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Audit committee characteristics and ESG performance of Scandinavian firms

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Abstract

This thesis examines the impact of audit committee characteristics, specifically independence and expertise, on the environmental, social, and governance (ESG) performance, using evidence from non-financial publicly listed companies in four Scandinavian countries. There are still few studies examining the relationship between audit committee characteristics and ESG performance within Scandinavian region. Therefore, the objective is to gain a better understanding of how the specified characteristics relate to ESG performance, the correlation of indicators across countries and industries, and what potential benefits firms can derive from the introduction of an audit committee in the future. Data on the reported ESG scores and audit committee characteristics from non-financial publicly listed companies are collected from a sample of companies included in the Refinitiv Eikon database. The collected data was then analyzed through panel data. The sample comprises companies from Norway, Denmark, Sweden and Finland, and the analysis covers the time period from 2012 to 2021. The findings show that there are significant and positive relationships between the independence and expertise of the audit committees and ESG performance. The study confirms the importance of audit committee characteristics in enhancing ESG performance. These results contribute valuable insights to the ongoing discussion and provide additional factors to consider when examining the influence of audit committee quality on ESG ratings.

Keywords: Sustainable development; Audit committee; Corporate governance; ESG performance; Social; Environmental; Governance; Scandinavia.

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1 Introduction

How can we balance the global desire for a better life with limited natural resources and the risk of environmental degradation? Therefore, the answer lies in sustainable development that meets today's needs without compromising the ability of future generations to meet their own needs. Development is a multifaceted challenge aimed at achieving a better quality of life for all people. Economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development (Kuhlman & Farrington, 2010). We are living through a key period in matters of sustainability, environment, social aspects, and governance (ESG). As shareholders interest in ESG data grows, ESG reporting and data disclosure is becoming critical for companies to attract investors and earn customer trust.

Reliable, consistent, and relevant ESG data is at the core of high-quality corporate reporting. The audit committee plays an important role in ESG reporting and can help ensure that data is not misrepresented (Sultana, Zulkifli, & Zainal, 2018). The success of the company depends significantly on the board of directors, given that they are responsible for approving and overseeing the implementation of strategic goals, the management system and the creation of a corporate culture. A successful board will also have a strong focus on business ethics and corporate responsibility. An increasing body of research has identified a robust positive correlation between a company's ESG sustainability performance and its profitability. Companies with high sustainability ratings have been observed to outperform their counterparts in terms of both market value and accounting performance. In other words, implementing best environmental, social and governance (ESG) practices leads to long-term competitive advantage. Businesses are well aware of the fact that their survival depends on achieving one or more of the Sustainable Development Goals (SDGs), especially climate is essential for their long-term viability (Russo & Fouts, 1997).

The audit committee (hereinafter referred to as “AC“) is one of the important board subcommittees due to its special role of protecting the interests of the company's shareholders in relation to financial oversight and control (Xie, Davidson III, & DaDalt, 2003). The AC is defined as “a committee established by and amongst the board of directors of a company for the purpose of overseeing the accounting and financial reporting processes of the company and audits of the financial statements of the company” (Act, 2002). The main role of the AC is to control the firm’s financial reporting process, the review of financial reports, internal accounting controls, the audit process, and risk management practices (Salleh & Stewart, 2012). The company's audit committee plays a vital role in ensuring compliance with environmental, social, and governance (ESG) standards and driving performance in these areas. The AC influences ESG performance by ensuring the company's environmental practices align with ESG standards, monitoring compliance with relevant regulations, assessing the environmental impact of company operations, and reviewing sustainability policies and initiatives (Fuadah, Mukhtaruddin, Andriana, & Arisman, 2022).

Similarly, the AC ensures the company's social practices adhere to ESG standards by reviewing compliance with labor laws and human rights standards, evaluating the impact of operations on local communities, and examining policies and initiatives related to social responsibility (Waddock, 2008). Additionally, the AC ensures the company's governance practices are in line with ESG standards by monitoring compliance with relevant laws and regulations, evaluating the effectiveness of internal controls and risk management practices, and ensuring a diverse, independent, and experienced board of directors (Turley & Zaman, 2007). Overall, the audit committee plays a vital role in improving the company's ESG performance by ensuring awareness of obligations and taking necessary steps to meet them. Through their review and monitoring of company practices in these areas, the audit committee provides valuable insights and recommendations that help enhance the company's ESG performance over time.

As mentioned by Collier and Gregory (1996); Fichtner (2010), among others, the earlier AC can be traced back to the aftermath of the McKesson & Robbins Inc. fraud in the late 1930s. At that time the New York Stock Exchange (NYSE) and the Securities and Exchange Commission (SEC) recommended that external auditors should be selected by a special committee composed of non-officer board members. A series of corporate frauds in the 1970s motivated regulators in the US to recommend that publicly listed companies should possess an independent AC. In the next 20 years or so a number of other commissions in the US sought to further reinforce the quality of audit committees but, importantly, without recourse to legislation. However, this was to change in the aftermath of the Enron collapse in 2001.

At the beginning of the 2000s were initiated additional AC regulation, such as SOX Act with strong focus on "the protection of investors and consequent restoration of confidence in the nation's financial markets". SOX requires that every public company's audit committee has to be composed of independent directors and at least one member must, either through education or experience, qualify as a financial expert. The AC is also responsible for determining the level of non-audit services provided by the external auditor and is directly responsible for the hiring, fee negotiation and general oversight of the external auditing process. Finally, the audit committee is required to provide procedures through which an employee is able to report questionable accounting or auditing matters (Elson & Gyves, 2003). Implementation of the strict regulations has essentially carried forward the existing recommendations for AC. Similar regulatory initiatives were introduced in Scandinavian countries.

The purpose of this thesis project is to investigate the relationship between AC characteristics and ESG (environmental, social and governance) performance because it can help companies manage risks, create long-term value, enhance their reputation, and brand value, and ensure compliance with ESG regulations. The findings of the study can be used by the board of directors of companies and shareholders to make appropriate decisions regarding the characteristics of the audit committee in order to protect shareholders' investments. AC improves the reliability of financial statements and thereby reduces audit risk, improving the quality of reported data (Contessotto & Moroney, 2014). AC characteristics, such as board independence, CEO duality and audit committee expertise are important indicators of a company's ability to manage risks. Companies with strong AC characteristics are more likely to identify and manage risks related to ESG issues, such as environmental disasters, human rights violations, and corruption. Although, companies comply with regulatory requirements to avoid sanctions, not all such committees are effective in improving the efficiency of companies (Beasley, 1996). In other words, the efficiency of the AC depends on the committee characteristics, not just the existence of a committee. Therefore, the aim of the study is to examine which AC attributes, if any, lead to improved ESG performance of the firm.

Scandinavian countries have been at the forefront of sustainability and ESG practices, with a long tradition of stakeholder engagement and responsible corporate behavior (Matten & Moon, 2008). This is reflected in the strong focus on sustainability in the business culture and regulations in these countries (Morsing, Midttun, & Palmås, 2007). Therefore, interest, desire to examine and prove whether the relationship between AC characteristics and ESG performance differs in the Scandinavian context compared to other regions. Additionally, the research shows that the board's gender diversity is positively associated with ESG performance, which is consistent with previous study (R. B. Adams & Ferreira, 2009), and that Scandinavian countries have been leaders in promoting gender diversity on boards (Seierstad & Opsahl, 2011). Thus, exploring the impact of gender diversity on ESG performance and how it interacts with other AC characteristics would be a valuable contribution to the literature. Consistent with existing literature, our analysis looks at the impact of audit committee characteristics (independence of audit committee, audit committee expertise) on ESG performance in the Scandinavian non-financial publicly listed companies for period 2012 – 2021.

A wide range of literature has shown that ESG performance can contribute to the creation of a company's financial value in the medium to long term (A. Buallay, 2020; Leung & Gray, 2016; Mohr & Webb, 2005). Companies that perform well on ESG issues are more likely to attract investors who prioritize sustainability and long-term growth. AC characteristics, such as board diversity and stakeholder engagement, are key drivers of ESG performance and can help companies create long-term value for their stakeholders. Based on these considerations, this study aims to identify the characteristics of the board of directors that enhance the effectiveness of corporate social responsibility (CSR).

1.1 Research Question

In this thesis we refer to the previous studies regarding the relationship between different AC attributes, such as independence and financial expertise and ESG performance of Scandinavian non-financial publicly listed companies for period 2012 – 2021. Based on the general purpose of the research, the following specific research questions are presented:

1. What is the relationship between audit committee independence and the ESG performance of Scandinavian listed companies?

