An-Najah National University
Faculty of Graduate Studies

ENVIRONMENTAL INNOVATION AND FIRM VALUE: THE MODERATING EFFECT OF CORPORATE GOVERNANCE IN EUROPEAN FIRMS

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This Thesis is Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Financial Accounting, Faculty of Graduate Studies, An-Najah National University, Nablus, Palestine.
2025

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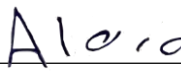
Dr. Aladdin Dwekat	
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Dedication

This thesis is dedicated

To

My beloved parents

My dearest brother

My precious sisters

My nieces and nephews

My grandparents, uncles, and aunts

My friends whom I love

For their endless love, support, encouragement, and prayers

for me.

Acknowledgements

First and foremost, I would like to thank God for blessing me with knowledge, patience, and good health throughout this journey.

I am profoundly grateful to my supervisors, Dr. Aladdin Dwekat and Dr. Muiz Abu Alia, for their valuable guidance, constructive suggestions, and constant support and encouragement throughout the thesis work.

I would also like to extend my sincere appreciation to the members of the thesis examination committee for their valuable comments, recommendations, and feedback, which greatly enriched my thesis.

Now, to my dear professors, doctors, and teachers, especially Prof. Abdulnaser Nour, Dr. Ghassan Daas, Dr. Sameh Atout, and Dr. Mohammad Yaaqbeh, thank you for your guidance and knowledge that contributed to my academic growth.

Last but not least, I am eternally grateful to my beloved parents, to my dearest brother, Dr. Mozfar, and to my successful sisters, who have always been there for me for better or worse, and they literally made me into who I am today. I cannot thank you enough.

Declaration

I, the undersigned, declare that I submitted the thesis entitled:

ENVIRONMENTAL INNOVATION AND FIRM VALUE: THE MODERATING EFFECT OF CORPORATE GOVERNANCE IN EUROPEAN FIRMS

I declare that the work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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Date: 27\10\2025

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Abstract

The purpose of the current study is to investigate the effect of environmental innovation (EI) on firm value among European firms. Furthermore, the moderating effect of corporate governance (CG) on the relationship between EI and firm value is also examined. This study utilized 17,430 company-year observations from firms across 24 European countries for the period 2010–2023. Tobin's Q was utilized to measure firm value, while the EI and CG were measured by using the EI score and governance score, respectively, retrieved from the LSEG Workspace database (previously known as Refinitiv Eikon database). To achieve the objectives of this study, panel data regression analysis was employed. The empirical findings of this study are consistent with our predictions that the EI positively enhances firm value. Furthermore, the existence of strong CG moderates the relationship between EI and firm value. These results offer a deeper understanding of how European firms implement EI initiatives in the real world and how these initiatives enhance firm value. Efficient CG mechanisms are critical for improving EI initiatives and achieving sustainable development goals. The present study proposes that managers and policymakers should develop more effective EI subsidy programs and environmental systems to incorporate EI initiatives into their operational activities, and direct financial support to technical support and training to ensure that firms have sufficient knowledge and skills to adopt EI initiatives effectively. Moreover, the government and regulators should develop CG mechanisms that consider the importance of adopting EI initiatives to enhance firm value.

Keywords: Firm value, Environmental innovation, Corporate governance, European firms, LSEG Workspace.

Chapter One
Introduction and Theoretical Background

1.1 Introduction

In today's corporate environment, environmental innovation (EI) is a key factor of sustainable development in response to growing stakeholder awareness of a corporate environmental responsibility and increasing environmental deterioration (Abu Alia et al., 2024; Bui & Krajcsák, 2024). Companies are compelled to adopt environmental initiatives and sustainable practices in their operational activities in order to address pressure from shareholders, comply with environmental regulations, and satisfy stakeholders' expectations (Chen et al., 2025). Salihi et al. (2024) supported that the companies design and implement several environmental practices and eco-friendly technologies to maximize economic benefits, preserve strong financial performance, obtain legitimacy, and eliminate ecological degradation, which has evolved a crucial global concern. The environmental initiatives involve advancement in a company's processes, products, management decisions, and marketing strategies that develop sustainable performance containing social, environmental and sustainability dimensions (Jaffe & Palmer, 1997).

