux AB
Large	Elekta AB (publ)
Mid	Eltel AB
Large	Embracer Group AB
Mid	EnQuest
Mid	Enea AB
Small	Eniro Group AB
Mid	Ependion AB
Large	Epiroc AB
Large	Essity AB (publ)
Large	Evolution AB (publ)
Small	Ework Group AB
Large	Fabege AB
Mid	Fagerhult Group AB
Mid	Fasadgruppen Group AB (publ)
Large	Fastighets AB Balder
Large	Fenix Outdoor International AG
Mid	Ferronordic AB
Mid	Fingerprint Cards AB
Small	FormPipe Software AB
Large	Fortnox AB
Mid	G5 Entertainment AB (publ)
Small	Gaming Innovation Group Inc.
Mid	Garo AB
Mid	Genova Property Group AB
Large	Getinge AB
Mid	Granges AB
Mid	Green Landscaping Group
Large	H & M Hennes & Mauritz AB
Large	HMS Networks AB
Mid	Hansa Biopharma AB
Mid	Hansa Biopharma AB
Small	Hanza AB
Large	Hexagon AB
Large	Hexatronic Group AB
Large	Hexpol AB
Mid	Hoist Finance AB (publ)
Large	Holmen AB
Large	Hufvudstaden AB
Large	Husqvarna AB
Mid	IAR Systems Group AB
Mid	ITAB Shop Concept AB
Mid	Immunovia AB (publ)
Large	Industrivarden AB
Large	Indutrade AB
Large	SKF AB
Large	SSAB AB
Large	Saab AB
Large	Saab AB
Large	Sagax AB
Large	Samhallsbyggnadsbolaget I Norden AB
Large	Sandvik AB
Mid	Scandi Standard AB (publ)
Mid	Scandic Hotels Group AB
Large	Sdiptech AB (publ)
Large	Sdiptech AB (publ)
Large	Sectra AB
Large	Securitas AB
Small	Sensys Gatso Group AB
Large	Sinch AB (publ)
Large	Sinch AB (publ)
Large	Skandinaviska Enskilda Banken AB
Large	Skandinaviska Enskilda Banken AB
Large	Skanska AB
Mid	SkiStar AB
Small	Softronic AB
Large	Stillfront Group AB (publ)
Large	Stillfront Group AB (publ)
Large	Stora Enso Oyj
Small	Studsvik AB
Small	Svedbergs Group AB
Large	Svenska Cellulosa Aktiebolaget SCA
Large	Svenska Handelsbanken AB
Large	Sweco AB (publ)
Large	Swedbank AB
Large	Swedbank AB
Large	Swedish Orphan Biovitrum AB (publ)
Large	Systemair AB
Large	Tele2 AB
Large	Telefonaktiebolaget LM Ericsson
Large	Telia Company AB
Mid	Tethys Oil AB
Large	Thule Group AB
Large	TietoEVRY Oyj
Large	Traton
Large	Trelleborg AB
Large	Troax Group AB (publ)
Mid	VBG Group AB (publ)
Large	Viaplay Group AB (publ)
Large	Vitec Software Group AB (publ)
Large	Vitrolife AB
Large	Volati AB
Large	Volvo AB
Large	Volvo Car AB
Large	Wallenstam AB
Large	Wihlborgs Fastigheter AB
Mid	XANO Industri AB

Appendix 2. White's test

This test is used to determine if there is any heteroskedasiticity present in our data

H0: Homoskedasticity
H1: Unrestricted heteroskedasticity
chi2(360) = 466.72
Prob > chi2 = 0.0001
Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	P-value
Heteroskedasticity	466.72	360	0.0001
Skewness	49.60	31	0.0184
Kurtosis	0.41	1	0.5197
Total	516.73	392	0.0000

Appendix 2. Hausman-test

This table illustrates the Hausman-test, which help determine wheter to use random effects or fixed effects in the regression.

Chi2(9)	25.29
Prob > Chi2	0.003