2. How is the ESG performance of Scandinavian listed companies affected by audit committee expertise?

1.2 Research Objectives

The objectives of this research are to examine the relationships between two important characteristics of audit committee – independence and expertise, and the environmental, social and governance performance of the sampled Scandinavian non-financial publicly listed companies. The sample consisted of companies from Norway, Denmark, Sweden, and Finland, covering the period from 2012 to 2021. Based on this general research aim, the following specific research objectives are stated:

1. To examine the relationship between AC independence and the ESG performance of Scandinavian listed companies.
2. To analyze the association between AC expertise and the ESG performance of Scandinavian listed companies.

The study aims to gain a better understanding of how these characteristics relate to ESG performance scores and their correlation across four countries and eleven industries. The collected data on ESG scores and audit committee characteristics from non-financial publicly listed companies were analyzed through panel data analysis at both industry and country levels. We aim to gain insight into how audit committee independence and expertise characteristics impact ESG score.

1.3 The Scope of the Research

With the increase of the focus on global sustainability development and corporate initiatives, embedding sustainability in strategy is essential to meet evolving investor pressure, consumer demand, and regulatory requirements. In accordance with the above, there is a rapid increase of interest in the corporate sustainability solutions in the Scandinavian region. In view of this situation, the present study examines and analyzes the relationship between AC independence, AC expertise and ESG performance. Therefore, we use a sample of 491 listed companies from four Scandinavian countries: Norway, Sweden, Denmark and Finland. We collect data regarding AC independence and financial expertise, along with several other characteristics with focus on board performance and gender diversity, from the Refinitiv Eikon Database. We also use a sample in the context of industries. We use data for the period of 2012 – 2021, and we assume that data collected for qualitative analysis for the period of ten years yields better significance of research contribution.

We exclude financial companies because they have their own governance model. According to the Guidelines on Corporate Governance Principles for Banks, issued by Basel Committee on Banking Supervision (BCBS), the primary objective of corporate governance should be safeguarding stakeholders' interest in conformity with public interest on a sustainable basis. Among stakeholders, particularly with respect to retail banks, shareholders' interest would be secondary to depositors' interest. Corporate governance in financial institutions and banks determines the allocation of authority and responsibilities by which the business and affairs of a bank are carried out by its board and senior management. This includes how they set the bank's strategy and objectives, select and oversee personnel, operate the bank's business on a day-to-day basis, protect the interests of depositors, meet shareholder obligations and take into account the interests of other recognized stakeholders. It also involves aligning corporate culture, corporate activities and behavior with the expectation that the bank will operate in a safe and sound manner, with integrity and in compliance with applicable laws and regulations. Furthermore, it entails establishing control functions (Basel, 2015).

1.4 Significance of the Study

Numerous researchers have highlighted that the economic situation in the modern world stimulates companies to be more environmentally responsible, as they become less exposed to systematic risks and earn higher stock returns (C. A. Adams & Abhayawansa, 2022; Broadstock & Chen, 2021). Investors can be concerned with short-term profits, but looking to the future shows that there is large interest in the company’s long-term sustainability and profitability. Especially in the wake of the COVID-19 pandemic, increased investor interest in the ESG aspects of companies is evidence that they view sustainability as a necessity rather than a luxury (Pástor & Vorsatz, 2020). The implementation of a quality process enhances the credibility of financial information by reducing information asymmetries (Beisland, Mersland, & Strøm, 2015; DeFond & Zhang, 2014). Companies, in order to satisfy all stakeholders when making investment decisions, incorporate sustainability reports as a source of value adding information. The information contained in the sustainability report enables internal and external stakeholders to make informed decisions about the company's sustainable development goals.

Therefore, we can observe different scenarios: on the one hand, the restriction of financial resources and the potential temptation to disinvest in ESG issues and, on the other hand, to the need of investors to estimate the effect of ESG risk perception in the uncertain environment (Ferriani & Natoli, 2021). Failing to embrace ESG frameworks means that the company risks ruining its reputation. Environmental degradation, forced labor, discrimination and lack of diversity are potential issues that arise if a company does not take action to prevent and mitigate these risks. Meanwhile excellent corporate ESG performance can cut costs, increase value, reduce systemic risk, improve operational efficiency, and strengthen legal assurance.

Although some previous research has been conducted, there remains a lack of evidence from the Scandinavian region and comprehensive cross-country data in Scandinavian countries regarding the correlation between AC characteristics and ESG performance. This makes our study valuable to regulators, investors, scholars and standard setters who are interested in the role that audit committees can play in enhancing ESG performance.

Recent studies have shown that companies with strong ESG performance are more likely to attract and retain talented employees, enjoy greater customer loyalty and experience lower costs of capital (Eccles, Serafeim, Seth, & Ming, 2013; Maignan, Ferrell, & Ferrell, 2005). By examining the relationship between audit committee characteristics and ESG performance, this study contributes to our understanding of how companies can improve their sustainability practices and achieve these benefits. This addition emphasizes the potential benefits that companies can reap from improved ESG performance, beyond simply avoiding risks and earning higher stock returns. It also highlights the importance of the audit committee in driving these improvements, which is a key focus of the study.

The rest of this work is organized as follows. The next chapter provides the research context and theoretical background, which support the empirical research and the hypotheses. Chapter three describes the research methodology on AC characteristics and ESG performance, including sample selection, data sources, dependent and independent variables. Chapter four provides the descriptive statistics, correlation analysis, regression results and discussion of the estimated outcome. Chapters five and six provide concluding remarks, implications, limitations, references, and recommendations for future research.

2 Research Context, Theory and Hypothesis

2.1 Research Context

Geographically, there are three Scandinavian countries – Denmark, Sweden, and Norway. However, culturally, there are five Scandinavian region countries - Denmark, Sweden, Norway, Iceland and Finland (Magnus, 2016). Our research purpose makes us focus on the Scandinavian economies of Denmark, Finland, Norway and Sweden – countries which share similar political, cultural, language characteristics (with exception of Finnish language) and show similar financial and capital markets. These Scandinavian countries are considered among the wealthiest in the world. They achieve excellent results by successfully implementing high standards of living in the world due to relatively small wage gaps, high employment, and high taxation combined with accessible education and social security (Tiemer, 2018).

From macroregional perspective, Scandinavian countries are performing well above The European Union (EU) and The Organization for Economic Co-operation and Development (OECD) averages (Andersen et al., 2007). Attractive investment environment created the essential needs to have a high-quality corporate governance. At the same time, the role of AC has increased in the last few years, since it is an effective tool of corporate governance, which can actually improve ESG performance. According to professional bodies and laws such as Securities and Exchange Commission (SEC), the USA's Sarbanes Oxley law, and the Nordic countries´ corporate governance and stock markets codes such as the Norwegian Code of Practice for Corporate Governance, Rule Book I – Harmonized Rules, Oslo Rulebook II – Issuer Rules, issued by the Oslo Stock Exchange, Audit Committee Guide – Danish Act, a series of quality characteristics are required to be in order to have an active audit committee. Those qualities include audit committee size of at least three members; audit committee financial expertise – at least one of the members must have financial experience, which is defined as an understanding of financial statements and generally accepted accounting principles, internal controls, audit committee's functions, and special education and work experience; audit committee independence – at least one of the members meets is the independence criteria explained in the above acts and documents; audit committee frequency of the meetings – at least four times a year and not more than four months shall elapse between two meetings; audit committee diversity – the rule does not apply to audit committees specifically, but it may serve as a reminder for committees to consider diversity in their composition (An, 2023; Velte, 2023).

The Norwegian Public Limited Liability Companies Act stipulates that large companies must have an audit committee, cf. section 6-43 (Norway & Aarbakke, 2004). The entire board of directors should not act as the company's audit committee. Smaller companies should give consideration to establishing an audit committee. In addition to the legal requirements on the composition of the audit committee etc., the majority of the members of the committee should be independent from the company. The board of directors should provide details in the annual report of any board committees appointed and should evaluate its performance and expertise annually. The board of directors also have to ensure that independent auditor, invited by the company, annually submits the main features of the plan for the audit of the company to the audit committee (Board, 2012). On the other hand, in The Swedish Code of Corporate Governance, particularly in the Part 10 stated that if the board of directors feels it is appropriate, the entire board may perform the audit committee's tasks, providing that no director who is a member of the executive management, participates in this work (Code, 2020). According to The Swedish Code of Corporate Governance, the board of directors is responsible for ensuring that the company´s internal controls and formalized procedures are in compliance with established principles for financial reporting and internal control. The board is also responsible for ensuring that the company's financial reports are prepared in accordance with the law, relevant accounting standards and other requirements for listed companies.

In summary, all Scandinavian countries construct similar corporate governance codes, including the job, responsibility, and composition of AC. Moreover, all of them have already adopted IFRS Standards for the consolidated financial statements of all companies whose securities trade in the regulated financial markets. Since the Scandinavian countries apply IFRS standards, it justifies combining them as one context.

