Essays on Diversity and Firm Performance

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2SLS	Two-Stage Least-Squares
AICPA	Association of International Certified Professional Accountant
CEO	Chief Executive Officer
CIMA	Chartered Institute of Management Accountants
COO	Chief Operating Officer
CSR	Corporate Social Responsibility
ESG	Environmental, Social and Environmental
FRC	Financial Reporting Council
GMM	Generalised Method of Moments
IFAC	International Federation of Accountants
NCCG	Nigerian Code of Corporate Governance
OLS	Ordinary Least Squares
PwC	Pricewaterhousecoopers
R&D	Research and Development
ROA	Return on Assets
ROE	Return on Equity
S&P	Standard & Poors Index
SEC	Securities And Exchange Commission
SOX	Sarbanes-Oxley Act
VIFs	Variance Inflation Factors

DECLARATION

I declare that this thesis entitled Essays on Diversity and Firm Performance is the result of my own work except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree. I grant the permission to the University Librarian to allow the thesis to be copied in whole or in part without further reference to the author. The permission covers only single copies made for study purposes, subject to normal conditions of acknowledgement.

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Abstract

This thesis is comprised of three empirical essays examining board diversity and its impact on organisational performance. The essays investigate the influence of diversity on both the board and firm levels, considering financial aspects like earnings quality and financial performance, in addition to non-financial aspects. They provide valuable insights into how corporate diversity affects financial and non-financial performance in UK firms. The first essay focuses on the expertise of female audit committee members and its impact on earnings quality in FTSE 100 non-financial companies. The second essay explores the relationship between board gender diversity and environmental, social and governance (ESG) performance in FTSE 350 non-financial companies. The third essay examines the connection between organisational diversity and non-financial and financial performance in FTSE 350 non-financial companies.

The first essay investigates the impact of gender diversity on audit committees in terms of the quality of earnings; it uses a collected panel dataset including 77 non-financial firms from the FTSE 100 over the 2011–2021 period. The findings indicate that firms that have female financial experts on their audit committees, particularly in accounting and finance, exhibit superior earnings quality. The study's findings withstand rigorous econometric testing, including ordinary least squares (OLS), sub-sample analysis, the two-step generalised method of moments (GMM), and Difference-in-Differences test. The findings contribute to agency theory and gender gender characteristics studies. Generally speaking, female directors with financial expertise improve monitoring and governance by leveraging their knowledge, reducing information asymmetry, and enhancing earnings quality. The findings support the ethical sensitivity perspective and highlight women's cautious decision-making and ethical behaviour. Gender diversity initiatives are effective, as all categories of financial expertise among female directors significantly relate to earnings quality. These insights inform decision-making on audit committee composition and emphasise the importance of diverse expertise in governance practices.

The second essay uses a sample of FTSE 350 non-financial firms operating between 2011 and 2021 to examine how a diversity of expertise on a corporate board can impact ESG performance, with a focus on the moderating effects of board gender diversity. The study employs OLS regression and finds a significant and positive relationship between board expertise diversity and ESG performance, particularly in the governance pillar. Additionally, the study identifies that board gender diversity moderates the relationship between board expertise diversity and ESG performance. The robustness of these results is confirmed through

the utilistion of alternative econometric models such as GMM and sub-analysis. This study contributes to resource dependence theory by examining the relationship between board expertise diversity and ESG performance. The findings support the importance of accessing diverse external resources for organisational success. The presence of a diverse range of expertise on the board positively influences ESG performance, bringing valuable resources and improving overall performance. Additionally, gender diversity on the board enhances the positive impact of expertise diversity on ESG performance. This combination of diverse expertise and gender diversity brings unique perspectives, knowledge, and skills to the board, ultimately contributing to better ESG outcomes. Furthermore, the study's findings support the inclusion of female directors on corporate boards to enhance valuable resources such as expertise and improve ESG performance. They highlight the importance of diverse expertise for better governance and ethical conduct. These insights have practical implications for policymakers, regulators, and stakeholders in promoting sustainable and responsible business practices.

The last essay analyses the impact of diversity and inclusion on companies' financial (return on assets (ROA), return on equity (ROE), and Tobin's Q) and non-financial (e.g., ESG) performance. Using a sample comprising FTSE 350 firms for the 2011–2021 period, the study employs OLS regression and demonstrates a positive and significant relationship between companies' diversity commitments and policies, and their organisational performance. Additionally, the study reveals that the link is moderated by board independence diversity. This study contributes to the resource-based view by highlighting the positive relationship between diversity commitments and organisational performance. It emphasises diversity as a valuable and rare resource that can enhance competitive advantage and improve performance outcomes. The study aligns with the principles of the resource-based view by emphasising the significance of diversity commitments and policies in leveraging diversity as a strategic resource. The findings have practical implications for organisations and stakeholders, indicating that implementing diversity initiatives can improve performance. This study outcome can guide policymakers and organisational leaders in promoting diversity as a strategic resource.

Overall, the essay's findings show that diversity positively impacts the non-financial and financial performance of firms. Various dimensions of diversity, including expertise and independence, should be considered alongside gender diversity. The findings underscore the importance of promoting diversity on the board and in the workplace for companies seeking to enhance their performance. Policymakers and regulators should also take note of the practical implications of this research and prioritise board diversity to improve the effectiveness of corporate boards.

Chapter 1

1.1 Introduction

In the early 2000s, the world witnessed the worst accounting scandals in history (e.g., Enron and WorldCom), increasing investors' concerns about the efficacy of corporate governance (Ball, 2009). The focus on corporate governance which came about as a result of these scandals prompted discussions about its the efficacy of its practices and the need for regulatory reforms. The subsequent global financial crisis in 2008 further intensified concerns about corporate governance structures and their role in the crisis in addition to highlighting the importance of corporate governance, in particular the board of directors, in preventing corporate failures. Scholars and commentators have pointed out that deficiencies in corporate governance, stemming from a lack of diversity, independence, and transparency, were significant contributors to these high-profile failures (Engelen *et al*., 2012; Fernandes *et al*., 2017).

Corporate governance encompasses various approaches and perspectives that shape the way organisations are directed, controlled, and operated. The definition of corporate governance varies widely. Shleifer and Vishny (1997) present a comprehensive viewpoint on governance systems, defining corporate governance as a system that encompasses legal safeguards for investors and ensures their ability to obtain a return on their investment. This perspective emphasises the importance of protecting shareholders' rights and aligning the interests of investors with the company's performance. In contrast, Gillan and Starks (1998) offer a broader perspective, defining corporate governance as the system of rules, practices, and processes that guide organisational operations. This perspective considers the overall structure, policies, and mechanisms put in place to ensure effective governance and decision-making. These differing viewpoints highlight the multifaceted nature of corporate governance and underscore the importance of considering both legal protections for investors and the broader framework of rules and practices that govern organisational behaviour. Regardless of the specific definition, effective corporate governance is aimed at promoting stakeholder interests, safeguarding shareholders' rights, and improving the long-term sustainability and performance of an organisation (Brickley and Zimmerman, 2010; Zattoni and Cuomo, 2008). This involves implementing mechanisms for oversight, risk management, ethical behaviour, financial reporting, and compliance with laws and regulations, with the overall objective of maximising shareholder value while considering the broader societal impact of the company (Carcello *et al*., 2011; Claessens, 2006).

To address these issues and restore investor trust, corporate governance regulations were introduced globally. Different countries implemented various corporate governance regulations tailored to their specific contexts and challenges. In the United States (US), the Sarbanes-Oxley Act (SOX) was introduced in 2002, establishing stringent rules for corporate governance, financial reporting, and auditor independence. SOX aimed to strengthen internal controls, enhance board oversight, and improve the quality and reliability of financial statements (Sarbanes and Oxley, 2002; Securities and Exchange Commission (SEC), 2003). The Act also created the Public Company Accounting Oversight Board (PCAOB) to regulate and oversee auditors of public companies (Bather and Burnaby, 2006). Similarly, in the United Kingdom (UK), the Financial Reporting Council (FRC) played a vital role in implementing corporate governance reforms (Linsley and Shrives, 2014). The FRC issued the UK Corporate Governance Code, which provided guidelines for board composition, independence, risk management, and executive remuneration (FRC, 2018). Subsequent revisions to the Code have emphasised the importance of diversity, including gender diversity, and the need for more transparent reporting on environmental and social matters (FRC, 2014, 2016, 2018). These reforms are aimed at enhancing board effectiveness, transparency, and accountability, ultimately improving corporate performance and reducing the risk of misconduct.

Board diversity regulations have become a key focus of corporate governance reforms, particularly in the UK (Farooq *et al*., 2023). Within the UK's Corporate Governance Code, there are guidelines and recommendations for companies to promote board diversity. These guidelines encourage companies to strive for gender diversity and ensure that diversity considerations are integrated into the board recruitment process (FRC, 2018).

Furthermore, in recent years, the UK government has introduced specific targets and initiatives to enhance board diversity. This includes the voluntary approach, known as the "comply or explain" principle. If companies choose to comply with this then they are required to disclose their gender diversity policies in annual reports; if they choose not to comply then they have to explain why (FTSE Women Leaders Review, 2022). The UK has also set targets for gender representation on boards, initially with recommendations set in 2011 and further strengthened by the Hampton-Alexander review in 2016. The Hampton-Alexander review called for a minimum of 33% female representation on FTSE 350 boards by 2020 (Hampton & Alexander, 2016). This initiative aimed to accelerate progress in achieving gender balance and to unlock the benefits associated with diverse leadership.

Diverse and inclusive corporate governance practices have gained attention and regulatory focus beyond the UK. Efforts to promote board diversity and transparency have been implemented in various countries, reflecting a global recognition of the importance of diversity in corporate decision-making. In the US, the Securities and Exchange Commission (SEC) introduced rules in 2009 that require public companies to disclose information about their leadership and how diversity is considered in their director nomination process (Aguilar, 2009). These rules aim to provide shareholders with valuable insights to evaluate the composition and diversity of boards.

Similarly, the European Commission has been actively pursuing initiatives to address gender imbalance on corporate boards. In 2012, the Commission proposed legislative measures to accelerate progress toward balanced gender representation on the boards of listed companies (European Commission, 2012). Although certain member states initially objected to the proposal, it was recently approved by the European Parliament in November 2022. The board gender diversity directive sets a target of at least 40% representation for women on boards by 2026, highlighting the Commission's commitment to fostering gender diversity and inclusion in corporate leadership (European Commission, 2022).

In the context of developing countries, several countries in various regions, including Brazil, India, Latin America, along with weak institutional settings in Africa such as Nigeria and Kenya, have implemented gender quota systems as a means of promoting gender diversity on corporate boards. These quota systems aim to address the underrepresentation of women in leadership positions and improve gender balance in decision-making processes.

In Brazil, there is currently a bill proposed in the Brazilian Senate to enforce a 40% female quota on the boards of state-owned enterprises by 2022. However, this requirement would not extend to public companies that are not state-owned (Mastella *et al*., 2021). Similarly, in India, parliament enacted the Companies Act of 2013, making it mandatory for all listed companies to have at least one woman on their board of directors. However, the level of diversity on boards in India remains low, as many companies still do not have any female directors (Aguilera *et al*., 2021; Anas *et al*., 2022).

In Africa, particularly in Nigeria, regulations issued by the Central Bank of Nigeria, the Securities and Exchange Commission (SEC) Code of Corporate Governance, and the Nigerian

Code of Corporate Governance, 2018 (NCCG) address the issue of board diversity. The Central Bank of Nigeria regulations mandate a minimum of 30% female representation on the boards of Nigerian commercial banks (Areneke *et al*., 2023).

The global focus on board diversity extends beyond these examples, with many countries adopting measures to address diversity in corporate governance. These efforts reflect a growing consensus about the importance of diverse perspectives, experiences, and expertise in decision-making processes. As a result, companies worldwide are increasingly recognising the value of diverse boards and their impact on performance outcomes (Hunt *et al*., 2015).

The board of directors is the most important device in the internal governance mechanisms and is responsible for ensuring that the interests of different stakeholder groups and senior corporate managers are closely aligned (Butler, 2012; Mullins, 2018; Terjesen *et al*., 2015). The relationship between board composition and overall corporate performance has received significant attention from both academia and official bodies; however, research on this topic is still growing. Given the traditional importance of financial information, the disclosure of sustainability practices is becoming increasingly important for investors, and corporate boards are responsible for ensuring the quality of such disclosure (Chang *et al*., 2017). As a crucial element in the corporate governance structure, the board of directors sets not only the corporate strategies but also the oversight policies, while representing numerous stakeholder groups (Bear *et al*., 2010).

Effective boards of directors are known to possess diverse characteristics, including a broad range of knowledge, expertise, and capabilities. Research suggests that diverse boards and committees offer a unique set of skills and tap into previously untapped talent pools, thereby enhancing the quality of decision-making processes (Baker *et al*., 2020). Specifically, it has been found that gender diversity can influence the levels of risk aversion and conservatism in decision-making and management oversight (Zalata *et al*., 2018). Furthermore, gender parity on the board of directors and its committees could provide a pooling of experience and skills that determine the quality of a board's decisions (Shakil, 2021). Such advantages can lead to quality decision-making, which can positively impact corporate governance and performance. In fact, the representation of female members on boards is not merely a gender parity issue, per se, but a governance issue that requires thorough consideration (Aldamen *et al*., 2018).

Beyond gender diversity, researchers have also explored other dimensions of board diversity, such as ethnic and cultural diversity, educational background, industry expertise, and functional experience (Abbott *et al*., 2012; Alshammari *et al*., 2021; Beji *et al*., 2021; Bilal *et al*., 2018; Chen *et al*., 2020; Chen, 2020; García-Sánchez *et al*., 2017; Gray and Nowland, 2017; Wang *et al*., 2015; Zalata *et al*., 2018). These studies have highlighted the importance of a diverse set of skills and knowledge on boards in dealing with complex business challenges, facilitating strategic decision-making, and enhancing firm performance. For example, having directors with diverse industry backgrounds can bring fresh perspectives and insights, enabling boards to better understand industry dynamics and make informed strategic choices (Chen, 2020; Cohen *et al*., 2014; Wang *et al*., 2015). Furthermore, researchers have examined the composition and structure of board committees, for example in relation to audit committees, compensation committees, and nominating committees, and their impact on firm outcomes (Al-Shaer and Zaman, 2019; Chaudhry *et al*., 2020; Sallemi *et al*., 2023; Shen *et al*., 2022). Studies have explored how committee diversity, including diversity in terms of expertise and independence, can enhance the effectiveness of specific committee functions and improve corporate governance practices. For instance, having diverse expertise on audit committees can enhance the quality of financial reporting and reduce the likelihood of financial misconduct (Abbasi *et al*., 2020; Alkebsee *et al*., 2021; Ghafran and O'Sullivan, 2017; Oradi and E-Vahdati, 2021). The literature on boards of directors also includes studies that investigate the impact of board size, board independence, board leadership structure (e.g., chief executive officer (CEO) duality), board monitoring mechanisms, and board dynamics (e.g., board cohesion and diversity of board interactions) on firm performance and strategic decision-making (Bhagat and Black, 2001; Laux, 2008; Miletkov *et al*., 2017; Mishra and Nielsen, 1999; Zhang, 2012).

Moreover, recent meta-analytical studies have consistently demonstrated a significant and generally positive relationship between board diversity and board structure, and both firm financial and non-financial performance. This indicates the importance of considering corporate governance-related determinants in driving positive outcomes. In the context of non-financial performance, a study by Velte (2022) examines 54 quantitative meta-analyses on corporate governance-related factors and their impact on corporate social responsibility (CSR) outcomes. The findings reveal that previous meta-analyses consistently indicate a positive influence of board independence, board gender diversity, and board size on CSR performance. Additionally, the study highlights that both CSR performance and environmental performance contribute to improved financial performance, emphasising the interconnectedness of different dimensions of organisational performance.

In the context of financial performance, Prashar and Gupta (2021) conduct a comprehensive analysis of 148 studies published in 85 scholarly journals from 2000 to 2020, exploring the association between board attributes and financial performance across 31 countries. Their findings provide evidence that various corporate board attributes, including board independence, board diversity, board size, and role duality, significantly and positively impact firm financial performance. This highlights the importance of considering the composition and characteristics of boards in driving positive financial outcomes.

Neville *et al.* (2019) take a different perspective on financial performance by conducting a meta-analysis of 135 studies in over 20 countries, with a focus on the relationship between board independence and corporate misconduct. Their findings suggest that the relationship between board independence and corporate misconduct is generally negative, indicating that a higher level of board independence is associated with lower incidences of misconduct. Furthermore, the study reveals that the nature and effectiveness of board independence may vary depending on how independence is achieved, for example through independence of the whole board, independence on the audit committee, or separation of roles between the CEO and board chair. Additionally, the negative relationship between board independence and corporate misconduct tends to be stronger in countries with lower levels of corruption.

These studies shed light on the governance mechanisms and processes through which boards contribute to organisational success. Overall, the extensive literature on boards of directors gives a solid indication of the importance of diverse board characteristics in promoting effective governance, enhancing decision-making processes, and ultimately driving firm performance. By considering various dimensions of diversity and exploring the intricate relationships between board composition, functioning, and firm outcomes, researchers have provided valuable insights into the role of boards in shaping organisational strategies, risk management, and stakeholder value creation.

However, in examining the relationship between governance mechanisms, relating to factors such as board structure, board diversity and firm performance, it is important to acknowledge the existence of conflicting results, particularly between developing and developed countries (Areneke *et al*., 2022; Zaman *et al*., 2022). In developed countries, including the UK, a growing body of literature suggests a generally positive association between board diversity and firm performance (Al-Qahtani and Elgharbawy, 2020; Brahma *et al*., 2021; Cormier *et al*., 2022; García Martín and Herrero, 2020; Qureshi *et al*., 2020). However, the findings may not be directly applicable to developing countries due to variations in corporate governance structures, regulatory frameworks, and cultural contexts. In many developing countries, corporate governance practices are still evolving, and challenges in implementing diversity initiatives and ensuring the effective composition of boards can have a significance effect. Factors such as traditional norms, cultural biases, and limited access to diverse talent pools can impact the level of board diversity in these countries. For instance, a meta-analytical review conducted by Lagasio and Cucari (2019) reveals contrasting results between developed and developing countries. The review indicates a significant positive relationship between board structure and firm performance in developed countries, while the relationship is found to be insignificant or weaker in developing countries in Africa and Asia. These variations in findings can be attributed to a range of factors, including differences in institutional contexts, cultural norms, legal frameworks, and market structures (Adegbite, 2015; Adegbite and Nakajima, 2011; Al-Bassam *et al*., 2018; Doidge *et al*., 2007; Joh, 2003; Ntim *et al.,* 2012; Tsamenyi *et al*., 2007).

The advantages offered by diversity on corporate boards, as observed in developed countries, are the motivation for the current research, which aims to explore how board diversity influences financial and non-financial organisational performance. In spite of the existence of studies which shed light on the relationship between board diversity and performance (Badolato *et al*., 2013; Beji *et al*., 2021; Gul *et al*., 2013; Harjoto *et al*., 2015), there are still theoretical and empirical gaps that need to be addressed. Theories such as agency theory, resource dependence theory, and resource-based view theory provide valuable explanations for the impact of diversity on boards. However, it is essential to acknowledge that diversity on boards can also result in certain challenges and negative consequences (Adams *et al*., 2015). For example, diversity on boards can lead to elevated decision-making costs and a higher likelihood of conflicts and factions within teams. Effective communication and coordination among directors with diverse backgrounds and perspectives can be difficult to achieve; this has the potential to lead to delays in decision-making and conflicts (Hagendorff and Keasey, 2012). Conflicting viewpoints and interests on diverse boards may thus impede board effectiveness and hinder the overall decision-making process (Bantel and Jackson, 1989; Kravitz, 2005; Richard *et al*., 2004). Therefore, this research not only aims to explore the positive effects of board diversity but also seeks to identify these challenges and highlight strategies to maximise the benefits while mitigating the potential negative consequences.

Previous research has often focused on gender diversity alone, neglecting other dimensions of diversity, such as expertise (Abbasi *et al*., 2020; Whelan, 2021; Zalata *et al*., 2018). There is a shortfall in understanding the combined effects of various diversity dimensions and their interactions on organisational performance. Furthermore, empirical challenges exist in terms of data availability and the need for robust methodologies to establish causal relationships between board diversity and performance outcomes. In this context, this research aims to fill these theoretical and empirical gaps by examining the relationship between board diversity and financial as well as non-financial performance indicators. By considering multiple dimensions of diversity, this research focuses on establishing the combined effects and interactions of various diversity factors on organisational performance. By examining the influence of gender, expertise, and independence, among other dimensions, this study seeks to provide a holistic understanding of how diversity at different levels impacts the overall efficacy of boards and committees. A thorough review of the existing literature is essential in order to establish a solid foundation for this research. By conducting an in-depth examination of prior studies, this study aims to build upon existing knowledge and identify gaps that still need to be addressed. By doing so, it will contribute to the academic discourse on board diversity and its impact on organisational performance. a further aim of the research is to contribute to both academia and practice by addressing these theoretical and empirical gaps. The findings will offer valuable insights to policymakers, corporate leaders, and investors seeking to enhance board effectiveness and improve organisational performance. Ultimately, this research seeks to advance the understanding of the impact of board diversity on performance and provide actionable recommendations for promoting diversity and inclusion within corporate governance structures.

The first essay in this research focuses specifically on exploring the impact of gender diversity within the audit committee and its influence on the quality of earnings. In this study, agency theory serves as the primary theoretical framework to support valuable insights into the relationship between board gender diversity and earnings quality. Agency theory is widely used in corporate governance research as it offers a theoretical foundation for understanding the dynamics and relationships within organisations. By incorporating agency theory, this study aims to shed light on how diverse perspectives and independent decision-making, stemming from gender diversity within the audit committee, can contribute to improved governance practices and ultimately enhance financial outcomes. By examining the link between board gender diversity and earnings quality, this research seeks to contribute to the existing literature and provide empirical evidence that supports the significance of gender diversity in promoting effective governance and financial performance.

The second essay focuses on the impact of board gender diversity on ESG performance. The study incorporates a theoretical perspective that is primarily based on resource dependence theory to explain the relationship between board gender diversity and ESG outcomes. Resource dependence theory highlights the importance of accessing diverse external resources, including diverse expertise, to enhance organisational success. The theory recognises the value of gender diversity in bringing unique perspectives, knowledge, and skills to boards, ultimately contributing to better ESG performance. By considering resource dependence theory, the essay aims to provide theoretical explanations for the influence of board gender diversity on ESG performance and its pillars.

The third essay explores the impact of diversity and inclusion by companies on their financial and non-financial performance. The study examines theoretical frameworks such as the resource-based view to explain the positive association between diversity commitments and organisational performance. The resource-based view emphasises diversity as a valuable and rare resource that can contribute to sustained competitive advantage and improved performance outcomes for companies. By considering this theory, the essay aims to provide a theoretical explanation for the relationship between diversity commitments and organisational performance. Additionally, the essay recognises the importance of board independence as a moderator in translating diversity commitments into performance outcomes, highlighting the need for a theoretical understanding of how board dynamics and diversity interact to shape organisational outcomes.

Overall, each essay incorporates relevant theoretical perspectives to provide a solid foundation for understanding the issues studied and their impact on financial and non-financial organisational performance. These theories shed light on the complex relationship between board diversity and performance outcomes. The first essay explores agency theory to uncover how gender diversity on the audit committee influences earnings quality. The second essay utilises resource dependence theory to examine the link between board gender diversity and ESG performance. The third essay builds on the resource-based view to analyse the impact of diversity commitments on organisational performance, considering the moderating role of board independence. These theoretical frameworks enhance our understanding of the role of board diversity in driving positive performance outcomes.

1.2 The institutional background in the UK

The introduction of governance frameworks was driven by the recognition of the crucial role that effective corporate governance plays in the overall functioning and success of companies. As businesses evolved and grew in complexity, there emerged a need for structured guidelines and principles that could guide organisations in establishing transparent, accountable, and responsible governance practices (Filatotchev and Nakajima, 2014; Nordberg and McNulty, 2013). These frameworks were established with the aim of addressing issues such as conflicts of interest, ensuring the protection of shareholders' interests, promoting ethical conduct, enhancing board effectiveness, and establishing mechanisms for monitoring and control (Adams *et al*., 2010). By setting standards and providing a framework for best practices, governance frameworks sought to maintain confidence among investors, stakeholders, and the public, while also fostering long-term sustainability and value creation for organisations (Wanyama *et al*., 2009).

Historically, the origins of corporate governance regulation in the UK can be traced back to the Maxwell scandal and its aftermath. The Maxwell scandal, involving the fraudulent activities of media tycoon Robert Maxwell in the 1990s, exposed significant flaws in corporate governance practices and highlighted the need for reforms (Boyd, 1996; Stiles and Taylor, 1993). In response to the Maxwell scandal, the Cadbury Committee was established and tasked with developing recommendations to improve the standards of corporate governance (Adegbite *et al*., 2011). The committee's report, released in 1992, laid the foundation for the UK Corporate Governance Code (Cadbury, 1992). The Code aimed to enhance confidence in financial reporting, promote transparency, and strengthen accountability within companies (The UK Corporate Governance Code, 2018). It recognised that a well-governed company is more likely to inspire investor confidence, attract capital, and make sound strategic decisions. The Cadbury Committee recommended separating out the roles of the chairman and the CEO, adding non-executive directors to the board, and establishing an audit committee (Cadbury, 1992). Established governance practices drew the criticism of the Committee in terms of their limited applicability and for being outdated. The Cadbury Code served as the foundational basis for subsequent updates and revisions of the UK Corporate Governance Code (FRC, 2016). The Code has since undergone lengthy revisions and development resulting in the current code.

In 1995, the Greenbury Report, led by Richard Greenbury, recommended additional changes, including the provision of long-term performance-related pay for directors and the establishment of remuneration committees (Greenbury, 1995). These recommendations were to be reviewed every three years. In 1998, the Hampel Report, chaired by Ronald Hampel, proposed integrating the Cadbury and Greenbury principles to form a combined code (Hampel, 1998). The Hampel Report included the following recommendations:

- Full disclosure in the company's financial statements of all remunerations, including pensions, paid to directors and executives.
- A requirement for the chairman of the board to act as the leader of the non-executive directors.
- A suggestion that institutional investors should consider voting their shares at meetings, although compulsory voting was not endorsed.

After the release of the Hampel report in 1998, a subsequent mini-report was issued by the Turnbull Committee the following year. The Turnbull report recommended that directors should assume responsibility for the internal financial reporting and auditing controls within an organisation (Elliott *et al*., 2000).

In 2003, the Higgs review, led by Derek Higgs, examined the effectiveness of non-executive directors in the UK (Higgs, 2003). The review resulted in recommendations for a revised Combined Code, which has now been replaced by the UK Corporate Governance Code. The FRC implemented many of these recommendations in the 2003 version of the Combined Code.

Following the global financial crisis in 2008, the Walker Review published a report which included recommendations for companies, with a particular focus on the banking industry (Walker, 2009). In response to the review, the FRC introduced a new Stewardship Code in 2010 and also released an updated version of the UK Corporate Governance Code. The Code provides guidance on how companies' responsibilities can be fulfilled, and investors are strongly encouraged to report their compliance with the Code (Sobhan and Adegbite, 2021). This document aims to assist investors, especially pension funds, in meeting their obligations as outlined in the Code (Reisberg, 2015).

After the introduction of the UK Stewardship Code in 2010, there have been subsequent developments in its implementation and revisions (Reisberg, 2015). The FRC has periodically reviewed and updated the Code to ensure its effectiveness and alignment with changing market conditions. These revisions have been introduced with the aim of strengthening the stewardship practices of institutional investors and promoting responsible shareholder engagement.

The latest significant update for the Code was in 2018 based on the recommendations of the Green Paper Consultation and the FRC's culture report. The Green Paper and FRC culture report recommended some improvements to the Code, including options for increasing shareholder influence over executive pay and strengthening diversity on the board and its committees. The Code (2018) is part of a framework of legislation, regulation and best practice standards that aims to deliver high-quality corporate governance with in-built flexibility for companies to adapt their practices to take into account their particular circumstances. It does not set out a rigid set of rules; instead, it offers low burdens and flexibility through the application of principles and through 'comply or explain' provisions and supporting guidance. For instance, in terms of gender diversity, the UK adopts a voluntary approach (comply or explain principle) where companies are obliged to obey and release information about their gender-diversity policies in their annual reports and, in the case of non-compliance, provide an explanation. The new Code is applicable to all companies with a premium listing regardless of whether they are incorporated in the UK or elsewhere (FRC, 2018).

The 2018 version of the UK Corporate Governance Code provides valuable insights into the functioning of boards and the relationship between the main board and committee system. It emphasises the importance of effective board leadership, the clear division of responsibilities, and the establishment of various committees to support the board's work. The Code (2018) requires a board to be made up of an appropriate combination in terms of executive and non-executive members, as well as cognitive and personal strengths. Additionally, the Code encourages diversity (e.g., gender, social and ethnic backgrounds) as it has been shown to have many benefits. Such a combination can solve group-think issues and prevent one individual or a small group of individuals from dominating the board's decision-making. The Code also makes it clear that to maintain an appropriate balance of skills and experience on the board, and to ensure that the board is refreshed on an ongoing basis, the board should satisfy itself that plans are in place for an orderly succession for appointments. Furthermore, the Code requires firms to include adequate information in their annual reports on the board's diversity policy, any objective criteria that have been set for implementing the diversity policy, and progress on achieving the objectives. The board's annual evaluation should also consider a balance of skills, expertise, independence and knowledge on the board, as well as its diversity, including gender.

There are various types of committees found in corporate governance structures, the most common of which include the audit committee, remuneration committee, and nomination committee. Each committee serves a specific purpose and addresses different issues:

1. Audit Committee: The audit committee is responsible for overseeing the company's financial reporting process, internal control systems, and risk management. It ensures the integrity of financial statements and compliance with legal and regulatory requirements.
2. Remuneration Committee: The remuneration committee determines the company's executive and director remuneration policies, including setting compensation packages, performance-related incentives, and benefits. It aims to align remuneration with corporate strategy and performance.
3. Nomination Committee: The nomination committee focuses on board composition and the selection of directors. It identifies suitable candidates for board positions, assesses their qualifications and independence, and promotes diversity within the board.

These committees are typically staffed by a combination of executive and non-executive directors. Non-executive directors, who are independent of management, play a crucial role in ensuring transparency, accountability, and effective decision-making.

The link between board and committee composition is relevant to our study, as we investigate the impact of female audit committee directors on earnings quality. The governance frameworks in the UK emphasise the importance of board diversity, including gender diversity and expertise diversity, as a means of enhancing board effectiveness and decision-making. The UK Corporate Governance Code encourages companies to have a diverse board, including a balanced representation of skills, expertise, and independence. It also requires the disclosure of gender diversity policies and progress in achieving diversity objectives.

Table 1.2.1 demonstrates the chronological progression of corporate governance development in the UK. It illustrates the key milestones and significant events that have shaped the evolution of corporate governance practices in the country.

The Code introduced a soft quota for gender diversity recommendations in 2010. The gender diversity quota was first established in 2011 and it set recommended targets for listed companies. The recommended target for listed companies on the FTSE 100, of 25% by 2015, is applicable to all board members. FTSE 350 companies are advised to set their own aspirational targets to be achieved by 2013 and 2015. In 2016, the Hampton-Alexander review was released and required all FTSE 350 firms to meet a minimum of 33% female representation on boards by 2020 (Hampton & Alexander, 2016). Figure 1.2.1 demonstrates the progress of women on boards on the FTSE 100 and FTSE 250 over the period 2010–2021 according to the

FTSE Women Leaders Review survey in 2022. Figure 1.2.1 indicates that female representation on FTSE 100 boards stands at 39.1% compared to 12.5% ten years ago. Eighty-five FTSE 100 boards have met the Hampton-Alexander targets of a minimum 33% threshold, and almost half of all FTSE 100 companies had 40% or more women on their boards in 2021. For FTSE 250, the proportion of female directors on boards was nearly 36.8% in 2021, up from 7.8% in 2010. Almost 200 boards (77%) have met or exceeded the prior 33% target, and 92 FTSE 250 firms now have 40% or more women on their boards. The number of all-male boards on the FTSE 100 and FTSE 250 decreased in 2021 to zero, down from 21 in 2011.

These statistics demonstrate continued progress toward greater female representation across the FTSE companies, in particular FTSE 100 companies. They indicate the success of the UK's voluntary, evidence, and business-led approach (e.g., Hampton-Alexander & Davies reviews) to improving board gender diversity. Over half of FTSE boards and 43% of FTSE executive teams are women, according to the FTSE Women Leaders Review (2022). Companies that make gender diversity at senior levels central to their business strategy have a competitive advantage. It is good for business growth as well as being good for society. Therefore, this study is timely in its examination of female audit committee directors and earnings quality, particularly since the achievement of the 2016 Hampton-Alexander review's goals and most FTSE boards have reached the 33% target.

Table 1.2.1: The key developments in corporate governance in the UK

Year	Governance frameworks/studies	Objectives
1992	Cadbury Report and the Cadbury Code	• The Cadbury report outlined recommendations for corporate governance practices in the UK. • The report led to the release of the Cadbury Code, the first version of the UK Corporate Governance Code.
1995	Greenbury Report and the Greenbury Code	• The Greenbury report focused on executive remuneration and corporate governance issues. • The report led to the release of the Greenbury Code, which provided guidelines on executive pay and related disclosures.
1998	Hampel Report and the Hampel Code	• The Hampel Report was built upon the recommendations of the Cadbury and Greenbury Reports. • The report led to the release of the Hampel Code, which consolidated and updated the corporate governance principles.
1999	Turnbull Committee and the Turnbull report	• The Turnbull report recommended that directors should be responsible for internal financial reporting and auditing controls in an organisation.
2003	Higgs Report and the Higgs Code	• The Higgs Review was conducted to address issues related to the effectiveness of non-executive directors. • The report led to the release of the Higgs Code, which emphasised the role and responsibilities of non-executive directors.
2008	Walker Review and the Combined Code	• The Walker Review focused on corporate governance in the banking industry, particularly the role of board members in risk management. • The review resulted in the integration of various governance codes into a single document known as the Combined Code.
2010	The UK Corporate Governance Code	• The FRC released a revised version of the governance code, which replaced the Combined Code. • The UK Corporate Governance Code provided updated principles and provisions for corporate governance in the UK.
2012	Subsequent revisions and updates	• The 2012 revision strengthened the focus on board effectiveness, risk management, and shareholder engagement, increased guidance on risk management, clear boardroom leadership, and boardroom diversity.
2014	Subsequent revisions and updates	• The 2014 revision enhanced transparency, accountability, and long-term thinking. • It emphasised long-term success, improved disclosure on board evaluation and director appointment, and emphasised the relationship between companies and shareholders.
2016	Subsequent revisions and updates	• The 2016 revision focused on the strength of corporate culture, diversity, and stakeholder engagement. • It introduced principles on corporate culture, enhanced reporting on stakeholder engagement, emphasised board and senior management diversity, and strengthened requirements on remuneration policies.
2018	The last update for the Code	• The latest significant update for the Code was in 2018, based on the recommendations of the Green Paper Consultation and the FRC's culture report. • The 2018 revision addressed recommendations and strengthened governance practices. It included revised principles on board effectiveness, director independence, and shareholder engagement. It emphasised diversity, particularly gender diversity, and enhanced disclosure requirements on governance practices and stakeholder engagement

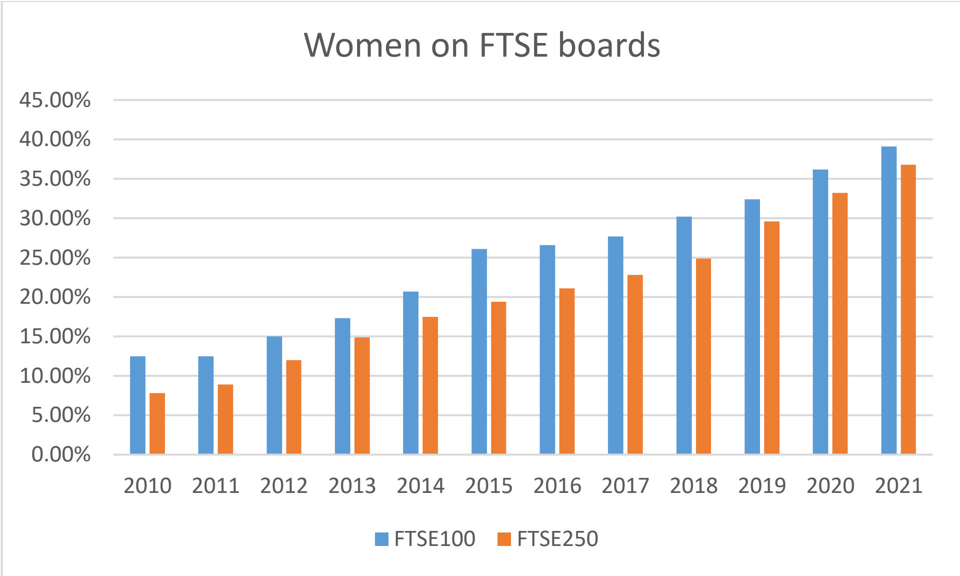

Figure 1.2.1: Percentage of women on boards on FTSE 100 and FTSE 250

1.3 Research questions, motivations and study overview

As discussed above, the first essay in this study examines the effect of female directors on audit committees and their expertise on financial performance (e.g., earnings quality). The motivation for focusing on female directors is the several advantages of female leadership. Greater gender equality on boards has been shown to contribute to broader economic benefits, enhanced monitoring, and improved quality of decisions. Regarding the audit committee, a growing body of research contends that female directors significantly contribute to the efficacy of audit committees by strengthening monitoring efficiency and supervising the financial reporting. According to Srinidhi *et al.* (2011), female directors contribute to improved monitoring and exhibit less tolerance for opportunistic managerial behaviour when they are members of audit committees; this enhances the quality of earnings. Empirically, researchers have shown that the composition of audit committees, in terms of financial expertise and gender, affects the quality of financial statements, influences the effectiveness of internal control systems, and discourages opportunistic earnings management (Krishnan & Parsons, 2008) in addition to improving the quality of financial information (Pucheta-Martnez *et al*., 2016). Other academics have cited the advantages of gender diversity in the workplace. For instance, gender diversity has been shown to lead to innovative solutions to complex problems (Katmon *et al*., 2019), foster stronger relationships with employees (Arco-Castro *et al*., 2020), and encourage public disclosure (Bravo & Reguera-Alvarado, 2018; Carvajal *et al*., 2022). Gender diversity also has also been shown to inform and improve the decision-making process and corporate outcomes (Srinidhi *et al*., 2011).

While previous research has made substantial contributions to our understanding of the impact of female directors on audit committees and earnings quality, there is still a notable research gap that needs to be addressed. Specifically, limited attention has been given to investigating the intricate relationship between the inclusion of female directors on audit committees, their expertise, and the resulting impact on earnings quality. Most studies in this area have relied predominantly on agency theory and gender characteristics as their primary theoretical frameworks (Arun *et al*., 2015; García Lara *et al*., 2017; Srinidhi *et al*., 2011; Zalata & Abdelfattah, 2021; Krishnan & Parsons, 2008; Fan *et al*., 2019). These perspectives have shed light on the importance of female directors in enhancing the monitoring and supervisory functions of audit committees, thereby reducing the potential for earnings manipulation. While these theories have offered valuable insights, they provide only a limited understanding of the broader dynamics at play.

However, these studies often neglect to consider comprehensively the human capital of female directors, related to the value of female skills, experience, and expertise (Johnson *et al*., 2013; Whelan, 2021). By solely examining gender diversity or relying on gender characteristics as the explanatory framework, prior research overlooks the potential influence of female directors' expertise in improving earnings quality. Neglecting the impact of expertise limits our understanding of how female directors with specific knowledge and competencies, especially in finance and accounting, can enhance financial reporting practices.

Furthermore, studies focusing on gender characteristics may emphasise gender-related attributes and behaviours to the exclusion of other factors, potentially overshadowing the importance of expertise. This narrow focus might lead to an incomplete understanding of the influences on earnings quality, as expertise could be a significant driver of effective monitoring and decision-making within audit committees.

Therefore, a research gap exists in synthesising these theoretical perspectives, namely agency theory and gender characteristics, to provide a more comprehensive and nuanced understanding of the relationship between the expertise of female directors on audit committees and earnings quality. By considering the tapestry of expertise measures for female directors, such as financial and supervisory expertise, this research aims to contribute to a more robust and well-rounded understanding of the factors influencing financial reporting practices and decision-making processes within organisations.

This study aims to answer the following questions: (i) What is the relationship between the presence of women on the audit committee and the quality of earnings? (ii) How do female directors with accounting expertise on the audit committee impact the quality of earnings? (iii) How do female directors with finance expertise on the audit committee impact the quality of earnings? (iv) How do female directors with supervisory expertise on the audit committee impact the quality of earnings?

Theoretically, it is the responsibility of the board of directors to guarantee that the agent (the managers) acts in the best interests of the principals (the stockholders). Information asymmetry and agency problems result from any conflicts of interest between managers and stockholders. The audit committee fulfils an important function used by the board of directors to disclose a balanced and comprehensible assessment of corporate financial performance and disclosure. Therefore, the composition of the audit committee, in terms of expertise and gender, could either enhance or limit the quality of financial reporting. The audit committee's control and monitoring are facilitated by the presence of female members, which lowers unethical financial and managerial behaviour and safeguards the interests of shareholders (Adams & Ferreira, 2009; Parker *et al*., 2017; Price, 2012). Female directors are more likely to be independent than male directors, enabling them to promote a better audit committee monitoring system (Hillman *et al*., 2007).

Furthermore, women are less likely to engage in earnings manipulation because they are more cautious, risk-averse, and conservative, all of which affect their decision-making, according to gender characteristics theories (Carter *et al*., 2017; Faccio *et al*., 2016). Moreover, women have been shown to make more conservative financial judgments than men when it comes to retirement options and investment strategies (Jianakoplos & Bernasek, 1998; Arano *et al*., 2010; Watson & McNaughton, 2007). Arnaboldi *et al.* (2021) find a link between banks with more female board members and lower misconduct fines. Similarly, Orazalin (2020) suggests that enterprises with female leadership are less likely to make financial misstatements than those with male leadership and that these gender differences are more pronounced in organisations with subpar governance mechanisms.

is the aim of the second essay, as discussed above, is to examine the relationship between board expertise diversity and company ESG performance, while considering the moderating role of female directors. The study aims to fill a gap in the existing literature by exploring how the inclusion of female directors on corporate boards might influence the relationship between board expertise and ESG performance. The study seeks to answer two main research questions: (1) How does board expertise diversity link to ESG performance? (2) How does the presence of female directors on boards moderate the link between board expertise diversity and ESG performance? The study provides empirical evidence on the moderating effect of female directors on the relationship between board expertise diversity and ESG performance by examining FTSE 350 companies in the UK. The study contributes to the ongoing discussion around the mandatory inclusion of female directors on corporate boards and provides practical implications for policymakers, regulators, and stakeholders seeking to improve ESG performance through board diversity initiatives.