EI is a type of environmental approaches that can be utilized to maximize financial benefits without violating environmental regulations (Meqbel et al., 2025). Akhter et al. (2023) approved that the implementation of EI practices plays a key role in achieving superior financial and environmental performance simultaneously. Companies are becoming increasingly design and implement several EI strategies in order to minimize negative environmental effects while boosting their competitive position (Abu Alia et al., 2024). Dwekat et al. (2025) revealed that the implementation of these strategies encourages companies to develop unique knowledge and skills of their employees that serve as critical sources to optimize financial benefits among their rivals. The most major types of the EI are environmental product innovation and environmental process innovation (Chen & Chang, 2013). These types of the EI involve the presence of an effective environmental management in producing eco-friendly products, improving the process of waste recycling, and reducing air and water pollution (Mansour et al., 2024).

Xie et al. (2021) found that EI initiatives improve a firm's competitive position and financial performance. Despite these advantages, companies face several challenges and obstacles in adopting EI initiatives represented in lack of required data, operational complexity, a lack of knowledge and skills, high production costs, funding uncertainty and shortages, and financial risks, which often enhance companies to adopt conventional models in business activities (Lin, 2024). Yang et al. (2024) revealed that when companies design and implement EI initiatives, they require accurate, detailed and relevant data during a production process. Moreover, Abu Alia et al. (2024) found that the companies face financial and non-financial restrictions when using scarce resources in order to enhance EI initiatives and sustainable development.

Companies can maximize their value and decrease their negative effects on the environmental performance at the enterprise level by integrating environmental practices into their operational activities (Abu Alia et al., 2024). Albitar et al. (2023) revealed the implementation of EI initiatives considers a critical strategy to minimize the environmental harm driven by the company's operational activities through allocating its resources and recycling waste effectively. These initiatives help companies to reduce the consumption of harmful materials through product life cycle (Cheng et al., 2025). Makpotche et al. (2024) also found that companies design and apply of several EI initiatives to develop financial performance and enhance their value by recycling production waste into eco-friendly products **(Asni & Agustia, 2022).** Furthermore, they can enhance their value by incorporating EI initiatives into managerial strategies and decision–making process (Wei et al., 2025). Xie et al. (2021) discovered that EI initiatives have a positive effect on the firm's future cash inflows, including improvement in management, production and marketing practices that lead to amplify firm value.

From the benefits standpoint, the implementation of EI initiatives enables companies to reduce avoidable resources waste, and encourage the use of scarce resources effectively (Khalil et al., 2024; Truong & Berrone, 2022). Resources-Based View (RBV) theory posits the EI initiatives and practices help companies to diminish the consumption of resources that can be avoidable and develop the process of reallocating scarce resources effectively (Mansour et al., 2024). Salihi et al. (2024) found that environmental products and services can maximize the company's competitive advantages, maximize financial benefits, and distinguish itself from other rivals. Conversely, Hirigoyen and Poulain-

Rehm (2015) argued that the adoption and implementation of EI initiatives will affect negatively on the market valuation; because they require additional research and development (R&D) expenses, apply new environmental strategies and technologies that lead to reduce firm value.

The success of EI initiatives highly centers on how a corporate governance (CG) framework integrates sustainable development into operational activities. It refers to how the power is utilized to manage and direct economic and social resources for sustainable development, including a system of principles, rules, practices, and processes (Salihi et al., 2024). It represents the interaction between the management, board of directors, shareholders, and stakeholders. The primary objective of a CG framework is to develop mechanisms that protect the rights of shareholders, develop financial performance, diminish managerial opportunism through aligning the interests of managers with shareholders, and enhance sustainable development (Lin, 2024). Abu Alia et al. (2024) revealed that a CG framework plays a key role in managerial decision-making process through directing administrative activities, controlling and monitoring the company's decisions, and optimizing investments in sustainable development.

Furthermore, Meqbel et al. (2025) supported that effective CG mechanisms help companies to optimize their investment in environmental practices and improve financial performance. The presence of well-structured CG mechanisms ensures the implementation of several EI initiatives that lead to enhance firm value (Aibar-Guzmán et al., 2024). They play a crucial role in using scarce resources effectively, directing management in decision-making process, and optimizing both of financial benefits and environmental performance. By improving a strong CG system, it will help companies to manage and adopt several EI initiatives, which impact positively on firm value (Makpotche et al., 2024). In other words, Xia et al. (2022) revealed that the absence of effective CG mechanisms weaken the ability of company to invest in environmental practices, resulting in reducing market valuation (Xia et al., 2022).