2.2 Theory

There are several theories recognized by researchers to explain how corporate governance influences ESG performance, such as the agency theory, the resource dependence theory, the stewardship theory and the stakeholder theory (Muth & Donaldson, 1998; Nicholson & Kiel, 2007). These theories aim to demonstrate the scope and effectiveness of ESG performance, as well as explore the correlation between board composition (as measured by AC committee characteristics) and ESG performance among non-financial publicly listed companies in Scandinavia. Some of those theories help to understand the relationships between board composition, audit committee independence, audit committee expertise and ESD performance. This is due to the fact that the composition of the board plays an important role in improving the company's financial and non-financial reporting processes (Li, Pike, & Haniffa, 2008), reducing information asymmetry between shareholders and top management (Mangena & Pike, 2005).

The agency theory is a principle that has been used to explain any relationship between two parties, such as a principal (shareholders or owners) and agents (management), where the former instructs the latter to manage a business organization on its behalf in order to maximize its firm value and other benefits (Shapiro, 2005). Conflicts between two parties rarely arise as long as the interests of both principal and agent coincide. For example, the principal wants his business organization to pay more dividends when the organization has a high profit, but the agent prefers to use these profits for investing in assets. According to Mele (2008), these conflicts of interest can lead to higher agency costs and lower firm value through benefit disputes, moral hazard and adverse selection. In addition, higher agency costs contribute to lower liquidity in corporate stock prices, bad reputation, higher capital costs and lower company value (Healy & Palepu, 2001).

The mechanism for reducing agency problems is the board of directors, whose role is to control and discipline management on behalf of external owners. According to M. C. Jensen and Murphy (1990), aligning executive compensation with shareholder interests is one way to reduce agency costs. By tying executive pay to company performance, executives are motivated to act in the shareholders' best interests. However, such a strategy can also result in conflicts of interest, as executives may prioritize short-term gains over long-term sustainability. Thus, it is essential to design executive compensation plans that strike a balance between rewarding performance and promoting long-term value creation, as noted by Eccles et al. (2013).

Therefore, governance mechanisms such as board subcommittees composed of board members with appropriate characteristics such as independence, knowledge and experience are needed to prevent or reduce agent selfish interests (Wiseman, Cuevas-Rodríguez, & Gomez-Mejia, 2012). The audit committee's main task is to monitor the firm's financial results and ensure the integrity of the accounts. AC with characteristics of independence and expertise provides effective supervision. The characteristic of independence allows audit committees to be free from any influence from the CEO of the firm. Expertise is important for the financial background needed to understand the situation in the company. From the perspective of agency theory, in order to mitigate agency costs and opportunistic behavior, corporate governance should comprise a majority of outside directors. With a larger proportion of outsiders, the board will probably be more independent and objective in the decision-making process, and will also have greater control capacity (Shaukat, Qiu, & Trojanowski, 2016).

The characteristics, most often used in the literature to describe the impact of corporate governance on ESG performance, are related to the proportion of independent directors in the board (or independence of the board) and the expertise of an audit committee. In the subsections below we develop our hypotheses for each of these corporate audit committee characteristics. According to Luan and Tang (2007) the general opinion of shareholders, independent directors improve the company's performance because of their objective view of the company's condition and operations. Sometimes independent external board members can also bring some experience from their sector and/or personal experience.

In addition to the agency theory, we also draw from the perspectives of the stakeholder theory to help explain how audit committee characteristics are associated with ESG performance. Stakeholder theory relates to organizational management and business ethics that accounts for multiple constituencies like stakeholders, employees, customers, creditors, suppliers, competitors, even the whole society, impacted by business entities.

This theory assumes that the main idea of corporate governance activities is not only to benefit the shareholders but also the other relevant stakeholders. It addresses morals and values in managing an organization, such as those related to corporate social responsibility, market economy, and social contract theory. However, M. Jensen (2001) came to the realization that stakeholder theorists have been unsuccessful in providing practical solutions to manage the many conflicting interests of stakeholders that businesses are obliged to protect. He therefore proposed a strand of stakeholder theory which he referred to as the "enlightened Stakeholder Theory". He suggested that a business would not be able to maximize shareholders' value if any stakeholder is ignored or mistreated. The stakeholder theory is very important in the context of the control mechanisms adopted in companies, such as audit committees and their characteristics, that we study in our work.

2.3 Hypothesis

2.3.1 Audit Committee Independence and ESG Performance

The independence of an audit committee has been mentioned in many previous studies (Alqatamin, 2018; Dionne & Triki, 2005; Klein, 2002; Pomeroy & Thornton, 2008). It is the key characteristic of an audit committee that is normally associated with audit committee effectiveness (Baxter & Cotter, 2009). Sarbanes–Oxley Act requirements call for a more independent and competent audit committee. With that, AC members should not have any relationship with the management and should include non-executive and unrelated members. The existence of this important feature will ultimately result in a better financial reporting control and monitoring (Koh, Laplante, & Tong, 2007). According to Bédard, Piot, and Schatt (2014), the most important characteristics of AC which have a positive relationship with AC's effectiveness are AC's independence and expertise. According to Pozzoli, Pagani, and Paolone (2022), one of the main characteristics that can positively affect an AC's ability to control is its independence. The requirement for independence arises from the need to deal with asymmetric information and conflicts of interest between management and stakeholders, primarily shareholders.

Independent professional directors reduce agency costs associated with financial statements prepared by managers. It has been stated that the independence of the audit committee is the basis for a positive impact on the financial reporting process. According to a study by Al-Hadrami, Rafiki, and Sarea (2020), they suggested that in order for an audit committee to be effective, it is essential to have the right people involved. Effectiveness can be achieved through two important factors: independence and expertise. The independence of the audit committee is essential to organizational effectiveness. It has been revealed that the share of independent directors in the composition of the audit committee positively and significantly affects the performance results (Ibrahim, Ouma, & Koshal, 2019). The independence of the audit committee is crucial to the work of auditors, as they will be supported by the audit committee in any dispute with management, rather than merely being under management control, which might affect the investor's decision.

Furthermore, it has been assumed that the higher the audit committee's level of competence, the better the quality of the financial statements provided, which can have a positive impact on investors' decisions (J. R. Cohen, Hoitash, Krishnamoorthy, & Wright, 2014). The AC must express its opinion on delicate issues such as the reliability of the information contained in the financial statements, the activities of the auditors and the assessment of the quality of profits, where independence is an essential quality. Thus, the perception of independence is important as stakeholders rely on financial statements and other publicly available information in making their decisions.

Therefore, an independent AC is expected to play a central role in good corporate governance, financial reporting and auditing. Arif, Sajjad, Farooq, Abrar, and Joyo (2021) found a significant positive effect of AC independence on the level of compliance with the GRI guidelines, indicating the favorable effect of AC attributes on ESG reporting quality. Samaha, Khlif, and Hussainey (2015) demonstrate that the quality of internal audit, followed by the characteristics of the AC, plays an important role in ensuring the effective functioning of the main internal controls related to financial, operational and compliance activities are operating effectively. This role includes reviewing the effectiveness of ESG controls and activities to help organizations manage the risks and build resilience.

According to A. M. Buallay and AlDhaen (2018), AC independence has a positive effect on the ESG model. Independent audit committee members have influence over sustainability disclosures. Bamahros et al. (2022) has researched that audit committee independence is positively and significantly associated with ESG disclosure. This means non-board members of the audit committee can play a significant role in influencing companies to release more ESG information. Al-Hadrami et al. (2020) found that the AC independence have positive and significant influence on investment decision-making. Popov and Makeeva (2022) provide evidence that AC independence as a facilitating factor for ESG implementation in corporate operations by increasing the opportunities to monitor top management's actions and offer a "fresh perspective" on the company, although this factor may also reduce the positive effects due to an insufficient involvement of external directors in company or industry specific. Chariri (2017) indicated that independent audit committee has a positive impact on environmental performance.

The findings imply that companies, that desire to improve their environmental performance, should consider the independence of the audit committee. Good governance in companies is often achieved when the board operates independently, making decisions impartially and without personal interests influencing their choices (Jizi, 2017; Romano, Cirillo, Favino, & Netti, 2020). Independent boards also play a crucial role in providing greater oversight on the corporate performance (Fuzi, Halim, & Julizaerma, 2016). Chau and Gray (2010) have demonstrated that independent boards not only have a positive effect on disclosure practices but also limit the negative impact of ownership, including family ownership. According to Fernández-Gago, Cabeza-García, and Nieto (2018), an independent board of directors can improve transparency and trust, and also consider stakeholders' demands. The legitimacy perspective suggests that an independent board of directors promotes social responsibility disclosure, ultimately leading to more sustainable company activities.