As the issue of sustainability becomes increasingly important to investors and stakeholders, it is crucial for companies to ensure that their corporate governance structure is optimal for overseeing ESG strategies, risk, and strategic asset allocation. The board of directors is a critical component of the corporate governance structure, responsible for establishing corporate policies and strategies at the same times as representing various stakeholder groups. The evidence to date indicates that in order to be effective, the board of directors must include characteristics such as diversity of knowledge, expertise, and capabilities (Bear *et al*., 2010; Ben-Amar *et al*., 2017; Boulouta, 2013; Liu, 2018; Pozzoli *et al*., 2022).

A board with diverse backgrounds, genders, ages, and skill sets is beneficial because it allows for a broader range of perspectives and strategies (Miller and del Carmen Triana, 2009). Furthermore, a board comprising experts in various fields such as finance, law, marketing, and human resources can provide valuable guidance and support to an organisation. The board of directors also plays a critical role in maintaining accountability within the organisation by setting oversight policies and monitoring the company's performance (Whelan, 2021). This oversight function is especially important in today's business environment, where companies face increased scrutiny from investors, regulators, and the public.

In recent years, there has been a growing body of research indicating that having board members with diverse expertise could lead companies to implement effective ESG strategies (Bear *et al*., 2010; Ben-Amar *et al*., 2017; Boulouta, 2013; Liu, 2018). For example, studies have shown that board expertise is associated with various positive outcomes, such as better ESG ratings, lower greenhouse gas emissions, improved board monitoring, increased social responsibility investments, and higher disclosure of ESG (Abbasi *et al*., 2020; Alshammari *et al*., 2021; Beji *et al*., 2021; Katmon *et al*., 2019; Whelan, 2021; Zalata *et al*., 2018). Although the existing literature recognises the importance of board expertise diversity in driving ESG performance, there is a research gap in understanding the specific mechanisms through which this relationship operates, particularly in the context of the moderating role of female directors.

Resource dependence theory suggests that organisations depend on external resources to survive and thrive, and the composition of the board of directors plays a crucial role in managing these resource dependencies (Hillman *et al*., 2000; Hillman and Dalziel, 2003). However, the literature has yet to fully explore how board expertise diversity, as a manifestation of resource dependence theory, relates to ESG performance. By integrating resource dependence theory, researchers can delve deeper into understanding how diverse expertise within the board influences the adoption and implementation of sustainable practices, stakeholder engagement, and the organisation's ability to effectively manage environmental and social risks.

Furthermore, individual knowledge, skills, and capabilities in organisational performance have all been shown to be significant (Becker, 1964). In the context of corporate boards, resource dependence theory can shed light on how board expertise diversity, including specific areas of expertise such as finance, law, marketing, and human resources, contributes to ESG performance. This theoretical lens can elucidate how the collective knowledge and competencies of board members influence the formulation and execution of ESG strategies, the integration of sustainability practices, and the alignment of corporate values with stakeholder expectations.

By incorporating these theoretical perspectives, this study aims to bridge the research gap by examining the relationship between board expertise diversity and ESG performance, considering the moderating role of female directors. This study examines the impact of board expertise diversity on firm ESG performance, while also considering the moderating role of female directors in this relationship. By specifically examining the inclusion of female directors in this context, this study offers a more nuanced understanding of the role of gender diversity in enhancing a board's expertise and ultimately contributing to ESG performance. The findings of this study demonstrate that a diverse range of expertise on a board is significantly and positively associated with a company's ESG performance, particularly in the governance pillar. Moreover, the study indicates that the presence of female directors on the board has a moderating effect on the relationship between board expertise diversity and ESG performance, including its pillars. The study also highlights the influence of firm size and the nature of varying industries on this relationship.

The practical implications of this study are significant for policymakers, regulators, and stakeholders. The study's findings support the mandatory inclusion of female directors on corporate boards as a means of enhancing board expertise diversity and improving ESG performance. Moreover, the study's insights on the influence of firm size and the type of industry on this relationship offer valuable guidance for stakeholders seeking to improve ESG performance through board diversity initiatives.

The third essay examines how a firm's diversity and inclusion policy affects its financial (ROA, ROE, and Tobin's Q) and non-financial (e.g., ESG) performance. The motivation for this study is the increasing attention which is being paid to diversity and inclusion in contemporary business practices. The study aims to examine the relationship between companies' diversity commitments and their financial and non-financial performance, which has practical implications for policymakers, regulators, and organisations. From a theoretical perspective, the resource-based view provides a valuable framework through which to understand the relationship between a firm's diversity commitment and its performance. According to the resource-based view, a firm's resources and capabilities are key determinants of its competitive advantage and performance (Barney, 1991; Galbreath, 2005, 2016). Diversity commitment can be viewed as an intangible resource that supports diverse perspectives, experiences, and expertise within a firm, leading to improved decision-making and outcomes, including those related to financial and non-financial performance (Galbreath, 2005).

Despite the growing interest in diversity, there is still a research gap in empirical studies in the area of the link between diversity commitments and firm performance. By addressing this gap, this study aims to provide valuable insights into how diversity commitments can contribute to improved financial performance (e.g., ROA, ROE, Tobin's Q) and non-financial performance (e.g., ESG performance). This research will shed light on the potential benefits of fostering a diverse and inclusive workplace and how it can translate into a competitive advantage and better overall performance.

Furthermore, the study seeks to explore the moderating effect of board independence diversity. The resource-based view suggests that a firm's resources can lead to sustained competitive advantage, and, in this context, board composition plays a critical role in overseeing strategy and management decisions. Examining the moderating role of board independence diversity will provide a more nuanced understanding of how diversity commitments interact with board composition to influence performance outcomes. By addressing the research questions related to the relationship between diversity commitment and performance, as well as the moderating effects of board diversity, the study contributes to the existing literature by providing empirical evidence and theoretical insights rooted in the resource-based view. The findings of this research can inform policymakers, regulators, and organisations about the significance of diversity initiatives and their potential impact on financial and non-financial performance.

Thus, this study aims to answer six research questions: (i) What is the relationship between a firm's diversity commitment and its ESG performance? (ii) What is the relationship between a firm's diversity commitment and its financial performance? (iii) How does board independence diversity moderate the relationship between a firm's diversity commitment and ESG performance? (iv) How does board independence diversity moderate the relationship between a firm's diversity commitment and financial performance? (vi)

The first two research questions focus on the direct relationship between a firm's diversity commitment and its ESG and financial performance. The resource-based view suggests that a firm's resources can contribute to its performance, and diversity commitment can be considered a valuable resource that can positively impact a firm's ESG and financial performance. In other words, a firm's diversity commitment can be seen as a resource that can contribute to its competitiveness and long-term success (Barney, 1991). By fostering a diverse and inclusive workplace, firms can benefit from increased innovation, improved decision-making, and better employee engagement, among other advantages (Richard, 2000). These benefits can ultimately translate into better ESG performance, such as improved environmental sustainability, social responsibility, and governance practices, as well as improved financial performance, such as increased profitability, productivity, and market value. The next two research questions explore how board independence diversity and board cultural diversity might moderate the relationship between a firm's diversity commitment and its ESG performance. In light of the fact that the resource-based view suggests that a firm's resources can lead to sustained competitive advantage, it is possible that board diversity could influence how a firm's diversity commitment impacts its ESG performance. The final two research questions examine how board independence diversity might moderate the relationship between a firm's diversity commitment and its financial performance. As discussed already, the resource-based view suggests that a firm's resources can contribute to its financial performance. Board diversity could play a role in this context as well, as the board is responsible for overseeing the firm's strategy and management decisions, which could impact financial performance (Adams and Ferreira, 2004; Terjesen and Sealy, 2016).

1.4 Methods and data

This study employs various statistical techniques to explore the relationships between diversity at the committee, board, and firm levels and firm performance. These methods include regression analysis, correlation analysis, and moderation analysis. Such analytical approaches allow for examination of the direct relationships between variables, as well as the identification of moderating effects. The choice to use various statistical techniques, such as regression analysis, correlation analysis, and moderation analysis, indicates a positivist research philosophy. Positivism emphasises the use of empirical evidence to derive objective conclusions and relies on quantifiable data and statistical analysis to establish causal relationships (Gendron, 2009; Parker, 2007). By employing these techniques, the study adopts a systematic and structured approach to exploring the relationships between diversity at different levels and firm performance.

Additionally, robustness tests are employed to ensure the reliability and validity of the findings. These tests involve sensitivity analyses, controlling for potential confounding variables, and testing the stability of the results across different samples or time periods. The study also employs instrumental variable approaches as robustness tests, thereby strengthening the study's methodology by providing additional evidence to support the findings. By addressing endogeneity concerns and potential biases, instrumental variable analysis enhances the internal validity of the study and increases confidence in the causal interpretations of the relationships examined (Roodman, 2009). A combination of regression analysis, correlation analysis, moderation analysis, and instrumental variable approaches employed in the study ensures a comprehensive and rigorous analytical framework. This allows for a thorough examination of the relationships between diversity at different levels (committee, board, and firm) and firm performance. The inclusion of robustness tests further strengthens the study's methodology and enhances the reliability and validity of the findings.

Furthermore, in this thesis, panel data analysis is employed to examine the relationship between diversity at various levels, including the committee, board, and firm levels, and its impact on firm performance. According to Hsiao (2014), the use of panel data analysis offers several advantages in a study of this kind, including a larger sample size, increased statistical power, and the ability to capture individual heterogeneity and time-specific effects. It also helps in the identification of trends and fluctuations in the data while mitigating the issue of multicollinearity among the variables. These benefits enhance the reliability and validity of the research findings, improving our understanding of the relationship between diversity commitment and firm performance (Hsiao, 2014).

Moreover, the study's epistemological stance aligns with an objectivist perspective. Objectivist epistemology posits that knowledge exists independently of the researcher and can be discovered through systematic observation and measurement (Crotty, 1998). By employing statistical techniques and analysing quantitative data, the study seeks to uncover objective patterns and relationships in the data, aiming to provide generalisable insights into the relationship between diversity at the board and firm levels and firm performance. The reliance on the Refinitiv Eikon database and the integration of panel data analysis demonstrate an empirical and evidence-based approach to knowledge generation.

The study focuses on the Refinitiv Eikon database for several reasons. Firstly, the Refinitiv Eikon database is a comprehensive and widely used financial database holding extensive financial and non-financial data for companies across various industries and regions. Hence, it offers a rich and diverse dataset that allows for robust analysis of the relationship between diversity commitment and firm performance (Refinitiv Eikon Datastream, 2022). Secondly, the Refinitiv Eikon database offers historical data over an extended period, enabling longitudinal analysis within the study and allowing trends and changes in diversity commitment and firm performance over time to be captured. This longitudinal perspective enhances the study's capacity to assess the long-term effects and dynamics of diversity commitment on firm performance (Refinitiv Eikon Datastream, 2020, 2022). Thirdly, the widespread usage of the Refinitiv Eikon database in academic research and industry analysis provides a basis for comparison and benchmarking (Abdelsalam *et al*., 2021; Disli *et al*., 2022; Galletta *et al*., 2022). By utilising a database that is widely recognised and accepted in the academic community, the study's findings can be better contextualised and compared with existing research, enhancing the overall validity and generalisability of the results.

The thesis also makes use of various other data sources, including hand-collected biographical information on directors from the BoardEx and annual reports as well as financial information and board characteristics data from the Refinitiv Eikon database. The essays focus on FTSE-listed firms in the UK. This thesis focuses on FTSE 100 and FTSE 350 since they comprise the most gender-diverse boards. For instance, as discussed earlier in the thesis, according to a recent survey by the FTSE Women Leaders Review survey in 2022, women made up 39.1% of FTSE 100 boards in 2021, up from 12.5% ten years ago. For FTSE 250 boards, the percentage of female directors on boards was close to 36.8% in 2021, up from 7.8% in 2010. The number of all-male boards in the FTSE 100 and FTSE 250 was zero in 2021, down from 21 in 2011.

Furthermore, investors, the media, and community institutions keep a careful eye on FTSE 100 and FTSE 250 corporations, and they have been the subject of reviews like the Hampton-Alexander and Davies reviews. FTSE 100 and FTSE 250 provide a model and, in some ways, have paved the way for smaller businesses. As a result, it is critical to monitor their diversity progress in terms of gender because of the example they are setting and also to gauge the effectiveness of the criticisms raised by the reports and also the pressures exerted by recommendations in the reports. Therefore, the FTSE 100 and FTSE 250 were the primary focus of the research sample in the first and second essays.

1.5 Main findings

The first essay examines the impact of female audit committee members and their expertise (e.g., accounting, finance, and supervisory expertise) on earnings quality. The findings imply that having female directors on the audit committee improves the quality of profits. In particular, female directors with experience in accounting and finance uphold and improve profits quality. However, there were no comparable outcomes in this study to support the relationship between female directors' supervisory experience and earnings quality. The potential reason for such a result may be the fact that female directors without prior chief operating officer (COO) or CEO experience may lack the financial expertise necessary to comprehend the complexity of financial statements and identify or predict manipulative actions. Furthermore, the findings imply that the Hampton-Alexander review on gender quotas increases the benefits of gender diversity on the audit committee and its impact on earnings quality. The results are unchanged when using different model specifications. The findings contribute to the ongoing literature on board diversity and earnings quality in multiple ways. Theoretical implications arise from the discovery that gender diversity on audit committees, specifically through the inclusion of female directors with financial expertise, positively influences earnings quality. These findings align with agency theory, emphasising the role of diverse audit committees in mitigating agency problems and enhancing corporate governance. Female directors with financial expertise bring unique perspectives and skills to the boardroom, leading to improved monitoring of financial reporting and decision-making.

The study also highlights the influence of gender socialisation on the behaviour and effectiveness of female directors, ultimately impacting firm outcomes. From a practical perspective, the findings suggest that the presence of female directors with accounting and finance specialisation significantly enhances earnings quality, while the impact of female directors with supervisory expertise is weaker. This information can inform organisations in selecting board members with appropriate skills and knowledge. Lastly, the study has regulatory implications, indicating that the Hampton-Alexander recommendations have led to a stronger correlation between female directors' financial knowledge and earnings quality, highlighting the importance of promoting financial expertise among female board members.

The second essay study explores how having a diversity of expertise on a corporate board can impact ESG performance, with a focus on the moderating effects of board gender diversity. The findings reveal a positive relationship between board expertise diversity and ESG performance, indicating the importance of diverse expertise in driving corporate sustainability outcomes. Furthermore, the study uncovers the moderating role of board gender diversity in this relationship, underscoring the significance of considering both expertise and gender diversity when assessing the impact of diversity on corporate sustainability performance. This study makes significant contributions to the existing literature. It offers theoretical insights based on resource dependence theory, highlighting the value of diverse expertise on the board as an important organisational resource. By including female directors, the study demonstrates how diversity enhances ESG performance, addressing environmental dependencies and improving sustainability outcomes. The empirical findings emphasise the positive association between board expertise diversity and ESG performance, with a particular focus on governance aspects. Moreover, the study highlights the moderating role of board gender diversity in this relationship, underscoring the importance of considering both expertise and gender diversity in driving corporate sustainability performance. These insights have practical implications for policymakers, regulators, and stakeholders, supporting the inclusion of female directors to enhance board expertise diversity and improve ESG performance. The study's findings also provide guidance on the influence of firm size and type of industry, enabling stakeholders to implement effective board diversity initiatives for their own context in order to enhance sustainability outcomes. Overall, this research advances our understanding of the value of board diversity and its impact on corporate sustainability performance.

The third essay investigates the correlation between a company's commitment to diversity and inclusion and its non-financial and financial performance. It uncovers a positive link between diversity commitment and performance, underscoring the advantages of allocating resources to diversity and inclusion efforts. Additionally, the study highlights the role of board independence diversity in reinforcing the positive effects of diversity commitment on performance outcomes. This research makes significant contributions in several key areas. It offers valuable theoretical insights by applying the resource-based view to the study of diversity and performance. The findings demonstrate that diversity is a valuable and rare resource that positively influences both non-financial and financial performance. It also highlights the moderating role of board independence diversity, shedding light on how diversity commitments can be strategically leveraged to enhance organisational outcomes. Moreover, this research addresses a gap in the existing literature by investigating the relationship between the diversity commitments of companies and their non-financial and financial performance. The empirical evidence strengthens the link between diversity commitments and performance, providing practical implications for policymakers, regulators, and organisations.

Additionally, the study offers insights to support improvements in diversity and inclusion initiatives, emphasising the significance of measurable goals, leadership accountability, and inclusive practices. By adopting a comprehensive and strategic approach, organisations can enhance their performance through diverse recruitment and retention strategies. Overall, these findings underscore the significance of diversity as a valuable resource, the importance of board independence diversity, and the practical steps organisations can take to improve their diversity commitments and achieve better performance outcomes.

1.6 Conclusion

In summary, this thesis examines the effects of diversity on both financial and non-financial performance in the UK. The findings of this research have significant policy implications as they provide valuable insights into how the decision-making process can be enhanced at both the board level, including its sub-committees, and the broader organisational level. The thesis demonstrates that diversity at the board and firm levels is a crucial factor in promoting overall organisational performance, and that boards made up of individuals with diverse backgrounds, experiences, and genders are better equipped to make informed decisions on strategy, governance, and diversity policies. The practical implications of this research are particularly relevant for regulators, who should recognise the benefits of having diverse boards and diversity policies in a firm in terms of improving both financial and non-financial performance.

The thesis is structured as follows: the first chapter focuses on female directors' financial expertise on audit committees and its effect on earnings quality. The second chapter explores how a diversity of expertise on a corporate board can impact ESG performance, with a focus on the moderating effects of board gender diversity. The third chapter investigates the impact of diversity commitments by companies on their financial (ROA, ROE, and Tobin’s Q) and non-financial (e.g., ESG) performance. Chapter 5 provides a summary of the key findings, policy implications, and suggestions for future research.

Overall, this thesis contributes to the growing body of research on the importance of organisational diversity in firm performance, providing valuable insights for both academics and policymakers. The practical implications of this research highlight the need for greater attention to diversity in firms, particularly in relation to gender and other dimensions of diversity and suggest potential ways to promote it.

Chapter 2

The Financial Expertise of Female Directors on Audit Committees and Its Effect on Earnings Quality

ABSTRACT

This study explores how the financial background and working experience of female directors on audit committees influence earnings quality. The expertise of female directors is classified into three groups: supervisory, finance, and accounting. Based on a sample of FTSE 100 firms operating in the UK between 2011 and 2021, the findings suggest that firms with female financial experts (e.g., in accounting and finance) on their audit committees have higher-quality earnings. These findings contribute to a deeper understanding of the connection between gender diversity on audit committees and quality of earnings. Furthermore, they provide important practical implications for regulators. Regulators should pay attention to the benefits of having a female director with financial expertise on the audit committee as this has the potential to influence financial information quality.

KEYWORDS: earnings quality; female directors; financial expertise; agency theory; gender characteristics.

2.1 Introduction

Recent years have witnessed a growing trend in the implementation of national and supra-national laws to ensure gender parity on corporate boards. This trend is underpinned both by moral reasons for gender equality and by a business case promoting the benefits of diversity at the board level. For example, several European countries (e.g., Norway, Belgium, Germany, and Italy) have introduced statutory gender quotas for corporate board membership, leading to a more reasonable gender parity in boardrooms and achieving better diversity and greater skill levels than in countries with voluntary quotas (Greene *et al*., 2020). As a consequence of these regulatory changes, the number of female board directors has been growing year on year. A recent report (Deloitte, 2019) investigated over 8,600 publicly listed companies across 49 states and revealed that 16.9% of the total number of seats on the supervisory board were held by females in 2018, representing an increase of 15.0% from two years ago.

An emerging body of literature argues that female directors play a significant role in improving audit committee effectiveness by enhancing the effectiveness of monitoring and overseeing financial reports (Abbasi *et al*., 2020; Kouaib and Almulhim, 2019; Zalata *et al*., 2018).

The focus of this study on the audit committee, as opposed to other board committees, is justified by the critical role it plays in the financial accounting process and its responsibility for overseeing the quality of accounting numbers (Beasley *et al*., 2009; Collier and Gregory, 1996). According to the Blue Ribbon Committee Report (1999), the audit committee is "first among equals" in the financial accounting process and is "the ultimate monitor" of this process. Given the significance of the audit committee in examining the quality of accounting numbers, it is crucial to investigate how female members contribute to its effectiveness. By focusing specifically on audit committees, this study aims to shed light on the unique impact of female members on its effectiveness and their influence on the quality of earnings. The audit committee's role in examining financial information and ensuring its integrity makes it an ideal context for studying the link between the presence of female directors and financial outcomes. While other board committees, such as compensation committees or nominating committees, also play important roles in corporate governance, the specific focus on the audit committee in this study aligns with its unique position in overseeing financial reporting and accounting practices. By narrowing the research scope to the audit committee, the study can delve deeper into the mechanisms through which gender diversity within this committee affects financial outcomes, providing a more nuanced understanding of the relationship between gender diversity and earnings quality.

An audit committee's level of conservatism, risk aversion, and ethical sensitivity during decision-making are influenced by the existence of a female member. For instance, several studies suggest that females, in general, innately take fewer risks and are more ethical in comparison to males, both at work and outside of work (Eckel and Grossman, 2008). Regarding monetary decisions and choices (Jianakoplos & Bernasek, 1998), women choose more conservative investment plans and cautious options for retirement than men (Arano *et al*., 2010; Watson & McNaughton, 2007). There is also evidence that women tend to obey the rules more (Chung and Trivedi, 2003). Srinidhi *et al.* (2011) find that, there are female directors of an audit committee, they contribute to enhanced monitoring and show less tolerance of opportunistic managerial behaviour, which improves the quality of earnings. The majority of the evidence points to the fact that women engage in various appropriate behaviours in the fields of business and finance. Indeed, having women on the board, including its subcommittees, e.g., the audit committee, is not only reasonable in terms of gender equality but should also be perceived as an important governance issue (Aldamen *et al*., 2018).

The main theoretical focus of prior studies in this area is built on the foundation of agency theory (Fama and Jensen, 1983) and gender socialisation theory (Mason and Mudrack, 1996). Within this theoretical framework, a proper gender balance on boards and committees, in particular audit committees, is thought to curb earnings manipulation and improve investors' ability to make informed decisions, leading to reduced agency costs (Gull *et al*., 2018; Ye *et al*., 2019). Gender diversity on audit committees plays a key role in alleviating the agency problem by supervising the effectiveness of management's financial reporting policies. Furthermore, Abbasi *et al.* (2020) conclude that the domain-specific knowledge of female directors (e.g., accounting, finance, and supervisory) on the audit committee has a desirable effect on the quality of audits. Prior studies rely extensively on gender characteristics theory to justify their perspectives. Women tend to be more vigilant, risk-averse, and conservative, which impacts their decision-making, and thus women are less likely to engage in earnings manipulation (Carter *et al*., 2017; Faccio *et al*., 2016).

The extent empirical literature has linked the presence of female members with enhanced firm value creation (Carter *et al*., 2003) and financial performance (Ahern and Dittmar, 2012; Erhardt *et al*., 2003), audit fees (Alkebsee *et al*., 2021), stock returns (Campbell and Minguez Vera, 2010), financial restatements (Abbott *et al*., 2012) and voluntary reporting (Boulouta, 2013; Bravo and Reguera-Alvarado, 2018; Dobija *et al*., 2022). Female directors are thought to serve as tough monitors (Adams and Ferreira, 2009), and the prospect of business failure decreases with a gender-diverse board (Burgess and Tharenou, 2002). Corporations with gender-diverse audit committees have a higher quality of financial information (Pucheta-Martínez *et al*., 2016) and a higher audit quality (Abbasi *et al*., 2020).

These advantages bestowed by female directors on company audit committees prompted the current research, which aims to explore how female directors on audit committees, together with their relevant working experience, influence the quality of earnings. Managers tend to engage in earnings management as a means of deceiving stakeholders, such as by selecting accounting estimates to report earnings that are beneficial to managers at the expense of external stakeholders (Krishnan & Parsons, 2008). Such unethical behaviour more often occurs under conditions of weak corporate governance and where there are ineffective mechanisms of internal control (Gupta *et al*., 2020). Previous research has suggested that gender-diverse boards tend to display greater monitoring intensity and more ethical sensitivity, to be more risk-averse, and represent protectors of shareholders' interests, meaning that they are likely to provide enhanced earnings quality.

Past studies on the effect of female directors on corporate boards exist, including a focus on audit committees and firm earnings quality (Arun *et al*., 2015; García Lara *et al*., 2017; Srinidhi *et al*., 2011; Zalata & Abdelfattah, 2021; Krishnan & Parsons, 2008; Fan *et al*., 2019). However, these studies provide inconclusive results. For example, Fan *et al.* (2019) suggest that there is an inverted U-shaped relationship between female directors and earnings management. They find that the impact of female directors on earnings management changes from positive to negative until there are three or more women directors. Moreover, Gull *et al.* (2018) suggest that the specific demographic attributes of female directors (e.g., business experience) count more in terms of effective monitoring of earnings management than simply the presence of women on the board. Zalata *et al.* (2022) find that the participation of female directors with relevant financial backgrounds improves earnings quality, while the participation of female directors without such backgrounds has an insignificant impact. In contrast, Srinidhi *et al.* (2011) and Damak (2018) find a negative association between the proportion of female directors and earnings management, leading to inconclusive evidence.

Overall, these studies have yielded inconclusive results regarding the relationship between board diversity, specifically gender diversity, on audit committees, and earnings quality or management. However, this study seeks to address these gaps and provide a more comprehensive understanding of the subject. Furthermore, most prior studies investigating how a gender-diversified audit committee influences the management of earnings have only focused on female director taxonomy (i.e., independent/non-independent female directors). These studies have not considered their human capital, such as extensive skills, experience, and knowledge. Female directors on audit committees contribute to effective monitoring through their human and social capital and by creating a more sustainable, equitable, and inclusive business model that can better meet stakeholders' expectations (Terjesen *et al*., 2009). Hence, there is a need to focus on the association between gender diversity and board decision quality by including individual characteristics such as skills, experience, and knowledge (Johnson *et al*., 2013). In other words, it is worth studying factors that previous research has hitherto ignored to extract new insights into gender diversity beyond the narrow and traditional perspective. Practitioners recognise the importance of having financially experienced directors on audit committees for the effectiveness of the monitoring system because a financial expert possesses more relevant knowledge of financial reporting (Badolato *et al*., 2013; Dhaliwal *et al*., 2010). However, regulators are uncertain about the type of financial experience considered to be most effective in monitoring financial reporting (Abbasi *et al*., 2020). The Securities and

Exchange Commission (SEC) provides a broad definition of a financial expert: someone with experience with or oversight over the preparation or auditing of financial statements. Previous studies find differing impacts based on the type of financial expertise possessed by the female director, such as accounting and non-accounting (e.g., finance and supervisory) (Badolato *et al*., 2013; Dhaliwal *et al*., 2010; Defond *et al*., 2005).

This study aims to explore how the financial experience of female directors on audit committees can influence the quality of earnings. To better understand this phenomenon, female audit committee directors' working experience and background are classed into three groupings: supervisory expertise, finance, and accounting. This will help to determine which of these skill sets can facilitate earnings quality. When an audit committee has financial expertise, such a committee is better able to curtail financial misreporting and better serve the shareholders' interests (Bilal *et al*., 2018). According to Walker (2009), the dearth of appropriate financial expertise on the boards of corporates was a key factor in the financial crisis of 2007–2008. As a result, female directors with supervisory, finance, and accounting expertise on audit committees have a better chance of bringing value to the firm through their diverse perspectives (Zalata *et al*., 2018). Given the importance of financial expertise on audit committees, there is a need to explore how the financial expertise of female directors specifically moderates the connection between earnings management and audit committee gender diversity, which is considered a major factor in alleviating agency problem and promoting the financial reporting quality. Following Badolato *et al.* (2013) and Dhaliwal *et al.* (2010), this research considers the underlying types of financial expertise, namely supervisory, finance, and accounting expertise, based on evidence that they have differing effects (Cohen *et al*., 2014). Hence, one of the unique aspects of the present study lies in its design and approach. This study specifically focuses on the impact of female directors' financial expertise on audit committees and its influence on earnings quality by examining the specific financial backgrounds and working experience of female directors. It aims to shed light on the mechanisms through which gender diversity can enhance financial reporting quality. This focus on the financial expertise of female directors sets the study apart from previous research that has primarily considered the presence of women on the board without considering their specific skills and knowledge.

The research outcome is supported by empirical findings based on a sample of 77 non-financial firms from the FTSE 100 index for the period 2011–2021. The findings indicate that when an audit committee is gender diverse, the quality of earnings is significantly positively impacted.

Meanwhile, the main results indicate that the working experience of female directors, together with their accounting and finance background, plays an essential role in increasing earnings quality. Furthermore, controlling for specific motivations that firms may have to increase gender diversity in their audit committees, which could affect female directors' abilities to improve the monitoring and control system, this study tests whether voluntarily adopting the 2016 Hampton-Alexander review's recommendations for gender quota is associated with a higher quality of earnings. Therefore, this study splits the sample into before and after the 2016 Hampton-Alexander recommendations and runs the econometric model twice. The results, after the 2016 Hampton-Alexander recommendations, indicate that all types of female directors' backgrounds (accounting, finance, and supervisory) are significantly and positively associated with earnings quality.

This study contributes to the literature in multiple ways. First, the findings of this study make a theoretical contribution. The results demonstrate that gender diversity on audit committees, particularly the presence of female directors with financial expertise, positively influences the quality of earnings. This supports the notion that diverse audit committees are better equipped to monitor financial reporting and mitigate agency problems. The study's findings suggest that female directors on audit committees exhibit risk-averse behaviour, ethical sensitivity, and a conservative approach to financial decision-making. This highlights the influence of gender socialisation on the behaviour and efficacy of female directors, ultimately impacting firm outcomes. Thus, the study provides valuable empirical evidence on the interplay between gender diversity, financial expertise, and corporate governance.

Second, except for Zalata *et al.* (2018) and Zalata *et al.* (2022), who examine the impact of the financial experience of female directors on earnings manipulation, the existing literature (Arun *et al*., 2015; Gull *et al*., 2018; Srinidhi *et al*., 2011; Thiruvadi & Huang, 2011) has focused on female audit committee directors without considering their financial experience. However, even though the study by Zalata *et al.* (2018) considers female directors' financial expertise, they do not examine the different impacts of different types of financial expertise, such as accounting, finance, and supervisory. To our knowledge, this is the first study that provides evidence, consistent with theory and practice, of the value of female directors' financial expertise – accounting, finance and supervisory – for audit committees in terms of improving the quality of earnings. By classifying female directors into accounting, finance, and supervisory experts, this study offers a more in-depth analysis of female financial experts on audit committees.

Third, the study's results indicate that the presence of female accounting and finance experts on audit committees is significantly and positively related to earnings quality, while female supervisory experts on audit committees are insignificantly associated with earnings quality. It appears that such experts lack an adequate understanding of accounting matters and fail to constructively apply their business acumen to improve the quality of earnings. Thus, the findings of Zalata *et al.* (2018) and Zalata *et al.* (2022) that female financial experts on audit committees enhance earnings management may in fact stem from analysis of female experts with accounting and finance expertise. However, Abbasi *et al.* (2020), who conduct their study based on a sample of FTSE 350 in the period 2009–2017, without controlling for the 2016 Hampton-Alexander recommendations, offer evidence that only female accounting experts on audit committees are positively associated with audit fees. Their results are consistent with our results from the subsample analysis (from 2011–2016), suggesting that their findings may be driven by the 2016 Hampton-Alexander recommendations.

Fourth, given the implementation of the voluntary gender quota approach in the UK context, it is timely to examine female audit committee directors and earnings quality, particularly in the light of Lord Davies' report (Davies, 2011) and the 2016 Hampton-Alexander review (Hampton & Alexander, 2016). The findings indicate that after adopting the Hampton-Alexander recommendations, female directors with all categories of financial expertise (accounting, finance, and supervisory) contribute significantly to the quality of earnings.

This work is organised in the following way. After the introduction in Section 1, the second section presents the UK's institutional environmental. Section 3 focuses on a literature review and outlines the theoretical framework. Section 4 shows the development of the hypotheses. Section 5 provides details on the model specification, variable measurement, and sample. The descriptive and correlation analysis is presented in Section 6. The discussion of the results is performed in Section 7. The final section discusses the conclusions, implications, and limitations of the study.

2.2 Literature review and empirical studies

Financial reports are the essential source of information for stakeholders (e.g., investors, regulators, financial institutions, and managers) in terms of informing their decisions (Arya *et al.*, 2003). One of the most important accounting metrics in financial reports is reported earnings (Francis and Schipper, 1999), as these are a reliable indicator of a company's financial health and future cash flows (Gaio and Raposo, 2011). According to Dechow and Schrand

(2004), the term high-quality earnings refers to the ability of reported earnings to precisely reflect present performance, forecast future performance and assess firm value. Users of financial statements, in particular investors, want the quality of earnings to be high because there is a tendency for such results to be repeated later (Francis *et al*., 2003). In contrast, it is similarly less likely that investors will put their money into entities that report lower-quality earnings because this will result in lower stock prices. However, poor earnings quality does not necessarily mean that the firm is using accounting tricks or unethical practices. Certain entities may produce low-quality earnings even though their quality of reporting is high. Such a situation could be attributed to poor financial performance in a business cycle (Dechow and Schrand, 2004).

In the last couple of decades, the quality of earnings concept has been attracting substantial attention from standard setters auditors (Gissel *et al*., 2005). This is largely due to the array of prominent accounting disgraces in the last two decades, which have led investors to call for improvements in the effectiveness of corporate audit committees as a way of increasing the quality of financial information (Lin *et al*., 2006). In response to these calls, regulators implemented the 2002 Sarbanes-Oxley Act (SOX), which requires the appointment of members of an audit committee with proper financial know-how. Additionally, it is vital to ensure that all members of the committee are free from the management of the firm in overseeing the accounting and financial processes (Sarbanes and Oxley, 2002). Currently, numerous countries have adopted regulations requiring companies to have some directors with financial expertise on their audit committees (Cohen *et al*., 2014; Sarbanes & Oxley, 2002). In the UK context, the Code (2018) sets the provision that, upon the establishment of the audit committee, the board should be satisfied that at least one member has recent and relevant financial experience; however, the term 'relevant financial experience' is not defined as such and the company has discretion in terms of deciding what it considers to be relevant.

In advising, monitoring, and overseeing how the managers of an entity implement internal systems for accounting control, the audit committee plays an important role, in addition to overseeing how well the entity reports its finances (Klein, 2002). Scholars have documented that an audit committee combination of financial expertise and gender diversity influences the quality of financial statements (Bédard *et al*., 2004), enhances the effectiveness of the internal control system (Naiker and Sharma, 2009), and restrains opportunistic earnings management (Krishnan & Parsons, 2008) and financial restatements (Anderson *et al*., 2004).

Other scholars have documented the managerial benefits of gender diversity. Gender diversity informs and improves the decision-making process and corporate outcomes (Amorelli and García-Sánchez, 2020; Nadeem *et al*., 2020), presents creative solutions to difficult problems (Katmon *et al*., 2019), builds stronger relationships with employees (Arco-Castro *et al*., 2020), and fosters public disclosure (Bravo & Reguera-Alvarado, 2018; Carvajal *et al.,* 2022). Furthermore, the existence of female financial experts on the audit committee creates a strong monitoring function, which could lead to less earnings management and higher-quality earnings (Arun *et al*., 2015; García Lara *et al*., 2017; Zalata *et al*., 2018). However, previous studies have not examined the different impacts of female audit committee directors' financial expertise (accounting, finance, and supervisory) on earnings quality.

Therefore, the current research attempts to fill the gap in previous studies by examining how the impact of female directors on earnings quality is affected by their accounting experience and non-accounting experience (finance and supervisory, respectively). This study argues that female audit committee members' qualities, such as experience and knowledge, may differentially impact the efficacy of the audit committee. The findings demonstrate that the competency and capability resources of members of the audit committee are embodied in the ability to perform. More specifically, this study conjectures that female audit committee members' financial expertise positively affects earnings quality for several reasons. Financial experts possess extensive knowledge and skills in accounting and finance. Such knowledge enables them to comprehend how executives' choices affect earnings management and, therefore, to detect their attempts to manage earnings. Financial experts on audit committees can act in a preventive capacity by discouraging managerial attempts to manipulate earnings, thereby improving monitoring. Furthermore, financial experts are fully aware of the implications of a loss of reputation capital and potential litigation risk, providing an incentive to curtail earnings manipulation and financial reporting misconduct; this incentive is more prominent for members with financial expertise. For example, Zajac and Westphal (1996) find that directors seek to develop and maintain a favourable reputation and their social human capital by actively monitoring management. The financial experts' concerns about their reputational capital motivate them to assess the nature and appropriateness of the accounting decisions made by executives in order to ensure the quality of financial reporting (Krishnan & Visvanathan, 2008).

To clarify the role of gender diversity on audit committees in promoting quality of earnings, the current article draws primarily on the foundations of agency theory. Figure 2.2.1 provides a diagrammatic overview of the connection between the presence of female directors on audit committees and earnings quality through the agency perspective.

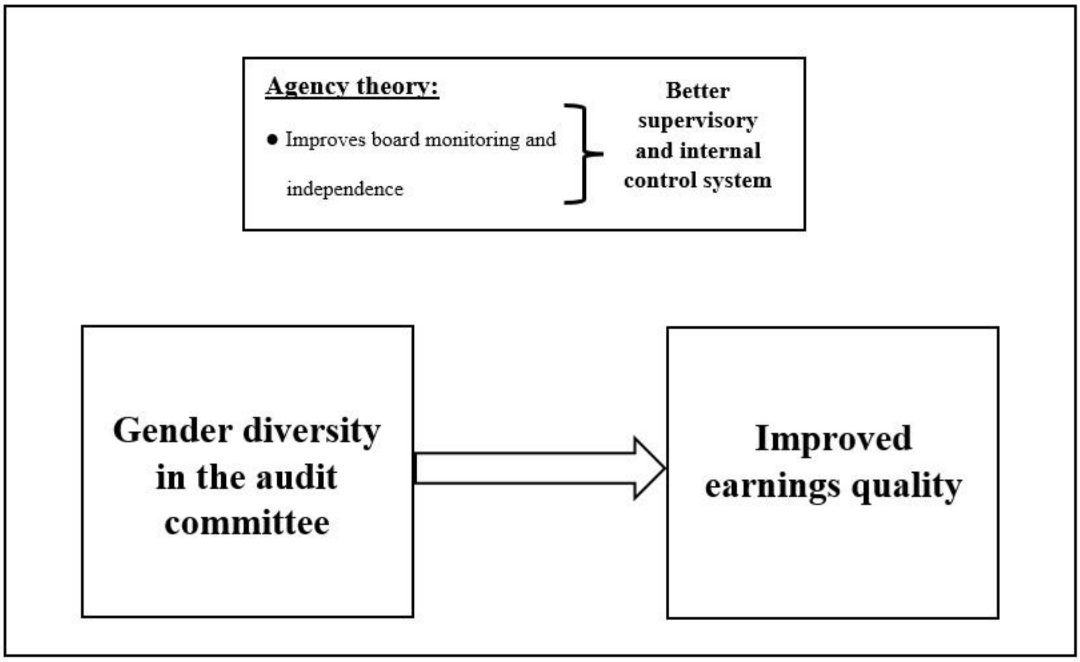

Figure 2.2.1: A diagrammatic overview of the detailed relationship between earnings quality and gender diversity on the audit committee

2.3 Theoretical framework

Agency theory is a major theory in corporate governance. It is essential to current research in terms of understanding the link between diversity on audit committees and earnings quality. Agency theory explains the contract between shareholders and the board of directors (Fama and Jensen, 1983). More specifically, the board of directors is responsible for managing corporate resources (both financial and human) and addressing shareholders' interests and demands. In other words, agency theory separates ownership and management, whereby the shareholders own the firm while the board of directors is responsible for managing the firm's assets in the shareholders' interests. Any conflict of interest between managers and shareholders leads to information asymmetry and agency problems (Bhagat and Black, 2001). The board of directors is responsible for solving such inherent problems in the firm and working on behalf of the shareholders to guard their wealth (Hermalin and Weisbach, 2012). Problems relating to conflicts of interest between owners and managers remain one of the most significant issues in corporate finance.

The key responsibility of the board is to provide a balanced and comprehensible assessment of corporate financial performance and disclosure. These reporting responsibilities of the board are operationalised through the audit committee (Li *et al*., 2012). Therefore, the audit committee can influence financial disclosure to reduce agency problems; enhancing the quality of accounting numbers is perceived as one way of reducing these agency problems. It is contended that the composition of the audit committee is one of the main solutions to alleviating such issues (Thiruvadi and Huang, 2011). Gender heterogeneity on the audit committee promotes its oversight and monitoring, which decreases unethical financial and managerial behaviour and protects shareholders' interests (Adams & Ferreira, 2009; Parker *et al*., 2017; Price, 2012). Female directors are considered more independent than their male counterparts, enabling them to facilitate a superior audit committee monitoring system (Hillman *et al*., 2007). Terjesen *et al.* (2016) examine a sample of gender-diverse boards in several countries to explore their effect on financial performance. They find that boards with higher female representation experience higher financial performance. Furthermore, they suggest that a homogeneous board, without a gender balance, is less likely to improve corporate performance.

Agency theory is used in prior studies to explain the challenges related to the association between the board and the structures and internal control of its committees concerned with earnings manipulation. According to Zalata *et al.* (2018), gender diversity on audit committees plays an important role in monitoring managers' activities and their attempts to manipulate earnings. Furthermore, Thiruvadi and Huang (2011) suggest that the inclusion of female members on the audit committee constrains earnings manipulation. According to Parker *et al.* (2017), female audit committee members tend to be more critical and thorough in monitoring internal control systems for potential flaws compared to their male peers. In a similar vein, Pucheta-Martínez *et al.* (2016) reveal that a gender-diverse audit committee can lead firms to engage in higher-quality financial reporting, which is consistent with the view that gender diversity encourages effective monitoring, thereby alleviating agency problems. In addition, scholars have suggested that female directors contribute to improved monitoring by broadening the available expertise, skills, capabilities, and creativity (Erhardt, 2003; Zalata *et al*., 2018). Therefore, women as efficient monitors could decrease the propensity for managers to manage earnings as well as mitigate the agency conflict assumed between managers and shareholders, which in turn may result in higher earnings quality.

Furthermore, ethical sensitivity theory suggests that women and men have different behaviour on ethical issues as a result of prior experiences through social interactions (Mason and Mudrack, 1996). Women tend to be more cautious, risk-averse, and conservative, which impacts their decision-making, and thus women are less likely to engage in earnings manipulation (Carter *et al*., 2017; Faccio *et al*., 2016). Ho *et al.* (2015) find that women executive officers at the management level report more conservative earnings and they argue that women are likely to be conservative, cautious, and ethical in their judgment and behaviour, enabling them to establish a better internal control environment. According to Arnaboldi *et al.* (2021), banks with more women on the board are associated with lower misconduct fines. In a similar vein, Orazalin (2020) finds that female-led firms have a lower likelihood of financial misstatement than male-led firms and that these gender differences are more obvious when there is a poor governance mechanism.