To our knowledge, the current study is the first study that investigates the moderating effect of CG on the relationship between EI initiatives and firm value. As a result, this study addresses prior studies that examined only the direct effect of EI initiatives on firm value. Although the existence of a strong CG framework is considered a significant factor

in designing and implementing several EI practices, it has been ignored in prior studies. In other words, the moderating effect of CG mechanisms on the relationship between EI initiatives and firm value remains unclear. Therefore, the primary objective of this study is to investigate the moderating effect of CG on the relationship between the adoption of EI initiatives and firm value across European companies by using a large dataset of 17,430 firm-year observations collected from the LSEG Workspace database during the period 2010-2023, By utilizing a large dataset from an overall sample of European companies, involving the most members of European Union (EU) countries.

1.2 Statement of the Problem

In the last few decades, EI has become an indicator of firm value (Mansour et al., 2024). The rising number of companies have recognized the importance of adopting and implementing environmental practices in order to improve environmental performance and achieve sustainable development (Semenova & Semenov, 2024). Wei et al. (2025) supported that companies invest in several EI practices and initiatives in order to avoid environmental penalties and address global concerns about the negative impact of companies on their environment. Moreover, these initiatives develop companies' financial performance and enhance their environmental image (Chen et al., 2025).

There is a theoretical dilemma about whether managing a company from an agency theory perspective or a stakeholder theory perspective is more suitable. The agency theory indicates that the primary objective of a company is to maximize the wealth of shareholders (Jensen & Meckling, 1976). However, stakeholder theory approved that a company should satisfy the needs and expectation of stakeholders, not just their shareholders (Voinea et al., 2020). This means the adoption of several environmental practices will improve firm value when the relationship between a company and its stakeholders are managed effectively. In addition, the stakeholder theory posits the higher cost of EI initiatives that satisfies the expectation of stakeholders that lead to reduce market valuation (Khalil et al., 2024) .

Although the impact of EI on firm value is well studied, there is a continuous debate about the results. Hirigoyen and Poulain-Rehm (2015), Voinea et al. (2020), Yao et al. (2019), and Xie et al. (2021) found that EI initiatives will impact negatively on firm value because they require additional resources, operational complexity, and new knowledge. However,

Agustia et al. (2019), Dai and Xue (2022), Iqbal et al. (2022), Mansour et al. (2024), and Liu (2024) revealed that firms can enhance firm value by adopting several EI initiatives and reallocating their scarce resources efficiently. In addition, many mechanisms that can amplify or constrain this relationship are underexplored. Especially the moderating effect of CG structure. According to Abdelhaq and Dwekat (2024), CG mechanisms involve various policies and strategies to achieve the firm's objectives, involving business strategy, coordination, risk management, and control systems to guarantee that the firm management runs its operations in accordance to shareholders' interests.

The current study bridges the gap by investing the moderating effect of CG on the relationship between EI and firm value for European companies, providing insights that extend beyond the limited geographical scope of previous studies, and how CG moderates the relationship between EI and firm value in European firms, providing a broad geographic coverage of the selected sample beyond the limited scope of previous studies. The study problem arises from the lack of knowledge about how CG mechanisms can integrate with EI initiatives to enhance firm value. Without this knowledge, firms may struggle to adopt and improve CG mechanisms that support EI initiatives and optimize firm value. The study seeks to answer the following research questions:

1. What is the nature and extent of adopting EI initiatives?
2. What is the effect of EI initiatives on firm value؟
3. What is the moderating effect of CG mechanisms on the relationship between EI initiatives and firm value؟

1.3 Study Objectives

The current study examines the moderating effect of CG on the relationship between EI and firm value. Specifically, this study aims:

1. To investigate empirically the nature and extent of EI of European firms from 2010 to 2023.
2. To analyze the relationship between EI and firm value and examine whether the involvement in EI enhances or reduces firm value.
3. To evaluate the moderating effect of CG on the relationship between EI and firm value. This means it will investigate whether CG mechanisms moderate the relationship between EI initiatives and firm value positively or negatively.

1.4 Study Importance

The study provides a comprehensive insight on the moderating role of CG framework on the relationship between EI initiatives and firm value across European firms through utilizing database during the period 2010-2023. According to an academic standpoint, this study provides a valuable contribution to EI initiatives and firm value research by understanding the nature of sustainable development practices and EI initiatives and how these practices and initiatives help firms to enhance firm value (Asni & Agustia, 2022). Prior studies investigated the direct impact of EI initiatives on firm value. The present study offers a novel perspective on the moderating role of CG framework on the relationship between the adoption of EI initiatives and firm value.