Taken together, the above studies provide evidence which suggests a positive relationship between AC independence and ESG performance. Based on the above discussion, the following hypothesis is formulated as follows:

H1. *There is a positive and significant relationship between audit committee independence and ESG performance.*

2.3.2 Audit Committee Expertise and ESG Performance

In addition to independence, the credibility of a source is also dependent on competence. The advantage of having a financial expert on the audit committee is their ability to monitor and control accounting matters and the financial reporting process. The audit committee plays a crucial role in ensuring the quality and reliability of financial and non-financial business reports, as well as in overseeing internal audit and risk management processes within the organization. To effectively fulfill these responsibilities, it is essential to have committee members who possess expertise and specialized knowledge in these areas (Aprianti, Susetyo, Meutia, & Fuadah, 2022). So that the lack of expertise possessed by the audit committee causes the board to only depend on the external auditor (A. Buallay & Al-Ajmi, 2020). Investors will value the competence of audit committee members possessing various types of expertise, including financial and industry expertise.

For public companies, the Securities and Exchange Commission (SEC) requires them to have a financial expert, and they prefer it to be an independent board director. Audit committees with members with financial expertise are likely to be better equipped to advise the board on the development of guidelines and can help to avoid and manage the risks. At the same time, the audit committee's expertise improves the company's ability to prevent and detect any fraudulent activities and strengthen its internal control (Hoitash, Hoitash, & Bedard, 2009; Zhang, Zhou, & Zhou, 2007).

The presence of financial and industry experts in an AC is a measure of its effectiveness. This can increase investors' confidence in the accounts, which in turn can positively influence their investment decision (J. Cohen, Gaynor, Krishnamoorthy, & Wright, 2017). Al-Hadrami et al. (2020) provided evidence that AC competence is positively associated with companies' investment decisions. It is worth noting that while the presence of financial and industry experts on the audit committee is generally considered to be a positive factor, there may also be some drawbacks. For example, experts may be more likely to support management's financial reporting decisions, potentially leading to a bias in favor of the company (Simnett, Vanstraelen, & Chua, 2009).

Additionally, some studies have found that the presence of financial experts on the audit committee is not always associated with better financial reporting quality (S. Chen & Komal, 2018). In some of the studies, we can observe indications that the experience of the audit committee has not yet played an important role in corporate social responsibility and environmental disclosure (J. Wang & Sun, 2022).

Despite these potential limitations, the overall evidence suggests that audit committee expertise is an important factor in enhancing ESG performance. The study of Kibiya, Ahmad, and Amran (2016) proves positive relationships between audit committee expertise and the quality of financial reporting. Zaman, Farooq, Khalid, and Mahmood (2021) introduced new evidence demonstrating that an effective audit committee, through their experience, can mitigate conflicts between stakeholders and the agency by enhancing the quality of sustainability reporting. According to Gungor and Şeker (2022), results of the study show the expected positive effect of audit committee expertise on ESG performance. According to studies conducted by Raimo, Vitolla, Marrone, and Rubino (2021); (Said, AAWIZM, & Rashid, 2020) there is a positive relationship between audit committee expertise and the quality of reports produced by the company. These findings indicate that as the expertise of the members of the audit committee improves, the quality of the reports generated by the company improves.

Studies in the literature show that audit committee members with experience and expertise in their field perform more effective, oversight functions and increase firm performance. Accordingly, the following hypothesis regarding audit committee expertise is formed:

H2. *There is a positive and significant relationship between audit committee expertise and ESG performance.*

3 Research Methodology

This study examines the association between two important audit committee characteristics, such as independence and expertise, and ESG performance of the non-financial companies, publicly listed on the stock markets of Scandinavian countries. These countries have been selected mainly because they have similar corporate governance codes, in particular, the composition of the board and audit committee. The study sample includes 491 non-financial companies, listed on the stock markets of four Scandinavian countries (Norway, Denmark, Sweden and Finland) during the period of 2012 – 2021, that represents 1355 firm-year observations. Several inclusion criteria are used to select firms into the sample. For example, firms that are included in the sample must have sufficient data regarding the AC characteristics and ESG performance. All data related to financial and non-financial statement information were collected from the Refinitiv Eikon database, which has already been used by scholars in ESG issues analysis (Dorfleitner, Kreuzer, & Sparrer, 2020; Garcia, Mendes-Da-Silva, & Orsato, 2017).

3.1 Sample Selection and Data Sources

The selection of the years 2012 to 2021 was primarily based on the availability of data pertaining to audit committee characteristics and ESG scores. Table 1 shows the final number of companies selected into the sample and the observations used in the regression analysis. At the same time, it specifies country composition, where we can see that 55% of Scandinavian publicly listed companies were sampled (due to availability of data). When considering the countries, Sweden has the highest percentage of sampled firms at 70%, which can be attributed to the fact that they have many listed companies. In contrast, Norway has the lowest percentage at nearly 34%. According to this fact, the highest percentage of sampled companies is 58.46 - from Sweden, followed by Norway and Finland - 14.46%, and Denmark - 12.62%. Furthermore, Finland has the highest ESG score of 69.129 in comparison with the lowest ESG score in Sweden of 60.434.

Table 1: Sample selection and distribution by country

Country	Total	Sample	%	ESG_SCORE
Denmark	131	62	12.62	64.402
Finland	143	71	14.46	69.129
Sweden	408	287	58.46	60.434
Norway	210	71	14.46	63.940
Total/average score	**892**	**491**	**100**	**64.476**

While Finland surpassed the EU average for all 15 ESG criteria, its outstanding performance in environmental sustainability, in comparison to both Scandinavian and European peers, was the determining factor in it being recognized as the top performer in the 2021 country sustainability assessment. Finland has implemented successful environmental protection policies that have effectively reduced pollution, promoted natural conservation, and protected biodiversity. Additionally, with a renewable energy mix of nearly 40%, it is leading the way in transitioning towards a low-carbon future. Furthermore, Finland's strong institutions have enabled it to manage Covid-19 caseloads effectively and avoid many of the pandemic's economic consequences (Singhania & Saini, 2022).

However, Swedish companies excel in providing sustainability strategies, with 81% of them offering such plans. This surpasses the performance of European companies as a whole. It is crucial for a company's sustainability strategy to demonstrate the integration of sustainability efforts into their overall business strategy. This helps stakeholders understand that sustainability is not viewed as a separate aspect of the business. In addition, companies should clearly articulate how they plan to attain their sustainability objectives by outlining clear priorities for action. This ensures transparency and accountability in the pursuit of sustainability goals (Arvidsson & Dumay, 2022).

In practice, ESG scores can be used by investors or various stakeholders. Investors can compare a company's performance to that of industry peers and companies from other sectors by assigning an ESG score, which can range from 0 -100. A score of less than 50 is regarded as a poor, while a score of more than 70 is considered as an excellent (Larcker, Pomorski, Tayan, & Watts, 2022). Ratings can also be described as either excellent, good, average or poor. An excellent ESG score indicates that best practices are being followed in all ESG areas and a company has little to no internal or external problems. A good ESG score signifies that a company is meeting best practices in each ESG category and has a low negative impact on people or the planet. An average ESG score indicates that companies are not on track to meet ESG benchmarks or actively working toward meaningful ESG goals. A poor score indicates that no best practices are being followed, it is indicative of a company that is negatively impacting the environment and has employees who are being poorly treated (Berg, Koelbel, & Rigobon, 2022).

Table 2 shows sampling and industry composition presented by Global Industry Classification Standard (GICS) industry sector. Each of the 11 GICS industry sectors represented in our sample. As shown in the Table 2, the top three sectors are Industrials (24,57%), Financials (13,06%) and Health Care (11,58%), which together comprised nearly 50% of our observations. There are 91 observations in the Communication Services, 110 observations in the Consumer Discretionary sector, 78 observations in the Consumer Staples sector, 77 observations in the Energy sector, 177 observations in the Financials sector, 157 observations in the Health Care sector, 333 observations in the Industrials sector, 108 observations in Information Technology sector, 148 observations in the Materials sector, 62 observations in the Real Estate sector and 14 observations in the Utilities sector.

Table 2: Sample selection and distribution by industry

GICS industry sector	Obs.	%	MEAN ESG_SCORE
Communication Services	91	6.72	65.943
Consumer Discretionary	110	8.12	64.442
Consumer Staples	78	5.75	74.403
Energy	77	5.69	65.096
Financials	177	13.06	60.744
Health Care	157	11.58	58.301
Industrials	333	24.57	63.046
Information Technology	108	7.98	45.203
Materials	148	10.92	76.166
Real Estate	62	4.58	63.048
Utilities	14	1.03	69.785
Total/average score	**1355**	**100**	**64.198**

The industries with high mean ESG scores are Materials – 76.166, Consumer Staples – 74.403 and Industrials – 63.046. The Materials industry, which comprises companies engaged in the extraction, processing, and manufacturing of raw materials such as metals, chemicals, and construction materials, has a high mean ESG score. Companies in this sector often face significant environmental challenges, such as resource depletion, waste generation, and emissions. High ESG scores in the Materials industry indicate that companies are actively addressing these challenges by implementing sustainable practices, reducing their carbon footprint, and investing in environmentally friendly technologies (Lindahl, Robèrt, Ny, & Broman, 2014; Men, Li, Cheng, & Zhang, 2022).