In addition, women are naturally more aware and caring of the needs of others (Burgess and Tharenou, 2002) and show greater sensitivity towards stakeholders' demands (Galbreath, 2016). A large body of research has indicated that women focus less on personal interests and desire working environments that are more in line with communal goals, helping them to influence the board's decision-making on environmental and social issues (Bart and McQueen, 2013; Harrison and Coombs, 2012). This view is also supported by Nielsen and Huse (2010), who assert that female directors show greater sensitivity towards social and environmental issues than their male counterparts.

Furthermore, gender characteristics research suggests that there are fundamental personality differences between women and men. The literature on the qualities of female leaders suggests that men and women differ in their leadership aptitudes (e.g., Cowen & Montgomery, 2020; Nekhili *et al*., 2018; Badura *et al*., 2018; Bark *et al*., 2016; Paustian-Underdahl *et al*., 2014). For example, women seem to lead more democratically and collaboratively, while men tend to have a more autocratic or command-and-control leadership style (Eagly *et al*., 2003; Eagly & Johnson, 1990). Moreover, research has demonstrated that the leadership style adopted by female leaders tends to tilt towards greater trust-building among directors, as well as enhanced information exchange both among directors and between directors and employees, thereby decreasing information asymmetry and creating a richer information environment (Gul *et al*., 2011; Srinidhi *et al*., 2011).

Moreover, directors on the board have a set of human and social capital resources, such as skills, views, reputation, social networks, and links with other firms (Hillman *et al*., 2007). Such resources are essential for the effective functioning of boards. Board functions are strongly affected by the human capital of the board directors because the directors' competencies and expertise impact their decisions (Katmon *et al*., 2019). Furthermore, the inclusion of women on a board of directors is essential for the gender balance of the board and offers a unique set of skills and talents required by the firm. For instance, Wahid (2019) finds that gender diversity on boards provides a set of unique skills that are important in ensuring that boards have the essential experiences and appropriate specialist knowledge required to make better strategic decisions. Gul *et al.* (2013) find that most female directors have prior expertise that makes them as highly qualified as their male counterparts (Peterson and Philpot, 2007). Furthermore, Elmagrhi *et al.* (2019) argue that female directors have non-traditional educational backgrounds compared with their male counterparts, enabling them to reach boards at a faster pace than men. Arguably, directors of the board with the required financial expertise and background should have the ability to comprehend the complexity inherent to decisions made in financial reporting (Gore *et al*., 2011), helping them to understand CEOs' decisions and choices, and thus restrict the latter's opportunistic practices, improving earnings quality (Zalata *et al*., 2018).

2.4 Development of hypotheses

According to agency theory, executives typically act in a self-serving and opportunistic manner, which can sometimes be detrimental to the interests of shareholders. Therefore, independent members of a company's board must oversee and ensure that the executive officers behave accordingly. In this role, it has been noted that females are more conservative, ethical, and socially conscious than men (Price, 2012; Lai *et al*., 2017; Adams & Ferreira, 2009). Having female directors on the board is more likely to increase the board's independence (Adams & Ferreira, 2009). This may put them in a stronger position to contest other board members' judgments and more closely watch the actions and reports of management (Srinidhi *et al*., 2011; Lai *et al*., 2017). Female directors have a higher likelihood of serving on oversight committees, such as the audit, governance/nomination, and remuneration committees (Adams & Ferreira, 2009). It can, therefore, be argued that this makes it possible for the female members of these or some of these monitoring committees to use their superior monitoring skills to lessen the tendency of CEOs to manage earnings. More precisely, behavioural and psychology research suggests that risk aversion and acting ethically are two important gender traits that may influence the differences in business behaviour between males and females (Johnson & Powell, 1994; Eagly & Johannesen-Schmidt, 2001; Cross *et al*., 2011; Albaum & Peterson, 2006). Additionally, conclusions from behavioural business studies have made a reasonably solid discovery that emphasises the differences in ethical behaviour between men and women.

Female directors typically have a higher ethical awareness than male directors, according to Byron and Post's (2016) empirical investigation.

Male and female marketing professionals' decisions about marketing activities were analysed by Lund (2008). He discovered that compared to their male counterparts, female marketing professionals have a considerably greater sense of ethics. Female directors are less likely to engage in unethical behaviour, such as manipulating financial reports, according to Ibrahim *et al.* (2009). This suggests that female managers are generally more inclined to comply with and sensitive to codes of ethics (Zalata *et al*., 2018; Peni & Vähämaa, 2010; Abbasi *et al*., 2020). Compared to their male counterparts, female members of audit committees may be more critical and rigorous in checking internal controls for potential weaknesses due to their ethical sensitivity (Parker *et al*., 2017). As a result, female members are more inclined to question other directors critically and demand in-depth responses to their judgments (Fitzsimmons, 2012).

Female directors are likely to be more conservative, cautious, and risk-averse, which influences their decision-making, according to research that has looked at gender differences in risk preferences. Women are, therefore, less likely to manipulate earnings (Carter *et al*., 2017), and they are anticipated to increase the level of surveillance (Srinidhi *et al*., 2011). For example, Graham *et al.* (2002) investigated whether investing decisions differ depending on gender. They discovered that compared to male investors, female investors absorb information more thoroughly, tend to make less hazardous judgments, and exhibit less confidence in their investing strategies. This risk behaviour is a crucial factor in corporate decisions and tactics, according to earlier studies. Ho *et al.* (2015) found that high-ranking female executives reported more conservative earnings; women are more likely to be ethical, cautious, and conservative in their decisions and behaviour, which helps them create a better environment for internal controls.

Arnaboldi *et al.* (2021) claim that having many women on the board is related to reduced criminal conduct fines in the banking industry. Likewise, Orazalin (2020) discovered that enterprises led by women are less likely than those led by men to make financial misstatements; these differences are especially pronounced in firms with poor governance. A gender-diverse audit committee can encourage companies to participate in higher-quality financial reporting (Pucheta-Martnez *et al*., 2016). This finding is consistent with the idea that gender diversity promotes better monitoring, which reduces agency issues. These studies support the idea that female managers and directors avoid taking chances. However, Lilleholt (2019) found no statistically significant differences between females and males in terms of risk aversion. This was a conclusion arrived at after reviewing 97 articles for a meta-analytical analysis.

Gender characteristics studies contend that men and women have fundamentally different personalities. According to research on the traits of female leaders, men and women exhibit different leadership skills (Montgomery & Cowen, 2020; Hernandez Bark *et al*., 2016; Badura *et al*., 2018). Women appear to lead more democratically and jointly, for instance, whereas men are more likely to be authoritarian leaders who rely on a command-and-control style of management (Eagly *et al*., 1990, 2003). Additionally, studies have shown that the leadership style used by female executives tends to lean toward greater trust-building among directors as well as enhanced information interchange between directors and employees, reducing information asymmetry and fostering a richer information environment (Srinidhi *et al*., 2011; Gul *et al*., 2011). Several scholars have suggested that female directors on audit committees make positive contributions to producing high-quality earnings based on the significant behavioural differences between men and women (Srinidhi *et al*., 2011; Garca Lara *et al*., 2017; Arun *et al*., 2015; Fan *et al*., 2019; Thiruvadi & Huang, 2011; Sun *et al*., 2011; Gul *et al*., 2013).

The first hypothesis in this study is constructed as follows: given that female directors are more likely to be moral and risk-averse, as well as naturally inclined to be tough monitors and effective leaders, it is anticipated that when they are part of an audit committee, they contribute to a better monitoring system with a stronger emphasis on the quality of earnings reporting.

H1: *The presence of female directors on the audit committee is associated with a higher quality of earnings.*

Prior studies demonstrate that breadth of knowledge is critical to ensuring that boards have the essential experiences and appropriate specialist knowledge required to make better strategic decisions (Gupta *et al*., 2020; Bilal *et al*., 2018; Gray and Nowland, 2017). Since audit committees are responsible for providing meaningful oversight of the financial reporting process, ensuring that there are audit committee members with a high level of financial reporting knowledge is important. According to the SEC's[1] definition of a financial expert, a

[1] Under SEC rules, an "audit committee financial expert" is a person who has the following attributes: (i) an understanding of generally accepted accounting principles and financial statements; (ii) the ability to assess the general application of such principles in connection with the accounting for estimates, accruals and reserves; (iii)

person should have accounting and/or certain types of non-accounting (finance and supervisory) financial expertise. This definition has led researchers to explore the impact on financial reporting quality of accounting and non-accounting financial experts on audit committees (Abbasi *et al*., 2020; Das *et al*., 2020; Abernathy *et al*., 2014; Dhaliwal *et al*., 2010; Carcello *et al.,* 2006; McDaniel *et al*., 2002). Therefore, it is reasonable to argue that the effectiveness of female members on audit committees may depend on the types of expertise they possess.

Arguably, directors on the audit committee should have the ability to comprehend the complexity inherent in decisions made in financial reporting (McDaniel *et al*., 2002), helping them to understand CEOs' decisions and choices, and thus restrict the latter's opportunistic practices, thereby improving earnings quality (Zalata *et al*., 2018). For example, directors with financial expertise are more likely to understand accounting estimates, accruals and reserves, the controls and procedures of internal controls for financial reporting, and audit committee functions (DeFond *et al*., 2005). Furthermore, directors with a high level of financial reporting knowledge are more likely to identify problems, pose probing questions to management, and have deep discussions with the auditors about their evaluations of the quality of the financial statements (Dhaliwal *et al*., 2010). In a similar vein, Krishnan and Visvanathan (2008) suggest that accounting knowledge enables directors to assess the appropriateness of managers' accounting choices and judgments, which could restrain managers from overcompensating with aggressive accounting. Furthermore, the competency of financial experts on the audit committee enables directors to assess potential litigation risk due to its ability to oversee accounting controls and the financial reporting of the firm (Krishnan & Lee, 2009). Such benefits accruing from including financial experts on the audit committee are an important aspect of its effectiveness.

Even though previous research has examined whether the appointment of female members is related to the quality of earnings, studies to date have supposed that women are a homogeneous group and thus have not probed their their variations in terms of expertise and knowledge. One area where they can differ from one another is in terms of their expertise and, therefore, this

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experience preparing, auditing, analysing or evaluating financial statements that present a breadth and level of complexity of the accounting issues that are generally comparable to the breadth and complexity of issues that can reasonably be expected to be raised by the registrant's financial statements, or experience actively supervising one or more persons engaged in such activities; (iv) an understanding of internal controls, procedures for financial reporting, and audit committee functions.

study argues that not every female director can contribute to the company's financial decisions, and female directors with the relevant, adequate financial experience are crucial for improved financial information quality. When female directors with financial experience are part of the audit committee, they have a higher likelihood of understanding the complexity of financial reporting, understanding auditors' assessments, and supporting auditors in auditor-management disputes (Zalata *et al*., 2022; Srinidhi *et al*., 2011; Zalata *et al*., 2018; Pucheta-Martínez *et al*., 2016). Prior research concludes that the presence of financial expertise (accounting, finance, and supervisory) is important on the audit committee. Zalata *et al.* (2018) arrived at the conclusion that when female directors with financial experience sit on audit committees, they improve the audit committees' monitoring function and thus improve earnings quality. In the same vein, Abbasi *et al.* (2020) argue that financial experience is a prerequisite for female directors to be effective monitors of executives and influence the quality of audits positively. Das *et al.* (2020) propose that when an audit committee consists of members with accounting expertise, then financial reporting quality improves. Lee and Park (2019) find that the financial expertise of audit committees curbs managers' manipulation of the tone of the management discussion and analysis (MD&A) section of corporate annual reports. In addition, Cohen *et al.* (2014) and Dhaliwal *et al.* (2010) report a positive association between the presence of financial experts on audit committees and the quality of financial statements. In this study, I go beyond the prior research and categorise the financial expertise of female directors into accounting, finance, and supervisory expertise in order to distinguish which type of experience is beneficial in supporting audit committees to improve earnings quality.

In sum, female directors with financial expertise (for example, accounting, finance, and supervisory expertise) who sit on audit committees are expected to contribute to the development of financial policies and increase the likelihood that the decisions of the CEO are examined in more detail, thereby increasing earnings quality; therefore, the second hypothesis formulates follows:

H2a: *The presence of female directors with accounting expertise on the audit committee is associated with a higher quality of earnings.*

H2b: *The presence of female directors with financial expertise on the audit committee is associated with a higher quality of earnings.*

H2c: *The presence of female directors with supervisory expertise on the audit committee is associated with a higher quality of earnings.*

Figure 2.4.1 presents the hypothesis-building framework for this study. The figure lists the four hypotheses related to the categories of female expertise on the audit committee and how they link to earnings quality.

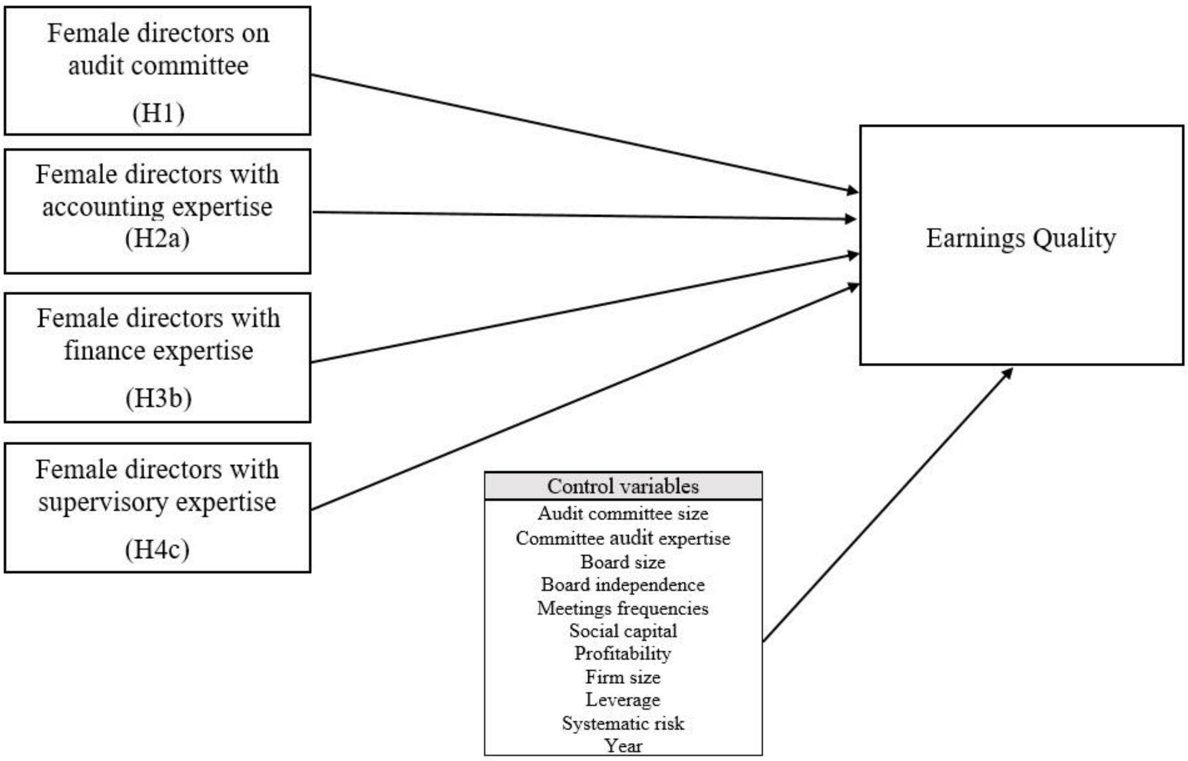

Figure 2.4.1: A model of female directors on the audit committee and the link with earnings quality

2.5 Methodology

2.5.1 Sample

The data used in the present study is from non-financial firms listed on the FTSE 100 index in the 2011–2021 period. This research period is chosen to compare firms before and after the 2016 Hampton-Alexander review. The FTSE 100 recorded its largest annual increase in the proportion of female directors at the board level and in senior leadership positions since the review began in 2017, according to the FTSE Women Leaders Review survey in 2022. By focusing on the FTSE 100, this study can examine the impact of gender diversity on audit committees in a context where there is already a significant number of female directors. Furthermore, the selection of FTSE 100 firms for this study is also influenced by their reputation as the largest and most transparent companies in the UK (Fernandes and Mergulhão, 2016; Sierra-García *et al*., 2019). These firms are often subject to greater scrutiny and regulatory requirements, leading to higher levels of transparency in their governance practices (Kang and Gray, 2019; Yekini *et al.* 2021). As a result, they provide a rich source of data that allows for a more in-depth analysis of the relationship between gender diversity on audit committees and earnings quality.

Firms in the financial services and insurance industry were excluded from the sample because the earnings management techniques employed by these firms are not comparable to those used in other industries (Capalbo *et al*., 2018). Data on financial information and firms' characteristics were sourced from the Refinitiv Eikon database, while data on corporate governance were obtained manually from annual reports. To examine the issues related to the management of earnings and how it is influenced by the existence of female directors, the names of FTSE 100 female directors and their biographical information were extracted from the BoardEx database. Finally, the financial data were merged with those on corporate governance and the data on female expertise acquired from the BoardEx database. The final sample includes data on 77 firms from the study period. Table 2.5.1 presents a breakdown of the 77 sample firms by industry. This study utilised a longitudinal panel dataset. Panel data analysis offers several benefits, including a higher degree of freedom, more variability and a reduction of the multicollinearity issue among the explanatory variables, hence improving the efficiency of statistical tests (Hsiao, 2014).

Table 2.5.1: Breakdown of the sample firms by industry

Industry	Frequency	Per cent (%)
Aerospace and Defence	2	2.60%
Business Services	6	7.79%
Chemicals	2	2.60%
Construction and Building Materials	6	7.79%
Containers and Packaging	2	2.60%
Engineering and Machinery	4	5.19%
Food, Beverages and Tobacco	10	12.99%
Forestry and Paper	1	1.30%
General Retailers	5	6.49%
Health Care	4	5.19%
Leisure and Hotels	6	7.79%
Media and Entertainment	7	9.09%
Mining	7	9.09%
Oil and Gas	2	2.60%
Real Estate	2	2.60%
Software and Computer Services	3	3.90%
Steel and Other Metals	1	1.30%
Telecommunications Services	2	2.60%
Transport	1	1.30%
Utilities	4	5.19%
Total	77	100%

2.5.2 Dependent variable

The earnings quality score index (EQ) reflects the extent to which the past earnings of a firm are reliable and are likely to continue with a similar trajectory (Francis *et al*., 2006). The use of earnings quality as a measure of performance in this study is justified by its relevance to financial reporting and its impact on stakeholder decision-making processes. Earnings quality is crucial because it affects investors' ability to make informed decisions about a company's financial health and future prospects (Li, 2011). High earnings quality typically indicates that the reported earnings are not subject to manipulation by company management and serve as a reliable indicator of the company's future earnings and cash flows. On the other hand, low quality earnings, which may result from earnings management or accounting manipulation, can distort the financial picture and mislead stakeholders. Measuring financial performance through EQ is relevant in the realm of corporate governance and financial reporting research (Abdelsalam *et al*., 2021; Fassas *et al*., 2023; Mathuva and Nyangu, 2022).

There are several measures used to evaluate the quality of earnings in previous studies. One measure is accruals quality (Dechow and Dichev, 2002), which establishes a relationship between the accruals of working capital in the current period and the operating cash flows in the prior, current, and future periods. This measure is used by previous studies (Doyle *et al*., 2007; Francis *et al.,* 2005). Another measure is the discretionary accruals model (Jones, 1991), which captures the portion of accruals that can be subject to management manipulation. Lower levels of discretionary accruals suggest higher earnings quality, as they indicate a reduced likelihood of earnings management or accounting manipulation (Bartov *et al*., 2000; DeFond and Subramanyam, 1998). Additionally, some studies focus on earnings smoothing (Gao and Zhang, 2015; Jung *et al*., 2013), which refers to the practice of reducing earnings volatility through various accounting methods. Smoother earnings may indicate lower earnings quality if they are achieved through earnings management techniques rather than reflecting the underlying performance of the company.

While these measures have been employed in prior research, the StarMine EQ score offers distinct advantages. It considers multiple factors, including accruals, cash flow, and operating efficiency, providing a comprehensive evaluation of earnings quality. Additionally, it incorporates the regulatory environment and provides a benchmark for comparing a company's earnings quality with that of its peers. Therefore, following Abdelsalam *et al.* (2021), this study uses the StarMine EQ score provided by the Refinitiv Eikon database as the dependent variable. The StarMine EQ score is a percentile ranking of a firm's earnings quality, with 100 representing the highest rank. The EQ score provided by the StarMine analyst team offers several advantages, as highlighted by Abdelsalam *et al.* (2021)

First, it quantitatively assesses whether the earnings of a firm are reliable and sustainable. The StarMine analyst team uses a multi-factor approach to evaluate earnings; this incorporates four components, namely (a) accruals, based on the operating assets changes (current and non-current) and liabilities in the last four quarters and scaled according to average assets; (b) cash flow, based on the operations net cash flow from investment cash flow and scaled according to average assets; (c) operating efficiency, based on operating profit margin and net operating asset turnover; and (d) exclusions, giving an idea of the degree to which past earnings reflect the operating earnings, as per the recent quarterly value of special items and other exclusions and scaled according to average assets. Second, the StarMine EQ score takes account of the institutional regulatory environment. The whole score offers a glimpse into a firm's earnings quality in comparison to a benchmark that refers to the same regulatory body. This makes it possible to assess objectively the earnings quality of a firm and compare it to other firms within the same region. Third, the multi-factor approach is developed in such a way as to deliver upper ranks for stocks with cash-flow-supported earnings and correspondingly sustainable sources; this punishes companies driven by accruals or sources that are less sustainable. Specifically, a low EQ value represents low sustainability of earnings over the past twelve months (Abdelsalam *et al*., 2021).

2.5.3 Independent variables

The percentage of female members on an audit committee (AUDITFEM) is the primary independent variable, obtained by dividing the number of female directors by the aggregate number of directors on the audit committee (Sun *et al*., 2011; Thiruvadi and Huang, 2011).

Based on the views of Badolato *et al.* (2013) and Dhaliwal *et al.* (2010), the financial experience of an audit committee's female director is categorised in the following manner: if the director's biographical details on BoardEX include words related to using financial statements, accounting experience, or supervising the preparation of financial reports, she is considered to have financial experience. This study adheres to the SEC's (2003) definition of financial expertise, which includes three areas of expertise: accounting, supervisory and finance expertise. Furthermore, this study adopts the granular classifications of financial expertise proposed by Badolato *et al.* (2013) and Dhaliwal *et al.* (2010). The terms included in each category are listed in Table 2.5.2.

The ratio of female directors who have expertise in accounting (FEM_ACC), exemplified by titles like head of accounting, controller, treasurer, and chief financial officer (CFO), to the aggregate number of female directors with expertise in finance (FEM_FIN), defined as having working experience in areas related to finance like investment banking or financial analysis, to the audit committee's total number of female directors. The third variable is the ratio of female directors with supervisory expertise (FEM_SUPER), defined as work experience in supervisory positions that encompass the supervision of individuals involved in financial reporting (e.g., CEO, COO or president), to the total number of female directors on the audit committee.

Table 2.5.2: BoardEx search keywords

Accounting	Finance	Supervisory
Accountant Chief financial officer Accounting manager Chartered accountant Head of accounting Controller Financial accountant Financial officer Group chief accountant Management accountant Senior accountant	Analyst Chief investment officer Commercial loan officer Financial analyst Head of corporate finance Head of finance Head of public equities Investment banker Investment director Investment manager Loan operations officer Manager – loans Regional chief investment officer Senior loan officer Senior manager – finance	Chief operations officer President Chief executive officer

2.5.4 Control variables

This study uses two categories of control variables that could impact the measurement of the variables of interest. The first group is made up of the variables related to the characteristics of corporate governance that could impact the decisions of the audit committee regarding earnings quality. Audit committee size (AC_SIZE) is how many directors are on the audit committee. Das *et al.* (2020) suggest that large committees have the potential to be less effective at monitoring functions with an increased risk of financial reporting manipulation. Moreover, smaller audit committees tend to include fewer advisors and management monitors, influencing the audit committee's effectiveness (Sun *et al.*, 2011). This analysis controls for audit expertise (AUDIT_EXP). This variable measures the proportion of financial experts on the audit committee in line with the meaning of Sarbanes-Oxley. In this study, board size (BSIZE) and board independence (BINDEP) are controlled for (Rahman & Ali, 2006) since larger boards may benefit from the experiences of a variety of directors that can influence the financial policies and choices of a firm. Thus, as suggested by Rahman and Ali (2006), the size of a board could impact earnings quality. BSIZE denotes the natural logarithm of the total number of board members. Concerning board independence (BINDEP), the presence of independent directors on boards improves monitoring functions, leading to reduced earnings manipulation (Masulis and Mobbs, 2014). The frequency of board meetings (MEETING_NUM) is an additional control variable. This is because frequent board meetings are anticipated to increase earnings quality as they facilitate the continuous supervision and review of financial reports by the board of directors (García-Sánchez *et al*., 2017). Social capital (SOCI_CAP) embedded in female directorship networks is included in this study. This variable is measured according to the average number of outside board seats currently held by female directors on audit committees (Chen *et al*., 2017; Kor & Sundaramurthy, 2009; Lai *et al*., 2019). Membership on multiple boards is viewed as a source of information due to exposure to a variety of strategic and governance issues and the improvement of a director's network ties and knowledge repository. Therefore, it is expected that social network ties are associated with earnings quality (Sánchez-Ballesta and Yagüe, 2022).

The second group of firm-related elements includes leverage, firm size, and profitability, which may all influence earnings quality. Firm performance is used as a control variable and is measured according to ROA. Generally, it is anticipated that firms with greater financial performance tend to manage earnings (Watts and Zimmerman, 1990). Arun *et al.* (2015) suggest that better-performing firms, proxied by the ROA ratio, have a higher likelihood of managing earnings. Firm size (F_SIZE) is included in the econometric model to control for the potential impact of firm size on earnings quality (Watts and Zimmerman, 1990). Klein (2002) suggests that firm size affects audit committee quality. Leverage (LEV) is included as a control variable because previous studies (Klein, 2002) have found that it is associated with earnings management. Systematic risk (BETA) is also expected to impact a firm's earnings quality, and it is measured by using firm-specific beta. Firms with high beta are relatively more likely to manage earnings. Following Gull *et al.* (2018) and Velury (2003), a negative relationship is expected between market risk and earnings quality. YEAR represents a dummy variable for every year included in the sample period starting in 2011 and ending in 2021. Finally, all firm-specific variables are winsorised to lessen the influence of extreme outliers.

2.5.5 Model

To analyse the relationships between the existence of female directors on the audit committee and earnings quality, various static panel data estimators are used. The primary modelling technique used to analyse the panel data is Ordinary Least Squares (OLS). The descriptive results, as well as the correlation analysis results, regression and diagnostic tests, are described in the next section.

First, the paper explores how female directors on the audit committee affect earnings quality, as follows:

$EQ_{i,t} = \alpha + \beta 1\ AUDITFEM_{i,t} + \beta 2\ AC\_SIZE_{i,t} + \beta 3\ AUDIT\_EXP_{i,t} + \beta 4\ BSIZE_{i,t} + \beta 5\ BINDEP_{i,t} + \beta 6\ MEETING\_NUM_{i,t} + \beta 7\ SOCI\_CAP_{i,t} + \beta 8\ F\_SIZE_{i,t} + \beta 9\ ROA_{i,t} + \beta 10\ LEV_{i,t} + \beta 13\ BETA_{i,t} + \beta 11\ YEAR_{i,t} + \varepsilon_{i,t}$

Second, the paper investigates the extent to which the work experience (accounting expertise, supervisory expertise and finance expertise) of female audit committee directors affects earnings quality, as follows:

$EQ_{i,t} = \alpha + \beta 1\ FEM\_ACC_{i,t} + \beta 2\ FEM\_FIN_{i,t} + \beta 3\ FEM\_SUPER_{i,t} + \beta 4\ AC\_SIZE_{i,t} + \beta 5\ AUDIT\_EXP_{i,t} + \beta 6\ BSIZE_{i,t} + \beta 7\ BINDEP_{i,t} + \beta 8\ MEETING\_NUM_{i,t} + \beta 9\ SOCI\_CAP_{i,t} + \beta 10\ F\_SIZE_{i,t} + \beta 11\ ROA_{i,t} + \beta 12\ LEV_{i,t} + \beta 13\ BETA_{i,t} + \beta 14\ YEAR_{i,t} + \varepsilon_{i,t}$

Table 2.5.3 defines all the variables above. The dependent variable is the quality of earnings (EQ), which is sourced from the Refinitiv Eikon database. It is possible to broadly categorise these explanatory variables into those relating to gender diversity on the audit committee, and control variables are suggested to be substantial in prior earnings management research. Regarding the existence of female directors on the audit committee, following Badolato *et al.* (2013) and Dhaliwal *et al.* (2010), this study employs an array of proxies to capture the features that this study is examining: (a) AUDITFEM, denoting the percentage of female directors on the audit committee of the aggregate number of members in the audit committee; (b) FEM_ACC, the proportion of female directors with accounting expertise on the audit committee; (c) FEM_FIN, the percentage of female directors with finance expertise on the audit committee; and (d) FEM_SUPER, the percentage of female directors with supervisory expertise on the audit committee.

Table 2.5.3: Study variables' symbols and measurements

Variable	Abbreviation	Definition and Measurement	Source of Data
Dependent variable			
Earnings quality index	EQ	The 0–100 score is composed of four factors: accruals, cash flow, operating efficiency and exclusions. After the components are weighted, an adjustment is performed to a geographic region benchmark.	Refinitiv Eikon database
Independent variable			
Female directors on the audit committee	AUDITFEM	The ratio of female directors to the aggregate number of members of the audit committee	Annual reports
Female directors with accounting expertise	FEM_ACC	The proportion of female directors with accounting expertise (e.g., head of accounting, controller, treasurer, or chartered accountant)	BoardEx
Female directors with finance expertise	FEM_FIN	The proportion of female directors holding expertise in finance denotes experience working in financial positions making use of financial reporting, for example as an investment banker or financial analyst	BoardEx
Female directors with supervisory expertise	FEM_SUPER	The percentage of female directors with expertise in supervision denotes work experience in supervisory positions involving supervising people associated with financial reporting (e.g., CEO, COO or president)	BoardEx
Control variables			
Audit committee size	AC_SIZE	The sum of directors who sit on the audit committee	Annual reports
Audit committee expertise	AUDIT_EXP	The proportion of financial experts on the audit committee within the meaning of Sarbanes-Oxley	Refinitiv Eikon database
Board size	BSIZE	The aggregate number of board members; natural algorithm	Refinitiv Eikon database
Board independence	BINDEP	The proportion of independent directors among the aggregate sum of members of the board	Refinitiv Eikon database
Meeting frequency	MEETING_NUM	The number of board meetings; natural algorithm	Refinitiv Eikon database
Social capital	SOCI_CAP	The average number of outside board seats currently held by female directors	BoardEx
Return on assets	ROA	Obtained by dividing income before extraordinary items by the aggregate assets	Refinitiv Eikon database
Firm size	F_SIZE	The book value of total assets; natural algorithm	Refinitiv Eikon database
Leverage	LEV	The ratio of aggregate debt divided by aggregate equity	Refinitiv Eikon database
Beat	BETA	Firm risk	Refinitiv Eikon database
Year dummy	Year	A dummy variable representing every year of the sample period beginning in 2011 and ending in 2021	

2.6 Results

2.6.1 Descriptive statistics

The descriptive statistics for the variables are presented in Table 2.6.1. The average EQ score index in the sample is 0.605, with a standard deviation of 0.265. The EQ score shows extreme variance between the lowest (1%) and highest (99.5%), suggesting significant variation . For the sample period, the average proportion of female directors on the audit committee (AUDITFEM) in this study for the whole period is 30.1%, within a range of 0% to 99%. This is quite high in comparison with prior conclusions (Velte, 2018) which revealed a mean value for gender diversity of firm audit committees in the UK of 24%. Female directors with supervisory expertise (FEM_SUPER) constitute the largest sub-group of female members (18.5%), followed by female directors with finance expertise (FEM_FIN) (5.5%) and female directors with accounting expertise (FEM_ACC) (5.1%).

The average number of audit committee members in the sampled firms is four (AC_SIZE). The proportion of financial experts on the audit committee (AUDIT_EXP) is 69.6%. The average number of board directors (BSIZE) is about 10, and 60.4% of board members are independent. Such numbers are consistent with Al-Najjar (2011), who found a mean board size of 9.50 and a mean audit committee size of 3.8 for UK firms. The average board meeting frequency (MEETING_NUM) is around 8. Regarding social capital (SOCI_CAP), an average of 0.5 in this study's sample have outside directorships, whereby the lowest value is 0 and the highest is 3.2. The average firm size (F_SIZE) is USD 31484.853 billion. as regards profitability, the average ROA of the sampled firms is 7.8%, which is significantly higher than the ROA of 4.75% reported by Elamer and Benyazid (2018). The mean percentage of leverage (LEV) is 1.113. Finally, the sampled firms have a mean value of 1.013 for systematic risk (BETA), varying between −0.248 and 2.675.

2.6.2 Pairwise correlation

Correlation analysis is performed in Table 2.6.2 to check whether there is a multicollinearity issue, which would be the case had the coefficient value been above 0.80 (Gujarati, 2004). From Table 2.6.2, it is apparent that the highest correlation is between percentage of female directors with finance expertise and the proportion of female directors on the audit committee ($\beta = 0.624$, $P < 0.01$). Thus, there is no multicollinearity problem between the independent variables. The multicollinearity issue is also checked using variance inflation factors (VIFs). In the event that VIF values are above ten and 1/VIF values are lower than 0.1, there could be a multicollinearity problem (Gujarati, 2004). In Table 2.6.2, the VIF values for the variables in the model are between 1.07 and 4.78, indicating no serious multicollinearity problem in the sample. Concerning the tolerance statistics test, most variables indicate that the 1/VIF values are between 0.272 and 0.936. The results reveal that there is no multicollinearity concern in the sample.

Table 2.6.1: Descriptive statistics

Variables	Mean	Std. Dev.	Min.	Max.
EQ	.605	.265	.01	.995
AUDITFEM	.3010	.21	0	.99
FEM_ACC	.051	.118	0	.99
FEM_FIN	.055	.197	0	.833
FEM_SUPER	.185	.111	0	.667
AC_SIZE	4.253	1.25	1	9
AUDIT_EXP	.696	.141	.432	.759
BSIZE	10.495	2.233	4	19
BINDEP	.604	.122	.125	.917
MEETING_NUM	7.902	2.372	3	25
SOCI_CAP	.5	.588	0	3.2
F_SIZE	31484.853	64025.088	12	411275
ROA	.078	.119	-.235	2.368
LEV	1.113	1.672	0	4
BETA	1.013	.559	-.248	2.675

Table 2.6.2: Correlation Matrix

Variables	VIF	1/VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
EQ			1.000														
AUDITFEM	4.78	0.272	0.141***	1.000													
FEM_ACC	2.32	0.430	0.046	0.350***	1.000												
FEM_FIN	4.20	0.192	0.234***	0.624***	-0.079*	1.000											
FEM_SUPER	2.81	0.356	-0.022	0.280***	-0.029	-0.242***	1.000										
AC_SIZE	1.19	0.839	0.051	0.173***	-0.053	0.152***	0.057	1.000									
AUDIT_EXP	1.09	0.918	0.024	0.148***	0.078**	0.070*	0.053	0.037	1.000								
BSIZE	1.83	0.546	-0.059*	0.131***	0.062*	-0.046	0.172***	0.318***	0.157***	1.000							
BINDEP	1.11	0.903	-0.006	0.086**	-0.113***	0.032	0.208***	0.172***	0.049	0.209***	1.000						
MEETING_NUM	1.10	0.911	-0.056	0.012	0.069	0.059	-0.075**	-0.062*	0.112***	-0.040	0.032	1.000					
SOCI_CAP	1.46	0.684	0.211***	0.590***	0.206***	0.387***	0.192***	0.071**	0.100***	0.046	0.042	0.060*	1.000				
F_SIZE	2.09	0.479	-0.169***	0.048	-0.042	-0.081***	0.188***	0.117***	-0.021	0.568***	0.299***	0.010	-0.098***	1.000			
ROA	1.36	0.737	0.298***	0.138***	-0.051	0.148***	0.006	-0.072**	0.050	-0.137***	-0.079**	-0.002	0.193***	-0.369**	1.000		
LEV	1.07	0.936	0.066	0.196***	0.169***	0.101**	0.032	-0.023	0.023	0.035	-0.016	0.042	0.054	0.101***	-0.016	1.000	
BETA	1.09	0.915	-0.083**	-0.013	0.036	0.067*	-0.109***	-0.046	-0.076	-0.094**	0.032	0.125**	-0.022	0.088*	-0.107***	-0.090	1.000

Note: ***, ** and * indicate that the variable is significant at 0.01, 0.05 and 0.10, respectively.

2.6.3 Multivariate regression analyses

Table 2.6.3 presents the estimation results for the OLS. As the sample firms crop up in multiple years, the model may have unobserved firm effects, wherein a specific firm's residuals may correlate over time, causing biased standard errors (Petersen, 2009). Following Abbasi *et al.* (2020) and Ghafran and O'Sullivan (2017), this study used robust standard errors in all regressions to preclude the impacts of cross-sectional and time-series dependence in the data.

For all estimated models, the adjusted R^2 varies between 16.4% and 19%. Low levels of adjusted R^2 are normal in earnings management studies (Arun *et al*., 2015; García Lara *et al*., 2017). Table 2.6.3 presents the results from the estimation of Model 1, where EQ is regressed on the share of female directors on the audit committee and the control variables. The coefficients for the year dummy variables are not reported for the sake of clarity.

From the results of Model 1, it can be noted that there is a correlation between an audit committee consisting of female directors (AUDITFEM) ($\beta = 0.152$, $P < 0.05$) and EQ. In line with our predictions, the results suggest a positive and significant association between the presence of female audit committee members and EQ. Thus, H1 is accepted. The conclusions drawn from this study support the view that a higher quality of earnings results from a greater representation of female directors on the audit committee. Such a finding is in keeping with those of previous studies (e.g., Fan *et al.,* 2019; Gul *et al*., 2013; Sun *et al.,* 2011; Thiruvadi & Huang, 2011; Arun *et al*., 2015; García Lara *et al*., 2017; Srinidhi *et al*., 2011; Zalata & Abdelfattah, 2021; Krishnan & Parsons, 2008). In this context, female directors on the audit committee can be influential in helping firms to maintain EQ, which is consistent with the view that gender diversity encourages effective monitoring and establishes a better internal control environment. The result also supports a gender characteristics perspective, which depicts female directors as taking a more careful approach, being more conservative, and risk-averse, and being less willing to participate in earnings manipulation.

To fully understand the links between the presence of female directors on the audit committee and EQ, in Model 2, Model 3 and Model 4, as presented in Table 2.6.3, this study tests the relationship between the working experience of female directors and EQ. This study hereby reports the results of estimating the main model considering the subgroups in terms of female directors' working experience on the audit committee, namely female directors with accounting expertise (FEM_ACC), female directors with finance expertise (FEM_FIN) and female directors with supervisory expertise (FEM_SUPER).

In Model 2, shown in Table 2.6.3, there is a positive association between FEM_ACC ($\beta = 0.185$, $P < 0.10$) and EQ, which indicates that as female directors' accounting expertise increases, so does EQ. Therefore, H2a is accepted. As regards H2b, in Model 3, the results indicate that FEM_FIN ($\beta = 0.160$, $P < 0.01$) on the audit committee is significantly positively associated with EQ. This suggests that H2b is supported. The results match those of prior research (Badolato *et al.*, 2013; Dhaliwal *et al.*, 2010) that provide support for accounting and finance experts being strict monitors of financial reporting. However, Model 5, shown in Table 2.6.3, reveals that the coefficient sign for supervisory expertise of female directors (FEM_SUPER) is changed when all the variables are included. Therefore, this study does not support the fourth hypothesis (H2c). This result is consistent with Dhaliwal *et al.* (2010). In line with this study's expectation, there are significant differences in terms of the effect on audit committees in the relevant financial knowledge of female directors. Specifically, the effectiveness of audit committee female directors who have finance or accounting expertise is more pronounced, and such female directors have a higher likelihood of reviewing the decisions and choices of executive managers and contributing to the development of financial policies, thus effectively increasing EQ (Dhaliwal *et al.*, 2010).

However, from the results, it can be noted that supervisory expertise of female directors on the audit committee does not increase EQ. This insignificant result could be due to the likelihood that female directors with supervisory expertise do not necessarily possess the financial knowledge that would allow them to comprehend the intricacy of financial statements and thus discover or predict manipulative actions. These results are consistent with Dhaliwal *et al.*'s (2010) proposal indicating that the presence of supervisory experts on audit committees is not linked with EQ. In addition, Abbasi *et al.* (2020) advance the view that no connection exists between an audit committee with female directors with supervisory expertise and audit quality. Furthermore, the models in Table 2.6.4 examine the impact of the Hampton-Alexander review on the link between gender diversity on the audit committee and EQ. The Hampton-Alexander review was released in 2016 and required all FTSE 350 firms to meet a minimum of 33% female representation on boards by the end of 2020. This study argues that the effect of the review on this period may be driving the results. Therefore, this study splits the sample into before and after the Hampton-Alexander review, and reruns the models. Before the Hampton-Alexander review, the results indicate an insignificant association between female audit members and EQ. Conversely, the results after the Hampton-Alexander review in Model 10 indicate significant results between the proportion of female audit members and their financial expertise (accounting, finance and supervisory) and EQ.

2.6.4 Robustness check for endogeneity

This study may be subject to two sources of endogeneity that are likely to bias the results, including reverse causality/simultaneity and omitted variable bias. Specifically, the first endogeneity issue may lead to the question: *Does the presence of female directors on audit committees predict earnings quality, or does earnings quality predict female directors' presence on audit committees?* This is because of the high likelihood that better-performing firms with higher EQ may choose to appoint more women to their audit committees and, in general, may have more gender-diverse committees. This possibility indicates the potential for reverse causality in this research setting. In terms of omitted variable bias, the empirical model cannot possibly capture all the unobservable variables that correlate concurrently with the appointment of female directors (Larcker and Rusticus, 2010). The decision to appoint female directors to the board and its committees is correlated with many characteristics of the firm, some of which are unobserved (Terjesen *et al*., 2016). For instance, CEO characteristics affect both the inclusion of female directors on the audit committee and the management of earnings (Capalbo *et al*., 2018). These endogeneity concerns may confound the results of this study.

Hence, to tackle any potential problems of endogeneity, this study addresses the possible issue by employing the two-step dynamic panel system generalised method of moments (GMM) tactic (Blundell and Bond, 1998) to analyse the vibrant link between a committee's gender diversity and EQ. The GMM estimator has been proved to be efficient and appropriate for addressing heterogeneity and reverse causality issues that are not easily observed, and it is widely used in the literature on corporate governance (Fan *et al*., 2019).

While the GMM approach is extremely effective with regard to correcting the endogeneity problem, a potential for weak identification of instruments exists (Stock *et al*., 2002). Thus, several major tests were run to scrutinise the validity of the GMM instruments. The first- (AR (1)) and second-order (AR (2)) correlations were determined using the Arellano and Bond (1991) test. Based on Table 2.6.5, the null hypothesis of no first-order (AR (1)) auto-correlation for all regressions must be rejected. Nevertheless, this study must also accept the null hypothesis of no second-order auto-correlation (AR (2)). From the tests used, it can be inferred that the GMM models have no serial correlation. The validity of the instruments employed here is also confirmed. Second, the Hansen (1982) test is employed to assess the over-identification of the GMM models. Table 2.6.5 demonstrates that the Hansen test of instrument exogeneity does not reject the null hypothesis suggesting the validity of the instruments (exogenous). Therefore, based on the Hansen test, it can be concluded that the models were correctly specified and that the instruments used are valid. As illustrated in Table 2.6.5, the results remain consistent with the reference point regression results and are robust to endogeneity bias.

Furthermore, this study may suffer from self-selection bias due to the Hampton-Alexander review period. Therefore, this study uses the Difference-in-Differences estimator around the calls for gender diversity in the UK to test the effect on EQ. The Difference-in-Differences test exploits the assumption of "parallel trends" using two groups (e.g., a control group and a treatment group) to capture the change in the treatment group after a female appointment. The Difference-in-Differences test compares the change in EQ between two groups: the treatment group, consisting of firms affected by the calls for gender diversity, and the control group. The test helps account for any confounding factors by controlling for unobservable time and group characteristics. This study focuses on firms in the UK affected by the calls for gender diversity, as outlined by the Hampton-Alexander review. To address the concern around parallel trends, this study compares the trends in EQ between the treatment and control groups, ensuring that they have similar patterns before the review period. By doing so, this study aims to isolate the impact of gender diversity on EQ and account for any other factors that may affect the outcome.

Hence, the Difference-in-Differences test controls for unobservable time and group characteristics that may confound the results. This study employs the Difference-in-Differences estimator using the following equation:

$$EQ_{i,t} = \alpha + \beta 1\ (AC\_females{*}Post\ period)_{i,t} + \beta 2\ (AC\_females)_{i,t} + \beta 3\ (Post\ period)_{i,t} + \beta 4\ (Z)_{i,t} + \varepsilon_{i,t}$$

AC_females is the female directors' ratio to the aggregate number of members of the audit committee. The Post period is a dummy variable that equals 1 in the period after the Hampton-Alexander review (since 2017) and 0 in the period before. Z represents the control variables as specified in the main model. AC_females*Post period is the interaction variable and the variable of interest in this equation. The results of the Difference-in-Differences test are reported in Table 2.6.6. The coefficient on the interaction variable (AC_females*Post period) is significant and positive at the 5% level of significance. This indicates that after the Hampton-Alexander review, EQ is significantly higher than before the review.

Table 2.6.3: OLS regression results

	Model 1 *Coef.* *(t-test)*	**Model 2** *Coef.* *(t-test)*	**Model 3** *Coef.* *(t-test)*	**Model 4** *Coef.* *(t-test)*	**Model 5** *Coef.* *(t-test)*
Independent variables					
AUDITFEM	.152** (2.05)				
FEM_ACC		.185* (1.79)			.315*** (3.00)
FEM_FIN			.160*** (2.60)		.248*** (3.55)
FEM_SUPER				-.017 (-0.18)	.182* (1.77)
Control variables					
AC_SIZE	.009 (0.97)	.013 (1.45)	.008 (0.84)	.012 (1.39)	.006 (0.66)
AUDIT_EXP	-0.043 (-0.46)	-.016 (-0.34)	-.015 (-0.37)	-.011 (-0.29)	-.017 (-0.50)
BSIZE	.021 (0.31)	.004 (0.06)	.038 (0.56)	.023 (0.34)	.01 (0.14)
BINDEP	.108 (1.25)	.119 (1.37)	.099 (1.15)	.101 (1.16)	.118 (1.37)
MEETING_NUM	.003 (0.07)	.007 (0.16)	-.007 (-0.17)	.005 (0.12)	-.006 (-0.13)
SOCI_CAP	.069*** (3.30)	.09*** (4.51)	.073*** (3.68)	.092*** (4.57)	.055*** (2.62)
F_SIZE	-.019* (-1.77)	-.015 (-1.39)	-.019* (-1.77)	-.018* (-1.65)	-.017 (-1.59)
ROA	.347 (1.43)	.384 (1.51)	.344 (1.46)	.367 (1.49)	.351 (1.44)
LEV	-.003 (-0.45)	-.002 (-0.29)	-.002 (-0.30)	-.001 (-0.21)	-.003 (-0.53)
BETA	-.039* (-1.78)	-.039* (-1.77)	-.041* (-1.93)	-.04* (-1.80)	-.038* (-1.76)
Year	included	Year	included	0	included
Constant	.461*** (2.66)	.464*** (2.63)	.473*** (2.75)	.47*** (2.67)	.471*** (2.75)
R-squared	17.1%	16.9%	17.6%	16.4%	19%
Observations	709	709	709	709	709
F (*P*–value)	6.447 (0.000)	6.777 (0.000)	6.684 (0.000)	6.395 (0.000)	6.520 (0.000)

This table presents the results of the OLS regressions. Reported results include *t*-statistics in parentheses along with coefficients. Table 2.5.3 defines all variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 2.6.4: OLS regression results before and after the Hampton-Alexander recommendations

VARIABLES	Period 2011–2016					Period 2017–2021				
	Model 1 *Coef.* *(t-test)*	**Model 2** *Coef.* *(t-test)*	**Model 3** *Coef.* *(t-test)*	**Model 4** *Coef.* *(t-test)*	**Model 5** *Coef.* *(t-test)*	**Model 6** *Coef.* *(t-test)*	**Model 7** *Coef.* *(t-test)*	**Model 8** *Coef.* *(t-test)*	**Model 9** *Coef.* *(t-test)*	**Model 10** *Coef.* *(t-test)*
Independent variables										
AUDITFEM	-.017 (-0.18)					.416*** (4.07)				
FEM_ACC		.207 (1.42)			.26* (1.73)		.222 (1.43)			.472*** (3.28)
FEM_FIN			.047 (0.55)		.09 (1.00)			.309*** (3.55)		.534*** (5.41)
FEM_SUPER				-.035 (-0.22)	.039 (0.23)				.018 (0.15)	.427*** (3.36)
Control variables										
AC_SIZE	.037*** (3.12)	.038*** (3.22)	.035*** (2.85)	.037*** (3.16)	.034*** (2.80)	-.027** (-2.04)	-.018 (-1.35)	-.026* (-1.87)	-.018 (-1.34)	-.029** (-2.18)
AUDIT_EXP	0 (-0.35)	0 (-0.41)	0 (-0.40)	0 (-0.36)	0 (-0.48)	.003*** (3.52)	.004*** (3.42)	.004*** (3.78)	.004*** (3.74)	.003*** (4.03)
BSIZE	-.077 (-0.88)	-.09 (-1.02)	-.069 (-0.78)	-.074 (-0.83)	-.083 (-0.93)	.141 (1.39)	.144 (1.30)	.199* (1.84)	.173 (1.60)	.133 (1.27)
BINDEP	.145 (1.19)	.146 (1.18)	.144 (1.18)	.146 (1.20)	.144 (1.15)	.148 (1.24)	.129 (1.01)	.084 (0.69)	.083 (0.65)	.139 (1.21)
MEETING_NUM	-.03 (-0.52)	-.03 (-0.51)	-.031 (-0.54)	-.03 (-0.52)	-.031 (-0.54)	.037 (0.59)	.055 (0.85)	.001 (0.01)	.053 (0.80)	.005 (0.07)
SOCI_CAP	.043 (1.43)	.035 (1.33)	.033 (1.12)	.041 (1.52)	.019 (0.63)	.057** (2.00)	.108*** (4.16)	.08*** (2.96)	.105*** (4.03)	.044 (1.57)
F_SIZE	-.005 (-0.35)	-.002 (-0.17)	-.006 (-0.46)	-.005 (-0.37)	-.004 (-0.30)	-.017 (-1.12)	-.017 (-1.06)	-.013 (-0.89)	-.02 (-1.30)	-.011 (-0.71)
ROA	1.083*** (4.77)	1.125*** (5.04)	1.075*** (4.74)	1.08*** (4.71)	1.122*** (4.97)	.168 (1.08)	.232 (1.27)	.204 (1.28)	.214 (.236)	.176 (1.15)
LEV	.001 (0.06)	-.002 (-0.20)	.001 (0.10)	0 (0.04)	-.002 (-0.18)	-.002 (-0.30)	.004 (0.45)	-.001 (-0.11)	.003 (.757)	-.004 (-0.48)
BETA	-.039 (-1.47)	-.036 (-1.33)	-.04 (-1.50)	-.04 (-1.46)	-.036 (-1.32)	-.029 (-0.83)	-.026 (-0.74)	-.025 (-0.75)	-.021 (-0.60)	-.026 (-0.74)
Year	Included	included	Included	Included	included	included	included	included	included	included
Constant	.543*** (2.64)	.543*** (2.65)	.547*** (2.69)	.54*** (2.63)	.552*** (2.71)	-.138 (-0.49)	-.139 (-0.46)	-.142 (-0.51)	-.139 (-0.47)	-.119 (-0.44)
Observations	384	384	384	384	384	325	325	325	325	325
R-squared	24.8%	25.3%	24.9%	24.8%	25.6	20.7%	16%	19.8%	15.2%	25.1%
F (*P*–value)	8.877 (0.000)	9.201 (0.000)	9.159 (0.000)	8.846 (0.000)	8.771 (0.000)	10.709 (0.000)	6.689 (0.000)	9.341 (0.000)	6.756 (0.000)	13.839 (0.000)

This table presents the results of the OLS regressions for sub-samples based on the Hampton-Alexander recommendations period. Reported results include *z*-statistics in parentheses along with coefficients. All variables are defined in Table 2.5.3. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 2.6.5: GMM regression results

Variables	**Model 1** ***Coef.*** ***(z-test)***	**Model 2** ***Coef.*** ***(z-test)***
Lag EQ	.401*** (2.60)	.5*** (3.53)
AUDITFEM	.354*** (3.01)	
FEM_ACC		.335*** (2.73)
FEM_FIN		.231*** (2.77)
FEM_SUPER		.073 (0.30)
AC_SIZE	.011 (1.27)	-.008 (-0.54)
AUDIT_EXP	-.001 (-1.36)	-.001 (-0.42)
BSIZE	-.041 (-0.71)	.159 (1.17)
BINDEP	-.319* (-1.78)	-.397*** (-4.05)
MEETING_NUM	-.094** (-2.00)	-.09* (-1.77)
SOCI_CAP	.042* (1.95)	.016 (0.90)
F_SIZE	-.015 (-1.36)	-.022 (-1.59)
ROA	-.026 (-0.25)	.037 (0.50)
LEV	-.006 (-0.99)	0 (0.08)
BETA	-.015 (-0.64)	.002 (0.09)
Year	Included	Included
Constant	.816*** (3.97)	.565*** (2.82)
Observations	529	594
F (P-value)	0.000	0.000
Allerano-Bond test AR(1) (z, P-value):	-3.51 (*P*= 0.000)	-3.93 (*P*= 0.000)
Allerano-Bond test AR(2) (z, P-value):	1.14 (*P*= 0.253)	1.06 (*P*= 0.287)
Hansen test (Chi-square, P-value):	11.53 (*P*= 0.303)	18.88 (*P*= 0.287)

This table presents the results of the GMM regressions. Reported results include *z*-statistics in parentheses along with coefficients. All variables are defined in Table 2.5.3. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 2.6.6: Difference-in-Differences estimator

Variables	**OLS** *Coef.* *(z-test)*	**Fixed effects** *Coef.* *(z-test)*
AC_females*Post period	.309** (2.49)	.292** (2.34)
AC_females	.027 (0.29)	.028 (0.30)
Post period	-.030 (-0.50)	-.067 (-1.20)
All control variables	Included	Included
Year	Included	Included
Observations	709	709
R-squared	18.1%	13.3%
F (P-value)	6.34 (0.000)	3.35 (0.000)

This table presents the results of the Difference-in-Differences analysis. Reported results include *z*-statistics in parentheses along with coefficients. All variables are defined in Table 2.5.3. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

2.7 Discussion

Gender diversity in top management has been receiving tremendous attention in the corporate governance literature, with numerous empirical studies increasingly demonstrating that having female directors as part of the audit committee positively impacts the quality of financial statements. In particular, their involvement in audit committees diminishes earnings management (Srinidhi *et al*., 2011). However, notably, most prior studies focus on women on audit committees as a homogeneous group, with less attention paid to the effects of their financial expertise (e.g., Orazalin, 2020; Pucheta-Martínez *et al*., 2016; Srinidhi *et al*., 2011; Thiruvadi & Huang, 2011). Therefore, this study goes beyond considering the mere proportion of women on audit committees and argues that the relationship between female audit committee members and EQ may be largely driven by their financial expertise. Notably, the studies of Zalata *et al.* (2018) and Zalata *et al.* (2022) are the only examples in the literature on earnings management of studies examining female financial expertise on audit committees and its impact on earnings management. Yet, while these studies consider the female directors' financial expertise, they do not examine the differential impact of types of financial expertise, such as accounting and non-accounting expertise (e.g., finance and supervisory). Since the audit committee is the ultimate monitor of the financial disclosure process, the existence of financial experts (e.g., in accounting and finance) on the audit committee constitutes a substantial element of its effectiveness. The backgrounds of female directors on audit committees, in terms of, for example, their financial expertise, could be more intuitively related to their knowledge and their ability to comprehend how executives' judgments and choices affect earnings reporting, allowing them to detect attempts to manage earnings. There are several reasons why female audit committee members with proper financial experience can promote EQ. According to Krishnan and Visvanathan (2008), directors' financial knowledge, especially in accounting, enables them to assess the nature and appropriateness of the accounting decisions made by the executives. Meanwhile, the threat of a loss of reputation capital for those with financial expertise drives them to take more responsibility for monitoring managers to ensure high-quality financial reporting.

Arguably, since female audit committee directors may have a strong motivation to curb CEOs' opportunistic behaviours in top management, this study argues that they may fail to do so effectively if they lack specialised and technical knowledge for monitoring the preparation of financial reporting, as well as for discovering or predicting manipulative actions. Drawing on agency theory, this paper has investigated whether the expertise of female directors influences EQ. To fully understand how the existence of female directors on the audit committee is linked to EQ, this study classified the human capital of female directors into three groupings: accounting expertise, finance expertise and supervisory expertise, with the aim of determining which, if any, factor fosters EQ. Consistent with the study's theorising, the results substantiate that the presence of female directors on the audit committee who are experts in accounting and finance enhances the committee's monitoring and oversight effectiveness and, consequently, tends to curb earnings manipulation by CEOs. However, this study finds an insignificant relationship between female directors with prior supervisory experience and earnings quality. A potential reason for this could be that women who have held positions as COOs, CEOs or presidents might lack specialised and technical knowledge relevant to preparing financial reporting (Dhaliwal *et al*., 2010). Moreover, the results suggest that the positive relationship between gender diversity on audit committees and sub-categories of financial experience became more pronounced after the Hampton-Alexander review on gender quotas. The findings are robust to various model specifications.

The results of this study extend our knowledge, as no prior study has investigated the types of financial experience held by female audit committee members and their effects on improving EQ. This study complements previous studies, such as Zalata *et al.* (2018) and Zalata *et al.* (2022), which examine the impact of the financial experience of female directors on earnings manipulation without considering the different types of financial expertise, such as accounting, finance, and supervisory. This empirical study fills this void by exploring the impact of female audit committee financial experts on EQ. This study hereby offers a more in-depth analysis of female financial expertise on audit committees.

This paper suggests that an audit committee's gender diversity influences EQ in several ways. From the agency theory perspective, gender heterogeneity on the audit committee fosters its oversight and monitoring functions, which decreases unethical financial and managerial behaviour and protects shareholders' interests (Adams & Ferreira, 2009; Parker *et al*., 2017). It is generally accepted that female directors have greater independence compared to their male counterparts, enabling them to facilitate a superior audit committee monitoring system (Hillman *et al.,* 2007). Therefore, women as efficient monitors could decrease the propensity for managers to manage earnings as well as mitigate the agency conflict assumed between managers and shareholders, which in turn may produce higher EQ.

According to gender characteristics, women tend to be more cautious, less risk-seeking and more ethical compared to men, in their financial decision-making (Carter *et al*., 2017). Ho *et al.* (2015) find that female managers at the top level of management report more conservative earnings, and the authors claim that women have a greater likelihood of being conservative, cautious and principled in their judgment and conduct, enabling them to establish a better internal control environment. Srinidhi *et al.* (2011) suggest that corporates that have female directors, specifically those with a role on the audit committee, demonstrate better accounting quality by managers, which, in turn, increases their EQ. The risk-averse and cautious mindset of female directors, along with their high ethical standards, can promote a more robust process for overseeing financial statements, which can increase EQ. In addition, women are recognised as having more effective leadership skills than men (Badura *et al*., 2018; Hernandez Bark *et al*., 2016; Montgomery and Cowen, 2020). Previous research suggests that the leadership style of female managers is likely to create a climate that promotes trust and facilitates enhanced information exchange and the free flow of ideas among directors, thereby decreasing information asymmetry and creating a richer information environment (Gul *et al*., 2011; Srinidhi *et al*., 2011).

Furthermore, extant empirical research suggests that the efficacy of directors depends on their prior expertise, which plays a substantial role in limiting inappropriate managerial behaviour (Abbasi *et al*., 2020; Sarwar *et al*., 2018; Zalata *et al*., 2018). Badolato *et al.* (2014) and Dhaliwal *et al.* (2010) arrive at the conclusion that firms that have a greater number of directors who possess relevant financial expertise on the audit committee experience higher accounting quality and a lower likelihood of earnings management. According to Gore *et al.* (2011), directors on the board must be capable of understanding the complexity of decision-making around financial reporting if they possess the necessary financial expertise and background. Therefore, female directors who have relevant financial expertise can be more effective monitors and play a more controlling role in constraining the financial and managerial behaviour of CEOs than female directors without such expertise.

In sum, this study confirms the assumption that having female directors with relevant financial expertise (e.g., accounting and finance) on the audit committee is an important contributor to EQ.

2.8 Conclusion

The primary aim of this research was to expand the understanding of how female directors on the audit committee with financial expertise affect the EQ of FTSE 100 companies. Mounting evidence in the corporate governance literature has revealed the part played by female directors in earnings management and financial reporting quality without considering the effects of their financial expertise. There, therefore, offered a strong incentive to scrutinise, empirically, the impact of female directors' financial experience (finance, supervisory, and accounting) on the relationship between gender heterogeneity on audit committees and EQ. The thinking behind this investigation was that some female directors could possess robust incentives to curb opportunistic financial and managerial activities due to their unique gender characteristics, yet they may not be able to ensure this efficiently without the financial knowledge necessary to supervise the preparation of corporate financial reports (Zalata *et al*., 2022).

Drawing on agency theory, this study examined the importance of female directors' financial expertise on the audit committee in terms of EQ. Following Badolato *et al.* (2014) and Dhaliwal *et al.* (2010), this study classified the working experience and background of female directors on the audit committee into three categories (finance and supervisory, and accounting expertise) to determine which of these categories enhances EQ.

The results suggest that when female directors sit on audit committees, they contribute positively to EQ. Female directors with accounting and finance expertise maintain and boost EQ. However, this study does not find comparable outcomes for the relationship between female directors with prior supervisory expertise and EQ. This may be because female directors with prior COO or CEO experience are not necessarily equipped with the financial knowledge to understand the complexity of financial statements and thus to discover or predict manipulative actions. The results are robust after correcting for endogeneity bias. Moreover, the results indicate that the positive relationship between gender diversity on the audit committee and sub-categories of financial experience is more pronounced after the Hampton-Alexander review on gender quotas.

Based on the presented results, this research offers vital practical implications for various stakeholders interested in financial information as well as regulators. Shareholders and stakeholders should act based on the knowledge that the presence of female directors with relevant financial expertise can enhance EQ and constrain managers' opportunistic behaviour. The results of this study demonstrate that the most suitable way for companies to strengthen their EQ is to increase the presence of female directors with applicable financial experience on their audit committees. Moreover, this study's results have important implications for regulators aiming to implement effective governance structures in corporations, especially with regard to gender diversity. The results of this study support legislating for a female quota policy and highlight the advantageous effects of incorporating female directors. Regulators should focus on the advantages offered by having female directors who possess financial expertise on audit committees as their relevant financial expertise (e.g., accounting and finance) can influence the quality of the financial information.

This study is, however, subject to some shortcomings. The sample of this research only comprises UK non-financial firms over the 2011–2021 period, which limits the generalisability of the findings to other countries. Hence, future work in this area could offer deeper insights by examining other contexts.

Chapter 3

Impact of Board Expertise Diversity on Environmental, Social, and Governance Performance: The Moderating Role of Board Gender Diversity

Abstract

This study explores how having a diversity of expertise on a corporate board can impact environmental, social and governance (ESG) performance, with a focus on the moderating effects of board gender diversity. The study utilises data from non-financial companies listed on the UK FTSE 350 from 2011–2021, and it employs ordinary least squares (OLS) estimation to analyse the relationship between board expertise diversity and ESG performance. The results reveal that there is a significant and positive association between board expertise diversity and ESG performance, primarily driven by improvements in the governance pillar rather than environmental or social factors. Moreover, the study finds that board gender diversity moderates the relationship between board expertise diversity and ESG performance and its pillars. It also indicates that firm size and type of industry play a vital role in this relationship. The study's results are supported by robustness tests, providing important practical implications for policymakers and regulators with regard to the value of gender diversity in enhancing a board's expertise and ultimately contributing to ESG performance.

KEYWORDS: ESG performance, board expertise diversity, board gender diversity, resource dependence theory.

3.1 Introduction

ESG criteria have emerged as a crucial tool for evaluating a company's performance in terms of ethical governance and transparency. These criteria address the needs of various stakeholders, including employees, communities, and the environment (Arena *et al*., 2015; Eliwa *et al*., 2023; Gillan *et al*., 2021; Martínez-Ferrero and García-Sánchez, 2017). ESG practices are becoming increasingly common as stakeholders seek to assess a company's ability to serve as a responsible member of society, and investors use them to screen potential investments (Adegbite *et al*., 2019; Martínez-Ferrero and García-Sánchez, 2017; Xiao and Shailer, 2022).

In recent years, investors have shown a growing interest in eco-friendly investments, with many seeking to put their money into products that are sustainable and have a positive impact on the environment. As a result, shareholders are demanding more accurate and reliable ESG reporting from firms. This trend has made consistent, transparent, and comparable ESG information essential for investors to make informed decisions (Baboukardos *et al*., 2021; Buertey, 2021).

The importance of integrating ESG practices into a company's operations is being increasingly recognised by businesses worldwide. This trend is evidenced by the growing number of companies that have released standalone ESG reports in recent years. These reports provide detailed information on the company's sustainability practices and their impact on various stakeholders (Krasodomska *et al*., 2021). According to a report by the Governance and Accountability Institute in 2020, the number of S&P 500 index companies publishing sustainability reports has grown significantly in recent years. In 2019, 90% of S&P 500 index companies published sustainability reports, compared to only around 20% in 2011 (Governance and Accountability Institute, 2020). This trend indicates that ESG practices are becoming increasingly important for companies of all sizes and sectors.

The shift towards ESG reporting has been driven by a range of factors, including changing stakeholder expectations, increasing regulatory requirements, and the need to manage risks effectively. Companies that effectively implement ESG practices can benefit from improved access to capital, reduced costs of capital (Bui *et al*., 2020; Lemma *et al*., 2019), and improved corporate reputation (Alon & Vidovic, 2015; Yan *et al*., 2022). In addition, they can attract and retain talented employees, minimise the risk of legal and regulatory issues, and foster a culture of innovation and long-term thinking (Liu, 2018; Xu *et al*., 2021).

ESG performance has gained in significance in recent times and now constitutes a crucial aspect of a company's non-financial performance. According to a new report from the International Federation of Accountants (IFAC), the Association of International Certified Professional Accountants (AICPA) and the Chartered Institute of Management Accountants (CIMA), more large global companies are now disclosing ESG matters than in previous years, with 95% having done so in 2021, compared to 92% in 2020 and 91% in 2019 (IFAC, 2023).

According to a 2022 report by PricewaterhouseCoopers (PwC), global assets managed with ESG factors are predicted to increase to $33.9tn by 2026, indicating a substantial change in the asset and wealth management sector. This projection represents a compound annual growth rate of 12.9% and is anticipated to account for 21.5% of total global assets under management within five years (PwC, 2022). This growth in ESG assets highlights the increasing acknowledgement of the importance of ESG concerns among investors. These trends highlight the importance of companies adopting ESG practices to attract investments and improve their long-term financial performance. Furthermore, the incorporation of ESG practices by companies can also have positive impacts on their reputation and relationship with stakeholders, which is essential for their sustainability in the long run (Alon and Vidovic, 2015).

As sustainability reporting gains more significance among investors, there is a growing emphasis on establishing effective corporate governance structures within companies to oversee ESG strategies, risk management, and strategic asset allocation (Dorfleitner *et al.*, 2020; Shakil, 2021). The structure of corporate governance encompasses the board of directors, which is an essential element accountable for formulating corporate policies and strategies while advocating for the interests of diverse stakeholder groups (Post *et al.*, 2011).

The effectiveness of those who sit on the boards of directors is heavily influenced by the boards characteristics, in terms of factors like the diversity of knowledge, expertise, and capabilities (Harjoto *et al.*, 2015). Expanding on this, a diverse board of directors brings a range of perspectives and experiences to the table, allowing for more informed decision-making (Hillman *et al.*, 2007). It is beneficial to have a board made up of people with diverse backgrounds, genders, ages, and skill sets because it allows it to consider a broader range of perspectives and strategies (Hillman *et al.*, 2002). Furthermore, a board comprised of experts in various fields such as finance, law, marketing, and human resources can provide valuable guidance and support to the organisation. Moreover, the board of directors also plays a critical role in maintaining accountability within the organisation (Cabeza-García *et al.*, 2018; Hassan *et al.*, 2020). By setting oversight policies and monitoring the company's performance, the board ensures that the company adheres to ethical and legal standards while maximising shareholder value (Hutchinson *et al.*, 2015; Post *et al.*, 2011; Wang *et al.*, 2015). This oversight function is especially important in today's business environment, where companies are facing increased scrutiny from investors, regulators, and the public, in relation not only to financial performance but also ESG performance (Shakil, 2021). Companies with strong ESG performance are seen as more sustainable and responsible, which can lead to higher levels of trust and long-term value creation for stakeholders (Beck *et al.*, 2018).

Previous research has indicated that having board members with diverse expertise could lead to the implementation of effective ESG strategies within companies. Several empirical studies have shown that board expertise is associated with various positive outcomes, such as better ESG ratings (Waterstraat *et al*., 2021), lower greenhouse gas emissions (Homroy and Slechten, 2019), improved board monitoring (Wang *et al*., 2015), increased social responsibility investments (Alshammari *et al*., 2021), and the higher disclosure of Sustainable Development Goals (Pizzi *et al*., 2021). However, these studies have not explored the potential moderating role of female directors in the relationship between board expertise and ESG performance. In addition to the benefits of board expertise diversity, research has also highlighted the positive impact of having female directors on corporate boards. Having a gender-diverse board can bring numerous benefits, including better decision-making, as well as improved financial performance and corporate governance (Adams and Ferreira, 2004, 2009b; Adams and Funk, 2012; Carter *et al*., 2010). Gender diversity on boards can also promote greater social responsibility and diversity and inclusion initiatives within a company (Boulouta, 2013; Orazalin and Baydauletov, 2020; Rao and Tilt, 2016). Research has also shown that female directors can contribute unique perspectives and skills to a board, for example in terms of collaboration, communication, and empathy, which can enhance board effectiveness (Campbell and Mínguez-Vera, 2008). Additionally, gender diversity can lead to increased scrutiny of company practices, resulting in better monitoring and oversight of environmental initiatives (Haque and Jones, 2020; Liu, 2018; Shakil, 2021).

In light of the above, this study aims to expand on prior research by examining the impact of board expertise diversity on a firm's ESG performance, while also considering the moderating role of female directors in this relationship. Some studies have found evidence that the expertise of female directors can enhance audit committee effectiveness. For example, Pucheta-Martínez *et al.* (2021) suggest that gender-diverse boards may strengthen corporate governance and promote increased CSR reporting by encouraging audit committees with independent directors and financial experts to disclose more CSR-related information. This work distinguishes itself from Pucheta-Martínez *et al.* (2021) specifically by investigating the relationship between board expertise diversity and ESG performance, taking into account multiple dimensions of performance, including environmental, social, and governance factors. Additionally, it explores how board gender diversity can contribute to the enhancement of expertise on the board, including industry-specific and financial expertise. However, Pucheta-Martínez *et al*.'s (2021) study has primarily focused on analysing the impact of audit committee characteristics on CSR disclosure. This research aims to extend the analysis currently available in the literature by examining the potential impact of board gender diversity on the relationship between board expertise and ESG performance. Hence, the current study widens the scope of reference to encompass the overall board composition and its influence on ESG performance. By doing so, it offers a more holistic perspective on the role of diversity in driving sustainable business practices. Overall, this research extends existing knowledge by examining the unique contribution of board expertise diversity, the moderating role of female directors, and their collective impact on ESG performance, thereby advancing our understanding of the complex dynamics between board composition and organisational outcomes.

Furthermore, previous studies have explored the moderating effect of gender diversity on various aspects of firm performance. For instance, Zaid *et al.* (2020) investigate the moderating role of gender diversity on boards in relation to a firm's financing decisions and the influence of board attributes such as board size, board independence, and CEO duality. However, their study falls short in terms of exploring how board gender diversity can enhance board expertise and subsequently impact financing decisions. Similarly, Luanglath *et al.* (2019) find that an increase in top management team gender diversity positively impacts employee productivity, particularly in companies with low levels of board gender diversity. Gangi *et al.* (2023) highlight the negative moderating effect of national gender inequality on the positive relationship between board gender diversity and the corporate environmental responsibility engagement of banks. Overall, these studies underscore the importance of exploring the role of gender diversity in different contexts and its potential impact on various aspects of firm performance. However, further research is needed to examine the potential moderating effect of female directors on the relationship between board expertise and ESG performance.

Thus, to reiterate, this study seeks to fill the research gap by exploring the moderating effect of female directors on the relationship between board expertise diversity and ESG performance. Specifically, the study aims to answer the following research questions: (1) How does board expertise diversity link to ESG performance? (2) How does the presence of female directors on boards moderate the link between board expertise diversity and ESG performance? To address these questions, resource dependence theory is adopted as the primary framework by which to examine the relationship between board expertise diversity and ESG performance. Resource dependence theory provides a lens through which the study analyses how diverse expertise on the board can influence a firm's access to critical resources and subsequently impact its ESG performance (Hillman *et al*., 2000; Hillman and Dalziel, 2003). Meanwhile, human capital theory (Becker, 1964) and gender socialisation theory (Mason and Mudrack, 1996) are also taken into account due to their potential relevance and capacity to provide additional insights.

By applying resource dependence theory as the study's main theoretical focus, the aim is to uncover the mechanisms through which board expertise diversity affects a firm's ability to address environmental, social, and governance issues, thereby contributing to the understanding of ESG performance in the context of resource dependence.

To test this study's framework, this study examines the inclusion of female directors on corporate boards among 165 FTSE companies in the United Kingdom (UK). The findings demonstrate that having a diverse range of expertise on the board is significantly and positively associated with a company's ESG performance, but the improvements are mainly observed in the governance pillar rather than the environmental or social aspects. Moreover, the study indicates that the presence of female directors on the board has a moderating effect on the relationship between board expertise diversity and ESG performance, including its pillars. The implications of these findings are significant for companies aiming to enhance their ESG performance. Companies with a more diverse board of directors, including female representation, are more likely to benefit from the positive impact of board expertise on ESG performance. Thus, increasing the number of female directors on boards can help to maximise the benefits of diverse expertise and promote effective ESG strategies. Furthermore, the study finds that firm size and type of industry moderate the relationship between board expertise diversity and ESG performance. Larger firms show a stronger positive relationship between board expertise diversity and ESG performance, while smaller firms face challenges in implementing ESG strategies due to resource constraints.

This research makes a significant contribution to the ongoing discussion around the mandatory inclusion of female directors on corporate boards. The first theoretical contribution draws on resource dependence theory to offer valuable insights. By adopting a resource dependence perspective, the study emphasises the significance of board expertise diversity as a crucial resource for organisations. It demonstrates how incorporating diverse knowledge and expertise, especially through the inclusion of female directors, can enhance a firm's ESG performance and effectively address environmental dependencies. This aligns with the strategic management of external resources and recognises the need for diverse expertise to navigate complex business environments successfully. Thus, the study underscores the importance of diverse human capital as a valuable resource that organisations can leverage to improve sustainability outcomes and overall organisational performance.

Second, this research contributes to the literature on board diversity by providing empirical evidence on the moderating effect of female directors on the relationship between board expertise diversity and ESG performance. By examining the inclusion of female directors specifically in this context, this study offers a more nuanced understanding of the role of gender diversity in enhancing a board's expertise and ultimately contributing to ESG performance.

Third, this study builds upon prior research that has investigated the moderating impact of board gender diversity on the relationship between board expertise diversity and ESG performance. For instance, Pucheta-Martínez *et al.* (2021), Zaid *et al.* (2020), Luanglath *et al.* (2019), and Gangi *et al.* (2023) have explored the moderating effects of board gender diversity on different aspects of corporate sustainability, such as financial performance, CSR, and stakeholder engagement. This study contributes to the existing literature by demonstrating a significant and positive association between board expertise diversity and ESG performance, with a particular emphasis on improvements in the governance pillar. This finding underscores the importance of gender diversity on boards and suggests that increasing the representation of women on boards may lead to better governance practices, which can ultimately benefit the sustainability of the company. This adds to the existing research that emphasises the importance of diverse perspectives and knowledge on boards in driving corporate sustainability performance.

Fourth, this study contributes practical implications for policymakers, regulators, and stakeholders. The study's findings provide support for the mandatory inclusion of female directors on corporate boards as a means of enhancing board expertise diversity and improving ESG performance. Moreover, the study's insights on the influence of firm size and type of industry on this relationship offer valuable guidance for stakeholders seeking to improve ESG performance through board diversity initiatives.

The structure of this paper is as follows. In Section 2, previous research is examined, and the hypotheses are developed. Section 3 provides an overview of the study's sample, how the variables are measured, and the model specifications. Section 4 explains the descriptive and correlation analyses and presents the empirical results. The findings are discussed in Section 5 and finally, Section 6 presents the conclusions, limitations, and implications of the study.

3.2 Literature review and development of hypotheses

With the advent of globalised economies and complex challenges in business, the demand for diverse boards has become more pressing than ever before. With companies operating in diverse markets and serving customers from different backgrounds, having a board with diverse perspectives, skills, and experiences is crucial for success (Harjoto *et al*., 2015). Diversity refers to the differences that exist between individuals in terms of their backgrounds, experiences, perspectives, and characteristics such as race, culture, ethnicity, gender, expertise, and more (Cox, 1994). The concept of diversity has gained increasing attention in various fields, including business, where it is recognised as a valuable resource for achieving better performance and innovation (Cox, 1994). It has been shown that having diversity on boards offers numerous advantages for organisations, including enhancing the quality of corporate decision-making (Beji *et al*., 2021), building stronger relationships with employees (Arco-Castro *et al*., 2020), fostering public disclosure of social and environmental information (Bravo and Reguera-Alvarado, 2018; Pucheta-Martínez *et al*., 2021), providing better problem-solving abilities (Hagendorff and Keasey, 2012), improving competitiveness (Ho and Lin, 2012), and facilitating innovation (Miller and del Carmen Triana, 2009). Diverse boards can offer new perspectives that can result in creative solutions and a better understanding of customer needs, leading to improved performance and long-term success (Post *et al*., 2011; Terjesen *et al*., 2016).

Additionally, the presence of a diverse board can have a positive impact on corporate governance by facilitating effective monitoring and improving the quality of boardroom discussions (Adams and Ferreira, 2009; Gul *et al*., 2011). Ultimately, this can lead to better governance practices within the company. Several studies have highlighted the importance of diverse boards in enhancing corporate governance (Adams and Ferreira, 2009; Carter *et al*., 2003; Miller and del Carmen Triana, 2009). Following the above argument, this study argues that effective monitoring and improved boardroom discussions, as a result of board diversity, can have a positive impact on a company's ESG performance. This is because a diverse board is more likely to have a broader range of experiences, knowledge, and perspectives, which can help them identify ESG risks and opportunities that might otherwise be overlooked.

Previous research has demonstrated that boards play a crucial role in addressing ESG-related concerns (Bear *et al*., 2010; Beji *et al*., 2021; Boulouta, 2013; Harjoto and Wang, 2020), forecasting that more diverse boards are more eco-innovative (Nadeem *et al*., 2020). It is argued that a more diverse board can bring fresh perspectives and novel ideas, which, in turn, can positively impact a company’s environmental performance (Konadu *et al*., 2022). Furthermore, a diverse board can enhance a company's reputation as an inclusive and socially responsible organisation, which can improve customer loyalty and attract top talent (Bear *et* *al*., 2010). Additionally, empirical evidence suggests that improved ESG performance is linked to higher firm value (Wong *et al*., 2021), increased profitability (Horváthová, 2010), and lower cost of capital (Ng and Rezaee, 2015). Therefore, enhancing board diversity can potentially lead to better ESG performance, which can further result in various benefits for the company.

According to resource dependence theory, having a diverse board, both in terms of gender and expertise, can enhance a firm's access to critical resources from its environment, including financial capital, social capital, and human capital (Hillman *et al*., 2002). For example, diverse boards with expertise in areas such as environmental management, stakeholder engagement, or social responsibility, could help a firm identify and address emerging ESG issues and build relationships with relevant stakeholders, including investors, customers, and communities (Whelan, 2021).

Moreover, having more women on the board, who often bring unique perspectives and experiences, can enhance a firm's social capital, including its reputation, legitimacy, and trustworthiness, which are increasingly valued by investors and other stakeholders (Galbreath, 2018; Zhang *et al*., 2013). This may lead to informed decision-making processes and improved outcomes (Amorelli and García-Sánchez, 2020; Nadeem *et al*., 2020), such as creative and innovative solutions to complex problems (Ruiz-Jiménez and Fuentes-Fuentes, 2016) and the promotion of public disclosure, including social and environmental information (Bravo and Reguera-Alvarado, 2018; Pucheta-Martínez *et al*., 2021). Thus, the composition of the board of directors, particularly in terms of expertise and gender diversity, seems to be an essential factor in supporting and encouraging ESG practices.

As stated above to explain the role of board expertise in improving corporate ESG performance as well as the moderating effects of female board directors, this study primarily employs resource dependence theory. This theory offers strong theoretical underpinnings for understanding the relationship between board diversity and ESG performance. A recent review study conducted by Khatib *et al.* (2021) illustrates that the most widely used theory to explain the relationship between board diversity and ESG is the resource dependence perspective. Resource dependence theory suggests that firms rely on external resources to function and survive, and therefore, the behaviour and actions of firms are influenced by the availability and control of those resources (Hillman *et al*., 2000). Moreover, resource dependence theory recognises that gender diversity can influence the access, acquisition, and utilisation of external resources, thus potentially enhancing the positive impact of board expertise on ESG outcomes

(Hillman *et al*., 2002). Together, this theory suggests that firms with a higher board diversity may have better access to resources and quality decisions and ultimately perform better in terms of ESG issues (Amorelli and García-Sánchez, 2021). By using the resource dependence theory framework, this study can provide a comprehensive understanding of the role of board diversity in improving a company's ESG performance. Other theories, such as agency theory, stakeholder theory, and institutional theory, may also be relevant in the context of board diversity and ESG performance. However, resource dependence theory provides a comprehensive understanding of the role of board diversity in improving a company's ESG performance. Therefore, using resource dependence theory provides a strong argument for the relationship between board diversity and ESG performance, while also offering a comprehensive understanding of the role of board diversity in improving a company's ESG performance.

3.2.1 Board expertise diversity

The knowledge, skills, and abilities of individual board members are critical to ensuring enhanced board performance (Becker, 1964). The literature has demonstrated the importance of knowledge diversity in endowing boards with the experience and specialist knowledge necessary for improved strategic decision-making (Gupta *et al*., 2020; Wahid, 2019). In particular, diverse knowledge and expertise represent a strategic resource, with top management research demonstrating that having a pool of experiences leads to more innovation, as it allows alternative solutions to be found (Hsu *et al*., 2013; Østergaard *et al*., 2011).

Moreover, top management research has established that a diverse pool of experience and expertise leads to more innovation, as it encourages creativity and leads to the emergence of new ideas that may not have been considered otherwise (Griffin *et al*., 2021; He and Jiang, 2019; Mullins, 2018; Wincent *et al*., 2010). Therefore, diverse expertise and knowledge are strategic resources that enable boards to enhance their decision-making capacity, innovate, and remain competitive in a rapidly changing business landscape.

Bear *et al.* (2010) associate the presence of board members who hold several dimensions of human capital with improved comprehension and generation of effective solutions to corporate issues, in addition to enhanced CSR commitment. Amorelli and García-Sánchez (2020) contend that a board with more diverse skills, backgrounds, and experiences is likely to engage in more socially responsible disclosure. Meanwhile, more experienced directors are likely to bring valuable resources from other firms, including relevant knowledge that allows them to inform the board's decision-making in relation to ESG and sustainability strategies. For example, board directors who have previously served on other firms' boards can improve environmental disclosure quality as they possess unique insights into the policies of other firms (Rupley *et al*., 2012), assisting the firm in adopting these policies (Beji *et al*., 2021) and evaluating ESG-related proposals or initiatives more effectively.

Harjoto *et al*.'s (2015) empirical research on corporate boards reveals that directors' specialised skills and technical expertise give these directors greater stakeholder orientation and induce them to promote CSR performance. They also bring new information to the attention of the board, for example, on the practices of other large firms along with their problem-solving, and decision-making, which may otherwise be unfamiliar to the board (Hillman *et al*., 2000). Furthermore, board members with expertise in certain areas can provide guidance and support to the management team in implementing ESG policies and practices (Beji *et al*., 2021). Waterstraat *et al.* (2021) find a positive impact of board directors with sustainability expertise and sustainability leadership on ESG ratings. Moreover, board members with relevant expertise can help the company stay up-to-date with emerging ESG trends and regulations, and anticipate potential changes in the regulatory landscape (see, Herren Lee, 2022). This can help a company avoid compliance risks and identify new business opportunities related to ESG.

In light of the above, board members' expertise can enhance a board's ability to monitor, evaluate, and respond to ESG-related risks and opportunities, ultimately leading to improved ESG performance. Thus, this empirical study proposes the following key hypothesis:

H1: *Expertise diversity on the board leads to enhanced ESG performance.*

3.2.2 Moderating role of board gender diversity

This study hypothesises that board gender diversity moderates the relationship between board expertise and ESG performance. Specifically, this study predicts that a more gender-diverse board will enhance the firm's access to critical resources from its environment and provide the human capital necessary for better ESG performance.