The Materials industry is increasingly focusing on responsible sourcing and supply chain management. This involves ensuring that raw materials are obtained from sustainable sources, minimizing negative impacts on local communities and ecosystems, and promoting ethical labour practices throughout the supply chain. Companies with high ESG scores in the Materials industry demonstrate a commitment to transparency and responsible sourcing, which contributes to their overall ESG performance (Akhavan & Beckmann, 2017).

The high mean ESG scores in the Consumer Staples industry can be attributed to several factors. Companies in this industry prioritize sustainable sourcing of raw materials, ensuring responsible agricultural practices, ethical ingredient sourcing, and fair labour practices throughout the supply chain. Their commitment to sustainable and responsible sourcing contributes to high ESG scores (Wong, Turner, & Stoneman, 1996). Environmental stewardship is another key aspect, as companies invest in eco-friendly manufacturing, packaging innovations, waste reduction, and renewable energy adoption. By actively engaging in these practices, they minimize their carbon footprint and conserve resources (Akhil, 2016).

The Industrials industry, despite having a lower mean ESG score compared to Materials and Consumer Staples, is actively addressing environmental challenges, and improving its ESG performance. Companies in this sector are adopting sustainable practices and investing in environmentally friendly technologies to reduce their carbon footprint and address resource consumption issues (Lindahl et al., 2014). Responsible sourcing and ethical supply chain management are also emphasized, aiming to minimize negative impacts on local communities and ecosystems (Akhavan & Beckmann, 2017). Industrials companies with high ESG scores prioritize environmental stewardship through eco-friendly manufacturing, waste reduction, and renewable energy adoption (Akhil, 2016). Although there is room for improvement, the Industrials industry's commitment to sustainability and ongoing efforts to address environmental concerns contribute to its overall ESG performance.

The industry with the lowest mean ESG score is Information Technology – 45.203. Egorova, Grishunin, and Karminsky (2022) state that IT companies are currently not leaders in the ESG rating, which allows us to conclude that IT companies have the opportunity to develop their ESG scores if its development improves the position of the company and will have a positive effect on its performance. Based on the study, the market value of a company is the most appropriate indicator for assessing the impact of ESG factors on it. At the same time, IT companies have specific activities and that is the main reason for lower ESG scores. According to the study, manufacturing sector has the main focus on environmental issues. Those companies began to pay attention to sustainable development way much earlier and implemented business processes which allow them increase environmental contribution, delivering sustainable results.

3.2 Dependent Variable

To test our hypotheses and to know how Audit Committee Characteristics – independence and expertise influence the ESG performance, we use data on ESG performance (ESG_SCORE) from Refinitiv Eikon database. This score is based on three dimensions: environmental, social and corporate governance.

Environmental performance measures a company's ability to reduce emissions to the environment, efficiently use natural resources in its manufacturing processes and support research and development of environmentally efficient products and services. Social performance measures a company's ability to build trust and loyalty among employees, respect core human rights conventions, be good citizens, protect public health, respect business ethics and create value-added products and services. Finally, corporate governance performance measures a company's ability to act in the best interests of shareholders through the company's governance systems and processes (board structure and functions, remuneration policy, etc.) (Birindelli, Dell'Atti, Iannuzzi, & Savioli, 2018).

In deciphering the impact of audit committee independence and expertise on corporate sustainability practices, we consider ESG_SCORE as a dependent variable. ESG_SCORE of Refinitiv Eikon database is extensively used by several researchers in their studies (Bae, El Ghoul, Gong, & Guedhami, 2021; Bătae, Dragomir, & Feleagă, 2021; Shakil, 2021). Our study measures the level of ESG performance by calculating the arithmetic mean of the three scores: social, environmental, and corporate governance (Ferrero-Ferrero, Fernández-Izquierdo, & Muñoz-Torres, 2016; Giannarakis, Konteos, & Sariannidis, 2014; Kassinis, Panayiotou, Dimou, & Katsifaraki, 2016; Mervelskemper & Streit, 2017). The overall ESG_SCORE is expressed as a percentage ranging from 0 to 100 percent.

In an attempt to capture the impact of governance characteristics on ESG performance over time, to show effects and reduce endogeneity problems, any year's governance variables are linked to the next year's ESG_SCORE.

3.3 Independent Variables

The independent variables, included in our econometric model, are the audit committee independence (AC_IND) and audit committee expertise (AC_EXP). In this model, AC_IND is the proportion of independent members to the total number of members on the audit committee. The measuring this variable this way is common and popular in the literature (Ahmed, Hossain, & Adams, 2006; Chau & Gray, 2010; Lim, Matolcsy, & Chow, 2007). AC_EXP is a dummy variable, coded as 1 if the audit committee member has finance or accounting, or general business experience in the industry (Be´ dard, Chtourou, & Courteau, 2004; Velte, 2023). Definitions and formulas of the variables are presented in Table 3.

Table 3: Variable definition

Variable	Definition
ESG_SCORE	The arithmetic meaning of the three scores: social, environmental, and corporate governance. The overall ESG SCORE is expressed as a percentage ranging from 0 to 100 percent
AC_IND	The proportion of independent members to the total number of members on the audit committee
AC_EXP	A dummy variable stated as one if the audit committee member has finance or accounting or general business experience in the industry
BOD_SIZE	The number of members of the board of directors
BOD_DIV	An indicator variable coded as one if the company has a clear policy on board gender diversity
BOD_MEET	The number of meeting times of the board during the year
BOD_TEN	The average number of years of members on the board of directors
SIZE	The natural logarithm of total assets
LEV	The ratio of total debt to total assets
AUD_TEN	The number of years the company has been audited by the same auditor
AFEE	The natural logarithm of total audit fees received
NAF	The ratio of non-audit service fees to total fees
INDUST	The industrial sector of the company
COUNTRY	The county of the company: Denmark, Finland, Sweden and Norway

To exclude model misspecification, we control for additional variables that could impact the ESG_SCORE. Therefore, we included eleven control variables in the research due to their substantial effect on the ESG performance of non-financial publicly listed companies according to prior studies (Albitar, Hussainey, Kolade, & Gerged, 2020; Husted & de Sousa-Filho, 2019; Shakil, Mahmood, Tasnia, & Munim, 2019; Zaman, Jain, Samara, & Jamali, 2022). The control variables are board size (BOD_SIZE) – the number of members of the board of directors; board diversity (BOD_DIV) – an indicator variable coded as one if the company has a clear policy on board gender diversity; board meetings (BOD_MEET) – the number of meeting times of the board during the year. BOD_SIZE, BOD_DIV and BOD_MEET – the most widely used characteristics to investigate the impact to the ESG_SCORE (Al-Najjar, 2011; Dwekat, Seguí-Mas, Tormo-Carbó, & Carmona, 2020).

Board tenure (BOD_TEN) is average number of years of members on the board of directors. This variable has gained significant attention in the literature and started highly investigated special after the Enron collapse. Researchers have extensively investigated the relationship between board tenure and the quality of financial reporting. Notably, several studies have suggested a negative association between board tenure and the quality of financial reporting (Setiany, Hartoko, Suhardjanto, & Honggowati, 2017; Sharma & Iselin, 2012). Furthermore, research has also explored the impact of board tenure on other aspects of corporate governance. For instance, some studies have found a positive correlation between board tenure and the comprehensiveness and relevance of environmental, social, and governance disclosures (Bravo & Reguera-Alvarado, 2019; W. T. Chen, Zhou, & Zhu, 2019; Jackson & Owens).

Size (SIZE) – the natural logarithm of total assets; leverage (LEV) – the ratio of total debt to total assets; audit tenure (AUD_TEN) – the number of years the company has been audited by the same auditor; audit fees (AFEE) – the natural logarithm of total audit fees received; (NAF) the ratio of non-audit service fees to total fees, industry (INDUST) - the industrial sector of the company, country (COUNTRY) - the county of the company: Denmark, Finland, Sweden, and Norway.