Resource dependence theory posits that firms rely on external resources to function and survive, and therefore, the behaviour and actions of firms are influenced by the availability and control of those resources. Board gender diversity can be considered a resource which has the capacity to enhance a firm's access to critical resources from the environment, such as financial capital, social capital, and human capital (Bear *et al*., 2010). Studies have consistently demonstrated that gender diversity on corporate boards leads to better decision-making, risk management, and corporate social responsibility (Bravo and Reguera-Alvarado, 2018; De Masi *et al*., 2021; Shakil, 2021; Wasiuzzaman and Wan Mohammad, 2020). Furthermore, the presence of women on boards has been linked to better ESG performance, particularly in the areas of environmental sustainability and social responsibility (Kyaw *et al*., 2022; Nadeem *et al*., 2017; Rao and Tilt, 2016, 2021). Therefore, based on resource dependence theory, it can be argued that board gender diversity can play a moderating role in the relationship between board expertise diversity and ESG performance by providing a diverse range of resources.

Female board members can improve the board's expertise by adding to the range of professional experience and increasing the number of members with advanced degrees (Hillman *et al*., 2002). These additional qualities offered by female members enable the board to better supervise management (Hillman and Dalziel, 2003). Furthermore, having diversity in terms of gender on the board can bring a range of resources such as unique abilities, skills, knowledge, and values to the company that can help them effectively manage and address ESG risks (Bear *et al*., 2010). Female board members bring a distinct set of values and professional abilities that may differ from those of their male counterparts, and they tend to be better communicators and more empathetic, which can align with and support the company's goals and strategies on ESG issues (Boulouta, 2013).

Research suggests that female directors often have non-business backgrounds and bring a diverse set of expertise due to their experiences in various fields and interactions in society (Hillman *et al*., 2002). The non-business expertise of many female directors, including experiences in civil organisations and social activities, can, thus, include strong communication and leadership skills, empathy, and a deep understanding of social issues and consumer behaviour. Women directors with non-business backgrounds may have a stronger commitment to social and environmental issues. This may result in the implementation of eco-friendly business strategies, which can lead to positive social and environmental outcomes for organisations (Glass *et al*., 2016; Setó-Pamies, 2015).

Women tend to prioritise communal goals and exhibit higher levels of empathy and emotional intelligence, making them more attuned to the emotions and needs of others (Eagly *et al*., 1990; Eagly and Johannesen-Schmidt, 2001; Eagly and Sczesny, 2009). This trait can promote ethical behaviour, resulting in greater integrity in a company's decision-making processes and more socially responsible actions (Bart and McQueen, 2013; Harrison and Coombs, 2012; Sial *et al*., 2019). Research has demonstrated that women are more sensitive to decisions related to ethical issues than men, and thus a higher representation of women in boardrooms influences ESG practices positively (Boulouta, 2013). Furthermore, female board members can enhance the decision-making processes and effectiveness of boards by promoting better communication with stakeholders (Terjesen *et al*., 2009) and generating more creative discussions and solutions (Konrad *et al*., 2008). This can improve the quality of board decisions, particularly on environmental and social issues (Katmon *et al*., 2019). Research has indicated that board gender diversity plays an active role in promoting non-financial metrics, including mitigating environmental risks, improving stakeholder satisfaction, innovation, and corporate social responsibility (CSR). These efforts have been associated with improved ESG performance for the organisation (García-Sánchez *et al*., 2021; Lu and Herremans, 2019a, 2019b; Shakil, 2021).

Building on the above arguments, it is therefore logical to consider board gender diversity as a moderator of the link between ESG and board expertise diversity.

Drawing on the arguments and prior research mentioned earlier, this study suggests that the positive impact of board expertise on ESG performance will be enhanced when there is a higher degree of gender diversity among the board members. This is because female directors bring critical resources in terms of knowledge, expertise, and skills to the board, which have the potential to influence the development and implementation of ESG strategies. Thus, the following hypothesis is proposed:

H2: *Board gender diversity moderates the positive relationship between board expertise and ESG performance.*

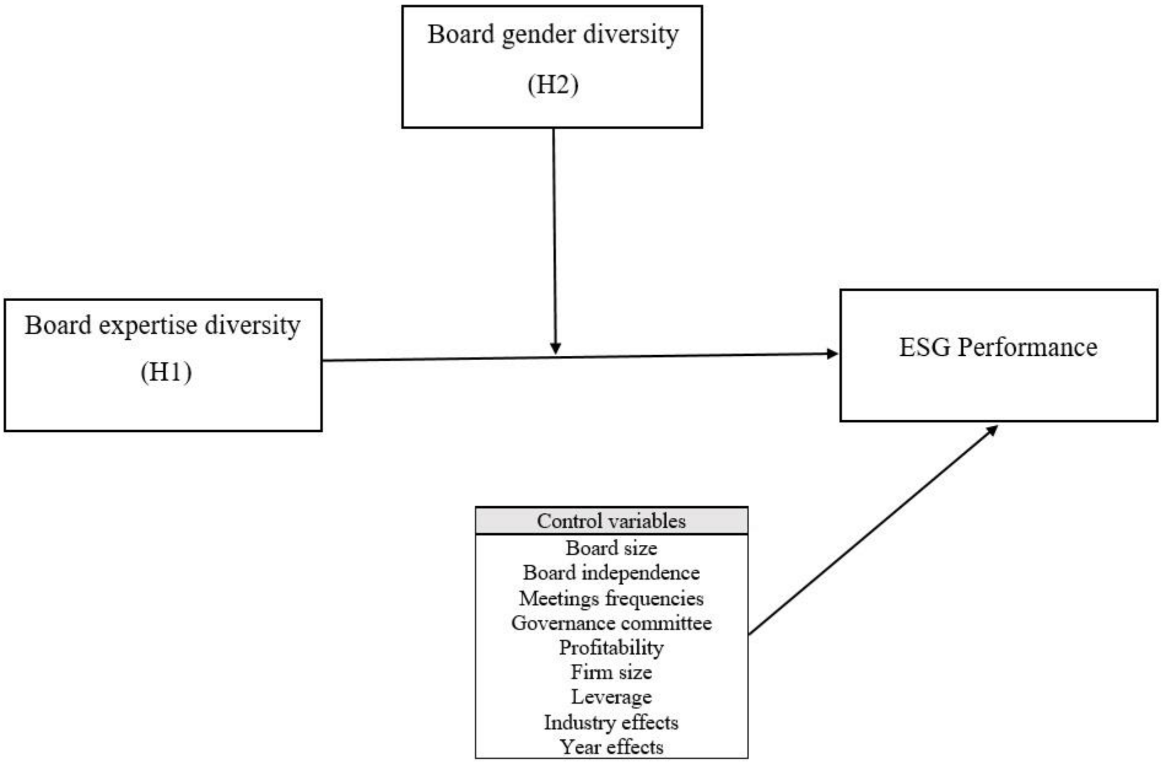

Figure 3.2.1: Model of board expertise diversity and the link with ESG performance

3.3Methodology

3.3.1 Sample

The study utilised a dataset comprising all non-financial firms listed on the FTSE 350 index from 2011–2021. To ensure a uniform sample, firms in the financial services and insurance sectors were excluded due to their unique characteristics and disclosure requirements. The final sample included 165 firms during the study period. Financial and ESG index data were sourced from the Refinitiv Eikon database. A longitudinal panel dataset was used in this study. Such a dataset provides several advantages such as a higher degree of freedom, more variability, and reduced multicollinearity among the explanatory variables. This enhances the efficiency of the statistical tests (Hsiao, 2014). Table 3.2.1 presents the frequency and percentage breakdown of the sample firms according to industry. Additionally, the table includes the mean values of ESG performance, board expertise, and board gender diversity for each industry.

The consumer staples sector exhibits the highest ESG score (65.553%), followed by the energy sector (64.754%) and the healthcare sector (64.629%). At the other end of the scale, the technology sector has the lowest ESG score, at only 43.068%. The real estate sector has the highest percentage of expertise diversity on boards (62.455%), while the basic materials sector has the lowest score of 52.505%. In terms of board gender diversity, the consumer staples sector has the highest representation of women on boards (17.372%), while the basic materials sector has the lowest representation.

Table 3.2.1: Breakdown of the sample firms by industry

Industries	Frequency	Per cent (%)	ESG	Board expertise diversity	Board gender diversity
Basic materials	14	8.48%	57.868	52.505	17.372
Consumer discretionary	41	24.85%	56.775	57.513	25.249
Consumer staples	15	9.09%	65.553	54.452	26.349
Energy	8	4.85%	64.754	62.135	21.987
Health care	5	3.03%	64.629	55.908	24.239
Industrials	48	29.09%	53.769	59.629	22.921
Real estate	16	9.70%	61.338	62.455	21.217
Technology	8	4.85%	43.068	59.280	25.769
Telecommunications	2	1.21%	62.163	54.533	23.246
Utilities	8	4.85%	61.233	59.38	25.869
Total	165				

3.3.2 Dependent variable

The Refinitiv Eikon database uses an ESG score index that evaluates a company's performance on 10 major themes, including environmental, social, and governance. These themes are further divided into industry-specific subcategories and weighted accordingly. The score is calculated based on the company's disclosure and ranges from 0–100, with higher scores indicating better performance. The environmental category evaluates factors such as resource use, emissions, and environmental innovation, while the social category looks at issues related to the workforce, human rights, community, and product responsibility. The governance category focuses on factors such as management, shareholders, and CSR strategy. This ESG score index is a useful tool for evaluating a company's ESG performance across different categories and industries (Refinitiv Eikon Datastream, 2020).

The advantage of Eikon Refinitiv over alternative databases is that its metrics are transparent and are based on data in the public domain (Reber *et al*., 2022). It considers industry classifications because ESG performance is more relevant to companies within the same industries. In addition, to ensure an objective assessment of a firm's ESG performance score when calculating the governance category, the Eikon Refinitiv analyst team uses the country of incorporation as the benchmark because the best governance practices are more consistent within countries (Refinitiv Eikon Datastream, 2020). Therefore, Eikon Refinitiv ESG score is considered to be one of the most reliable data sources for ESG metrics (Habermann and Fischer, 2021; Shakil, 2021); it has been widely used in previous studies (e.g., Drempetic *et al*., 2020; Dyck *et al*., 2019; Garcia *et al*., 2017; Reber *et al*., 2022).

3.3.3 Independent variable

The main independent variable in this study is board expertise diversity (BEXP). It is measured by dividing the number of directors who have either an industry-specific background or a strong financial background by the total number of board directors.

3.3.4 Moderating variable

The variable that moderates the relationship between board expertise and ESG performance is the proportion of female members on the board (BFEM), which is calculated by dividing the number of female directors by the total number of board directors. This method of measuring the proportion of female members on the board has been used by researchers such as Beji *et al.* (2021), Galbreath (2018), and Boulouta (2013).

3.3.5 Control variables

Two sets of control variables were utilised to ensure that the measurement of the variables of interest was not influenced by other factors. The first set of control variables pertains to the characteristics of corporate governance that could potentially impact board decisions related to ESG performance.

Board size (BSIZE) is measured using the number of directors. Larger boards can function effectively on issues related to ESG as they have more members (Husted and Sousa-Filho, 2019). Moreover, larger boards are more likely to bring diverse perspectives into decision-making processes (Pearce and Zahra, 1992). Board independence (IND) is measured using the percentage of independent directors on boards. According to Post *et al.* (2015), high board independence is positively linked to the quality of environmental performance, as it can help the corporate board monitor the top management. An additional control variable is the frequency of board meetings (B_MEET) because more frequent board meetings provide directors with more opportunities to exchange information and ideas (Laksmana, 2008), which, in turn, improves decisions related to ESG issues (Katmon *et al*., 2019). There is an expectation that firms with a corporate governance committee are more efficient and enjoy better ESG performance. Therefore, the corporate governance committee (CG_COM) is a binary variable that indicates whether a company has a corporate governance committee or not. If a company has a corporate governance committee, it is coded as 1, and if it does not have one, it is coded as 0.

The second category of company-specific factors encompasses firm size, profitability, and leverage, which have the potential to impact ESG performance. Profitability is used as a control variable and measured by return on equity (ROE). A recent systematic review of 21 meta-analytical studies by Huang (2021) has suggested that financial performance has a positive impact on ESG activities. Firm size (F_SIZE) is included in the econometric model to control for the potential impact of firm size because large firms are subjected to greater pressure in terms of responding to stakeholder demands, and are more concerned about adopting ESG policies to legitimise their activities (Cornett *et al*., 2016). Leverage (LEV) is included as a control variable because Ahmed *et al.* (2019) found a strong impact of leverage on CSR reporting. Finally, dummies for industry and year are included in the analysis to account for the time period and different types of industry.

3.3.6 Model

To analyse the relationship between board expertise diversity and ESG performance as well as the moderating effects of board gender diversity, OLS regression is used in this study. The following two econometric models are developed.

The initial model aims to investigate the impact of board expertise diversity on ESG performance, and it is presented as follows:

$$ESG = \alpha + \beta 1 \; B\_EXP_{i,t} + \sum_{i=0}^{n} \beta_n \; \textit{Control variables}_{it} + \varepsilon_{it} \qquad (1)$$

The second model examines the moderating effects of board gender diversity on the link between board expertise diversity and ESG performance, as follows:

$$ESG = \alpha + \beta 1 \; B\_EXP_{i,t} * BGD_{i,t} + \sum_{i=0}^{n} \beta_n \; \textit{Control variables}_{it} + \varepsilon_{it} \qquad (2)$$

Table 3.2.2 provides definitions for all the variables used in the analysis. The first equation in this study includes ESG performance (ESG) as the dependent variable, and board expertise diversity (B_EXP) as the independent variable, with a range of control variables. In the second equation, the influence of board gender diversity (BGD) as a moderator on the link between ESG and B_EXP is analysed, while controlling for all other variables.

Table 3.2.2: Variables and definitions

Variable	Symbol	Definition
Dependent variable		
Environmental social, and governance score	ESG	Refinitiv ESG score is an overall company score based on self-reported information in the environmental, social, and corporate governance pillars.
Environmental pillar	ENV	Refinitiv environmental score assesses a company's environmental performance using various indicators such as greenhouse gas emissions, energy use, waste management, and water use. The score is calculated using a scale of 0–100, with a higher score indicating better environmental performance.
Social pillar	SOC	The Refinitiv social score assesses a company's social performance using various indicators such as labour rights, diversity and inclusion, community involvement, and human rights policies on a scale of 0–100, providing a standardised way to compare social sustainability practices.
Governance pillar	GOV	Refinitiv governance score evaluates a company's corporate governance practices using indicators like board structure, executive compensation, shareholder rights, and transparency. It is calculated on a scale of 0–100, allowing for standardised comparisons of governance practices across industries and regions.
Independent variable		
Board expertise and specific skills	B_EXP	The percentage of board members who have either an industry-specific background or a strong financial background
Moderating variable		
Board gender diversity	BGD	The proportion of female directors to the total number of board members
Control variables		
Board size	B_SIZE	The natural logarithm of the total number of board members
Board independence	IND	The ratio of independent directors to the total number of directors on the board
Board meetings	B_MEET	The natural logarithm of the total number of board meetings during the year
Corporate governance committee	CG_COM	A dummy variable coded 1 if the firm has a CSR/sustainability committee and 0 otherwise
Profitability	ROE	The ratio of net income divided by total equity
Firm size	F_SIZE	The natural logarithm of the firm’s total number of employees
Leverage	LEV	The ratio of the firm’s total debt to total equity
Industry dummy	INDUSTRY	A dummy variable representing 10 industries
Year dummy	YEAR	A dummy variable control for year periods (2011–2021)

3.4 Results

3.4.1 Descriptive statistics

The statistics for the variables used in the study are provided in Table 3.4.1. The mean score for ESG performance is 57.778%, indicating that firms in the sample have an average performance score in the range of 0–100, with a high score indicating better performance. The highest ESG score in the sample is 95.59%, while the lowest is 0.99%, indicating a significant variation in the implementation of ESG strategies across firms. The average values for environmental score, social score, and governance score are all lower than 61%, suggesting that firms have room for improvement in their ESG practices across all three dimensions. The mean score for board expertise (B_EXP) is 58.095%, indicating that the sample firms have above-average board expertise. This suggests that the firms in the sample are well-equipped to make informed decisions on various issues, including ESG matters. However, the mean score for board gender diversity (BGD) is relatively low, at 23.459%. This suggests that the sample firms may have room for improvement in terms of gender diversity on their boards.

Table 3.4.1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
ESG	57.778	17.623	.99	95.59
ENV	53.156	23.978	0	97.4
SOC	58.497	20.786	1.23	97
GOV	61.027	20.269	1.65	98.55
B_EXP	58.095	16.622	0	100
BGD	23.459	12.614	0	66.67
B_SIZE	9.287	2.253	1	22
IND	60.485	13.263	0	100
B_MEET	8.761	3.953	1	20
CG_COM	.171	.376	0	1
ROE	.239	1.312	-20.83	26.05
F_SIZE	27414.65	60318.57	100	596452
LEV	1.008	2.999	0	81.46

The results indicate that the sampled firms have an average board size of nine members (B_SIZE), which is comparable to Jizi's (2017) for FTSE 350 firms in the UK. The average proportion of independent directors on the board (IND) is 60.485%, indicating that the sampled firms place a strong emphasis on having independent voices in the boardroom.

The average board meeting frequency (B_MEET) is approximately eight. It is noted further that on average, 17.1% of the firms have corporate governance committees. In terms of profitability, the mean ROE for the sampled firms is 23.9%, which is a bit higher than the average of 20.49% reported in Elamer and Benyazid's (2018) study. The average number of employees for the sampled firms is 27,414.65, which is used as a proxy for firm size (F_SIZE). Additionally, the average leverage percentage (LEV) is 1.008, indicating that most firms in this study rely on borrowing to finance their operations.

3.4.2 Pairwise correlation

A coefficient value greater 0.80 would indicate multicollinearity (Gujarati, 1995), and the results of the correlation analysis to check for this are presented in Table 3.4.2. The analysis reveals that the variable with the highest correlation with ESG performance among the independent variables is board size ($\beta = 0.446$, $P < 0.01$). Therefore, multicollinearity does not exist between the independent variables. The multicollinearity issue is also checked using variance inflation factors (VIFs). The VIF test suggests that multicollinearity may be a problem when VIF values are over 10 and 1/VIF values are less than 0.1 (Gujarati, 2004). In Table 3.4.2, the VIF values for the variables in the model are between 1.033 and 2.253, indicating no serious multicollinearity problem in the sample. Concerning the tolerance statistics test, most of the variables have 1/VIF values of between 0.444 and 0.968. The results reveal no multicollinearity concern in the sample.

3.4.3 Multivariate regression analyses

Table 3.4.3 shows the results of the OLS regression analysis conducted on the relationship between board expertise diversity and ESG performance, taking into account the control variables. The statistical significance of the models is at $P < .01$, and the adjusted R^2 values range between 37% and 50%, indicating that the models explain a substantial proportion of the variance in ESG performance. The results from the estimation of Model 1, where the ESG performance score index is regressed on board expertise diversity (B_EXP) and the control variables, are reported in Table 3.4.3. For brevity, the coefficients of the industry dummy and year dummy variables are not reported.

The results of Model 1 indicate that board expertise ($\beta = 0.0503$, $P < 0.05$) is positively associated with ESG performance. This result is consistent with the first hypothesis, which posits that expertise diversity on the board leads to enhanced ESG performance. Thus, H1 is accepted. This finding is consistent with previous studies (Beji *et al.*, 2021; Katmon *et al.*, 2019; Waterstraat *et al.*, 2021). This result supports resource dependence theory, which suggests that diversity in terms of the knowledge, skills, and abilities of directors are valuable resources that can increase the quality of board decision-making. Furthermore, having a diverse range of expertise and knowledge on the board is thought to improve decision-making, increase innovation, bring valuable information about unfamiliar practices, and ultimately lead to better organisational performance.

Moreover, the analysis in Models 2, 3, and 4 examines the relationship between board expertise diversity and the three pillars of ESG. The findings reveal that there is a notable and favourable correlation between the diversity of board expertise and the governance pillar. In contrast, the results for the environmental and social pillars are insignificant. This suggests that the positive influence of board expertise diversity on ESG performance is most pronounced in the governance pillar, while its impact on the other two pillars is insignificant.

Furthermore, board expertise diversity represents the human capital of the board members, who bring their unique knowledge and skills to decision-making processes. This diversity can enhance the quality of governance, leading to better ESG performance in the governance pillar. However, the impact on the environmental and social pillars may depend on the specific areas of expertise and the nature of the industry in which the firm operates. Therefore, further investigation is required to comprehensively understand the relationship between board expertise diversity and ESG performance.

The findings from Models 5, 6, 7, and 8 in Table 3.4.3 are as expected, as they reveal a significant positive moderating role of board gender diversity between board expertise, ESG and its pillars, ($\beta = 0.00470$, $P < 0.01$), ($\beta = 0.00401$, $P < 0.01$), ($\beta = 0.00418$, $P < 0.01$), and ($\beta = 0.00620$, $P < 0.01$), respectively. This suggests that gender diversity plays a crucial role in enhancing the positive effects of board expertise on ESG performance. This result supports H2, in line with previous studies highlighting the importance of gender diversity in promoting better decision-making processes and enhancing firm performance (Bravo and Reguera-Alvarado, 2018; De Masi *et al*., 2021; Shakil, 2021; Wasiuzzaman and Wan Mohammad, 2020). Gender diversity on the board can be viewed as a resource that brings in different perspectives, experiences, and skills. When the board has a diverse gender composition, it can tap into a wider range of knowledge and expertise, which can enhance the overall effectiveness of the board in terms of fulfilling its roles and responsibilities.

Previous research has consistently shown that larger firms tend to engage in ESG activities to a greater extent than smaller firms because they have more resources at their disposal (Cornett *et al*., 2016; Drempetic *et al.,* 2020; Gregory, 2022). Given this established relationship between firm size and ESG performance, it is important to explore whether the association between board expertise diversity and ESG performance varies depending on firm size. In other words, it is necessary to investigate whether the impact of board expertise diversity on ESG performance is stronger in larger firms or whether the relationship holds true across firms of all sizes. This is a crucial question as it can provide insights into how the board composition can be tailored to maximise ESG performance in different firms of different sizes.

The sample firms are categorised into sub-samples based on firm size (e.g., FTSE 100 and FTSE 250), and the results are presented in Table 3.4.4 and Table 3.4.5. In the case of the FTSE 100, Table 3.4.4 indicates an insignificant positive association between board expertise diversity and ESG performance. However, there is still a positive link between board expertise and the governance pillar after the sample is divided. Regarding the moderating effects of board gender diversity, the findings are consistent with those of the baseline model, and the interaction is positively related to ESG and its three pillars. In the case of FTSE 250, in Table 3.4.5, the coefficients of board expertise diversity and the moderating effects of female directors remain consistent with the baseline regression results. Overall, the results suggest that the relationship between board expertise diversity and ESG performance may vary depending on the firm size, but the positive moderating effects of board gender diversity remain consistent across subsamples.

The findings in Table 3.4.6 and Table 3.4.7 suggest that the impact of board expertise diversity and board gender diversity on ESG performance differs depending on the level of polluting intensity in the industry. In the case of carbon emitters, the results in Table 3.4.6 indicate that the impact of board expertise diversity is insignificant for ESG performance and only significant for the governance pillar. This could suggest that the governance aspect of ESG is more salient in industries that are heavy carbon emitters and that having a diverse set of expertise on the board is important for effective governance in such industries. Moreover, the results suggest that board gender diversity positively moderates the relationship between board expertise and ESG performance in polluting industries, indicating that having a gender-diverse board can enhance the positive impact of board expertise diversity on ESG performance.

In contrast, Table 3.4.7 shows that in non-carbon emitting industries, board expertise diversity is significantly and positively related to ESG performance and the governance pillar. This suggests that in industries with lower polluting intensity, a diverse set of expertise on the board may be more beneficial for overall ESG performance, rather than just governance. Moreover, in both carbon emitters and non-carbon emitters, board gender diversity positively moderates the link between ESG and its pillars and board expertise. This highlights the importance of gender diversity in enhancing the impact of board expertise diversity on ESG performance across industries with varying levels of polluting intensity.

Table 3.4.2: Correlation analysis

Variables	VIF	1/VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ESG			1.000												
(2) ENVI	2.051	.488	0.850***	1.000											
(3) GOV	2.253	.444	0.893***	0.699***	1.000										
(4) SOC	1.586	.630	0.653***	0.333***	0.390***	1.000									
(5) B_EXP	1.219	.820	-0.185***	-0.187***	-0.191***	-0.052**	1.000								
(6) BGD	1.311	.763	0.398***	0.278***	0.335***	0.354***	-0.208***	1.000							
(7) B_SIZE	1.352	.740	0.446***	0.406***	0.404***	0.252***	-0.194***	0.101***	1.000						
(8) IND	1.453	.688	0.331***	0.213***	0.208***	0.426***	-0.237***	0.306***	0.042*	1.000					
(9) B_MEET	1.033	.968	0.031	-0.004	0.057**	0.010	0.075***	0.062***	-0.027	0.011	1.000				
(10) CG_COM	1.174	.852	0.207***	0.094***	0.181***	0.259***	-0.048**	0.026	0.244***	0.192***	0.052**	1.000			
(11) ROE	1.085	.922	-0.022	-0.031	-0.057**	0.016	0.045*	0.049**	0.001	-0.022	-0.025	-0.031	1.000		
(12) F_SIZE	1.342	.745	0.407***	0.288***	0.405***	0.293***	-0.269***	0.163***	0.312***	0.261***	0.072***	0.178***	-0.028	1.000	
(13) LEV	1.087	.920	0.034	0.013	0.071***	-0.025	-0.046**	0.030	-0.022	-0.041*	0.060***	-0.002	-0.254***	0.003	1.000

Note: ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

3.4.4 Robustness check for endogeneity

The problem of endogeneity, which refers to a mutual relationship between variables, is often encountered in research studies examining board diversity (Cumming and Leung, 2021; Gattai *et al*., 2023). The potential endogeneity of board expertise diversity poses a significant challenge for this study, particularly in the context of a panel dataset. It is not clear whether a board with better expertise diversity leads to better ESG performance or vice versa, and this ambiguity could potentially influence the study results. Thus, it is essential to account for potential endogeneity issues in this study to ensure the validity and reliability of the findings.

To tackle potential endogeneity issues, this study employs a two-step dynamic panel system generalised method of moments (GMM) technique (Blundell and Bond, 1998) to analyse the dynamic link between board gender diversity and ESG performance. The GMM estimator is considered efficient and suitable for addressing reverse causality problems and is frequently used in the corporate governance field to account for endogeneity concerns (Nuber and Velte, 2021; Peña-Martel *et al*., 2022; Terjesen *et al*., 2016).

In Table 3.4.8, the results of the GMM estimations are displayed, and several tests are conducted to ensure the robustness and validity of the research models. The Arellano and Bond (1991) test is used to check for first-order (AR (1)) and second-order (AR (2)) autocorrelation. The results indicate that we must reject the null hypothesis of no first-order autocorrelation for all regressions, which suggests that there is a time-dependence structure in the data. However, the null hypothesis of no second-order autocorrelation is accepted, implying that the GMM models are free from any serial correlations. These findings indicate that the instruments used in this study are valid and reliable.

Furthermore, the Hansen (1982) test is employed to evaluate over-identification of the GMM models. The results indicate that the instruments are valid and exogenous as the Hansen test of instrument exogeneity does not reject the null hypothesis. This means that the models are accurately specified, and the instruments used are valid. These results indicate that the GMM approach is suitable for addressing potential endogeneity concerns in this study and is effective in analysing the dynamic relationship between board gender diversity and ESG performance. The validity of the instruments used in the models supports the robustness of the research findings. The results indicate that the presence of female directors on the board enhances board expertise and could positively impact corporate ESG performance. The robustness of the findings in terms of endogeneity bias further strengthens the validity of the results and highlights the importance of board diversity in promoting sustainable business practices.

To examine the relationship between board gender diversity and ESG performance further, an additional test was conducted; the findings are given in Table 3.4.9 and Table 3.4.10. In Table 3.4.9, OLS regression has been used to analyse the link between board gender diversity and ESG performance based on firm size. The results indicate a significant and positive association between board gender diversity and ESG performance across firms of different sizes (FTSE 350, FTSE 250, FTSE 100).

Table 3.4.10 presents the OLS regression results for the relationship between board gender diversity and ESG performance for carbon and non-carbon emitters. The findings reveal that for carbon emitters, board gender diversity is positively associated with ESG performance, the social pillar, and the governance pillar, but not significantly associated with the environmental pillar. However, in non-carbon emitters, board gender diversity is positively and significantly associated with ESG performance and all its pillars.

These results are consistent with resource dependence theory, which suggests that a diverse set of directors on the board can offer a company access to a broader range of skills, knowledge, and perspectives. Furthermore, the results suggest that board gender diversity can have differential impacts on ESG performance depending on the level of polluting intensity in the industry.

Table 3.4.3: Robust OLS regressions for board expertise and ESG performance

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
B_EXP	0.0503**	-0.0155	-0.0114	0.202***				
	[2.464]	[-0.525]	[-0.444]	[7.387]				
B_EXP#BGD					0.00470***	0.00401***	0.00418***	0.00620***
					[10.38]	[5.904]	[7.560]	[10.40]
B_SIZE	13.65***	18.83***	11.61***	9.729***	13.05***	18.89***	11.62***	7.598***
	[8.504]	[7.895]	[6.483]	[4.537]	[8.469]	[7.932]	[6.718]	[3.383]
IND	0.315***	0.290***	0.149***	0.555***	0.275***	0.270***	0.127***	0.468***
	[12.89]	[8.431]	[4.733]	[16.60]	[11.61]	[7.959]	[4.105]	[14.30]
B_MEET	-1.373	-1.464	0.421	-3.802***	-1.268	-1.614	0.284	-3.107***
	[-1.276]	[-0.966]	[0.323]	[-3.084]	[-1.225]	[-1.087]	[0.223]	[-2.625]
CG_COM	-0.0215	-3.611***	-0.419	5.784***	0.417	-3.390**	-0.175	6.716***
	[-0.0233]	[-2.590]	[-0.378]	[5.415]	[0.477]	[-2.515]	[-0.163]	[6.314]
ROE	-0.483***	-1.241***	-1.095***	0.514**	-0.732***	-1.464***	-1.327***	0.211
	[-2.595]	[-3.736]	[-3.419]	[2.204]	[-3.431]	[-4.027]	[-3.769]	[0.903]
F_SIZE	4.732***	5.328***	6.103***	2.161***	4.677***	5.397***	6.165***	1.817***
	[14.95]	[11.42]	[17.53]	[6.658]	[15.59]	[11.94]	[18.79]	[5.769]
LEV	0.0425	-0.121	0.115	0.00378	0.0219	-0.125	0.110	-0.0553
	[0.750]	[-0.629]	[0.792]	[0.0235]	[0.279]	[-0.587]	[0.634]	[-0.502]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-45.54***	-65.75***	-43.72***	-31.60***	-31.58***	-48.16***	-35.08***	-3.373
	[-10.29]	[-10.18]	[-7.911]	[-5.417]	[-8.156]	[-8.331]	[-7.255]	[-0.603]
Observations	1,823	1,823	1,823	1,823	1,823	1,823	1,823	1,823
R-squared	0.479	0.378	0.400	0.386	0.508	0.389	0.417	0.404
F test	72.71	50.27	51.69	53.49	83.14	55	55.81	57.95

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.4: Robust OLS regressions for board expertise and ESG performance based on firm size (FTSE100)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
B_EXP	0.0345	0.00126	-0.0551	0.196***				
	[0.981]	[0.0264]	[-1.361]	[4.152]				
B_EXP#BGD					0.00559***	0.00545***	0.00505***	0.00713***
					[7.992]	[5.420]	[6.363]	[6.952]
B_SIZE	5.605*	-3.023	10.16***	6.408*	5.314*	-2.956	10.84***	4.383
	[1.754]	[-0.756]	[2.803]	[1.655]	[1.864]	[-0.793]	[3.309]	[1.206]
IND	0.358***	0.380***	0.214***	0.541***	0.336***	0.367***	0.214***	0.479***
	[7.831]	[6.180]	[4.028]	[8.178]	[8.084]	[6.143]	[4.303]	[7.708]
B_MEET	-4.517***	-2.520	-4.380**	-6.058***	-4.177**	-2.214	-4.140**	-5.507***
	[-2.771]	[-1.055]	[-2.297]	[-3.172]	[-2.510]	[-0.903]	[-2.137]	[-2.869]
CG_COM	2.093*	-0.717	1.016	6.458***	2.390**	-0.374	1.426	6.586***
	[1.677]	[-0.408]	[0.654]	[3.725]	[2.027]	[-0.220]	[0.936]	[3.935]
ROE	0.377	0.0755	0.584	0.279	-0.0166	-0.341	0.141	-0.0668
	[1.433]	[0.180]	[1.606]	[0.849]	[-0.0716]	[-0.837]	[0.497]	[-0.189]
F_SIZE	5.312***	6.429***	6.381***	2.811***	5.096***	6.246***	6.259***	2.409***
	[13.40]	[9.869]	[13.76]	[4.975]	[14.05]	[9.898]	[13.90]	[4.569]
LEV	0.329***	0.0182	0.440**	0.282*	0.120	-0.195	0.226	0.0610
	[2.619]	[0.0984]	[2.449]	[1.807]	[1.062]	[-1.060]	[1.376]	[0.399]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-19.71**	-20.01	-43.63***	-2.795	-16.64**	-9.399	-29.72***	-6.253
	[-2.162]	[-1.473]	[-4.454]	[-0.252]	[-2.348]	[-0.934]	[-3.679]	[-0.649]
Observations	689	689	689	689	689	689	689	689
R-squared	0.595	0.465	0.563	0.462	0.631	0.486	0.583	0.489
F test	47.33	38.01	54.86	29.86	58.32	38.79	61.51	33.62
All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.								

Table 3.4.5: Robust OLS regressions for board expertise and ESG performance based on firm size (FTSE250)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
B_EXP	0.0744***	-0.00388	0.0261	0.209***				
	[2.909]	[-0.102]	[0.799]	[6.196]				
B_EXP#BGD					0.00454***	0.00379***	0.00415***	0.00575***
					[7.930]	[4.436]	[5.849]	[7.921]
B_SIZE	13.06***	20.82***	8.079***	11.58***	12.19***	20.51***	7.555***	9.755***
	[7.325]	[7.263]	[3.871]	[4.603]	[7.000]	[7.052]	[3.688]	[3.601]
IND	0.283***	0.237***	0.114***	0.541***	0.232***	0.210***	0.0771**	0.450***
	[9.831]	[5.813]	[2.991]	[14.19]	[8.150]	[5.095]	[2.032]	[11.81]
B_MEET	1.462	2.059	3.746**	-3.047*	1.635	1.896	3.709**	-2.293
	[1.193]	[1.156]	[2.391]	[-1.930]	[1.436]	[1.100]	[2.462]	[-1.556]
CG_COM	-2.408*	-4.818**	-3.007*	3.823**	-1.672	-4.613**	-2.594*	5.466***
	[-1.801]	[-2.206]	[-1.908]	[2.566]	[-1.336]	[-2.207]	[-1.741]	[3.713]
ROE	0.277	0.539	0.0446	0.334	0.236	0.462	-0.0203	0.355
	[0.663]	[0.909]	[0.0814]	[0.877]	[0.779]	[0.930]	[-0.0443]	[0.761]
F_SIZE	3.510***	3.288***	4.950***	1.819***	3.460***	3.373***	4.984***	1.536***
	[8.414]	[5.351]	[10.86]	[4.262]	[8.709]	[5.669]	[11.67]	[3.631]
LEV	0.116	0.0717	0.322**	-0.0814	0.142*	0.119	0.362**	-0.0936
	[1.216]	[0.603]	[2.002]	[-0.566]	[1.650]	[1.121]	[2.152]	[-0.870]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-35.57***	-47.62***	-36.81***	-18.48**	-23.57***	-43.43***	-23.18***	3.649
	[-5.039]	[-4.402]	[-4.608]	[-2.365]	[-4.771]	[-5.559]	[-3.559]	[0.512]
Observations	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134
R-squared	0.386	0.360	0.303	0.349	0.416	0.371	0.323	0.360
F test	28.48	25.61	19.43	27.23	32.71	27.02	21.45	29.34

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.6: Robust OLS regressions for board expertise and ESG performance for carbon emitters

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
B_EXP	0.0170	-0.0571	-0.0654	0.228***				
	[0.572]	[-1.392]	[-1.637]	[6.110]				
B_EXP#BGD					0.00189***	-0.000954	0.00138	0.00578***
					[2.820]	[-0.926]	[1.472]	[6.288]
B_SIZE	8.059***	8.107***	6.204**	11.04***	7.762***	8.214***	5.918**	10.29***
	[4.425]	[3.435]	[2.421]	[4.087]	[4.302]	[3.507]	[2.428]	[3.266]
IND	0.283***	0.223***	0.141***	0.589***	0.269***	0.242***	0.149***	0.504***
	[8.016]	[3.962]	[2.864]	[12.87]	[7.642]	[4.400]	[3.085]	[10.63]
B_MEET	-0.791	-2.325	0.811	-2.451	-0.849	-2.437	0.543	-2.115
	[-0.536]	[-1.151]	[0.460]	[-1.406]	[-0.571]	[-1.205]	[0.308]	[-1.193]
CG_COM	1.547	1.229	-0.682	6.287***	1.763*	1.063	-0.616	7.150***
	[1.456]	[0.781]	[-0.397]	[4.113]	[1.656]	[0.670]	[-0.356]	[4.530]
ROE	-1.594	-1.740	1.645	-7.824***	-1.701	-1.640	1.642	-8.319***
	[-1.048]	[-0.653]	[0.679]	[-2.814]	[-1.134]	[-0.614]	[0.681]	[-2.836]
F_SIZE	5.987***	8.236***	6.513***	2.197***	5.971***	8.370***	6.703***	1.692***
	[17.79]	[16.49]	[12.75]	[4.926]	[18.07]	[17.06]	[13.95]	[3.834]
LEV	-0.100	-0.688***	0.414	0.0499	-0.0630	-0.668**	0.503	0.0232
	[-0.727]	[-2.638]	[1.409]	[0.227]	[-0.466]	[-2.501]	[1.643]	[0.0901]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-31.96***	-39.67***	-22.94***	-32.23***	-30.51***	-42.50***	-30.95***	-11.21
	[-5.202]	[-4.791]	[-2.719]	[-3.988]	[-5.720]	[-5.958]	[-4.254]	[-1.470]
Observations	820	820	820	820	820	820	820	820
R-squared	0.541	0.426	0.404	0.409	0.545	0.425	0.403	0.407
F test	62.18	50.70	34.02	28.91	63.19	51.25	34.25	29.07

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.7: Robust OLS regressions for board expertise and ESG performance for non-carbon emitters

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
B_EXP	0.0915***	0.0464	0.0471	0.175***				
	[3.062]	[1.047]	[1.349]	[4.556]				
B_EXP#BGD					0.00627***	0.00691***	0.00573***	0.00634***
					[10.40]	[7.869]	[8.374]	[8.199]
B_SIZE	18.42***	27.17***	17.21***	8.680***	17.33***	26.97***	16.89***	6.055**
	[7.249]	[7.471]	[6.554]	[2.745]	[7.403]	[7.963]	[7.133]	[1.984]
IND	0.307***	0.286***	0.124***	0.515***	0.245***	0.231***	0.0766*	0.433***
	[8.824]	[5.980]	[3.052]	[10.73]	[7.249]	[4.872]	[1.867]	[9.657]
B_MEET	-1.851	-0.712	0.177	-4.853***	-1.303	-0.392	0.488	-3.873**
	[-1.180]	[-0.323]	[0.0939]	[-2.685]	[-0.936]	[-0.191]	[0.276]	[-2.357]
CG_COM	-0.332	-4.973***	-0.0177	5.305***	0.231	-4.550**	0.364	6.171***
	[-0.258]	[-2.589]	[-0.0124]	[3.656]	[0.195]	[-2.537]	[0.269]	[4.348]
ROE	-0.456**	-1.168***	-1.159***	0.580**	-0.790***	-1.550***	-1.473***	0.260
	[-2.315]	[-3.436]	[-3.783]	[2.438]	[-3.428]	[-3.940]	[-4.271]	[1.121]
F_SIZE	4.089***	3.823***	5.853***	2.233***	3.975***	3.789***	5.811***	1.978***
	[9.507]	[6.318]	[12.81]	[5.035]	[9.930]	[6.580]	[13.63]	[4.638]
LEV	0.0775	-0.0113	0.0756	-0.0136	0.0205	-0.0659	0.0291	-0.0838
	[1.212]	[-0.0621]	[0.452]	[-0.0759]	[0.201]	[-0.269]	[0.134]	[-0.734]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-50.27***	-77.09***	-52.16***	-22.64***	-34.14***	-57.59***	-46.11***	8.368
	[-7.303]	[-7.689]	[-6.664]	[-2.648]	[-5.490]	[-6.121]	[-6.889]	[1.062]
Observations	1,003	1,003	1,003	1,003	1,003	1,003	1,003	1,003
R-squared	0.449	0.362	0.413	0.365	0.501	0.399	0.450	0.396
F test	44.24	31.70	34.51	35.74	54.51	39.05	40.35	41

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.8: GMM regression results for board expertise diversity and ESG

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
L.ESG	0.872***				0.615***			
	[2.737]				[5.066]			
L.ENVI		0.965***				0.454**		
		[5.021]				[2.246]		
L.SOC			0.693***				0.594***	
			[4.595]				[3.763]	
L.GOV				0.372**				0.677***
				[2.259]				[3.134]
B_EXP	0.285**	0.0981	-0.0995	0.288***				
	[2.362]	[1.071]	[-0.955]	[4.538]				
B_EXP#BGD					0.00154***	0.00281**	0.00464**	0.00901***
					[3.483]	[2.172]	[2.283]	[4.833]
B_SIZE	11.06	-0.0330	-35.99**	4.316	6.138**	4.240	-9.941	3.596
	[0.262]	[-0.00317]	[-2.348]	[1.342]	[2.148]	[0.453]	[-0.910]	[0.680]
IND	0.221	0.0610	-0.00634	0.465***	0.132***	0.234	-0.0546	0.219**
	[0.904]	[0.415]	[-0.0319]	[5.667]	[3.724]	[1.072]	[-0.524]	[2.350]
B_MEET	3.940	0.329	2.937	-3.659***	-1.355**	-3.680	3.005	-2.034
	[0.308]	[0.0561]	[0.948]	[-2.624]	[-2.147]	[-1.176]	[0.864]	[-1.496]
CG_COM	10.28	3.283	15.41	4.208**	-0.456	-6.807	6.530	3.147
	[0.390]	[0.275]	[0.714]	[2.239]	[-0.165]	[-1.017]	[0.757]	[0.368]
ROE	1.509	0.380	-0.962	0.172	-0.199***	-1.103	-1.373	-0.493
	[0.423]	[0.230]	[-0.600]	[0.711]	[-3.021]	[-1.017]	[-1.251]	[-1.501]
F_SIZE	-5.858	-2.118	4.850	1.509***	0.666*	1.529	11.05	0.0630
	[-0.363]	[-0.329]	[0.654]	[2.659]	[1.652]	[0.249]	[1.184]	[0.124]
LEV	0.115	0.141	-0.102	-0.103	0.0452	0.532	-0.420	0.0255
	[0.175]	[0.292]	[-0.186]	[-0.166]	[0.907]	[0.693]	[-0.600]	[0.414]
Industry	Yes	Yes	Yes	No	No	Yes	Yes	No
Year	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Constant	-23.83	7.297	-17.39	-16.62*	-1.564	-22.49	-80.92	-12.47
	[-0.298]	[0.151]	[-0.281]	[-1.793]	[-0.346]	[-0.552]	[-0.965]	[-1.015]
Observations	1,647	1,647	1,636	1,629	1,647	1,456	1,647	1,463
AR(1) P-value	0	0	0	0	0	0	0	0
AR(2) P-value	0.533	0.265	0.392	0.760	0.377	0.451	0.142	0.221
Hansen P-value	0.692	0.732	0.645	0.326	0.296	0.463	0.248	0.527

Reported results include z-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.9: Robust OLS regressions for board gender diversity and ESG performance based on firm size

Variables	Full sample (FTSE350)				FTSE100				FTSE250			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
BGD	0.359***	0.394***	0.357***	0.334***	0.497***	0.574***	0.523***	0.432***	0.296***	0.328***	0.289***	0.280***
	[10.88]	[8.426]	[9.067]	[7.134]	[10.77]	[8.421]	[9.487]	[5.774]	[7.489]	[5.988]	[6.002]	[4.853]
B_SIZE	11.95***	17.62***	10.55***	6.639***	4.301	-4.133	9.786***	3.488	11.62***	19.76***	7.031***	9.256***
	[7.386]	[7.470]	[6.035]	[2.688]	[1.549]	[-1.139]	[3.096]	[0.954]	[6.396]	[6.974]	[3.389]	[3.109]
IND	0.230***	0.213***	0.0800**	0.437***	0.255***	0.272***	0.127**	0.413***	0.207***	0.171***	0.0520	0.439***
	[9.220]	[5.971]	[2.503]	[12.68]	[6.152]	[4.569]	[2.544]	[6.403]	[6.951]	[3.994]	[1.330]	[11.05]
B_MEET	-0.970	-1.340	0.590	-2.767**	-4.180***	-2.134	-4.095**	-5.660***	1.894*	2.084	3.977***	-1.940
	[-0.953]	[-0.917]	[0.465]	[-2.350]	[-2.597]	[-0.895]	[-2.163]	[-2.977]	[1.671]	[1.221]	[2.635]	[-1.310]
CG_COM	0.730	-2.941**	0.162	6.863***	1.724	-1.027	0.780	5.817***	-0.909	-3.685*	-1.859	6.131***
	[0.842]	[-2.215]	[0.152]	[6.371]	[1.519]	[-0.625]	[0.533]	[3.450]	[-0.705]	[-1.752]	[-1.210]	[4.060]
ROE	-0.749***	-1.544***	-1.371***	0.294	0.0951	-0.287	0.195	0.202	0.269	0.473	0.00570	0.417
	[-3.262]	[-4.022]	[-3.799]	[1.160]	[0.449]	[-0.801]	[0.735]	[0.606]	[0.926]	[1.002]	[0.0131]	[0.998]
F_SIZE	4.420***	5.130***	5.914***	1.555***	4.878***	5.963***	6.002***	2.292***	3.278***	3.206***	4.814***	1.315***
	[14.55]	[11.33]	[17.80]	[4.833]	[14.40]	[10.01]	[13.99]	[4.276]	[8.043]	[5.355]	[11.03]	[3.023]
LEV	-0.00482	-0.156	0.0820	-0.0774	0.114	-0.240	0.188	0.144	0.103	0.0924	0.327**	-0.148*
	[-0.0551]	[-0.670]	[0.454]	[-0.670]	[1.070]	[-1.451]	[1.216]	[0.902]	[1.571]	[0.814]	[2.257]	[-1.748]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-27.72***	-46.19***	-36.64***	6.277	-16.08**	-19.28*	-48.00***	15.27	-20.07***	-39.90***	-19.78***	7.365
	[-5.994]	[-6.698]	[-7.023]	[1.023]	[-2.300]	[-1.713]	[-6.146]	[1.623]	[-4.113]	[-5.236]	[-3.068]	[1.008]
Observations	1,826	1,826	1,826	1,826	690	690	690	690	1,136	1,136	1,136	1,136
R-squared	0.514	0.401	0.426	0.388	0.650	0.511	0.606	0.475	0.412	0.377	0.323	0.341
F test	82.96	57.28	56.16	54.66	69.12	42.49	69.93	32.72	30.67	27.42	21.18	26.48

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

Table 3.4.10: Robust OLS regressions for board gender diversity and ESG performance for carbon/ non-carbon emitters

Variables	Carbon emitters				Non-carbon emitters			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	ESG	ENV	SOC	GOV	ESG	ENV	SOC	GOV
BGD	0.116**	0.0257	0.145**	0.176**	0.484***	0.587***	0.459***	0.426***
	[2.199]	[0.363]	[2.095]	[2.117]	[11.98]	[9.860]	[9.913]	[8.088]
B_SIZE	7.981***	7.934***	6.114**	11.16***	14.16***	23.19***	13.90***	3.180
	[4.165]	[3.421]	[2.489]	[3.145]	[6.239]	[6.951]	[5.878]	[1.091]
IND	0.258***	0.229***	0.131***	0.506***	0.188***	0.158***	0.0205	0.387***
	[6.966]	[3.947]	[2.608]	[10.44]	[5.529]	[3.292]	[0.496]	[8.312]
B_MEET	-0.795	-2.563	0.592	-1.817	-0.628	0.457	1.128	-3.305**
	[-0.538]	[-1.269]	[0.337]	[-1.039]	[-0.467]	[0.230]	[0.646]	[-2.034]
CG_COM	1.852*	1.256	-0.430	6.975***	0.523	-4.127**	0.644	6.363***
	[1.733]	[0.792]	[-0.249]	[4.340]	[0.446]	[-2.343]	[0.482]	[4.453]
ROE	-1.771	-1.711	1.505	-8.301***	-0.820***	-1.624***	-1.514***	0.279
	[-1.185]	[-0.641]	[0.630]	[-2.801]	[-3.210]	[-3.857]	[-4.176]	[1.107]
F_SIZE	5.844***	8.370***	6.556***	1.446***	3.728***	3.497***	5.578***	1.754***
	[17.35]	[17.35]	[13.32]	[3.192]	[9.323]	[6.103]	[13.13]	[4.069]
LEV	-0.0891	-0.633**	0.494	-0.0967	-0.0159	-0.115	-0.00696	-0.110
	[-0.659]	[-2.465]	[1.573]	[-0.397]	[-0.135]	[-0.423]	[-0.0298]	[-0.955]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-25.18***	-40.87***	-24.25***	-4.715	-34.86***	-65.88***	-42.14***	1.827
	[-4.402]	[-5.378]	[-3.190]	[-0.564]	[-6.653]	[-8.338]	[-6.873]	[0.260]
Observations	822	822	822	822	1,004	1,004	1,004	1,004
R-squared	0.544	0.424	0.405	0.383	0.514	0.417	0.462	0.392
F test	62.31	51.51	33.95	27.16	54.62	42.04	40.09	41.87

All standard errors are robust. Reported results include t-statistics in parentheses along with coefficients. All variables are defined in Table 3.2.2. ***, **, and * indicate that the variable is significant at 0.01, 0.05, and 0.10, respectively.

3.5 Discussion

In today's business landscape, corporations are increasingly using ESG measures to assess their impact on the environment and society, as well as the sustainability of their products and operations (Boehe and Barin, 2010; Crenna *et al*., 2019; Jones and Solomon, 2013; Song *et al*., 2020). The implementation of ESG measures enables companies to utilise resources effectively, anticipate potential environmental and social risks and predict their sustainability performance (Aouadi and Marsat, 2018; Dorfleitner *et al*., 2020; Shakil, 2021; Venter and van Eck, 2021). Within this context, board members play a critical role in monitoring and evaluating these measures (Fernandez and Thams, 2019). Their oversight and active involvement in ESG initiatives contribute to the development of a strong brand identity that aligns with sustainable values (Bear *et al*., 2010). By prioritising ESG targets and ensuring their organisations meet these standards, board members not only enhance the reputation of their firms but also drive improved financial performance. Investors and stakeholders increasingly value companies with a strong commitment to ESG practices, and thus, strength in these areas leads to enhanced corporate valuation and long-term success (Friede *et al*., 2015).

Therefore, the engagement of board members in ESG initiatives can have far-reaching positive impacts on the overall sustainability and prosperity of their organisations. When companies adopt ESG strategies, it enables them to navigate the complex landscape of environmental and social challenges (Aouadi and Marsat, 2018; Shakil, 2021), build trust with stakeholders (Bear *et al*., 2010), and position themselves as responsible and forward-thinking entities in today's business environment (Herren Lee, 2022; O'Hare, 2022). By embracing ESG principles and involving board members in driving ESG strategies, companies can create a sustainable competitive advantage and contribute to a more sustainable and prosperous future (Kuo *et al*., 2022; Mohammad and Wasiuzzaman, 2021; Zhou *et al*., 2020).

Several interesting findings are reported in the results section of this study, such as a significant and positive association between board expertise diversity and ESG performance, although this is driven primarily by improvements in the governance pillar rather than environmental or social factors. Additionally, the study finds that board gender diversity moderates the relationship between board expertise diversity and ESG performance and its pillars. Moreover, firm size and type of industry are key drivers of this relationship. The results are in line with the arguments of Johnson *et al.* (2013) and Hillman *et al.* (2000), which suggest that the inclusion of female directors on boards can enhance organisational performance by providing valuable expertise and skills. Female directors may possess varying levels of social and environmental awareness due to their diverse backgrounds, skills, and values, which could influence a company's ESG objectives and impact its performance in different ways (Zhang *et al*., 2013). Furthermore, female directors may offer different insights and approaches to ESG issues due to their distinct socialisation experiences and gender-related roles and responsibilities. Moreover, women directors often prioritise communal goals, exhibit higher levels of empathy and emotional intelligence, and demonstrate a greater sensitivity to ethical issues (Eagly *et al*., 1990; Eagly and Johannesen-Schmidt, 2001; Eagly and Sczesny, 2009). These traits promote ethical behaviour, enhance integrity in decision-making processes, and drive socially responsible actions within an organisation. The presence of female directors in boardrooms positively influences ESG practices, fostering better communication with stakeholders and generating more creative discussions and solutions (Boulouta, 2013). By diversifying the expertise and skills of the board through gender diversity, organisations can leverage the unique contributions of female directors to enhance their ESG performance. Board expertise diversity and board gender diversity can enhance the company's ability to communicate effectively with these stakeholders and adapt to changing social and environmental demands (Rao and Tilt, 2020; Setó-Pamies, 2015; Bear *et al*., 2010). This can ultimately lead to improved ESG performance and better stakeholder relations.

These findings can be explained through the lens of resource dependence theory, which suggests that the unique skills, knowledge, and experiences of board members contribute to the overall performance of the company (Hillman *et al*., 2002, 2007). Board members with diverse expertise can provide different perspectives, which can lead to better decision-making and ultimately improve the company's ESG performance (Beji *et al*., 2021; Katmon *et al*., 2019; Rao and Tilt, 2021). Furthermore, the presence of female directors can enhance the human capital of the board by introducing a different set of skills and experiences that may be lacking in an all-male board (Issa *et al*., 2021). This can lead to more well-rounded and diverse decision-making, ultimately leading to better ESG performance.

Moreover, firm size and type of industry play a critical role in the relationship between board diversity and ESG performance. Larger companies and companies operating in industries with higher levels of polluting intensity may require more diverse expertise to effectively address environmental and social concerns (D'Amato and Falivena, 2020). Thus, board diversity may have a more significant impact on ESG performance in these contexts. Similarly, companies in industries with lower levels of polluting intensity may be able to focus more on ESG, and board diversity may have a greater impact on these areas. The findings are robust to alternative regression methods and different samples as well as the use of the GMM estimator to fix endogeneity issues. The study's findings have important implications for policymakers, managers and stakeholders. Policymakers should promote board compositions which are diverse and support organisations in integrating expertise diversity for stronger governance and sustainable business practices. Managers should build a diverse board with expertise and gender diversity in order to improve ESG performance. The findings have implications for stakeholders by emphasising the significance of board expertise and gender diversity in promoting ESG responsibilities. This understanding is significant for enhancing stakeholder confidence, trust, and engagement, fostering sustainable and responsible business practices.

3.6 Conclusion

This research delves into the impact of having diverse board expertise on a company's ESG performance. The study also examines whether the presence of female board members affects this link. The sample comprises 165 non-financial companies listed on the UK FTSE 350 from 20112021. The results reveal that board expertise diversity has a significant and positive relationship with ESG performance, particularly in the governance pillar, more so than the environmental or social aspects. Furthermore, the research indicates that board gender diversity moderates the relationship between board expertise diversity and ESG performance, and this relationship is influenced by company size and industry type. This study's contribution to the corporate governance literature is a comprehensive examination of board expertise and gender diversity and their impact on ESG performance emphasising the importance of heterogeneity.

Based on these results, this study offers important practical implications for regulators, managers, and stakeholders. Regulators can leverage these findings to develop policies and guidelines that encourage companies to prioritise board expertise diversity, especially in the realm of governance, as it has a significant positive impact on ESG performance. By highlighting the importance of diverse expertise on corporate boards, regulators can foster a more comprehensive approach to sustainability and ensure that companies have the necessary knowledge and skills to address ESG issues effectively. Furthermore, regulators may consider promoting gender diversity on boards, as this study demonstrates evidences the crucial moderating role played by board gender diversity in enhancing the relationship between expertise diversity and ESG performance. By implementing policies that encourage gender diversity, regulators can contribute to more inclusive decision-making processes and improve the overall governance and sustainability practices of organisations.

Managers should recognise the value of diverse expertise and skills on the board and actively seek out board members with varied backgrounds and expertise to enhance sustainability practices of their organisation. Furthermore, managers should also take into account the influence of board gender diversity on ESG performance and its pillars when making decisions about board composition. By prioritising gender diversity, managers can foster more inclusive decision-making processes and leverage the unique perspectives and insights that female directors bring to the table, ultimately leading to improved ESG outcomes. By considering both board expertise diversity and board gender diversity, managers can drive positive change and enhance their company's ESG performance.

Stakeholders, including investors and customers, play a crucial role in driving sustainable practices and promoting responsible business behaviour. The findings of this study provide valuable information for stakeholders in order to support them to assess a company's ESG performance. By considering the level of board expertise diversity and gender diversity, stakeholders can gain insights into how well a company incorporates diverse perspectives and knowledge to address ESG challenges. This enables stakeholders to make informed decisions about which companies align with their values and priorities in terms of sustainability and responsible business practices. Investors can use this information to identify companies that demonstrate strong ESG performance and are likely to generate long-term value. Similarly, customers can make choices that support companies with a commitment to sustainability and responsible practices. By considering board expertise diversity and gender diversity, stakeholders can actively contribute to shaping a more sustainable and inclusive business landscape. In conclusion, the practical implications arising from this study's results can guide regulators, managers, and stakeholders towards a more comprehensive understanding of the impact of board expertise diversity and gender diversity on ESG performance. By implementing policies and guidelines that promote diversity, companies can improve their ESG performance and attract stakeholders who value sustainable and socially responsible practices.

In spite of the value of the outcomes detailed here, this study has some shortcomings that should be addressed in future research. First, the sample comprises only non-financial firms in the UK in the 2011–2021 period; this may limit its generalisability to other countries or regions. Future research could benefit from using a larger and more diverse sample, including firms from different countries and industries, to provide a more comprehensive analysis of the impact of board expertise diversity on ESG performance. Second, this study only examines the moderating effect of board gender diversity on the relationship between board expertise diversity and ESG performance. Future research could explore the moderating effects of other variables, such as executive gender diversity and CEO characteristics, in order to support a more nuanced understanding of the relationship between board expertise diversity and ESG performance. Furthermore, future research could delve into the mechanisms underlying the relationship between board expertise diversity and ESG performance. For example, it could explore how the expertise of board members in areas such as governance, sustainability, and social responsibility influences a company's ESG strategies and outcomes.

In the next chapter, the study explores the relationship between diversity and inclusion index and both non-financial (such as ESG) and financial performance indicators (including ROA, ROE, and Tobin's Q) within the FTSE 350 firms. The decision was made not to include the FTSE 600 dataset in Chapter 3. This decision was based on careful consideration of the dataset's suitability and the quality of available data. Upon examination, it was found that there were a significant number of missing values for diversity and inclusion index in the FTSE 600 dataset, particularly within the small-cap segment. These missing values would have posed challenges in terms of the reliability and robustness of the analysis. To ensure the integrity and accuracy of the study, the decision was made to focus solely on the FTSE 350 dataset, which provided more comprehensive and reliable data. By utilising a dataset with higher quality information, the research aims to provide meaningful and valid insights into the relationship between the variables of interest.

Chapter 4

The Influence of Diversity and Inclusion on Organisational Performance: Evidence from FTSE 350 Firms

Abstract

This study examines the impact of company diversity and inclusion policies on their non-financial (e.g., ESG) and financial (ROA, ROE, and Tobin's Q) performance. Using data from FTSE 350 non-financial firms from 2011–2021, the study demonstrates a positive and significant relationship between company diversity and inclusion commitments and their organisational performance. Additionally, the study reveals that the link is moderated by board independence. These findings underline the significance of organisational diversity and inclusion in enhancing both financial and non-financial performance and add to the literature on diversity. Policymakers and regulators should take note of the practical implications of this research and prioritise diversity to enhance firms' financial and non-financial outcomes.

KEYWORDS: ESG performance, financial performance, organisational diversity, board independence, corporate governance, and resource-based view.

4.1 Introduction

Diversity and inclusion in companies have become critical aspects of contemporary business practice (Hunt *et al*., 2018). The issues of diversity in the workforce and company diversity policies are gaining increasing attention, with many organisations making a commitment to promoting diversity and inclusion (Smulowitz *et al*., 2019). The focus on diversity and inclusion is based on the belief that having a diverse workforce and policies can enhance organisational performance (Ely and Thomas, 2020). The concept of diversity encompasses a range of attributes, such as culture, gender, ethnicity, religion, education, and experience, among others. The diversity and inclusion commitments made by organisations can take various forms, such as the recruitment and retention of diverse talent, promoting diversity in leadership and decision-making, and creating a culture that supports diversity (Fine *et al*., 2020). A commitment to diversity and inclusion in a firm refers to the explicit and proactive actions taken by an organisation to foster diversity and inclusion within its workforce. It entails the firm's strategic efforts to promote diversity through the development and implementation of policies, initiatives, and practices that aim to increase the representation and inclusion of individuals from diverse backgrounds, including those from underrepresented groups such as women and minorities (Dixon-Fyle *et al*., 2020; Hunt *et al*., 2015).

The push for diversity and inclusion in the workplace has been driven by a range of factors, including changing demographics, globalisation, and social justice movements (Dixon-Fyle *et al*., 2020). As society becomes more diverse, organisations are recognising the need to reflect this diversity in their workforce and policies in order to remain competitive and relevant. Moreover, studies have indicated that diverse teams are more innovative, creative, and adaptable to changing market conditions (Boone *et al*., 2019; Galia *et al*., 2015; Griffin *et al*., 2021; He and Jiang, 2019). By promoting diversity, organisations can gain a competitive advantage in the market by tapping into a wider range of perspectives and experiences (Bell *et al*., 2018; Cox & Blake, 1991; Hunt *et al*., 2018). In addition to the business case for diversity, there is also a strong ethical and moral imperative to promote diversity and inclusion. Discrimination and inequality in the workplace not only harm employees but also reflect poorly on the organisation's reputation and values (Wilton *et al*., 2019). By promoting diversity and inclusion, organisations can create a more welcoming and supportive environment for all employees, regardless of their backgrounds. This, in turn, can lead to increased employee engagement, loyalty, and productivity (Richard *et al*., 2021; Turban *et al*., 2019).

However, despite the increasing attention which is being paid to this issue, many organisations still struggle to make meaningful progress in promoting diversity and inclusion (Lauring and Villesèche, 2019). Some organisations may lack the resources or expertise to develop effective diversity strategies, while others may face resistance from employees or stakeholders who are sceptical of the business case for diversity (Green *et al*., 2018). Additionally, diversity initiatives may be difficult to implement or sustain due to issues such as a lack of leadership support or insufficient resources allocated for implementation (Hunt *et al*., 2018). To address these challenges, organisations must take a comprehensive and strategic approach to promoting diversity and inclusion. This includes developing clear diversity goals and strategies, measuring progress, and holding leaders accountable for achieving diversity outcomes (Green *et al*., 2018). Organisations must also ensure that their diversity initiatives are inclusive and responsive to the needs and perspectives of all employees, including those from underrepresented groups (Leslie, 2019).

Despite the growing recognition of the importance of diversity and inclusion policies, there exists a research gap; there is currently very little information available on the impact of such policies on both the financial and non-financial performance of firms. While some studies have reported a positive association between diversity and organisational performance (Andrevski *et al*., 2014; Azmat and Boring, 2020; Shakil, 2021; Smulowitz *et al*., 2019), others have found no relationship (Herrera-Cano and Gonzalez-Perez, 2019) or even a negative relationship (Ahern and Dittmar, 2012). This discrepancy underscores the need for further empirical investigation to elucidate the relationship between diversity commitments and performance outcomes.

Including financial performance measures allows for an evaluation of the economic implications of diversity commitments. It helps assess whether diversity and inclusion initiatives lead to improved financial outcomes, such as profitability and market valuation, which are essential for organisational success and sustainability. Incorporating non-financial performance indicators, such as ESG performance, addresses the broader societal and ethical aspects of organisational performance. It allows for an evaluation of the organisation's impact on environmental sustainability, social responsibility, and corporate governance practices. This is particularly relevant given the increasing focus on ESG considerations among stakeholders, including investors, consumers, and regulatory bodies.

By examining both financial and non-financial dependent variables, the study aims to provide a more comprehensive and nuanced understanding of the relationship between diversity and inclusion commitments and organisational performance. It recognises that organisational success encompasses both financial and non-financial dimensions and seeks to capture the multi-faceted impact of diversity and inclusion policies on different aspects of performance.

Furthermore, the paper aims to shed light on the specific mechanisms through which diversity and inclusion initiatives influence performance outcomes. It considers the moderating role of board independence diversity, offering insights into the factors that enhance or dampen the impact of diversity and inclusion commitments on organisational performance. By examining both financial and non-financial performance and taking into consideration the moderating effects of board diversity, this study aims to contribute to filling the research gap in this area, thereby advancing our understanding of the impact of diversity commitments on organisational outcomes.

This study contributes to the literature on diversity in several ways. First, it significantly contributes to theory by utilising the resource-based view to examine the relationship between firm diversity and inclusion policies and performance. The findings offer robust evidence to support diversity as a unique and valuable resource that has a positive impact on both non-financial and financial performance. Moreover, the study advances our understanding by highlighting the influential role of board independence diversity, shedding light on how the utilisation of diversity and inclusion commitments can be effective in improving organisational outcomes. The insights provided shed light on the strategic management of diversity, emphasising the need for organisations not only to focus on diversity in terms of representation but also on ensuring diverse perspectives and independent decision-making within the boardroom. This nuanced understanding enhances the resource-based view by underscoring the significance of board independence diversity as a critical factor in leveraging the benefits of diversity to drive organisational performance and achieve sustained competitive advantage.

Second, it fills a gap in the literature by examining the relationship between company diversity and inclusion commitments and their financial and non-financial performance. While diversity and inclusion have become increasingly important in contemporary business practice (Lauring and Villesèche, 2019), there is a lack of empirical research examining the relationship between diversity and inclusion commitments and firm performance. Furthermore, the study reveals that board independence plays a moderating role in the link between diversity and inclusion commitments and organisational performance. This highlights the importance of having an independent board in order to translate diversity and inclusion initiatives into positive performance outcomes. By considering the moderating effect of board independence, this study provides a more comprehensive understanding of how diversity and inclusion efforts can effectively impact organisational performance. This study's contribution to the literature is significant, as it provides empirical evidence of the link between diversity and inclusion commitments, board independence and organisational performance, which has practical implications for policymakers, regulators, and organisations.

Third, the findings emphasise the importance of a comprehensive and strategic approach to promoting diversity, including measurable goals, leadership accountability, and inclusive practices. By taking a comprehensive approach to promoting diversity and inclusion, organisations can create a work environment that fosters diversity and improves non-financial and financial outcomes. This finding highlights the importance of setting measurable goals for diversity and holding leadership accountable for promoting diversity and inclusion in the workplace. Additionally, inclusive practices, such as diverse recruitment and retention strategies, can promote diversity and inclusion and improve organisational performance.

Fourth, the practical implications of this study are significant; they provide insights for policymakers, regulators, and organisations looking to improve their diversity and inclusion initiatives. The findings suggest that policymakers and regulators can use the results to inform policies that promote diversity and inclusion in organisations, ultimately leading to improved non-financial and financial outcomes. Additionally, organisations can use the findings to improve their diversity and inclusion initiatives, emphasising the need for a comprehensive and strategic approach to promoting diversity that includes measurable goals, leadership accountability, and inclusive practices.

The remainder of this paper is organised as follows. After Section 1 has introduced the study, Section 2 presents the study's literature review and the development of hypotheses. Section 3 describes the sample, measurement of the variables, and model specifications. Next, Section 4 outlines the descriptive and correlation analyses conducted, as well as the empirical results. The results are discussed in Section 5, and Section 6 discusses the study's implications, limitations, and conclusions.

4.2Theory, literature review and development of hypotheses

4.2.1 Theoretical framework

The resource-based view of the firm suggests that firms' resources and capabilities are the key to achieving a competitive advantage (Barney, 1991; Galbreath, 2005, 2016). In this context, diversity can be considered a resource that has the capacity to enhance a firm's performance (Katmon *et al*., 2019). The resource-based view highlights the significance for firms of internal resources in attaining a competitive advantage. To be recognised as a resource, a potential asset must meet specific criteria, such as being valuable, rare, and difficult to imitate (Barney, 1991). According to the resource-based view, firms develop strategies that leverage their internal resources to capitalise on environmental opportunities, mitigate external threats, and address internal weaknesses, ultimately leading to competitive advantage (Barney, 1991; Hoopes *et al*., 2003). The resource-based view asserts that firms in the same industry or group may possess distinct strategic resources, resulting in varied capabilities. Moreover, the transferability of these resources across firms is limited, thus leading to long-term differences in capabilities (Barney, 1991). A firm's resources can be classified into two types: tangible and intangible assets (Galbreath, 2005). Tangible assets include physical resources such as equipment, buildings, and financial capital. Intangible assets include non-physical resources such as brand reputation, intellectual property, and human capital. Diversity in an organisation is an example of an intangible asset; diverse teamwork can bring a range of perspectives, experiences, and expertise to decision-making processes, leading to better strategic decisions and financial and non-financial outcomes (Richard, 2000).

From the perspective of a diverse team, cognitive conflict can aid in enhancing bounded rationality in decision-making by overcoming the limitations in team members' capacity to process information and tackle intricate problems (Nielsen and Huse, 2010). Greater diversity in an organisation leads to increased capability in attracting resources and generating creative and innovative ideas (Richard, 2000). The presence of diverse capabilities among board members can significantly impact a firm's strategic decisions, particularly in terms of their interactions with the external environment through networking, reputation, and social connections (Lauring and Villesèche, 2019). The presence of diverse perspectives, experiences, and knowledge among board members can stimulate constructive debate and lead to better-informed and more effective decisions (Carter *et al*., 2010; Terjesen *et al.,* 2016). This cognitive conflict can challenge the assumptions and biases that may exist within a homogeneous group and promote innovative and creative solutions to complex problems (Carter *et al*., 2003). Therefore, diversity in teamwork can be seen as a valuable resource for firms in their pursuit of improved decision-making and better firm performance.

Overall, the resource-based view offers a useful framework for understanding the relationship between firm diversity and inclusion initiatives and performance and can help firms develop more effective strategies for improving their financial and non-financial performance. A firm's diversity, as an internal resource, can enhance its performance by providing a broader range of perspectives, experiences, and knowledge to the decision-making process (Lauring and Villesèche, 2019; Richard, 2000).

4.2.2 Literature review and development of hypotheses

Diversity and inclusion initiatives are an essential aspect of contemporary business practice which have been subject to scrutiny due to their potential to enhance the performance and innovation of organisations. Diversity refers to the differences that exist among individuals in terms of their backgrounds, experiences, perspectives, and characteristics such as race, culture, ethnicity, gender, expertise, and more (Cox, 1994). The concept of diversity has gained increasing attention in various fields, including business, where it is recognised as a valuable resource for achieving better performance and innovation (Buse *et al.,* 2016). Diverse teams can offer new perspectives, resulting in creative solutions and a better understanding of customer needs, leading to improved performance and long-term success (Richard, 2000).

The adoption of diversity policies is crucial for promoting and maintaining diversity within organisations. Diversity policies refer to a set of formal rules, regulations, and practices that companies put in place to promote diversity and inclusion within their workforce (Scarborough *et al.,* 2019). Such policies can include recruitment and promotion practices that aim to attract and retain employees from diverse backgrounds, training programmes that raise awareness of diversity issues and biases, and support mechanisms that address the needs of underrepresented groups within the organisation (Azmat and Boring, 2020). A firm's diversity and inclusion commitment can lead to a range of benefits for companies, including improved employee engagement and retention (Jerónimo *et al*., 2022), enhanced creativity and innovation (Gassmann, 2001), better decision-making, and increased customer satisfaction (Hunt *et al*., 2015). For instance, research has shown that companies with diverse workforces and inclusive cultures tend to have lower turnover rates, higher productivity, and better financial performance than those that do not prioritise diversity and inclusion (Andrevski *et al*., 2014; Boone *et al*., 2019; Cox & Blake, 1991; Lauring & Villesèche, 2019; Richard *et al*., 2007).

Furthermore, the analysis unit in this research is organisational diversity and inclusion. By examining the adoption of diversity and inclusion policies and their impact on performance, the study focuses on how organisations can effectively manage and leverage diversity to meet their ethical and social responsibilities (Köllen, 2021). It recognises that companies are increasingly expected to operate in a socially responsible and sustainable manner, and a part of this involves promoting diversity and inclusion. The adoption of diversity and inclusion policies allows companies to demonstrate their commitment to these values, enhance their reputation, and gain legitimacy among stakeholders (Sasikala and Sankaranarayanan, 2022). This aligns with the global trend of implementing gender quotas on boards, with various countries, such as Norway, Belgium, France, Italy, and Germany, taking binding measures to ensure gender diversity (Teigen, 2012; Wang & Kelan, 2013). Additionally, other countries have implemented non-binding gender quotas as a softer approach to encourage gender diversity on boards (Terjesen *et al*., 2015). The analysis of organisational diversity and inclusion and the examination of diversity policies contribute to an understanding of how companies can effectively embrace diversity and drive positive outcomes.

The empirical evidence in the literature explores the relationship between diversity and inclusion policies and firm performance at different levels within organisations, namely the organisational, top management team, and board levels. This categorisation allows for a comprehensive understanding of the impact of diversity on various dimensions of performance.

At the organisational level, numerous studies have delved into the relationship between diversity and firm performance. These investigations shed light on the various dimensions of diversity and their impact on organisational outcomes. One notable study by Smulowitz *et al.* (2019) emphasises the significance of racial diversity within an organisation and its association with financial performance. The findings demonstrate that companies fostering greater racial diversity across all levels tend to outperform counterparts with limited diversity. This suggests that diverse perspectives and experiences contribute to enhanced decision-making processes and overall organisational effectiveness. In a similar vein, Cho *et al.* (2017) emphasise the crucial role of workforce diversity and effective diversity management in positive organisational performance. Their research highlights how diverse teams bring together a wide range of skills, knowledge, and perspectives, leading to increased creativity, innovation, and adaptability. Consequently, organisations that embrace and leverage diversity tend to exhibit higher levels of performance across multiple dimensions. Furthermore, Bae and Han (2019) examine the moderating effects of age and education diversity within research and development (R&D). Their study reveals that for R&D teams made up of people of diverse ages and from a range of educational backgrounds, there is a positive influence on the relationship between R&D outsourcing and firm performance. This indicates the importance of leveraging diverse expertise and experiences within specialised departments, such as R&D, to drive innovation and overall organisational success.

Research has shown the positive impact of diversity on organisational performance at top management team level. Opstrup and Villadsen (2015) demonstrate that diverse top management teams foster higher levels of innovation and creativity, leading to improved performance and long-term success. This highlights the importance of incorporating diverse perspectives and experiences within the top management team, as it creates an environment conducive to generating innovative ideas and making strategic decisions that positively influence performance. Furthermore, studies have specifically examined the effects of gender and age diversity within top management teams. Gangi *et al.* (2021) find that a higher representation of women in management teams is associated with a positive impact on the ESG rating of investment portfolios. Prudêncio *et al.* (2021) suggest that the average age of the top management team also plays a role, with a favourable effect on corporate social responsibility practices in Brazilian firms.

Sutarti *et al.* (2021) add to the discussion by highlighting the positive effect of age diversity on bank performance, specifically noting the effectiveness of top management team meetings in achieving this outcome. This suggests that a diverse range of ages within top management teams contributes to enhanced decision-making and ultimately leads to improved performance.

Additionally, Ali and Konrad (2017) suggest that a gender-diverse top management team is positively associated with diversity and equality management systems. Their findings support the hypotheses that diversity and equality management systems are positively linked to performance and that this relationship is moderated by gender diversity within lower to middle management levels. Furthermore, they propose that diversity and equality management systems mediate the relationship between top management team gender diversity and performance.

Collectively, these studies highlight the importance of diversity, both in terms of gender and age, within top management teams. They emphasise the positive influence of diverse top management teams on performance outcomes, including innovation, ESG ratings, corporate social responsibility practices, and effective decision-making. By incorporating diverse perspectives and implementing diversity and equality management systems, organisations can foster a more inclusive and high-performing top management team.

At the board level, research has shown the impact of diversity on various aspects of firm performance. Miller and Triana (2009) find a positive relationship between board racial diversity and both firm reputation and innovation. They further demonstrate that reputation and innovation partially mediate the relationship between board racial diversity and firm performance, suggesting that diversity positively influences these outcomes.

De Masi *et al.* (2021) highlight the significance of reaching a critical mass of female board members in enhancing the level of ESG disclosure. They find that having at least three women on a board positively influences every component of the ESG score, with the highest contribution of women observed in the governance score. This suggests that increasing gender diversity on boards can lead to improved ESG practices and overall firm performance. Galbreath (2018) focuses on the link between women on boards and corporate social responsibility (CSR), which, in turn, affects financial performance. Their findings indicate that having women on boards is associated with higher levels of CSR activities. Furthermore, CSR fully mediates the relationship between women on boards and financial performance, suggesting that the positive influence of gender diversity on financial outcomes is driven by the implementation of CSR practices.

Hafsi and Turgut (2013) contribute to the discussion by asserting that there is a significant relationship between board diversity and social performance. They find that this relationship is moderated by the diversity of boards, indicating that the level of diversity on boards influences the extent to which social performance is enhanced. Wahid (2019) explores the impact of gender-diverse boards on financial reporting mistakes and fraud. Their findings suggest that firms with gender-diverse boards are associated with fewer financial reporting mistakes and engage in fewer fraudulent activities, highlighting the potential benefits of gender diversity for financial integrity and reducing risks. Reguera-Alvarado *et al.* (2017) investigate the relationship between increased numbers of women on boards and financial results. Their findings indicate a positive association between the two, suggesting that having more women on boards is linked to higher financial performance.

To summarise, extensive research conducted at the organisational, top management team, and board levels has consistently highlighted the positive impact of diversity and inclusion policies on various facets of firm performance. These studies have consistently demonstrated the positive associations between diversity and firm reputation, innovation, ESG practices, CSR, social performance, financial reporting integrity, and financial results. These findings emphasise the crucial role of fostering a firm's commitment to diversity in driving positive outcomes.

Based on the aforementioned arguments and the existing empirical literature, this study proposes the following hypotheses:

H1: *A firm's diversity and inclusion commitment is positively linked to its non-financial performance.*

H2: *A firm's diversity and inclusion commitment is positively linked to its financial performance.*

This study focuses on investigating whether the relationship between a firm's commitment to diversity and its performance are influenced by the characteristics of the board of directors. In particular, the study considers the moderating role of independence diversity within the boardroom. Research has shown that the board of directors plays a crucial role in shaping a firm's diversity policies and practices (Valls Martínez *et al*., 2019). The inclusion of independent members on the board brings valuable resources such as diverse experiences, knowledge, and skills that enhance the board's ability to monitor (Wang *et al*., 2015) and evaluate the firm's ESG performance (Beji *et al*., 2021), including human rights and workforce diversity. With a diverse range of perspectives and independent thinking, the board can effectively identify and address ESG-related risks and opportunities. The presence of independent directors who are not affiliated with the company can also enhance the effectiveness of diversity policies as they can provide unbiased perspectives and oversight (Hillman *et al*., 2002). Independent directors are expected to offer unbiased and objective opinions on the effectiveness of diversity policies and make recommendations for improvement. They can also ensure that the firm's diversity policies are aligned with the interests of all stakeholders and are not influenced by any one group (Cucari *et al*., 2018; Fernández-Gago *et al.,* 2018). This can help to broaden the board's understanding of diversity issues and the importance of diversity policies. Therefore, the expectation is that independent directors can hold the management accountable for achieving diversity-related goals and can provide oversight to ensure that diversity policies are being implemented effectively.

In line with these observations, this study proposes that the relationship between a firm's diversity and inclusion and its performance is moderated by the presence of independent directors in the boardroom. Specifically, this study hypothesises that:

H3: *The positive relationship between a firm's diversity and inclusion commitment and its non-financial performance is stronger when the board of directors has a higher proportion of independent directors.*

H4: *The positive relationship between a firm's diversity and inclusion commitment and its financial performance is stronger when the board of directors has a higher proportion of independent directors.*

4.3Methodology

4.3.1 Sample

The study utilises data from companies listed on the FTSE 350 index from 2016–2021. The study analyses information on finance, corporate governance, and diversity and inclusion index from the Refinitiv Eikon database. Financial firms were excluded from the sample due to their unique disclosure and accounting practices. Firms with missing data were also removed from the sample. The final sample in the study consists of 1004 firm-observations. To ensure reliable and valid analysis, the research utilises a longitudinal panel dataset approach. This method offers several advantages, including a higher degree of freedom, increased variability, and a lower possibility of multicollinearity between the explanatory variables, thereby increasing the efficiency of statistical tests (Hsiao, 2014). While data before 2016 had to be excluded due to missing diversity policy and commitment indexes, the sample period covers a recent and comprehensive range of years up to 2021.

4.3.2 Dependent variables

In this study, various measures are employed to assess both non-financial and financial performance. The Eikon Refinitiv ESG score index is utilised as a proxy for non-financial performance, which evaluates a firm's performance in ten main categories including environmental, social, and governance aspects. These categories are further broken down into subcategories and assigned weights based on industry standards. The Eikon Refinitiv database assigns scores ranging from 0–100, with a higher score indicating better performance (Refinitiv Eikon Datastream, 2020). In this study, financial performance is evaluated using three different metrics, namely return on assets (ROA), return on equity (ROE), and Tobin's Q. The ROA metric determines a company's profitability by comparing its net income with the total assets it holds. The ROE metric, on the other hand, assesses a company's profitability by comparing its net income with shareholder equity. Finally, the Tobin's Q metric measures a company's market value in relation to the replacement cost of its assets. By using these three metrics, the study aims to provide a comprehensive understanding of the financial performance of the companies included in the analysis. These metrics can provide valuable insights into a company's financial health and help identify areas for improvement. Furthermore, they can be useful tools for investors when evaluating a company's investment potential.

4.3.3 Independent variables

The main independent variable in this study is the firm's diversity and inclusion score (DIS), which measures the company's level of commitment and effectiveness in terms of maintaining a gender-diverse workforce and board member cultural diversity (Refinitiv Eikon, 2022). This variable is based on 24 separate metrics across four key pillars and is used to identify the top 100 publicly traded companies with the most diverse and inclusive workplaces (Refinitiv Eikon, 2022). A firm's DIS is hypothesised to be positively related to both non-financial (e.g., ESG) and financial performance measures, such as ROA, ROE, and Tobin's Q. The study aims to examine the impact of this variable on organisational performance and provide insights into the significance of diversity in enhancing firm performance.

4.3.4 Moderating variables

In this analysis, this study incorporates board independence diversity (BIND) as a moderating variable. BIND is assessed by calculating the ratio of independent directors to the total number of board directors.

4.3.5 Control variables

This study employs two sets of control variables that may have an influence on the measurement of the variables of interest in this study. The first is governance-related variables that might affect board ESG decisions.

The number of directors is measured by board size (BSIZE). A larger board is likely to function more effectively on ESG issues and to have better decision-making processes (Husted and Sousa-Filho, 2019). It is also more likely to have more diverse perspectives that can influence its decision-making processes (Pearce and Zahra, 1992). Board size is computed as the natural logarithm of the total number of board members. This study also includes the variable of board members' affiliations (AFFIL). Board members' affiliations, such as their industry connections, may impact their attitudes towards and behaviours around ESG issues and could therefore affect the overall ESG performance of the firm. Thus, this study includes the average number of other corporate affiliations of each board member. This study incorporates the control variable board tenure (TENUR) because longer-tenured directors could improve decisions relating to CSR matters (Katmon *et al*., 2019). Therefore, the average length of a board member's tenure is computed. Finally, CEO duality (CEOD) is added to the econometric model. This study includes a dummy variable coded 1 if the board chair is also the CEO and 0 otherwise.

This study includes a second set of firm-specific characteristics, namely shares held by strategic investors, firm size, Quick ratio, and leverage, as these may affect a firm's performance. Shares held by strategic investors (OWN) refers to the number of shares held by strategic investors (corporations, holding companies, individuals and government agencies). To control for the potential impact of firm size, firm size (FSIZE) is included in this study, as large companies are more susceptible to the pressure to respond to stakeholder demands, and thus focus more on ESG policies in order to seek legitimacy (Cornett *et al*., 2016) and they also have higher profitability (Adu *et al*., 2022). The natural logarithm of the number of full-time employees is calculated to control for firm size. The Quick ratio (QRATIO) is included as a control variable and indicates the company's ability to meet its short-term financial obligations. Leverage

(LEV), which is the ratio of total debt to total equity, is also included as it is likely to impact firm performance. In addition, the dummy variables YEAR and INDUSTRY are assigned to control for the period and industry nature in the analysis. To account for outliers, all firm-specific variables are winsorised to reduce their influence on the results.