3.4 Methodology

In view of the objective of this research, which is to determine the existence of associations between the AC characteristics of non-financial publicly listed companies in four Scandinavian countries and their ESG performance through panel data regressions (static and balanced), and based on the set of variables chosen, the empirical model to be tested (Eq. (1)) is specified below. The coefficients in the equation are estimated based on our regression analysis. It describes the proposed best practices match between Audit Committee determinants and ESG performance, as proxied by the ESG score, which is specified below:

$$\begin{aligned} ESG\_SCORE_{t,i} = \beta_0 &+ \beta_1 AC\_IND + \beta_2 AC\_EXP + \beta_3 BOD\_DIV + \beta_4 BOD\_SIZE \\ &+ \beta_5 BOD\_MEET + \beta_6 BOD\_TEN + \beta_7 SIZE + \beta_8 LEV + \beta_9 AUD\_TEN \\ &+ \beta_{10} AFEE + \beta_{11} NAF + \beta_{12} INDUST + \beta_{13}\, \mathrm{COUN}TRY + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where ESG_SCORE is the proxy of ESG performance for the sampled companies over the study period. The ESG_SCORE represents the dependent variable. AC_IND is the percentage of independent auditors. AC_EXP takes the value of 1 if the company has an AC with at least three members and at least one "financial expert" within the meaning of the Sarbanes-Oxley Act and is 0 otherwise. We also identify several control variables used in corporate governance studies by prior research (Bansal & Sharma, 2016; Dyck & Zingales, 2009; Epps & Cereola, 2008; Jiraporn & Gleason, 2007; Lepore, Paolone, & Cambrea, 2018; Ojeka, Iyoha, & Obigbemi, 2014). The remaining variables BOD_SIZE, BOD_DIV, BOD_MEET, BOD_TEN, SIZE, LEV, AUD_TEN, AFEE, NAF, INDUST, COUNTRY are control variables.

As previously mentioned, Refinitiv Eikon database represents the only database used in this study, as it is relevant for several reasons (Del Giudice & Rigamonti, 2020). First, it offers the ESG_SCORE and the ESG combined score by considering the role of controversies in the sustainability assessment. Second, it considers different capital markets, which aids scholars in structuring an international dataset. Finally, the ESG_SCORE has a range between 0 and 100, which allows a minimum level of variability.

4 Results and Discussion

This chapter starts with the descriptive statistics and univariate analysis of the variables used in the empirical analysis to investigate the influence of audit committee characteristics on ESG performance. This is followed by a correlation matrix showing a two-way Pearson correlation between the variables included in this study. Correlations statistics identify the significant correlations among the independent variables. It is important because it highlights the associations between audit committee characteristics employed in this study. Further presented are the results of a detailed multivariate regression analysis, that investigates the hypotheses set out in chapter three. The multivariate analysis of two audit committee characteristics – AC_IND and AC_EXP, on ESG_SCORE. Finally, this chapter concludes with a discussion of the findings from the empirical analysis.

4.1 Descriptive Statistics

Table 4 presents the descriptive statistics for both the dependent and independent variables, the ones used in the regression model applied to non-financial publicly listed companies in the Scandinavian region from 2012 to 2021. The descriptive statistics table includes the minimum, maximum, mean and standard deviation. This table shows the summary statistics of the dependent variable (ESG_SCORE) and explanatory variables (AC_IND and AC_EXP). The number of firm-year observations is 1355 for all the variables. The descriptive statistics concerning ESG performance indicate that the mean ESG_SCORE is 63.40% ± 19.90%, the ESG_SCORE variable ranges from a minimum value of 4.10 to a maximum value of 92.80. The mean ESG_SCORE of 63.40% indicates the average level of ESG performance among the sampled Scandinavian non-financial publicly listed companies. This suggests a moderate level of ESG compliance or implementation within the studied companies. The standard deviation of 19.90% signifies the variability or dispersion of ESG_SCORE around the mean. A higher standard deviation indicates a wider range of ESG performance across the companies. Comparing the minimum value of 4.10 and the maximum value of 92.80, it is evident that there is significant variation in ESG_SCORE among the companies, with some exhibiting relatively low scores while others demonstrate higher scores. Additionally, whether the mean ESG_SCORE is considered high enough depends on the specific context, industry norms and expectations regarding ESG performance.

Table 4: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG_SCORE	1355	0.634	0.199	0.041	0.928
AC_IND	1355	72.446	30.678	0	100
AC_EXP	1355	0.688	0.464	0	1
BOD_SIZE	1355	8.785	2.53	3	28
BOD_DIV	1355	0.845	0.362	0	1
BOD_MEET	1355	12.401	7.048	0	56
BOD_TEN	1355	6.357	2.652	0	17.667
SIZE	1355	22.046	2.235	0	27.198
LEV	1355	21.388	2.416	12.057	27.137
AFEE	1355	12.819	4.225	0	19.701
NAF	1355	41.564	32.893	0	96.429
AUD_TEN	1355	5.607	3.505	0	15
COUNTRY	1355	3.505	1.648	1	5
INDUST	1355	5.89	2.527	1	11

According to the descriptive statistics from Table 4, the mean AC_IND is 72.446% ± 30.678%, the AC_IND variable ranges from a minimum value of 0 to a maximum value of 100. The standard deviation of 30.678% signifies the variability or dispersion of AC_IND around the mean, which indicates a wider range of AC_IND across the companies. The positive and significant correlation between the independence of the audit committee and ESG performance confirms that a higher number of independent members within the AC ensures more effective monitoring activities. Therefore, around 72% of the members are considered to be independent pursuant to the Corporate Governance Code during the study period.

The mean AC_EXP is 68.80% ± 46.40%, the AC_EXP variable ranges from a minimum value of 0 to a maximum value of 1. The standard deviation of 46.40% indicates the variability or dispersion of AC_EXP around the mean, suggesting a wider range of AC_EXP values across the companies.

This implies that nearly 68% of AC members are considered as having recent and relevant financial experience. Furthermore, this suggests that having an accounting expert on the audit committee would likely contribute to enhancing ESG performance. In fact, in accordance with agency theory M. C. Jensen and Meckling (1976), the findings confirm that AC expertise improves ESG performance by mitigating information asymmetry and safeguarding the heightened interests of stakeholders in ESG performance. In addition, our findings provide confirmation of the monitoring role played by the audit committee, which aligns with previous studies (L. Chen, Srinidhi, Tsang, & Yu, 2016; Gillet-Monjarret, 2018; Hammami & Hendijani Zadeh, 2020).

The mean BOD_SIZE is 8.785 ± 2.53, the BOD_SIZE variable ranges from a minimum value of 3 to a maximum value of 28. The mean BOD_DIV is 0.845% ± 0.362%, the BOD_DIV variable ranges from a minimum value of 0 to a maximum value of 1. The mean BOD_MEET is 12.401 ± 7.048, the BOD_MEET variable ranges from a minimum value of 0 to a maximum value of 56. The mean BOD_TEN is 6.357 % ± 2.652%, the BOD_TEN variable ranges from a minimum value of 0 to a maximum value of 17.667. Here we can conclude that the mean board size is about 9, they meet 12 times in a year on average, board diversity is about 84.5%. The mean board tenure is 6.357.

The mean SIZE is 22.046% ± 2.235 %, the SIZE variable ranges from a minimum value of 0 to a maximum value of 27.198. The mean LEV is 21.388% ± 2.416 %, the LEV variable ranges from a minimum value of 12.057 to a maximum value of 27.137. The mean AFEE is 12.819 % ± 4.225 %, the AFEE variable ranges from a minimum value of 0 to a maximum value of 19.701. The mean NAF is 41.564% ± 32.893%, the NAF variable ranges from a minimum value of 0 to a maximum value of 96.429. The mean AUD_TEN is 5.607% ± 3.505%, the AUD_TEN variable ranges from a minimum value of 0 to a maximum value of 15. The mean Country is 3.505 % ± 1.648 %, the Country variable ranges from a minimum value of 1 to a maximum value of 5. The mean Industry is 5.89 % ± 2.527 %, the Industry variable ranges from a minimum value of 1 to a maximum value of 11.

According to the descriptive statistical analysis table, organizations listed on several Scandinavian Stock Exchange during the timeframe spanning from 2012 to 2021 have met the requirements provided forth by Securities and Exchange Commission (SEC), the USA’s Sarbanes Oxley law, the Nordic countrieś corporate governance and stock markets codes: the Norwegian Code of Practice for Corporate Governance, Rule Book I – Harmonized Rules, Oslo Rulebook II – Issuer Rules, issued by the Oslo Stock Exchange, Audit Committee Guide – Danish Act, regarding the Establishment and Work Implementation of the Audit Committee. These requirements encompass certain attributes, including a minimum audit committee size of three members. Additionally, there should be at least one member with financial expertise, which entails knowledge of financial statements, generally accepted accounting principles, internal controls and the functions of an audit committee, along with relevant educational and professional experience. To ensure independence, at least one member should meet the independence criteria specified in the relevant acts and documents. In terms of frequency, the audit committee should hold meetings at least four times a year, with no more than four months between each meeting.

4.2 Correlation Analysis

Table 5 presents the pairwise correlation analysis between different variables. Table shows a matrix of correlations, with each cell representing the correlation coefficient between two variables. The diagonal cells represent the correlation between a variable and itself, which is always equal to 1. Table also includes asterisks (*) to indicate statistically significant correlations at the p<.05 level. The correlation matrix highlights very important relationships between the main variables of the study. The variables included in the analysis are ESG_SCORE, AC_IND, AC_EXP, BOD_SIZE, BOD_DIV, BOD_MEET, BOD_TEN, LEV, SIZE, AFEE, NAF, AUD_TEN, COUNTRY and INDUST.