4.3.6 Model

This study aims to explore the relationship between firm diversity and inclusion commitments and both non-financial (such as ESG) and financial (such as ROA, ROE, and Tobin's Q) performance metrics. Furthermore, this study aims to investigate whether board independence diversity moderates this relationship. To accomplish this, various static panel data estimators are utilised, with ordinary least squares (OLS) regressions being the primary method of analysis. The econometric model is formulated in the following manner:

$$ESG = \alpha + \beta 1\ DIS_{i,t} + \mathit{Controls} + \varepsilon_{i,t} \qquad (1)$$

$$FP = \alpha + \beta 1\ DIS_{i,t} + \mathit{Controls} + \varepsilon_{i,t} \qquad (2)$$

$$ESG = \alpha + \beta 1\ DIS_{i,t}{*}BIND_{i,t} + \mathit{Controls} + \varepsilon_{i,t} \qquad (3)$$

$$FP = \alpha + \beta 1\ DIS_{i,t}{*}BIND_{i,t} + \mathit{Controls} + \varepsilon_{i,t} \qquad (4)$$

The first equation examines the relationship between the ESG score and the DIS score. The ESG score is the dependent variable, while the DIS and Controls (other control variables) are the independent variables. The coefficient β1 represents the estimated effect of the DIS diversity score on ESG, and α is the intercept term. εi,t represents the error term or unobserved factors influencing the ESG score.

The second equation investigates the relationship between financial performance (FP) and the DIR diversity score, along with the control variables. Financial performance (measured by ROA, ROE, and TOBINQ) is the dependent variable, while the DIS and Controls are the independent variables. The coefficient β1 represents the estimated effect of the DIS on financial performance, and α is the intercept term. εi,t represents the error term.

To investigate the moderating effect, the third and fourth equations incorporate board independence diversity (BIND) as a moderating variable in the relationship between a firm's non-financial and financial performance and the DIS along with the control variables. Table 4.3.1 gives the definitions of the variables used.

Table 4.3.1: Variables and definitions

Variable	Symbol	Definition
Dependent variables		
Environmental, social, and governance	ESG	Refinitiv ESG score is an overall company score based on self-reported information in the environmental, social and corporate governance pillars.
Return on assets	ROA	ROA measures a company's profitability by comparing its net income to its total assets.
Return on equity	ROE	ROE measures a company's profitability by comparing its net income to its shareholder's equity.
Tobin's Q	TOBINQ	Tobin's Q measures a company's market value relative to the replacement cost of its assets.
Independent variables		
Diversity and inclusion score	DIS	DIS measures a company's commitment towards and effectiveness around maintaining a gender diverse workforce and board member cultural diversity.
Moderating variables		
Board independence diversity	BIND	This is the ratio of independent directors on the board compared with the total number of board directors.
Control variables		
Board size	BSIZE	This is the natural logarithm of the total number of board members.
Board affiliation	BAFF	This is the average number of other corporate affiliations for the board member
Board tenure	TENUR	This is the average length of a board member's tenure.
Shares held by strategic investors	OWN	This represents the number of shares held by strategic investors (corporations, holding companies, individuals and government agencies).
Firm size	FSIZE	This is the natural logarithm of the number of full-time employees.
Quick ratio	QRATIO	This represents total current assets less inventory divided by total current liabilities.
Leverage	LEV	This is a ratio of total debt as of the end of the fiscal period to total equity for the same period and is expressed as a percentage.
Industry dummy	INDUSTRY	This controls for differences across 10 different sectors in the study.
Year dummy	YEAR	This is a dummy variable representing the years 2016 through to 2021.

4.4 Results

The descriptive statistics of the variables used in the study are presented in Table 4.4.1. The ESG performance score index (ESG) has a mean value of 60.007 and a standard deviation of 17.430, indicating a significant variation in ESG scores among firms. The range of ESG scores among firms is wide, ranging from 3.671% to 95.618%. The average ROA for firms is 0.084, with a range of values from -0.242 to 2.438, representing the minimum and maximum values, respectively. The mean value of ROE is 0.187, with minimum and maximum values of -20.833 and 11.906, respectively. The mean value of TOBINQ in the sample is 1.624, with minimum and maximum values of 0.053 and 67.321. For the main independent variable, the mean value of DIS is 36.581, with minimum and maximum values of 0% and 78%, respectively. The mean value of board independence diversity (BIND) is 63.300% for the moderating variable.

The correlation analysis presented in Table 4.4.2 is used to identify multicollinearity issues, as determined by a coefficient value above 0.80 (Gujarati, 2004). The results indicate that all correlation values between the independent variables and dependent variables in Table 4.4.2 are less than 0.80, which suggests that there is no significant multicollinearity issue among the independent variables. Multicollinearity is also assessed via the variance inflation factor (VIF) test, which indicates a multicollinearity problem for VIF values above 10 (Gujarati, 2004). However, the VIF values for the variables in this study, as displayed in Table 4.4.2, are below the threshold of 10, indicating that there is no serious multicollinearity issue in the sample.

Table 4.4.1: Descriptive statistics

Variables	Mean	Std. Dev.	Min	Max
ESG	60.007	17.43	3.671	95.618
ROA	.084	.171	-.242	2.438
ROE	.187	1.026	-20.833	11.906
TOBINQ	1.624	3.955	.053	67.321
DIS	36.581	14.26	0	78
BIND	63.3	13.947	0	100
BSIZE	2.181	.249	.693	3.045
BAFF	1.204	.666	0	3.667
TENUR	5.388	2.108	.25	17.625
OWN	16.558	1.926	11.949	21.906
FSIZE	22.247	1.485	18.213	26.817
QRATIO	1.219	1.242	.078	20.915

Table 4.4.2: Pairwise correlations

Variables	VIF	1/VIF	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) ESG			1.000												
(2) ROA			-0.098***	1.000											
(3) ROE			0.016	0.459***	1.000										
(4) TOBINQ			-0.136***	0.927***	0.399***	1.000									
(5) DIS	1.558	.642	0.559***	0.074**	0.050	0.039	1.000								
(6) BIND	1.324	.755	0.249***	-0.025	0.005	-0.074**	0.196***	1.000							
(8) BSIZE	1.671	.598	0.482***	-0.159***	-0.004	-0.130***	0.399***	0.065**	1.000						
(9) BAFF	1.261	.793	0.316***	-0.012	0.049*	-0.022	0.341***	0.262***	0.280***	1.000					
(10) TENUR	1.098	.911	0.025	0.002	0.031	0.052*	-0.118***	-0.117***	0.025	0.005	1.000				
(11) OWN	1.313	.762	0.012	-0.050	-0.041	-0.030	-0.041	-0.179***	0.077***	-0.073**	-0.001	1.000			
(12) FSIZE	2.854	.35	0.596***	-0.334***	-0.065**	-0.200***	0.413***	0.301***	0.567***	0.456***	0.034	0.195***	1.000		
(13) QRATIO	1.232	.811	-0.160***	0.058*	-0.002	0.058**	-0.136***	0.046	-0.168***	-0.060**	-0.013	-0.018	-0.196***	1.000	
(14) LEV	1.489	.672	0.005	-0.035	-0.365***	-0.009	0.043	-0.028	0.000	-0.019	-0.052*	0.061**	0.051*	-0.070**	1.000

Note: ***, ** and * indicate that the variable is significant at 0.01, 0.05 and 0.10, respectively.

4.4.1 Multivariate regression analyses

Table 4.4.3 presents the results of the OLS regression for the relationship between non-financial performance (ESG) and diversity and inclusion score (DIS) along with the control variables. Additionally, the table reports the moderating impact of board independence diversity on the relationship. The overall models are statistically significant at the 1% level, with the adjusted R^2 ranging from 18.1% to 50.8%. The coefficients for the year dummy and industry variables are excluded from the table for conciseness.

The study's findings in Table 4.4.3, as shown in Columns 1 to 8, support Hypotheses 1 and 2. These hypotheses examine the relationship between a firm's DIS and non-financial performance (ESG) and financial performance (ROA, ROE, and Tobin’s Q) through OLS estimations. The results demonstrate a statistically significant positive relationship between a firm’s DIS and non-financial performance, with a significance level of 1%. Furthermore, the analysis also reveals a significant association between a firm’s DIS and its financial performance metrics, with significant results for ROA at the 1% level of significance, and significant results for ROE and Tobin’s Q at the 5% level of significance. These results suggest that firms that are committed to diversity and have policies that promote diversity and inclusion tend to perform better in terms of both non-financial and financial metrics. The positive relationship between diversity and inclusion commitment and non-financial performance (e.g., ESG) can be attributed to several factors. For instance, having a diverse workforce can help in building a positive brand image, improving stakeholder relations, and enhancing the firm's reputation. Additionally, a diverse workforce can help in reducing discrimination and promoting equality, which can improve employee morale and motivation, leading to better retention rates and a more engaged workforce. The positive relationship between firm diversity and inclusion and financial performance can be explained by the fact that a diverse workforce can result in different perspectives and ideas, leading to more innovation and better decision-making. This, in turn, can result in increased efficiency, productivity, and profitability for the firm.

Table 4.4.4 indicates that the moderating effect of board independence diversity is significant in the relationship between a firm's DIS and both non-financial and financial performance. Columns 1 to 4 support Hypotheses 3 and 4, indicating that the positive effects of a firm's diversity and inclusion policies on non-financial and financial performance are more pronounced in firms with more independent boards. These findings suggest that board independence diversity plays a critical role in enhancing the relationship between a firm's diversity and inclusion indicator and its performance. The results demonstrate the importance of considering board independence diversity when assessing the impact of a firm's diversity and inclusion commitments and policies on its performance.

4.4.2 Robustness test

Since it is possible that the results of the study could be affected by the size of the firms included in the sample, the sample is divided into two groups based on firm size: large cap (e.g., FTSE 100) and mid-cap (e.g., FTSE 250) as shown in Table 4.4.5 and Table 4.4.6. This allows for a more granular analysis of the impact of a firm’s diversity and inclusion commitment on its non-financial and financial performance within each size category. The results given in Table 4.4.5 provide evidence that there is a significant and positive association between the commitment of FTSE 100 firms to diversity and both their non-financial (ESG) and financial performance (ROA, ROE, and Tobin’s Q). In Table 4.4.6, the analysis of the FTSE 250 firms reveals a significant and favourable relationship between the commitment of these firms to diversity and their non-financial performance, as indicated by the ESG metric. In terms of financial performance, the results indicate that a firm's commitment to diversity is significantly linked to ROA and Tobin's Q, while the use of ROE shows no significant relationship.

The findings imply that having a strong commitment to diversity can have a positive impact on both non-financial and financial performance. This highlights the importance of diversity and inclusion initiatives in today's business landscape. Moreover, the results suggest that the relationship between diversity and financial performance may vary depending on the specific financial metric being used, with ROA and Tobin's Q showing a significant relationship while ROE does not.

The analysis of the moderating effects of board diversity on the relationship between a firm's commitment to diversity and its performance demonstrates that board independence diversity has a more pronounced impact on FTSE 100 firms. This implies that FTSE 100 firms with more independent boards may be better equipped to leverage their diversity and inclusion commitment for improved non-financial and financial performance. On the other hand, the impact of board independence diversity on FTSE 250 firms appears to be inconsistent, suggesting that other factors may be at play within these firms.

Empirical studies on corporate governance and finance studies often faces serious endogeneity issues. Endogeneity problems occur when there is a correlation between the independent variables and the error term in a regression model, leading to biased and inconsistent estimates

(Wintoki *et al*., 2012). To address the issue of endogeneity and enhance the credibility of the findings, this study employs a two-stage least-squares (2SLS) regression methodology. The 2SLS technique is widely used and is an effective approach for addressing the issue of endogeneity (Atif *et al*., 2022; Atif and Ali, 2021; Eliwa *et al*., 2023; Khemakhem *et al*., 2022; Shakil, 2021). In this study, reverse causality is one possible endogeneity issue (Leszczensky and Wolbring, 2022), meaning it is unclear whether a firm's strong commitment to diversity and inclusion leads to improved firm performance or vice versa. The presence of this ambiguity could potentially impact the outcomes of the study. Moreover, the study's analysis may be affected by sample selection bias (Certo *et al*., 2016), such that firms that prioritise diversity and inclusion may attract and retain more talented employees, leading to better performance. This could create a spurious relationship between diversity and inclusion and firm performance. Additionally, the study may be influenced by omitted variables (Wintoki *et al*., 2012), such as the quality of leadership or reputation, that could impact both a firm's commitment to diversity and inclusion and its performance. If these factors are not included in the analysis, they could create an omitted variable bias; thus, it is important to address any potential biases in the analysis in order to address potential endogeneity concerns thereby ensuring the validity and reliability of the findings. By utilising the 2SLS regression approach, the study seeks to minimise the impact of reverse causality and reinforce the robustness of the results.

The 2SLS regression in this study incorporates external instrumental variables, specifically the lag of DIS and the target of diversity and opportunity score. The target of diversity and opportunity score is obtained from the Refinitiv Eikon database and evaluates whether a company has established specific objectives or targets aimed at promoting diversity and equal opportunity. These objectives or targets may encompass initiatives to enhance workplace diversity within a specified time frame, including measures to support the advancement of women, minorities, disabled employees, and individuals from diverse age groups, ethnicities, races, nationalities, and religions.

The findings in Table 4.4.7 obtained through the 2SLS regression demonstrate the stability and reliability of the coefficients associated with firm diversity and inclusion index, as well as their impact on both non-financial and financial performance. These results remain consistent with the baseline regression findings and exhibit resilience in the face of potential endogeneity issues. This indicates that the relationship between the firm's diversity and inclusion index and its performance measures is robust and can be considered reliable.

Table 4.4.3: Firm diversity commitment scores and firm performance

Variables	ESG	ESG	ROA	ROE	TOBINQ	ROA	ROE	TOBINQ
DIS	0.431***		0.00372***	0.00988**	0.0780***			
	[11.75]		[3.685]	[2.368]	[3.342]			
L.DIS		0.408***				0.00355***	0.0114***	0.0724***
		[10.30]				[3.478]	[3.500]	[3.270]
BSIZE	5.494**	6.924***	0.0324	0.171	1.021	0.0201	-0.171	1.088
	[2.507]	[2.717]	[1.010]	[0.900]	[1.462]	[0.580]	[-0.980]	[1.483]
BAFF	-0.754	-1.267*	0.0333**	0.131*	1.006***	0.0280	0.0564	0.860**
	[-1.162]	[-1.806]	[2.006]	[1.765]	[2.639]	[1.628]	[0.784]	[2.134]
TENUR	0.506**	0.462**	0.00438**	0.00286	0.156***	0.00278	0.0118*	0.112**
	[2.575]	[2.219]	[2.092]	[0.441]	[3.088]	[1.291]	[1.711]	[2.503]
OWN	-0.744***	-0.635***	0.00679*	0.0247	0.0597	0.00476	0.0428**	0.0178
	[-3.466]	[-2.713]	[1.729]	[1.010]	[0.757]	[1.286]	[2.104]	[0.249]
FSIZE	5.263***	5.196***	-0.0602***	-0.173**	-1.523***	-0.0560***	-0.0924	-1.400***
	[13.22]	[11.42]	[-3.293]	[-2.150]	[-3.695]	[-2.860]	[-1.257]	[-3.201]
QRATIO	-0.0410	-0.0462	-0.00193	-0.0390	0.0462	0.00183	-0.0672**	0.156
	[-0.125]	[-0.108]	[-0.480]	[-1.639]	[0.581]	[0.269]	[-2.491]	[1.073]
LEV	-0.0540	-0.216	0.000367	-0.0943	0.0352	0.000742	-0.212***	0.0758***
	[-0.531]	[-1.366]	[0.156]	[-1.047]	[1.194]	[0.331]	[-2.816]	[2.844]
INDUSTRY	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-81.21***	-81.31***	1.079***	2.738**	27.04***	1.028***	1.537	25.20***
	[-7.759]	[-7.029]	[3.999]	[2.432]	[4.521]	[3.517]	[1.293]	[3.802]
Observations	1,004	838	1,004	1,004	1,004	839	839	839
R-squared	0.508	0.491	0.234	0.181	0.235	0.235	0.444	0.231
F test (P-value)	69.23 (0.000)	58.80 (0.000)	5.742 (0.000)	1.533 (0.000)	5.943 (0.000)	5.887 (0.000)	1.840 (0.000)	5.730 (0.000)

This table presents the results of the OLS regressions. Reported results include t-statistics in parentheses along with coefficients. Table 4.3.1 defines all the variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 4.4.4: Moderating effects of board diversity

Variables	ESG	ROA	ROE	TOBINQ
DIS#BIND	0.00585***	4.82e-05***	0.000123**	0.00104***
	[13.92]	[3.685]	[2.428]	[3.384]
BSIZE	7.670***	0.0387	0.193	1.388*
	[3.525]	[1.164]	[0.999]	[1.808]
BAFF	-1.019	0.0310*	0.127*	0.960***
	[-1.549]	[1.927]	[1.735]	[2.591]
TENUR	0.602***	0.00480**	0.00410	0.171***
	[3.219]	[2.316]	[0.622]	[3.336]
OWN	-0.432*	0.00916**	0.0310	0.116
	[-1.949]	[2.073]	[1.208]	[1.264]
FSIZE	4.372***	-0.0657***	-0.187**	-1.674***
	[10.78]	[-3.347]	[-2.188]	[-3.699]
QRATIO	-0.349	-0.00296	-0.0423*	0.0100
	[-1.043]	[-0.723]	[-1.655]	[0.123]
LEV	-0.0371	0.000696	-0.0939	0.0384
	[-0.412]	[0.313]	[-1.046]	[1.235]
INDUSTRY	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes
Constant	-60.80***	1.169***	3.143**	29.20***
	[-7.817]	[4.404]	[2.432]	[4.640]
Observations	1,004	1,004	1,004	1,004
R-squared	0.514	0.235	0.181	0.236
F test (P-value)	70.84 (0.000)	5.852 (0.000)	1.464 (0.000)	6.111 (0.000)

This table presents the results of the OLS regressions. Reported results include t-statistics in parentheses along with coefficients. Table 4.3.1 defines all the variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 4.4.5: Sub-sample analysis based on the FTSE100

Variables	ESG	ESG	ROA	ROE	TOBINQ	ROA	ROE	TOBINQ
DIS	0.448***		0.00500***	0.0180***	0.110***			
	[9.965]		[4.245]	[3.323]	[3.765]			
DIS#BIND		0.00578***				6.83e-05***	0.000208***	0.00149***
		[10.39]				[4.399]	[2.996]	[3.983]
BSIZE	3.685	5.462	-0.0110	-0.0171	1.697	-0.00778	0.0237	2.108*
	[1.114]	[1.627]	[-0.204]	[-0.0514]	[1.432]	[-0.144]	[0.0708]	[1.687]
BAFF	-0.834	-1.232	0.0724***	0.304**	2.225***	0.0661**	0.299**	2.099***
	[-0.880]	[-1.244]	[2.631]	[2.012]	[3.264]	[2.549]	[2.046]	[3.212]
TENUR	0.137	0.193	-0.000942	-0.00460	0.0787	1.68e-05	-0.00415	0.0972
	[0.320]	[0.454]	[-0.175]	[-0.155]	[0.565]	[0.00316]	[-0.137]	[0.701]
OWN	-1.017***	-0.626**	0.0220***	0.108**	0.548***	0.0265***	0.119**	0.653***
	[-3.560]	[-2.041]	[2.813]	[2.324]	[2.984]	[3.159]	[2.430]	[3.277]
FSIZE	5.416***	4.507***	-0.131***	-0.462***	-3.348***	-0.143***	-0.493***	-3.589***
	[10.84]	[8.605]	[-3.885]	[-2.695]	[-4.172]	[-4.046]	[-2.729]	[-4.261]
QRATIO	0.490	0.197	-0.0396*	-0.316**	-0.959*	-0.0435*	-0.332**	-1.026*
	[0.631]	[0.254]	[-1.713]	[-2.415]	[-1.655]	[-1.853]	[-2.484]	[-1.748]
LEV	-0.0114	0.0345	-0.00102	-0.325***	0.0186	-0.000579	-0.323***	0.0296
	[-0.141]	[0.445]	[-0.682]	[-9.315]	[0.835]	[-0.446]	[-9.085]	[1.411]
INDUSTRY	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-73.80***	-45.61***	2.561***	9.139***	59.34***	2.832***	9.635***	64.18***
	[-7.570]	[-4.221]	[4.684]	[3.069]	[4.658]	[4.643]	[3.102]	[4.749]
Observations	406	406	394	400	407	394	400	407
R-squared	0.605	0.609	0.478	0.619	0.506	0.487	0.616	0.513
F test (P-value)	43.16 (0.000)	41.44 (0.000)	4.215 (0.000)	5.273 (0.000)	9.492 (0.000)	4.440 (0.000)	4.982 (0.000)	9.804 (0.000)

This table presents the results of the OLS regressions. Reported results include t-statistics in parentheses along with coefficients. Table 4.3.1 defines all the variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 4.4.6: Sub-sample analysis based on the FTSE250

Variables	ESG	ESG	ROA	ROE	TOBINQ	ROA	ROE	TOBINQ
DIS	0.374***		0.000919***	0.000668	0.0158**			
	[6.872]		[3.629]	[0.657]	[2.318]			
DIS#BIND		0.00544***				1.13e-05***	1.24e-05	0.000163**
		[8.312]				[3.261]	[0.897]	[2.282]
BSIZE	8.035***	10.03***	-0.0326*	0.106	-0.118	-0.0304*	0.107	-0.0129
	[2.602]	[3.227]	[-1.890]	[1.477]	[-0.426]	[-1.778]	[1.493]	[-0.0500]
BAFF	-0.275	-0.497	-0.00992*	0.0187	0.0391	-0.00989*	0.0175	0.0474
	[-0.292]	[-0.532]	[-1.828]	[1.170]	[0.531]	[-1.812]	[1.115]	[0.645]
TENUR	0.579***	0.650***	0.00365***	-0.000904	0.140***	0.00362***	-0.000647	0.141***
	[2.611]	[3.036]	[2.946]	[-0.188]	[2.822]	[2.923]	[-0.134]	[2.830]
OWN	-0.703**	-0.495	0.00272	0.00479	-0.0989***	0.00295	0.00533	-0.0928***
	[-2.278]	[-1.581]	[1.297]	[0.609]	[-2.909]	[1.404]	[0.667]	[-2.775]
FSIZE	3.805***	3.327***	-0.0278***	-0.127***	-1.303***	-0.0285***	-0.128***	-1.313***
	[5.220]	[4.448]	[-5.989]	[-5.664]	[-8.004]	[-5.975]	[-5.690]	[-7.963]
QRATIO	-0.297	-0.545	-0.00295	-0.0118**	0.0522	-0.00319*	-0.0119**	0.0445
	[-0.761]	[-1.377]	[-1.629]	[-2.400]	[1.301]	[-1.793]	[-2.385]	[1.214]
LEV	-0.0594	-0.0583	-0.00927***	0.0156	-0.00542	-0.00917***	0.0156	-0.00518
	[-0.462]	[-0.475]	[-4.407]	[1.025]	[-0.528]	[-4.435]	[1.025]	[-0.481]
INDUSTRY	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-54.50***	-48.14***	0.656***	2.374***	29.84***	0.717***	2.596***	29.14***
	[-3.644]	[-3.342]	[7.647]	[6.070]	[8.167]	[8.260]	[6.157]	[8.238]
Observations	586	586	443	546	597	443	546	597
R-squared	0.306	0.315	0.427	0.249	0.470	0.424	0.250	0.466
F test (P-value)	13.73 (0.000)	14.88 (0.000)	15.73 (0.000)	7.959 (0.000)	22.06 (0.000)	15.62 (0.000)	8.076 (0.000)	21.70 (0.000)

This table presents the results of the OLS regressions. Reported results include t-statistics in parentheses along with coefficients. Table 4.3.1 defines all the variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

Table 4.4.7: 2SLS regression

Variables	ESG	ROA	ROE	TOBINQ	ESG	ROA	ROE	TOBINQ
DIS	0.552***		0.00449***	0.0105***	0.0773***			
	[12.93]		[7.674]	[3.089]	[7.190]			
DIS#BIND		0.00802***				6.36e-05***	0.000147***	0.00110***
		[12.92]				[7.575]	[3.049]	[7.002]
BSIZE	5.209**	7.398***	0.0116	0.180	1.028**	0.0136	0.190	1.349***
	[2.522]	[3.649]	[0.370]	[1.033]	[1.976]	[0.435]	[1.096]	[2.630]
BAFF	-1.207*	-1.685**	0.0304***	0.0944*	0.855***	0.0258***	0.0861	0.795***
	[-1.646]	[-2.281]	[3.194]	[1.689]	[4.629]	[2.663]	[1.523]	[4.251]
TENUR	0.534***	0.695***	0.00168	0.0120	0.107**	0.00325	0.0152	0.128***
	[2.822]	[3.651]	[0.588]	[0.801]	[2.239]	[1.116]	[1.008]	[2.661]
OWN	-0.555**	-0.0870	0.00403	-0.00341	-0.0293	0.00777**	0.00539	0.0338
	[-2.396]	[-0.365]	[1.256]	[-0.186]	[-0.502]	[2.333]	[0.285]	[0.560]
FSIZE	4.883***	3.697***	-0.0515***	-0.135***	-1.037***	-0.0587***	-0.153***	-1.197***
	[12.44]	[8.865]	[-9.409]	[-4.319]	[-10.47]	[-10.16]	[-4.611]	[-11.33]
QRATIO	0.487	0.268	-4.75e-06	-0.0300	0.182*	-0.000839	-0.0311	0.151
	[1.137]	[0.629]	[-0.000830]	[-0.879]	[1.682]	[-0.146]	[-0.909]	[1.400]
LEV	0.000528	-0.0118	-0.000282	-0.0223***	0.00221	-0.000280	-0.0225***	0.000543
	[0.0145]	[-0.326]	[-0.168]	[-8.300]	[0.241]	[-0.166]	[-8.374]	[0.0593]
INDUSTRY	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-68.69***	-53.44***	0.959***	2.315***	17.97***	1.066***	2.569***	20.02***
	[-9.083]	[-6.928]	[9.198]	[3.942]	[9.428]	[10.01]	[4.273]	[10.26]
Observations	1,004	1,004	739	925	1,004	739	925	1,004
R-squared	0.504	0.508	0.216	0.104	0.177	0.212	0.105	0.177
Wald Chi^2 (P-value)	1069 (0.000)	1077 (0.000)	207.1 (0.000)	107.8 (0.000)	216.8 (0.000)	204.8 (0.000)	107.7 (0.000)	214.1 (0.000)

This table presents the results of the 2SLS regressions. Reported results include t-statistics in parentheses along with coefficients. Table 4.3.1 defines all the variables. ***, ** and * indicate that the variable is significant at the 0.01, 0.05 and 0.10 levels, respectively.

4.5 Discussion

Diversity plays a crucial role at various levels within an organisation, including on the board of directors, within the top management team, and among employees. Both empirical and theoretical literature consistently emphasises the positive impact of diversity on businesses, leading to improved outcomes in areas such as innovation, reputation, corporate social responsibility, and organisational culture (Ali *et al*., 2022; Chen *et al*., 2023; Choi *et al*., 2014; Luanglath *et al*., 2019). By fostering diversity, organisations encourage diverse perspectives and problem-solving approaches, enabling groups to address existing challenges more effectively and navigate new challenges. The integration of different viewpoints ensures a continuous flow of innovative ideas within the organisation.

The present study aimed to investigate the relationship between a firm's diversity commitment, its board diversity, and both its financial and non-financial performance, in the UK context. The results of the OLS regression analysis support the hypothesis that a firm's diversity commitment has a positive relationship with both its financial and non-financial performance. Specifically, firms that are committed to diversity tend to perform better in terms of ROA, ROE, Tobin's Q, and ESG. This suggests that diversity and inclusion initiatives can bring benefits to firms that go beyond compliance with social responsibility and legal requirements. These benefits include increased innovation, better decision-making, and a positive brand image.

Moreover, the study found that the relationship between a firm's diversity commitment and its performance is moderated by board independence diversity. The moderating effect of board independence diversity is more pronounced in FTSE 100 firms compared to FTSE 250 firms. This implies that FTSE 100 firms with more independent boards may be better equipped to leverage their diversity commitment for improved non-financial and financial performance. The results also suggest that the impact of board independence diversity on FTSE 250 firms appears to be inconsistent, indicating that other factors may be at play within these firms.

The resource-based view suggests that a firm's resources and capabilities are the primary drivers of its competitive advantage and performance (Barney, 1991; Galbreath, 2005, 2016). In the context of diversity, a diverse workforce can be seen as a valuable resource providing firms with a unique competitive advantage (Galbreath, 2016). This is because a diverse workforce brings a variety of experiences, knowledge, and perspectives to the table, which can lead to more innovative and creative solutions to business problems. Additionally, a diverse workforce can also help a firm to better understand and meet the needs of a diverse customer base, potentially an important source of competitive advantage (Nielsen and Huse, 2010; Richard, 2000).

The findings of our study support the resource-based view by demonstrating a positive relationship between a firm's diversity commitment and both its non-financial and financial performance. This suggests that firms that invest in diversity and have policies that promote diversity and inclusion are better positioned to leverage the benefits of a diverse workforce for improved performance. Moreover, the moderating effects of board independence diversity on the relationship between a firm's diversity commitment and its performance also support the resource-based view. This is because the composition of the board is an important resource that can affect a firm's performance. A board with more independent members can provide a firm with a broader range of perspectives and insights, which can help to better leverage the benefits of a diverse workforce.

Overall, our study's results contribute to the resource-based view by providing empirical evidence that a firm's diversity commitment and board independence diversity are valuable resources that can drive improved performance. This has important implications for managers and policymakers, as it suggests that investing in diversity and promoting board independence diversity can be an effective strategy for enhancing firm performance and gaining a competitive advantage in today's business landscape. Investors can use the findings to make informed decisions about investing in firms that are committed to diversity and have diverse boards. Managers can use the results to develop and implement diversity and inclusion strategies that can enhance their firms' performance.

4.6 Conclusion

The objective of this study was to investigate the relationship between a firm's diversity commitment, its board independence diversity, and its performance, both non-financial and financial, in the context of companies listed on the FTSE 350 index. The study utilised data from the 2016–2021 period to provide insights into the impact of diversity initiatives on firm performance and the role of board independence diversity in moderating this relationship.

The study found that there is a positive relationship between a firm's diversity commitment and its non-financial and financial performance. This indicates that firms that invest in diversity and have policies that promote diversity and inclusion tend to perform better in terms of both non-financial and financial performance, thereby suggesting that diversity and inclusion initiatives can bring benefits to firms that go beyond compliance with social responsibility and legal requirements. These benefits can include increased innovation, better decision-making, and a positive brand image. Additionally, the study found that the positive effects of diversity commitment on performance are more pronounced in firms with more independent boards, highlighting the importance of considering board independence diversity in assessing the impact of organisational diversity on firm performance.

The findings of this study have several implications for companies, policymakers, and investors. For companies, the study highlights the importance of diversity commitment and policies in terms of improving both financial and non-financial performance. Companies that invest in promoting diversity and creating an inclusive workplace are likely to reap the benefits in terms of improved efficiency, productivity, and profitability. By fostering a diverse workforce and inclusive culture, companies can tap into a wider range of perspectives, experiences, and ideas. This diversity of thought can lead to more effective decision-making, innovation, and problem-solving, ultimately driving improvements to non-financial and financial outcomes. Furthermore, the study recommends that firms prioritise the inclusion of independent directors on their boards as a means to strengthen diversity policies and enhance overall performance. Companies should strive to have diverse and independent boards that include individuals with diverse backgrounds, expertise, and perspectives, to support effective oversight, better risk management, and more robust governance practices.

The policy implications of this study are substantial and relevant for policymakers and regulators. The findings provide empirical evidence supporting the positive impact of diversity and inclusion policies on both non-financial (ESG) and financial performance indicators such as ROA, ROE, and Tobin's Q. Policymakers can leverage these results to advocate for and implement policies that encourage companies to adopt diversity and inclusion initiatives. By prioritising diversity and inclusion, policymakers can foster an environment that promotes equal opportunities and inclusivity in the workplace through the implementation, for example, of diversity targets, by promoting diverse representation in leadership positions, and establishing guidelines for reporting and monitoring diversity metrics. By setting clear expectations and providing incentives, policymakers can encourage companies to proactively adopt diversity and inclusion policies and practices. Furthermore, the results suggest that policies promoting diversity and inclusion can have a positive impact on the performance of firms, particularly when combined with board independence diversity. Policymakers and regulators can evidence the significance of independent board members and encourage companies to diversify their boards by including independent directors. This can help ensure unbiased decision-making processes, enhance corporate governance, and ultimately contribute to improved performance outcomes.

The implications of this study for investors are significant. The study's findings indicate that diversity can be a significant factor in assessing a company's performance. Investors can consider a company's commitment to diversity and the diversity of its board in their investment decisions. Investors can use diversity and inclusion as criteria by which to evaluate a company's potential for long-term success and sustainability. Furthermore, investors can also view diversity and inclusion as indicators of strong corporate governance practices. Companies that embrace diversity in their boardrooms are more likely to have effective oversight, accountability, and risk management mechanisms in place. This can mitigate the potential risks associated with narrow decision-making perspectives and enhance overall governance practices.

This study has several limitations that should be considered. Firstly, it used a relatively short period of data, covering only the period 2016–2021 due to unavailability of data prior to that. This limited time frame may mean that the full impact of diversity policies and practices on firm performance were not captured. Future studies could use longer time periods or other databases to expand the timeline of this study. Secondly, the study only examined the moderating effect of one specific type of board diversity, namely board independence diversity. While these moderators were found to have significant effects, future studies could incorporate other moderators such as gender or racial diversity to provide a more comprehensive analysis. Lastly, the study only focused on companies listed on the FTSE 350 index, which may not be representative of all firms across different industries and regions. Thus, caution should be used if generalising the results to other contexts. Future studies could consider using a wider range of data or cross-country data to enhance the analysis. Overall, despite these limitations, the study provides valuable insights into the relationship between diversity policies and firm performance.

Chapter 5

5.1 Summary of key findings

Diversity at both the board and firm levels has become an increasingly important topic in recent years. Having a diverse board can ensure that a company has access to a range of perspectives, experiences, and knowledge that can lead to better decision-making and problem-solving (Hillman *et al*., 2000, 2007; Hillman and Dalziel, 2003). A board with diverse backgrounds, skills, and perspectives is more likely to challenge the status quo, question assumptions, and consider a wider range of options (Beji *et al*., 2021; Katmon *et al*., 2019). The articles discussed in this thesis collectively highlight the importance of diversity in the context of various organisational performance measures. From the financial expertise of female directors on audit committees to the impact of board expertise on ESG performance and the adoption of diversity on organisational performance, these studies reveal the crucial role of diversity in enhancing organisational effectiveness. Moreover, they provide empirical evidence supporting the positive impact of diverse perspectives and knowledge on decision-making processes and ultimately on organisational performance. Thus, promoting diversity, whether in terms of gender, independence, or expertise, can lead to better decision-making, improved corporate sustainability, and enhanced organisational performance.

Furthermore, as shown in Figure 5.1, the three essays in this thesis collectively explore the relationship between diversity and performance in different organisational contexts. While each paper focuses on a distinct aspect of diversity and performance, they are interconnected in terms of their shared emphasis on the importance of diversity in enhancing organisational outcomes.

The first paper examines the impact of gender diversity on earnings quality, specifically in the context of audit committees. It highlights the positive influence of female directors, particularly those with accounting and finance expertise, on enhancing earnings quality. This paper underscores the significance of gender diversity and specialised knowledge in the financial domain.

The second paper investigates the relationship between board expertise diversity and ESG performance. It demonstrates the positive association between board expertise diversity and ESG performance, particularly in terms of governance. Additionally, it emphasises the moderating role of board gender diversity in this relationship, shedding light on the importance of considering both expertise and gender diversity in driving corporate sustainability performance.

The third paper explores the relationship between a firm's diversity commitment and its non-financial and financial performance. It reveals a positive association between diversity commitment and performance, highlighting the benefits of investing in diversity and inclusion initiatives. This paper further emphasises the importance of board independence diversity in strengthening the positive impact of diversity commitment on performance.

Collectively, these three papers provide a comprehensive examination of diversity and its impact on various organisational outcomes. They contribute to the existing literature by offering insights into the strategic importance of diversity, the role of specialised knowledge, the moderating effect of gender diversity, and the significance of board diversity. By addressing different dimensions of diversity and performance, these papers enhance our understanding of the complex interplay between diversity and organisational outcomes.

In summary, the interconnectedness of these papers lies in their shared objective of advancing our understanding of the role of diversity in enhancing organisational outcomes. They contribute to the broader research in the field by highlighting the strategic importance of diversity, providing empirical evidence of its positive impact, and emphasising the need for inclusive and diverse organisational practices across multiple levels, from committees to boards and throughout the entire organisation.

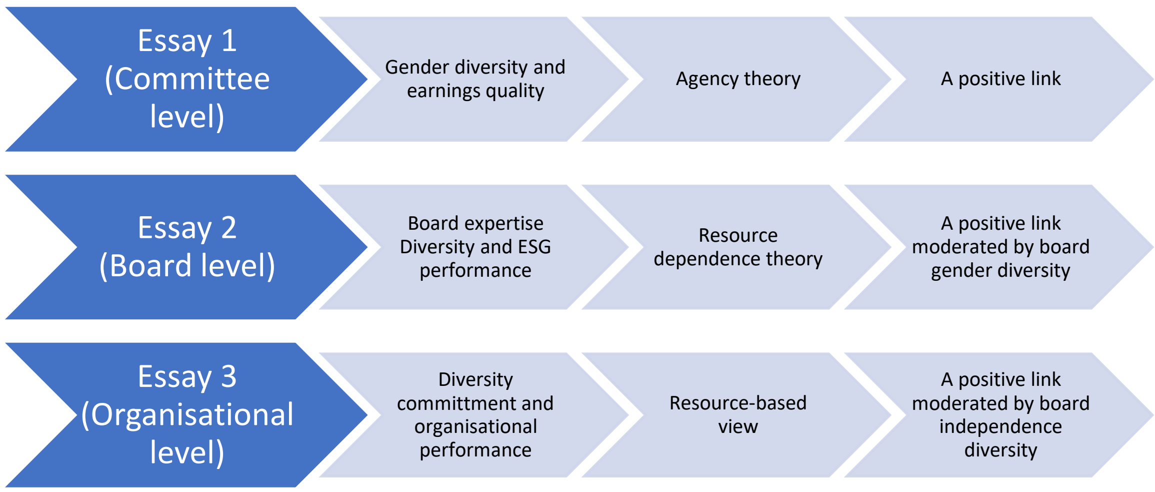

Figure 5.1: The interconnections and theoretical framework of the essays

5.2 Overall discussions

The first essay indicates that the presence of female directors on audit committees can have a positive impact on earnings quality (EQ), specifically when those directors have accounting and finance expertise. However, the study did not find the same positive relationship between EQ and the prior supervisory experience of female directors, from roles such as chief operating officer (COO) or chief executive officer (CEO). This could be because such directors may not possess the necessary financial knowledge to understand complex financial statements and identify potential manipulative actions. The study's results remain robust after correcting for endogeneity bias. Additionally, the findings suggest that the positive relationship between gender diversity on audit committees and financial expertise sub-categories becomes more significant following the Hampton-Alexander review on gender quotas. This highlights the importance of having diverse perspectives and expertise on corporate boards to improve financial performance and governance. The findings of the first essay have important theoretical implications. They align with agency theory, which emphasises the role of effective monitoring mechanisms in reducing information asymmetry and conflicts of interest between managers and shareholders (Fama and Jensen, 1983). The presence of female directors with financial expertise on audit committees contributes to better financial reporting and decision-making, thus mitigating agency problems and enhancing corporate governance (Abbasi *et al*., 2020; Zalata *et al*., 2018; Pucheta-Martínez *et al*., 2016). This underscores the importance of diverse audit committees as a crucial resource for organisations in addressing agency issues. The findings also align with the gender characteristics framework, which supports the idea that female directors on audit committees would bring unique perspectives and skills that can positively impact the committee effectiveness. The framework suggests that female directors would exhibit risk-averse behaviour, ethical sensitivity, and a conservative approach to financial decision-making and this seems to be supported by the results of the study (Price, 2012; Lai *et al*., 2017; Adams & Ferreira, 2009). This also supports the notion that gender diversity can contribute to a more balanced and comprehensive decision-making process, leading to improved financial outcomes (Parker *et al*., 2017). Furthermore, human capital theory is relevant in understanding the importance of expertise in the context of audit committees. This theory suggests that individuals' knowledge, skills, and experience contribute to their productivity and performance (Becker, 1964). The findings highlight the unique role that female directors with accounting and finance expertise play in enhancing EQ, thereby suggesting that having the necessary human capital, in terms of specialised knowledge in finance and accounting, is crucial for making meaningful contributions to the work of an audit committee and improving financial outcomes.

The practical implications of the findings of the first essay emphasise the significance of gender diversity and expertise in shaping the composition of audit committees. Companies can leverage these insights to enhance their governance practices and improve their financial outcomes. Companies can benefit from actively seeking out female directors with financial knowledge and experience, as their inclusion can enhance the quality of financial reporting and decision-making. By valuing the human capital which is characteristics of a diverse range of directors, organisations can improve their financial performance and overall governance practices.

Companies should prioritise the recruitment and inclusion of female directors who have financial knowledge and experience on their audit committees. This can be achieved through targeted efforts to identify and attract qualified female candidates who possess the necessary expertise in accounting and finance. By actively seeking out and appointing diverse directors, companies can tap into a broader range of perspectives and skills, thereby enhancing the effectiveness of audit committees in monitoring financial reporting and decision-making processes (Srinidhi *et al*., 2011; Lai *et al*., 2017). In addition, companies can develop programmes and initiatives to support the professional development and advancement of women in finance and accounting fields. This can include mentorship programmes, leadership training, and networking opportunities that help foster the growth of female professionals and enhance the talent pipeline for future board positions. By nurturing a diverse pool of talent, organisations can create a more inclusive and equitable environment that allows for the progression of women into leadership roles, including on audit committees. Furthermore, the findings highlight the importance of ongoing monitoring and evaluation of diversity and performance outcomes within audit committees. Companies should regularly assess the composition of their audit committees to ensure that they reflect a diverse range of expertise and perspectives. This could involve periodic reviews of the qualifications and skill sets of existing members, as well as the possible rotation of directors to bring in fresh perspectives and avoid stagnation.

Furthermore, the implications of the study extend beyond non-financial firms and have broad applicability to financial firms. The findings from the first essay emphasise the significance of gender diversity and expertise in shaping the composition of audit committees, which can be valuable for both non-financial and financial firms alike. For financial firms, the study's results highlight the importance of actively seeking out female directors with financial knowledge and experience to enhance the quality of financial reporting and decision-making. By valuing diversity and expertise, financial firms can improve their financial performance and governance practices, which are critical factors for maintaining investor trust and confidence. Financial firms can use the study's insights to prioritise the recruitment and inclusion of diverse directors on their audit committees, ensuring a more comprehensive and effective approach to financial oversight.