The examination of the correlation matrix shows that almost all correlation coefficients are lower than 0.9. However, the correlation for LEV of 0.945 is below the recommended cutoff point of 10 (Gujarati, 2022; Kennedy, 2008; Tabachnick, Fidell, & Ullman, 2013). Pairwise correlations indicate that there are no serious problems of correlation between a given explanatory variable and other explanatory variables in the model. The results indicate that ESG has a significant positive correlation with AC_IND, AC_EXP, BOD_SIZE, BOD_DIV, BOD_MEET, BOD_TEN, SIZE, LEV, AFEE and NAF at a significance level of $p < 0.05$. This indicates that these variables and

ESG move in the same direction, meaning that an increase in these variables will correspondingly lead to an increase in ESG.

Furthermore, the analysis shows that AC_IND has a significant positive correlation with AC_EXP, BOD_SIZE, BOD_DIV, BOD_MEET, BOD_TEN, SIZE, LEV, AFEE and NAF at a significance level of $p < 0.05$. This implies that as AC_IND increases, the other variables also tend to increase. Additionally, the analysis indicates that AC_EXP has a significant positive correlation with BOD_SIZE, GEN_DIV, BOD_MEET, BOD_TEN, SIZE, LEV, AFEE and NAF at a significance level of $p < 0.05$. This means that as AC_EXP increases, so do the other variables. Lastly, the analysis also shows that BOD_SIZE has a significant positive correlation with BOD_DIV, BOD_MEET, BOD_TEN, SIZE, LEV, AFEE and NAF at a significance level of $p < 0.05$. This implies that as BOD_SIZE increases, the other variables also tend to increase. Overall, the results suggest that there are significant positive correlations between several variables, indicating that they are likely to be related. However, it is important to note that multicollinearity among the independent variables may affect the accuracy and reliability of the results.

Table 5: Pairwise correlations

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) ESG_SCORE	-	1.000													
(2) AC_IND	1.20	0.432*	1.000												
(3) AC_EXP	1.19	0.343*	0.174*	1.000											
(4) BOD_SIZE	1.66	0.509*	0.211*	0.277*	1.000										
(5) BOD_DIV	1.27	0.406*	0.187*	0.130*	0.262*	1.000									
(6) BOD_MEET	1.18	0.095*	0.097*	-0.055*	-0.035	0.113*	1.000								
(7) BOD_TEN	1.17	0.012	-0.236*	-0.073*	0.088*	0.059*	-0.120*	1.000							
(8) SIZE	9.89	0.635*	0.171*	0.244*	0.554*	0.392*	0.203*	0.106*	1.000						
(9) LEV	9.90	0.640*	0.160*	0.250*	0.553*	0.378*	0.235*	0.082*	0.945*	1.000					
(10) AFEE	1.05	0.200*	0.066*	0.035	0.140*	0.061*	0.022	0.028	0.204*	0.189*	1.000				
(11) NAF	1.09	0.162*	0.136*	0.115*	0.031	0.057*	-0.059*	-0.068*	0.126*	0.109*	0.057*	1.000			
(12) AUD_TEN	1.11	-0.145*	-0.136*	-0.008	-0.195*	-0.057*	0.092*	-0.045	-0.090*	-0.062*	-0.052	0.056*	1.000		
(13) COUNTRY	1.12	-0.123*	-0.067*	-0.127*	-0.078*	-0.245*	0.011	0.095*	-0.146*	-0.161*	0.004	0.079*	0.056*	1.000	
(14) INDUST	1.11	-0.029	-0.012	-0.185*	-0.053	-0.003	0.009	0.153*	0.007	-0.023	-0.040	0.067*	-0.153*	0.034	1.000

Note: This table presents correlation results for the variables. Table 3 provides the detailed description of the variables.
** shows significance at p<.05*

In regression analysis, the variance inflation factor (VIF) is a measure of the degree of multicollinearity of one regressor with the other regressors (Daoud, 2017). Regarding multicollinearity check of this paper, all variables have a variance inflation factor (VIF) value of less than 10. It is observed that all correlations are low and the variance inflation factor scores are also lower than the suggested cutoff of 10 (Gujarati, 2022; Kennedy, 2008; Tabachnick et al., 2013). These results allow us to conclude that there is no serious problem of multicollinearity, as the statistics reported in Table 5 show that none of the variables are highly correlated. Hence, multicollinearity is not a concern in our regression analyses.

4.3 Empirical Results

We present the multivariable regression results in Table 6. The dependent variable ESG_SCORE was considered in three models to observe the effect of individual audit committee characteristics on it. Results carried at 10%, 5%, and 1% significant level. Several variables, such as AC characteristics, board characteristics, country, industry are regressed against the dependent variable and therefore their association was examined. The results of the regression are presented in Table 6. Column 1 of Table 6 indicates an adjusted R-squared of 0.569. It is important to mention that the R-squared value is around 56.9% indicating that 56.9% of ESG_SCORE variations are determined by the independent variables, namely the independence of AC members, the financial experience of AC members – dummy variable, and control variables used in the regression, namely board size, board gender diversity, number of board meetings, board tenure, size of assets, leverage, audit fees, audit tenure, country, industry and non-audit service fees. The model is considered to be statistically significant overall. It means that the variables, we use in the regression specification, can jointly predict the firm performance in our sample of the Scandinavian region companies.

Table 6: AC and ESG performance

VARIABLES	(1) ESGSCORE	(2) ESGSCORE	(3) ESGSCORE
AC_IND	***0.0019****		***0.0018****
	(0.0001)		***(0.0001)***
AC_EXP		***0.0678****	***0.0560****
		(0.0088)	***(0.0083)***
BOD_SIZE	0.0105***	0.0123***	0.0088***
	(0.0018)	(0.0019)	(0.0018)
GEN_DIV	0.0754***	0.0954***	0.0753***
	(0.0111)	(0.0117)	(0.0109)
BOD_MEET	-0.0012**	-0.0001	-0.0008
	(0.0005)	(0.0006)	(0.0005)
BOD_TEN	0.0015	-0.0032**	0.0019
	(0.0015)	(0.0015)	(0.0014)
SIZE	0.0091*	0.0111**	0.0085*
	(0.0050)	(0.0053)	(0.0049)
LEV	0.0297***	0.0258***	0.0286***
	(0.0046)	(0.0049)	(0.0046)
AFEE	0.0028***	0.0033***	0.0030***
	(0.0009)	(0.0009)	(0.0009)
NAF	0.0003***	0.0004***	0.0003**
	(0.0001)	(0.0001)	(0.0001)
AUD_TEN	-0.0022**	-0.0042***	-0.0024**
	(0.0011)	(0.0011)	(0.0011)
COUNTRY	0.0013	0.0027	0.0026
	(0.0023)	(0.0024)	(0.0023)
INDUST	-0.0017	0.0006	0.0000
	(0.0015)	(0.0016)	(0.0015)
Constant	-0.5244***	-0.4271***	-0.5258***
	(0.0414)	(0.0433)	(0.0408)
F	147.44***	119.53***	144.20***
Observations	1,355	1,355	1,355
R-squared	0.569	0.517	0.583

*Note: This table presents regression results for the association between AC independence, expertise and ESG performance. Table 3 provides the detailed description of the variables. *** p<0.01, ** p<0.05, * p<0.1*

Our first hypothesis (H1) states that there is a potentially positive and significant relationship between audit committee independence and ESG performance. In column 1 of Table 6 we find that there is positive and significant association between AC_IND and ESG_SCORE at 1% level, these results are confirmed in the column 3 of Table 6. This implies that the AC independence potentially positively influences the performance of the firm, and this also supports the finding of Baxter and Cotter (2009). They empirically demonstrated that audit committee independence is one of the key characteristics typically associated with an audit committee, and that the number of independent members within the audit committee produces higher levels of ESG performance.
Our results indicate that audit committee independence is a significant factor that influences ESG performance. There are several studies which support our first hypothesis. According to the paper of Samaha, Dahawy, Hussainey, and Stapleton (2012), AC independence is one of the main characteristics that can positively affect an AC's ability to perform control. The requirement for independence arises from the need to deal with asymmetric information and conflicts of interest between management and stakeholders, primarily shareholders.

The second hypothesis (H2) predicts that the financial expertise of AC members is positively and significantly associated with the firm ESG performance. The results of our regression analysis confirmed in column 2 of Table 6, where we find that it is positive and significant association between AC_EXP and ESG_SCORE at 1% level. These results are confirmed in the column 3 of Table 6.

Our results show that AC committee expertise is an essential factor that influences by ESG scores. That gives suggestion that the greater the number of audit committee members with recent and relevant financial experience, the stronger the sustainable performance. The expertise they bring to the listed companies in the Scandinavian region is followed by improvements in financial performance. Such results are consistent with the findings of Gungor and Şeker (2022), who examined 385 listed companies in the Oil, Gas and Coal sector worldwide, and also discovered that as the AC financial experience increases, the firm ESG performance increases too. Here we have to take into consideration the specifics of the sector. As observed earlier in Table 2, the Energy sector has one of the highest ESG score due to the main focus on sustainability and environmental issues.

Moreover, Zaman et al. (2021) presents new evidence about how improvement of the quality of sustainability reporting and an effective audit committee experience can reduce conflicts between stakeholders and the agency. The study of Kibiya et al. (2016) proves positive relationships between audit committee expertise and the quality of financial reporting. On the other hand, our results are inconsistent with the finding of J. Wang and Sun (2022), who discovered that the experience of the audit committee has not yet played an important role in corporate social responsibility and environmental disclosure.

The results demonstrate that having an audit committee with independent members and at least one financial expert generates a higher ESG performance. At the same time, in the column 3 of Table 6 we find positive and strong relationships between BOD_SIZE and ESG_SCORE where significance is at the 1% level. We can conclude that if the board size consists of nine or more members, that has a significant positive effect on ESG performance. This statement is consistent with several previous studies (García-Ramos & Díaz, 2021; Mititean, 2022).

There is also a positive relationship between gender diversity (BOD_DIV) among board members and ESG performance since the significance is at the 1% level. The results demonstrate that board of directors that high in gender diversity contributes to a higher ESG score. This is consistent with study (Issa & Zaid, 2021), who found that board gender diversity assists companies in achieving better social performance. Additionally, Haque (2017) discovered that both board gender diversity and board independence have a positive influence on environmental performance, as demonstrated by carbon reduction initiatives. In contrast, Radu and Smaili (2021) found that board gender diversity has a negative impact on social performance.

In contrast to the aforementioned results, the number of board meetings (BOD_MEET), specifically holding a minimum of three meetings per year, negatively and significantly impacts the ESG score at the 5% level. This aligns with expectations, as more frequent board meetings are anticipated to result in more effective and diligent monitoring of sustainable processes. There is a positive relationship between SIZE and ESG_SCORE since the significance is at the 10% level. Furthermore, we found a positive strong relationship between LEV and ESG_SCORE since the significance is at the 1% level. The results demonstrate that leverage ratio of total debt to total assets generates a higher ESG scores. At the same time, a positive and strong relationship has been found between AFEE and ESG_SCORE where significance is at the 1%. The results demonstrate that the amount of total audit fees received gives positive effect on ESG performance.

In summary therefore, the empirical findings reported in Table 6 find that the key ingredients of what regulators perceive as more effective audit committees are associated with higher ESG performance. The findings in relation to audit committee independence and activity are largely consistent with prior research as Arif et al. (2021); Ibrahim et al. (2019); Pozzoli et al. (2022) found a positive association between audit committee independence and ESG performance. Similarly, Al-Hadrami et al. (2020); Bamahros et al. (2022) reported a positive impact of audit committee independence on ESG performance.

Even though in some of the studies researchers argue about presence of indicators that the experience of the audit committee plays an important role in corporate social responsibility and environmental disclosure. Despite these potential limitations, the overall evidence suggests that audit committee expertise is an important factor in enhancing ESG performance. According to Gungor and Şeker (2022), there is expected positive effect of audit committee expertise on ESG performance. This study points out that members with financial expertise have a thorough knowledge of technical and accounting standards and therefore are better able to control financial and sustainability reports.

4.4 Discussion of Results

The findings of our study illustrate the association between AC characteristics and ESG performance. The study indicates that a strong ESG performance is influenced by a combination of various AC characteristics. Specifically, our analysis highlights a notable positive relationship between AC independence, AC expertise and ESG performance. As a result, hypotheses H1 and H2 were supported by the study's results. The study's results confirm a significant and positive correlation between AC independence, AC expertise and ESG performance. These findings suggest that having a greater number of independent members on the AC enhances the monitoring activities performed by the committee, ultimately leading to improved ESG performance.

Additionally, the study suggests that including an accounting or a financial expert on the AC could further contribute to enhancing ESG performance.

According to the agency theory perspective, ACs play a crucial role in mitigating information asymmetry and conflicts of interest between managers and stakeholders during the process of making ESG decisions. The study's findings align with agency theory (M. C. Jensen & Meckling, 1976), which proposes that AC expertise improves ESG performance by reducing information asymmetry and safeguarding the interests of stakeholders who are invested in ESG performance. Specifically, the study suggests that greater AC expertise enables the committee to better oversee ESG-related activities and make decisions with a greater level of insight or knowledge, ultimately leading to improved ESG performance. Furthermore, our study's findings support the monitoring function of the AC, as suggested by earlier research (L. Chen et al., 2016; Gillet-Monjarret, 2018; Hammami & Hendijani Zadeh, 2020).

Our research findings are in line with prior literature that has demonstrated a positive correlation between ESG performance and disclosure (Uyar, Karaman, & Kilic, 2020; Z. Wang, Hsieh, & Sarkis, 2018). Building on this, our study sheds light on how the agency theory can be leveraged to explain the impact of internal audit quality on ESG performance and disclosure. Furthermore, our research assesses whether audits play a crucial role in enhancing the quality of the reporting process. By increasing disclosure, companies can reduce agency costs, as reporting serves as a critical means of communicating their ESG initiatives. This underscores the importance of effective reporting to convey a firm's commitment to sustainability and minimize agency costs.

Our research results offer valuable insights into the key AC characteristics, revealing the favorable effects of both independence and expertise. As a result, our findings present compelling evidence regarding the principal AC attributes that can have a significant impact on a firm's performance. Although, the statutory auditor is not obliged to provide an assurance opinion on the non-financial information disclosed, but only to conduct a consistency check, the European Commission's endeavors in this area have been highly significant, particularly since the early 2000s (Union, 2001). The Commission's guidelines on nonfinancial disclosure highlight the potential of independent external assurance to enhance the clarity and accuracy of information.

Our findings demonstrate that AC characteristics enhance the reliability of non-financial reporting by facilitating better communication between companies and market regarding sustainability reporting. Additionally, our study highlights the importance of establishing efficient monitoring bodies. When a company engages a wider range of stakeholders in its decision-making process, it demonstrates a commitment to addressing the interests and requirements of all stakeholders. This includes practicing good environmental, social and governance policies, as well as being transparent in their actions. We found that Advisory Committees are good examples of effective monitoring bodies, because they represent the social concerns of all stakeholders and indicate a greater commitment to following social principles and global standards. However, to fully understand the impact of AC characteristics on a global scale, more research is needed.

5 Conclusion

This study examines the association between audit committee characteristics and ESG performance of 491 publicly listed companies in the Scandinavian region over the period from 2012 to 2021. The study analyzed a dataset comprising of 1355 companies, along with AC variables and ESG performance data obtained from the Refinitiv Eikon Database. The study builds on existing research that highlights the crucial monitoring role played by boards in publicly listed companies.

The findings demonstrate that the audit committee characteristics, such as independence and financial expertise, along with other variables, play a significant role in enhancing ESG performance, supporting the study's hypotheses. Having a higher number of independent members on the AC enhances monitoring activities and leads to improved ESG performance. Including an accounting or financial expert on the AC further contributes to enhancing ESG performance. The study provides valuable insights into the role of AC characteristics in influencing ESG performance and emphasizes the importance of effective reporting and monitoring bodies in promoting sustainability and stakeholder engagement.

This study has significant practical and theoretical implications. Practically, stakeholders can use these findings to manage the composition of an AC by focusing on specific characteristics and encouraging the establishment of a self-directed and engaged committee. This approach allows them to leverage ESG issues as a tool for self-enhancement while safeguarding against the risk of managers' opportunistic behavior. Organizations and managers can benefit from investing in sustainability disclosure, as it can lead to improved firm performance by increasing the effectiveness of audit committee chairs. Additionally, this research raises the awareness of creditors and investors regarding the importance of ESG issues and corporate governance mechanisms. Furthermore, our research has practical implications for policymakers, emphasizing the significance of corporate governance practices and the necessity of policies and regulations that encourage sustainability disclosure.

There are some limitations to this study, such as utilization of a small sample size of 1355 observations from only four Scandinavian countries – Norway, Denmark, Sweden and Finland. Therefore, future research can be expanded by conducting cross-country studies to gain a more comprehensive understanding of the relationship between audit committee characteristics and firm performance.

To generalize the results to all firms, future researchers should also examine these relationships in financial firms. Financial firms are quite different from non-financial firms. Conducting research in financial firms is essential due to their unique characteristics, regulatory environment, and significant impact on the financial system. Furthermore, there are many other characteristics that may have a significant impact on this relationship, but this study only focused on two characteristics of audit committee chairs. Future research should explore and evaluate other characteristics, investigate potential mediating and moderating factors to enhance our understanding of this relationship.

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