The findings of the first essay, particularly the observation that the positive relationship between gender diversity on the audit committee and financial expertise sub-categories becomes more significant following the implementation of gender quotas, have important policy implications. Gender quotas, in particular, can be seen as a proactive measure to address the underrepresentation of women on corporate boards. These findings provide empirical evidence for the effectiveness of gender diversity initiatives in improving corporate governance and financial outcomes. The study's results support the implementation of diversity initiatives, such as gender quotas, to promote gender diversity on corporate boards. Regulators and policymakers can use these findings to advocate for policies that encourage greater gender diversity on audit committees and within corporate governance structures more broadly. By recognising the value of diverse perspectives and expertise, policymakers can foster an environment that promotes effective monitoring, transparency, and accountability within organisations.

Furthermore, policymakers can consider extending diversity initiatives beyond gender to include other underrepresented groups, such as racial and ethnic minorities. By broadening the focus of diversity policies, regulators can foster an inclusive and equitable corporate environment that values the contributions of individuals from diverse backgrounds. These policy implications emphasise the need for ongoing efforts to improve diversity and inclusion in corporate governance. Policymakers can collaborate with industry stakeholders, including companies, investors, and professional organisations, to develop guidelines and best practices for enhancing diversity on audit committees and within corporate governance structures. This can include setting targets for representation, promoting transparency in diversity reporting, and providing resources and support for companies to implement effective diversity initiatives.

Finally, the first essay's findings pertain to investors and their assessment of companies' financial performance and governance. The study's results suggest that investors should consider the presence of female directors on audit committees as a factor when evaluating a company's financial performance and governance practices. Gender diversity on audit committees, particularly when accompanied by financial expertise, has been shown to have a positive impact on earnings quality and responsible financial reporting. As such, investors can incorporate this information into their decision-making processes, recognising the potential benefits associated with diverse and knowledgeable audit committees.

Overall, the first essay contributes to both theoretical understanding and useful implications for companies, policymakers and investors by demonstrating the positive impact of gender diversity on audit committees and the importance of expertise in enhancing earnings quality. It provides a foundation for future research to further explore the mechanisms and dynamics underlying the relationship between diversity, expertise, and firm performance.

The findings of the second essay suggest that there is a notable and favourable correlation between ESG performance and board expertise diversity, with governance being the most positively affected aspect. The study also finds that the relationship between board expertise diversity and ESG performance is moderated by board gender diversity, and this interaction is influenced by factors such as company size and industry type. By highlighting the significance of heterogeneity, this research provides a thorough analysis of the impact of board expertise and gender diversity on ESG performance, making an important contribution to corporate governance literature. The study emphasises the importance of considering both board expertise and gender diversity when seeking to enhance ESG performance, particularly in terms of governance. It is worth noting that the study also sheds light on the importance of taking account of company size and industry type in understanding the relationship between board diversity and ESG performance. The findings suggest that the impact of board diversity on ESG performance varies depending on these contextual factors.

Furthermore, the findings shed light on how the impact of board expertise diversity and board gender diversity on ESG performance varies depending on the polluting intensity of the industry. Specifically, in carbon-emitting industries, the results indicate that board expertise diversity has a significant positive relationship with the governance pillar of ESG performance, but its overall impact on ESG performance is not significant. This finding suggests that in industries with high carbon emissions, having a diverse set of expertise on the board is particularly crucial for effective governance. Governance practices are critical for managing environmental risks, compliance with regulations, and ensuring sustainable business practices in these industries.

In contrast, in non-carbon emitting industries, the study finds that board expertise diversity is significantly and positively related to both overall ESG performance and the governance pillar. This indicates that in industries with lower polluting intensity, having a diverse range of expertise on the board positively influences overall ESG performance, with a particular effect on governance. In these industries, board expertise diversity can contribute to the development and implementation of more comprehensive ESG strategies that encompass social and environmental aspects alongside governance.

The study also highlights the important moderating role of board gender diversity in shaping the relationship between board expertise diversity and ESG performance across different industries. Regardless of whether an industry is carbon-emitting or not, board gender diversity positively moderates the link between ESG and its pillars and board expertise. This implies that having gender diversity on the board enhances the positive impact of board expertise diversity on ESG performance across various industries. The presence of women on boards can bring diverse perspectives, experiences, and insights that complement the expertise diversity, contributing to better ESG outcomes.

The industry-specific implications of the study's findings are noteworthy for businesses operating in different sectors. For carbon-emitting industries, the particular effect on governance suggests that companies should prioritise board expertise diversity to ensure effective governance practices in handling environmental risks and sustainability issues. They should seek directors with expertise in environmental management, climate change mitigation, and sustainability strategy to navigate the unique challenges these industries face. For non-carbon emitting industries, the findings underscore the importance of board expertise diversity for overall ESG performance, encompassing governance, social, and environmental dimensions. Companies in these industries should focus on assembling boards with diverse expertise that can contribute to a well-rounded ESG approach and comprehensive sustainability efforts.

However, as discussed, the positive moderating effect of board gender diversity is pertinent for all industries. Thus, all organisations should actively promote gender diversity on their boards to leverage the full potential of diverse perspectives and expertise, enabling better ESG performance and sustainable business practices.

These findings can be explained and understood through the lens of resource dependence theory. According to resource dependence theory, organisations rely on external resources to survive and thrive in their respective environments (Hillman *et al*., 2002). In the context of corporate governance, the expertise and knowledge possessed by board members represent important resources for organisations. With a diverse range of expertise on the board, organisations can access a broader pool of knowledge and perspectives to address various challenges and opportunities related to ESG performance (Whelan, 2021). Furthermore, the positive association between board expertise diversity and ESG performance aligns with the principles of resource dependence theory. Organisations that leverage diverse expertise on their boards are better equipped to navigate the complex landscape of ESG issues. This diverse expertise enables them to understand and respond to stakeholder expectations, comply with regulatory requirements, and implement effective governance practices (Beji *et al*., 2021).

Moreover, the moderating role of board gender diversity can be seen as an additional resource-based mechanism within the context of resource dependence theory. Gender diversity brings unique perspectives and experiences to the boardroom, enhancing the pool of resources available for decision-making and governance (Kyaw *et al*., 2022; Nadeem *et al*., 2017; Rao and Tilt, 2016, 2021). The interaction between board expertise diversity and gender diversity further amplifies the potential benefits, as different dimensions of diversity can complement and reinforce each other.

Overall, the second essay's findings contribute to understanding of the relationship between board expertise diversity, board gender diversity, and ESG performance. As discussed, these results can be explained by resource dependence theory, highlighting the value of diverse expertise and gender perspectives as important resources for organisations. By taking these findings into consideration, organisations can enhance their ESG performance and improve their overall governance practices. To advance knowledge of this area further, future research should explore the relationship between board diversity and financial performance, with a focus on the unique dynamics of different organisational contexts. This would contribute to a more comprehensive understanding of the implications of diversity and gender on board effectiveness and organisational performance.

The findings of the second essay have important implications for managers, regulators, and investors. The study highlights the importance of board expertise diversity for managers when making decisions regarding ESG performance. The findings demonstrate that companies can reap substantial benefits by actively seeking out board members with diverse backgrounds and expertise, as this can contribute to driving improvements in ESG performance. By taking on individuals with varied skill sets, knowledge, and perspectives, companies can foster more robust discussions and decision-making processes that address environmental, social, and governance issues more effectively.

The study also points to the importance of taking into consideration the impact of board gender diversity on ESG performance when making decisions related to board composition. It confirms the supposition that gender diversity can bring unique viewpoints, experiences, and insights to the boardroom (Beji *et al*., 2021), which can enhance the formulation and implementation of sustainable and responsible strategies. By recognising the value of gender diversity and bringing that knowledge to the fore in considerations on board composition, managers can tap into the full potential of diverse perspectives and expertise to drive positive ESG outcomes. Managers should recognise that a diverse board not only makes a range of skills and expertise available but also ensures representation and inclusivity, fostering an environment that supports long-term sustainability and responsible decision-making. To enhance ESG performance, managers should proactively assess the composition of their boards, taking into account the diverse expertise and gender diversity necessary to effectively address the complex challenges associated with sustainability and responsible governance. They should recognise that the inclusion of diverse perspectives and expertise is not merely a matter of compliance but also a strategic imperative that can unlock innovative approaches to sustainability and drive long-term value creation (Whelan, 2021).

The implications of the study for financial firms are significant, despite the primary focus on non-financial firms. The second essay's findings offer valuable insights into the relationship between board expertise diversity and ESG performance, with governance being the aspect which is most positively affected. Financial firms can benefit from the study's emphasis on the importance of considering both board expertise and gender diversity when seeking to enhance ESG performance. Furthermore, the study's results highlight the value of diverse expertise on boards in navigating the complex landscape of ESG issues. As for non-financial firms, by incorporating individuals with varied skill sets, knowledge, and perspectives, financial firms can make more informed decisions that address environmental, social, and governance challenges more effectively. The study's findings can encourage financial firms to actively seek out board members with diverse backgrounds and expertise, in recognition of the potential benefits of diverse perspectives and knowledge in driving improvements in ESG performance.

Moreover, the evidence points to the need for financial firms to recognise the added value of gender diversity on their boards. Gender diversity brings unique viewpoints, experiences, and insights that can enhance the formulation and implementation of sustainable and responsible strategies. By incorporating gender diversity into board composition considerations, financial firms can tap into the full potential of diverse perspectives and expertise to drive positive ESG outcomes. The study highlights that a diverse board not only brings a range of skills and expertise but also ensures representation and inclusivity, fostering an environment that supports long-term sustainability and responsible decision-making.

The findings of this study have practical implications for regulatory bodies. Regulators can draw upon these findings to advocate for the diversification of board expertise in the realm of governance, as it has been shown to contribute to improved ESG performance. Furthermore, the study highlights the importance of implementing policies that promote gender diversity on corporate boards, since this kind of policy can effectively moderate the relationship between board expertise diversity and ESG performance in a positive manner.

By encouraging companies to diversify the expertise present on their boards, regulators can promote more effective governance practices and enhance overall ESG performance. The study emphasises the significance of having board members with diverse knowledge and skills, particularly in the area of governance, which can facilitate the implementation of robust ESG strategies and policies. Additionally, the study suggests that gender diversity on boards can play a pivotal role in influencing the relationship between board expertise diversity and ESG performance. By implementing policies that promote gender diversity, regulators can create an environment that fosters inclusive decision-making processes and facilitates the integration of diverse perspectives and experiences. This, in turn, can enhance the effectiveness of board expertise diversity in driving positive ESG outcomes.

Regulatory bodies can leverage these findings to develop guidelines or mandates that encourage companies to embrace diversity and inclusion on their boards. Such initiatives can include setting diversity targets, requiring disclosure of board composition, and providing support and resources for board diversity initiatives. Through this kind of approach, regulators can contribute to creating a corporate governance landscape that values and promotes the benefits of diverse board expertise and gender diversity, leading to improved ESG performance across organisations. Overall, the practical implications of this study for regulators involve promoting the diversification of board expertise in governance and implementing policies that foster gender diversity on boards. By embracing these recommendations, regulators can play a pivotal role in enhancing the ESG performance of companies and advancing sustainability and responsible governance goals.

Lastly, stakeholders, including investors and customers, can use these results to evaluate companies' ESG performance. By taking into account the level of board expertise diversity and gender diversity, stakeholders can make informed decisions about which companies align with their values and priorities and gain a better understanding of the organisation's commitment to sustainability, responsible governance, and ethical practices. Investors, in particular, can use the findings to evaluate the potential risks and opportunities associated with a company's ESG performance. The presence of a diverse board with a range of expertise can be seen as a positive signal, indicating that the company is well-equipped to address environmental and social challenges while maintaining strong governance practices (Shakil, 2021). By factoring in board diversity as part of their investment analysis, investors can make more informed decisions that align with their ESG objectives and promote long-term value creation.

Additionally, customers and consumers increasingly prioritise sustainability and socially responsible practices when making purchasing decisions. The findings of this study thus have a further potential benefit in helping them to assess whether a company's commitment to ESG aligns with their values. A diverse board, with both expertise diversity and gender diversity, can indicate a company's dedication to fostering an inclusive and responsible business environment. This can influence customers' perceptions and willingness to support and engage with the company's products or services.

Overall, the study suggests that implementing policies and practices that promote board expertise diversity and gender diversity can improve a company's ESG performance and its appeal among stakeholders. Stakeholders, including investors and customers, can use these findings to evaluate a company's commitment to sustainability and responsible governance. By incorporating board diversity as part of their assessment criteria, stakeholders can support and engage with organisations that prioritise ESG practices and contribute to positive social and environmental impact.

The third essay reveals a positive relationship between a firm's diversity and inclusion policies and its overall performance, encompassing both non-financial and financial aspects. This implies that firms that invest in diversity and implement inclusive policies tend to achieve better performance outcomes. These findings suggest that diversity and inclusion initiatives offer advantages beyond meeting social responsibility and legal requirements. They contribute to increased innovation, enhanced decision-making processes, and a favourable brand image. The study further highlights the significance of board diversity in maximising the impact of a commitment to diversity on firm performance. Specifically, independent boards amplify the positive effects of commitment to diversity. Furthermore, the study reveals that the moderating effect of board independence is more prominent in FTSE 100 firms compared to FTSE 250 firms. This finding suggests that FTSE 100 firms with more diverse boards are likely to be better positioned to harness the potential of their diversity commitment to support both their non-financial and financial performance. Conversely, the impact of board diversity on FTSE 250 firms appears to be less consistent, indicating the presence of other influencing factors in these firms that may interact with or overshadow the effects of board diversity on performance.

These findings align with the principles of the resource-based view, which emphasises the utilisation of firm-specific resources for attaining competitive advantage and improved performance (Barney, 1991). In this context, diversity can be viewed as a valuable and rare resource that contributes to a firm’s overall capabilities (Katmon *et al*., 2019). By embracing diversity and implementing inclusive policies, firms can harness the diverse perspectives, knowledge, and experiences of their workforce, enabling them to adapt to changing market conditions, identify new opportunities, and solve complex problems more effectively. This enhanced ability to leverage diverse resources and capabilities can lead to improved innovation, creativity, and decision-making processes, which ultimately translate into better financial and non-financial performance outcomes (Andrevski *et al*., 2014; Boone *et al*., 2019; Cox & Blake, 1991; Lauring & Villesèche, 2019; Richard *et al*., 2007).

Moreover, the study highlights the role of board diversity as a key driver in maximising the impact of diversity and inclusion policies on firm performance. Independent boards, in particular, play a crucial role in ensuring that diversity and inclusion initiatives are effectively implemented and integrated into a firm's strategic decision-making processes. Independent directors bring diverse perspectives, objective viewpoints, and a focus on shareholder interests, which can enhance the effectiveness of diversity commitment and its positive influence on firm performance (Wang *et al*., 2015).

The findings of the third essay offer implications for companies, policymakers, and investors. For companies, the study emphasises the importance of promoting diversity in the workplace to improve both financial and non-financial performance. Embracing diversity can foster a more inclusive and supportive work environment, which can positively impact employee morale, job satisfaction, and overall productivity. By creating a diverse workforce that encompasses different perspectives, experiences, and backgrounds, companies can tap into a broader range of ideas, creativity, and problem-solving capabilities.

The study also highlights the importance of taking into account board independence diversity as an integral part of a company's overall diversity initiatives. Independent boards can provide better oversight, effective decision-making, and enhanced strategic guidance (Hillman *et al*., 2002). By including independent members on boards of directors, companies can benefit from effective diversity and inclusion policies and strategies and make more informed decisions regarding their financial and non-financial performance.

Furthermore, the study's findings highlight the potential positive impact of diversity and inclusion on financial performance. Companies that prioritise diversity and inclusivity may enjoy improved financial results due to several factors. A diverse workforce can better understand and cater to the needs of diverse customer segments, leading to increased customer satisfaction and loyalty. Additionally, diverse teams are more likely to foster innovation, adaptability, and agility, allowing companies to remain competitive in a rapidly changing business environment. Moreover, diversity and inclusion efforts can enhance a company's reputation and brand image, attracting socially responsible investors and customers who value diversity and sustainable practices (Jerónimo *et al*., 2022; Gassmann, 2001; Hunt *et al*., 2015; Andrevski *et al*., 2014; Boone *et al*., 2019; Cox & Blake, 1991; Lauring & Villesèche, 2019; Richard *et al*., 2007).

To fully realise the benefits of diversity and inclusion, companies should implement effective diversity and inclusion strategies that go beyond tokenism. It is important to create a culture that values and respects diversity, provides equal opportunities for career advancement, and ensures that diverse voices are heard and included in decision-making processes. This requires ongoing commitment, leadership support, and the establishment of policies and practices that foster diversity and inclusivity at all levels of the organisation.

Furthermore, the third essay has useful implications for financial firms. The study's implications align with the principles of the resource-based view, emphasising the value of utilising diverse resources and capabilities to attain competitive advantage and improved performance. By embracing diversity and implementing inclusive policies, financial firms can enhance their ability to adapt to changing market conditions, identify new opportunities, and solve complex problems more effectively. This, in turn, can lead to improved financial performance and sustainable growth. Additionally, the study underscores the potentially positive impact of diversity and inclusion on financial performance. Financial firms that prioritise diversity and inclusivity may experience improved financial results due to several factors, including better customer understanding, enhanced innovation, and a favourable brand image. By factoring in diversity and inclusion efforts when evaluating financial firms, investors can make more informed decisions that align with their values and promote long-term value creation.

Policymakers play a crucial role in shaping the business environment and promoting social and economic progress. The findings of the study have important implications for policymakers in their efforts to foster diversity and inclusion in organisations. By understanding the positive relationship between diversity and performance, policymakers can develop and promote policies that incentivise companies to adopt diversity and inclusion practices.

Furthermore, in the context of this study's results policymakers can collaborate with industry stakeholders, organisations, and advocacy groups to create awareness and promote the importance of diversity and inclusion. This can be achieved through public campaigns, partnerships, and initiatives that highlight the benefits of diversity in driving economic growth, innovation, and social progress. By leveraging their influence and convening power, policymakers can facilitate dialogue and collaboration among different stakeholders to drive positive change. It is important to acknowledge that policymakers should also consider the intersectionality of diversity, recognising that diversity goes beyond gender and includes aspects such as race, ethnicity, age, disability, and other dimensions. By adopting a holistic approach to diversity and inclusion, policymakers can ensure that their policies are inclusive and address the unique challenges faced by different underrepresented groups.

Finally, the study results support the suggestion that investors should incorporate a company's commitment to diversity and inclusion into their evaluation of performance and potential investment opportunities. By considering the diversity policies and practices of a company, investors can gain insights into its organisational culture, governance practices, and long-term sustainability. Companies that prioritise diversity and inclusion are likely to attract and retain top talent (Jerónimo *et al*., 2022), foster innovation (Buse *et al*., 2016), and improve their performance (Sasikala and Sankaranarayanan, 2022). As a result, these companies may have a competitive advantage and higher growth potential, making them attractive investment prospects.

Additionally, investors could take the diversity of a company's board as a signal of its commitment to effective governance and risk management. A diverse board brings a variety of perspectives, experiences, and expertise to the decision-making process, which can lead to more robust and informed decision-making (Cucari *et al*., 2018; Fernández-Gago *et al*., 2018). Board diversity, including gender, racial, and ethnic diversity, has been associated with better financial performance, risk mitigation, and strategic oversight. By considering the diversity of a company's board, investors can be guided on the quality of a company's corporate governance and the potential for sustainable long-term growth.

In summary, the third essay highlights the significance for companies of promoting diversity and inclusivity in the workplace. By fostering an inclusive culture, embracing diverse perspectives, and ensuring board diversity, companies can experience improved financial performance, increased innovation, and enhanced competitiveness (Wahid, 2019; Wang *et al*., 2015; Valls Martínez *et al*., 2019). These findings underscore the importance of diversity and inclusion as strategic imperatives that can drive long-term success and sustainability for organisations in today's diverse and dynamic business landscape.

5.3 Contributions

This PhD thesis constitutes a substantial contribution to the corporate governance literature, specifically in the area of board diversity. It presents noteworthy findings that enrich the ongoing discussion on corporate governance and its impact on firm performance. The proposed methodology of this thesis, which incorporates agency theory, resource dependence theory, and resource-based view theory, along with quantitative econometric methods, is regarded as a significant contribution that offers a fresh perspective to the study of multivariate extremes. Furthermore, conducting a comprehensive analysis of diversity phenomena at various levels, including at the level of the audit committee, board, and organisation more generally, enhances our understanding of the topic from multiple angles and perspectives.

The first essay makes multiple contributions to the study of gender diversity in relation to audit committees and its impact on EQ. Firstly, the first essay contributes significantly to agency theory by providing empirical evidence that supports its fundamental principles. The findings highlight the positive impact of gender diversity on audit committees, specifically the inclusion of female directors with financial expertise, on EQ. This aligns with the core tenets of agency theory, which emphasise the importance of effective monitoring mechanisms to mitigate agency problems. Furthermore, the findings contribute to agency theory by showcasing how gender diversity on audit committees can enhance the effectiveness of monitoring processes and reduce information asymmetry. Female directors with financial expertise bring unique perspectives and skills that complement the existing knowledge and experiences of the board members. Their presence leads to improved financial reporting and decision-making, as they have been shown to possess a risk-averse mindset, ethical sensitivity, and a conservative approach to financial matters. These characteristics align with the focus in agency theory on aligning the interests of managers and shareholders and reducing conflicts of interest. These findings shed light on the role of gender diversity in shaping the behaviour and effectiveness of female directors, offering valuable insights into the complex dynamics of agency relationships within organisations. Moreover, the study delves into the influence of gender socialisation on the behaviour and effectiveness of female directors. By highlighting the role of societal norms and expectations in shaping the attributes and decision-making processes of female directors, the study provides a deeper understanding of the complex dynamics between gender diversity and agency relationships. This expands the theoretical boundaries of agency theory by taking account of the socio-cultural context in which board members operate.

Overall, the first essay contributes to agency theory by providing empirical evidence that supports its key principles in the specific context of gender diversity on audit committees. It adds depth to our understanding of agency relationships by exploring the unique contribution of female directors with financial expertise in enhancing corporate governance and improving earnings quality. These insights have implications for corporate governance practices, highlighting the value of diverse audit committees in addressing agency problems and ultimately enhancing firm performance.

Secondly, the findings of the first essay also have important practical implications for organisations and their audit committees. The study's results indicate that the presence of female directors with financial expertise on audit committees positively influences earnings quality, highlighting the importance of specialised knowledge in financial oversight. The findings suggest that the presence of female accounting and finance specialists on audit committees is considerably and favourably related to EQ, while female supervisory experts are weakly linked to the quality of earnings. The study reveals that female accounting and finance specialists make a significant and favourable contribution to earnings quality. Their expertise in financial matters allows them to monitor financial reporting and decision-making processes effectively, leading to improved quality in financial statements. This finding underscores the importance of having directors with a solid grasp of accounting concepts and financial acumen on audit committees. On the other hand, the study suggests that female directors with supervisory expertise, while still valuable contributors to audit committees, have a weaker association with EQ. It appears that their skills and perspectives may not directly impact financial reporting processes as significantly as the skills brought by those with accounting and finance backgrounds. This finding emphasises the need to consider the specific expertise required for effective financial oversight within the audit committee.

Overall, the practical contributions of the first essay provide organisations with valuable insights on how to enhance their audit committees' effectiveness in promoting EQ. By recognising the contribution of female accounting and finance specialists and ensuring a thoughtful composition on audit committees, organisations can improve their financial reporting practices, enhance corporate governance, and strengthen the confidence of stakeholders in the accuracy and reliability of their financial statements.

Thirdly, the findings of the first essay have important implications for regulators and policymakers in shaping corporate governance policies. Specifically, the results show that, following the implementation of the Hampton-Alexander recommendations, the financial knowledge of female directors and their contributions quality of earnings. The study's results suggest a significant correlation between the financial knowledge of female directors and EQ with implications for regulatory bodies, as it provides empirical evidence supporting the effectiveness of diversity initiatives in improving financial expertise within audit committees.

Regulators can leverage these findings to advocate for policies and guidelines that encourage organisations to prioritise diversity, particularly in terms of financial knowledge and expertise, when selecting directors for their audit committees. By emphasising the importance of directors with accounting and finance backgrounds, regulatory bodies can encourage organisations to enhance the skillsets of their audit committees and promote higher quality financial reporting. Furthermore, the study highlights the need for continuous monitoring and evaluation of diversity initiatives. Regulators can use the findings to assess the impact of their policies and recommendations on the financial knowledge of female directors within audit committees. This can inform future policy decisions and help refine diversity guidelines to ensure their effectiveness in improving corporate governance and financial reporting practices.

In summary, the findings of the first essay offer clear policy implications for regulators, highlighting the need for diversity initiatives and their impact on the financial knowledge of female directors. By incorporating these implications into corporate governance policies and guidelines, regulators can promote the selection of directors with strong financial backgrounds, ultimately enhancing EQ and strengthening overall corporate governance practices.

The second essay examines how having a diversity of expertise on a corporate board can impact ESG performance, with a focus on the moderating effects of board gender diversity. This essay contributes to the literature in several ways. Firstly, this study contributes to the existing literature by offering theoretical insights based on resource dependence theory. From the perspective of resource dependence theory, the study highlights the importance of board expertise diversity as a critical resource for organisations. It demonstrates how diverse knowledge and expertise, particularly with the inclusion of female directors, can enhance ESG performance and address environmental dependencies. This aligns with the strategic management of external resources and the need for diverse expertise to navigate complex business environments. By emphasising the value of diverse human capital as a resource, the study provides a framework for understanding how organisations can leverage diversity to enhance sustainability outcomes and overall organisational performance.

Moreover, the study's findings highlight the significance of including female directors as part of the expertise diversity on the board. By recognising the value of diverse perspectives and skills that female directors bring to the boardroom, the study sheds light on the importance of gender diversity in driving ESG performance. This theoretical insight supports the growing body of research that emphasises the positive impact of gender diversity on organisational outcomes. It underscores the need for organisations to prioritise gender-balanced boards and harness the unique contributions of female directors to enhance sustainability practices and decision-making.

Additionally, the study's focus on the moderating effects of board gender diversity further enriches the theoretical understanding of the relationship between board expertise diversity and ESG performance. It suggests that gender diversity can enhance the positive impact of diverse expertise on sustainability outcomes. This finding aligns with the literature on cognitive diversity, which argues that diverse perspectives and experiences lead to better decision-making and problem-solving. The theoretical contribution lies in the identification of board gender diversity as a key factor that amplifies the effectiveness of board expertise diversity in driving ESG performance.

In summary, the second essay makes significant theoretical contributions to the literature on corporate governance and sustainability. By applying resource dependence theory and considering the moderating effects of board gender diversity, the study provides a fresh theoretical perspective on the strategic management of diverse expertise on boards. It lends credence to the value of board expertise diversity as a strategic resource that organisations can leverage to enhance their ESG performance. Furthermore, the study highlights the importance of gender diversity in maximising the positive impact of diverse expertise on sustainability outcomes. These theoretical insights contribute to a deeper understanding of the complex dynamics between board diversity, expertise, and sustainable performance, informing future research and practical initiatives aimed at promoting effective corporate governance and sustainable business practices.

Secondly, it has contributed to the existing literature on board diversity by presenting empirical evidence on the impact of female directors on the relationship between board expertise diversity and ESG performance. By focusing on the inclusion of female directors specifically in this context, the study has presented a more nuanced understanding of how gender diversity can enhance a board's expertise and ultimately contribute to ESG performance. Additionally, the empirical findings of the study reinforce the notion that gender diversity on boards is not only about achieving a more equitable representation but also about leveraging diverse perspectives and knowledge to enhance overall board effectiveness. Female directors are shown to bring unique insights, experiences, and skills that complement the expertise diversity on the board. By recognising the positive influence of female directors, the study highlights the importance of gender diversity as a catalyst for promoting better decision-making and driving sustainable business practices.

Moreover, the study emphasises the substantial and positive association between board expertise diversity and ESG performance, particularly in the governance pillar. This finding aligns with previous research that highlights the critical role of diverse perspectives and knowledge in driving corporate sustainability performance. By showcasing the positive relationship between expertise diversity and ESG performance, the study provides empirical support for the notion that a board's ability to draw upon a wide range of expertise can enhance its effectiveness in overseeing and guiding sustainable practices within the organisation.

Overall, the essay extends the literature on board diversity by offering empirical evidence on the specific impact of female directors and emphasising the significant association between board expertise diversity and ESG performance, particularly in terms of governance. The study's findings provide valuable insights for organisations and policymakers, highlighting the importance of gender diversity and expertise diversity in board composition for achieving sustainable and responsible business outcomes.

Thirdly, this study provides practical implications for policymakers, regulators, and stakeholders, providing valuable insights for shaping board diversity policies and initiatives. The findings of the study offer support for the mandatory inclusion of female directors on corporate boards as a way of enhancing board expertise diversity and improving ESG performance. By recognising the positive impact of gender diversity on board effectiveness and sustainability outcomes, policymakers and regulators can consider implementing measures to encourage or require gender-balanced representation on boards. Moreover, the study's insights on how the relationship between board expertise diversity and ESG performance is influenced by firm size and the type of industry can guide stakeholders seeking to improve ESG performance through board diversity initiatives. Recognising that the effectiveness of expertise diversity may vary based on organisational context, stakeholders can tailor their diversity strategies to align with their specific circumstances. For instance, larger firms may benefit from a more diverse range of expertise to address complex sustainability challenges, while smaller firms may prioritise specific areas of expertise that align with their industry dynamics. By incorporating the study's findings into their decision-making processes, policymakers, regulators, and stakeholders can promote the adoption of inclusive governance practices and encourage greater diversity in board composition. The research highlights the instrumental role of board diversity in driving corporate sustainability, underlining the significance of board composition as a strategic lever for achieving positive environmental, social, and governance outcomes.

In conclusion, this research contributes both academically and in a practical sense by emphasising the importance of board diversity and its impact on corporate sustainability performance. The study's findings provide empirical evidence to support the mandatory inclusion of female directors and offer guidance on tailoring board diversity initiatives based on firm size and type of industry. By implementing these insights into policy and practice, stakeholders can pave the way for more diverse and inclusive corporate boards, leading to improved ESG performance and long-term sustainable success.

The third essay contributes significantly to the existing body of literature on organisational diversity and its relationship to firm performance. This study offers valuable theoretical insights, empirical evidence, and policy implications regarding the impact of diversity and inclusion policies implemented by companies on both their non-financial and financial performance. By examining the effects of diversity and inclusion initiatives on multiple aspects of organisational outcomes, this research illuminates the intricate interplay between diversity, inclusion, and overall firm performance. In doing so, this study enriches the existing literature in several meaningful ways.

Firstly, this study makes a strong theoretical contribution by applying the resource-based view to the study of diversity and performance. By adopting this perspective, the research emphasises the notion of diversity as a valuable and scarce resource that exerts a positive impact on both non-financial and financial performance. Moreover, the study delves deeper into the dynamics of diversity commitments by exploring the moderating role of board independence diversity. This examination enhances our comprehension of how organisations can effectively leverage diversity initiatives to improve overall outcomes. These theoretical insights further enrich the resource-based view by highlighting the strategic significance of diversity as a critical driver of competitive advantage and long-term success for organisations.

By applying the resource-based view to the study of diversity and performance, this research makes a compelling theoretical contribution that enhances our understanding of the strategic importance of diversity in organisations. The findings provide robust evidence for diversity as a valuable and rare resource that positively influences both non-financial and financial performance. By considering diversity as a resource, the study recognises its potential to generate competitive advantage and long-term success.

Furthermore, the study goes beyond the general understanding of diversity by highlighting the moderating role of board independence diversity. This aspect adds depth to the theoretical framework, as it highlights the specific conditions under which diversity commitments can effectively enhance organisational outcomes. By examining the influence of board independence diversity, the study sheds light on the strategic deployment of diverse expertise, perspectives, and knowledge in decision-making processes.

As such, this research contributes to the resource-based view by emphasising the nuanced relationship between diversity, performance, and competitive advantage. It recognises that not only is fostering a diverse workforce involved in the strategic management of diversity but so too is ensuring the inclusion of diverse voices at the board level. This integrated approach highlights the need for organisations to align their diversity initiatives with broader strategic objectives, recognising diversity as a driver of innovation, adaptability, and organisational effectiveness.

Overall, this study enriches the theoretical understanding of diversity by presenting empirical evidence that supports the resource-based view. It underscores the significance of diversity as a valuable resource that can enhance organisational performance and long-term success, while emphasising the role of board independence diversity in optimising the outcomes of diversity commitments. These theoretical insights provide a solid foundation for organisations and scholars to further explore the strategic integration of diversity into organisational practices and policies.

Secondly, this study addresses a significant gap in the existing literature by investigating the relationship between the diversity within and inclusion policies adopted by companies and their non-financial and financial performance. While the importance of diversity and inclusion in organisations has been recognised, there have been few empirical studies examining the specific impact of diversity and inclusion policies on firm performance. By filling this gap, this study provides valuable empirical contributions to the understanding of the link between diversity and inclusion policies and organisational outcomes. The findings offer insights into the specific mechanisms through which diversity and inclusion initiatives can influence both non-financial and financial performance indicators. Through rigorous quantitative analysis, the research examines various aspects of organisational performance, including ESG, financial returns, and market value. By systematically analysing these performance indicators in relation to diversity and inclusion policies, the study provides robust empirical evidence of the positive impact of diversity and inclusion on firm performance. Moreover, the study explores potential moderating factors, such as board independence, that may influence the relationship between diversity and inclusion policies and organisational outcomes.

The empirical contributions of this research expand the current knowledge base by providing concrete evidence of the relationship between diversity and inclusion policies and both non-financial and financial performance. This empirical support serves as a valuable resource for organisations, policymakers, and stakeholders, supporting them to make informed decisions regarding the implementation and management of diversity and inclusion initiatives. Furthermore, it opens up avenues for further research to explore the specific mechanisms and dynamics through which diversity and inclusion policies influence various dimensions of organisational performance.

Thirdly, the research offers insights for policymakers, regulators, and organisations which may help them to improve their diversity and inclusion initiatives, including highlighting the need for measurable goals, leadership accountability, and inclusive practices. By setting clear and quantifiable objectives, organisations can monitor their progress and hold themselves accountable for achieving diversity and inclusion targets. Furthermore, the research emphasises the significance of leadership accountability in driving successful diversity and inclusion initiatives. It underscores the role of independent directors on the board in improving diversity and inclusion, ensuring that these values are embedded within the organisation's culture and practices. By fostering a supportive and inclusive leadership environment, organisations can create a foundation for diverse talent to thrive and contribute to overall performance.

Inclusive practices are also highlighted as a critical component of effective diversity and inclusion policies. The study emphasises the importance of creating a welcoming and inclusive work environment that values and respects diverse perspectives and backgrounds. Implementing inclusive practices such as diverse recruitment and retention strategies, mentorship programmes, and training initiatives can foster a culture of inclusivity and help harness the benefits of diversity.

These policy contributions highlight the need for a comprehensive and strategic approach to diversity and inclusion. Organisations, policymakers, and regulators can draw upon the insights provided by this research to develop and refine their diversity and inclusion policies, ensuring that they are effective, measurable, and aligned with organisational goals. By adopting evidence-based practices and policies, stakeholders can promote a more diverse and inclusive society, harness the benefits of diversity, and drive better organisational performance.

5.4 Limitations of the study

This section will address several limitations that should be considered when interpreting the findings of this thesis. The first essay is subject to a number of shortcomings. Firstly, it focuses solely on non-financial companies within the FTSE 100 index in the UK during a specific time frame, which may restrict the generalisability of the findings to other industries and countries.

It is important to recognise the potential variations in diversity dynamics across different contexts. Secondly, the study only focuses on the relationship between gender diversity on audit committees and EQ, without exploring the underlying mechanisms or processes that drive this relationship. Exploring these mechanisms could provide deeper insights into the ways in which gender diversity impacts performance outcomes. Thirdly, this study only examines diversity at the audit committee level and does not explore diversity at other levels of organisations, such as the executive level. Finally, the study does not account for the potential influence of other factors, such as firm size or industry type, on the relationship between diversity and performance. Future research could consider incorporating these factors to gain a more nuanced understanding of the complexities at play. By acknowledging these limitations, researchers can build upon this work and further enhance our understanding of the relationship between diversity and organisational performance.

The second essay presents some areas for improvement in future research. Firstly, the study's sample is limited to non-financial firms in the UK from 2011 to 2021, which may restrict the applicability of the findings to other regions or countries. Secondly, the focus is primarily on the moderating role of board gender diversity in the relationship between board expertise diversity and ESG performance, leaving room for the exploration of other potential moderating variables. Lastly, the specific types of expertise on the board that contribute to the link between board expertise diversity and ESG performance have not been thoroughly examined. Addressing these limitations would enhance the comprehensiveness and depth of future studies in this area.

The third essay has certain limitations that should be acknowledged. Firstly, the study's analysis is based on data from a relatively short time period, specifically covering the years 2016–2021 due to data availability constraints. This restricted timeframe might not fully capture the long-term effects of diversity policies and practices on firm performance. Secondly, it is important to recognise that this study primarily examined the moderating role of one specific aspect of board diversity, namely board independence diversity, while other dimensions of diversity were not thoroughly explored. Lastly, the study's focus was limited to companies listed on the FTSE 350 index; this limitation may mean that the results do not represent the diversity landscape of all firms across various industries and regions. Therefore, caution should be exercised when generalising the results to different contexts. These limitations provide valuable opportunities for future research to expand upon and address these areas for a more comprehensive understanding of the relationship between diversity policies and firm performance.

5.5 Recommendations for future studies

This thesis provides valuable insights that can serve as a foundation for future researchers to further expand upon the findings. The study opens up avenues for additional research and exploration in the field of diversity and its impact on organisational outcomes. By uncovering significant relationships between diversity, performance, and various contextual factors, the thesis offers a starting point for researchers to delve deeper into specific aspects or dimensions of diversity, examine different industries or regions, and explore diverse methodological approaches.

Future studies can improve upon the first essay and build on its findings, first, , by expanding the sample and the period of the study. Expanding the scope to include a wider range of countries, industries, and types of companies would offer a more holistic and comprehensive understanding of the relationship between diversity and performance across diverse settings. By broadening the contextual scope, future research could provide valuable insights into the generalisability and applicability of the study's findings in different organisational and cultural contexts. Furthermore, although this thesis primarily concentrates on the UK as a developed country, there is an opportunity for future studies to replicate this research in different contexts, for example in developing countries like the Arabian Gulf countries or major economies in Africa, including Egypt, Nigeria, and South Africa. By extending the study to these diverse regions, researchers could gain insights into the relationship between EQ and gender diversity on audit committees within different economic and cultural settings. This would contribute to a more robust and nuanced understanding of the impact of diversity on performance, allowing for the identification of both commonalities and variations in the relationship across various contexts.

Second, future research could address and expand upon the exploration of the underlying mechanisms and processes that drive the relationship between gender diversity on audit committees and EQ. While the current study focuses on establishing the link between these variables, there is a need for further investigation into the specific mechanisms at play. For instance, future research could examine decision-making processes, internal control mechanisms, and audit quality as potential mediators or moderators in this relationship. By unravelling these underlying processes, companies can gain deeper insights into how diversity influences performance outcomes and identify practical strategies to leverage diversity effectively in order to improve overall performance and gain a competitive edge. Such investigations would provide a more comprehensive understanding of the dynamics between gender diversity, specific mechanisms, and organisational outcomes, offering actionable insights for organisations seeking to harness the benefits of diversity in driving performance improvements.

Third, one important aspect that can be explored in future research is the examination of diversity beyond the audit committee level. While the first essay focuses on diversity specifically on audit committees, there is an opportunity for future studies to investigate the relationship between diversity at the executive or management levels of the organisation and its influence on EQ. This could involve an exploration of the diversity within leadership and management teams, considering factors such as gender, ethnicity, and expertise diversity. By examining diversity at different levels of the organisation, researchers could obtain a more holistic understanding of the benefits and impact of diversity across various functional areas. Such investigations would contribute to a more comprehensive knowledge base, providing insights into how diversity in leadership and management teams can enhance organisational performance and promote better decision-making processes.

Finally, future research could expand upon the fourth aspect by considering the influence of various factors that have not been accounted for in the present study. For instance, the potential impact of factors like firm size or industry type on the relationship between diversity and earnings quality could be explored. By incorporating these additional factors, researchers could gain a more nuanced understanding of how diversity interacts with different organisational contexts and characteristics to shape performance outcomes. This would enhance the depth and breadth of knowledge on the relationship between diversity and organisational performance, allowing for more comprehensive insights and practical implications.

In the second essay, the insights derived offer valuable inspiration for future researchers to enhance this area of study. First, one avenue for improvement for future research could involve expanding the sample size and period of analysis. By including a broader range of firms from various countries and industries, a more comprehensive analysis could be conducted to investigate the effects of board expertise diversity on ESG performance. This would enable a deeper understanding of the relationship and its potential variations across different contexts, contributing to a more robust and generalisable body of knowledge in this field.

Second, future studies could explore the relationship between board diversity and ESG performance in developing countries, allowing for a comparison with the findings in developed countries like Europe. By conducting cross-country analyses, future studies can examine the impact of board diversity on ESG performance across diverse economic, social, and cultural contexts. This comparative approach can provide valuable insights into the generalisability and effectiveness of board diversity initiatives in different regions, contributing to a more comprehensive understanding of the relationship between board diversity and ESG performance worldwide.

Third, another avenue for future research would be to delve into the moderating effects of additional variables, such as executive gender diversity and CEO characteristics, in order to develop a more nuanced comprehension of the association between board expertise diversity and ESG performance. By examining these factors, researchers may uncover the potential interactions and complexities that shape the relationship, further enriching our understanding of how diverse boards contribute to sustainable performance.

Fourth, future research has the potential to uncover the underlying mechanisms that drive the relationship between board expertise diversity and ESG performance. By delving into the specific mechanisms at play, such as the influence of board members' expertise in governance, sustainability, and social responsibility, researchers could gain deeper insights into how these factors shape a company's ESG strategies and outcomes. Understanding these underlying mechanisms would not only enhance our theoretical understanding but also provide practical implications for organisations seeking to optimise their ESG performance through board diversity initiatives.

The third essay presents opportunities for future research to further enhance understanding of this topic. First, future studies could extend the timeframe by using longer time periods or exploring alternative databases, allowing for a broader examination of the subject matter. By expanding the timeline, researchers could gain deeper insights into the long-term dynamics and trends related to the topic under investigation. This would contribute to a more comprehensive understanding of the subject and provide a foundation for further exploration in this area.

Second, while this study highlights the significant impact of board independence, future research could enrich the analysis by incorporating additional dimensions of diversity, such as gender or racial diversity. Including a broader range of diversity variables would enable researchers to conduct a more comprehensive and nuanced examination of the topic. By exploring various types of diversity, researchers may be able to unravel the intricate dynamics and potential synergies that different forms of diversity contribute to organisational outcomes. This expanded analysis will provide deeper insights into the multifaceted nature of the influence of diversity on organisational performance. Finally, future research endeavours may benefit from utilising broader or cross-country datasets to augment the depth of analysis. Despite these constraints, the study offers valuable perspectives on the connection between diversity policies and firm performance.

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