Moreover, this study develops a theoretical framework that emphasis on features of EI initiatives in European companies, which offers a comprehensive standpoint beyond the limited geographical extent of prior studies (Dwekat et al., 2025). This wide range of geographical extent will offer comprehensive and global discussions on the moderating role of CG framework on the relationship between the adoption of EI and firm value across European firms, especially because European countries regard leaders in environmental practices and sustainable development (Kolk, 2008). In addition, it helps future researchers to grasp other elements and factors that moderate the relationship between the adoption of EI initiatives and firm value.

According to a practical standpoint, the results of study provide a valuable insight to companies that seek to incorporate EI initiatives and activities into their decision-making process and operational activities by helping companies in using their resources effectively (Liu, 2024). Zhang & He (2024) supported that companies adopt environmental initiatives and strategies in order to improve environmental performance and enhance competitive position among their rivals. Based on these results, regulators and policymakers will develop environmental policies and standards that satisfy the expectations of stakeholders (Hao et al., 2022). Moreover, they can benefit from these results to improve CG framework that encourage the implementation of EI initiatives (Teixeira & Carvalho, 2024).

It also helps managers and organizations to understand the impact of adoption EI initiatives and practices on sustainable development. Semenova & Semenov (2024)

supported that companies with effective environmental practices will help them to improve operational efficiency, develop the process of risk management, and satisfy the expectations and needs of their stakeholders that lead to enhance the firm value. Investors can employ these results to identify companies with effective EI initiatives and practices; because they prefer to invest in companies that apply several EI strategies and initiatives (Salihi et al., 2024; Zaid et al., 2025).

Chapter Two
Literature Review and Hypothesis Development

2.1 Introduction

The present chapter displays the definition of variables that are used in this study, provide a review of a theoretical framework, including a comprehensive insight of many theories that are employed to explain the motivation of implementation several EI initiatives that lead to understand the relationship between the variables of this study, including the direct relationship between EI initiatives and firm value and the moderating role of CG mechanisms on the relationship between EI initiatives and firm value . The authors review prior studies related literature to the study's topic. Moreover, we develop the hypotheses of the study in accordance to theoretical framework and prior literature to achieve the study's objectives.

2.2 Definition of Concepts

2.2.1 Environmental Innovation

The concept of environmental innovation (EI) refers to sustainable initiatives that are adopted by companies in order to improve environmental performance. It is often called as green innovation, ecological innovation, or sustainable innovation (Abu Alia et al., 2024). Abdi et al. (2022) supported that the concept of the EI reflects the ability of a company to develop environmental performance through applying an innovate technology and developing skills and knowledge related to utilizing, producing, and developing environmental initiatives and practices. EI enables companies to acquire, generate, manage, and implement eco-friendly technologies in order to diminish negative effects of companies on environment and improve sustainable development (Albitar et al., 2023).

Yang et al. (2024) supported that adoption of EI initiatives require efficient and cleaner resources, which aims to produce eco-friendly products, enhance water management, optimize waste recycling, and diminish environmental pollution. When companies implement several environmental strategies, they will decrease production costs that can be avoidable in manufacturing process and amplify financial benefits (Elamer & Boulhaga, 2024). These strategies also play a crucial role in achieving competitive

position among their rivals and developing financial performance (Bui & Krajcsák, 2024).

EI can be defined as the adoption, implementation, or development of production process, products, service, and business methods that are novel to the firm over its life cycle that lead to reduce environmental pollution, risk, and other negative effects of use its energy compared to related alternatives (Jiang, et al., 2024; Xie et al., 2021). It refers to software or hardware innovation that is related to environmental processes or products, containing innovations in technologies included in pollution-prevention, energy-saving, waste recycling, environmental product designs, and business environmental management (Jaffe & Palmer, 1997). According to Li et al. (2018), EI is sustinable innovation that develop sustainable performance among all dimensions, involving economic, social, and environmental dimensions.

Nadeem et al. (2020) defined EI as long – term strategy that develop sustainability development goals (SDG) by minimizing scare resource consumption and adverse environmental impacts that result in aligning the business strategy with the values of its investors and customers. Furthermore, Dwekat et al. (2025) supported that EI refers to the initiatives that are required to reduce air pollution and greenhouse emissions without significantly diminishing the consumption and production of non-energy goods, including both private and public investments. EI initiatives can be managed proactively or responsively (Akhter et al., 2023). Proactively innovations occur when companies adopt environmental practices to create strategic and voluntary changes beyond environmental regulations, which are effective approach but require financial support, while Responsive innovations reflect a regulation-driven innovation to make incremental changes but are inefficient and time-consuming initiatives (Hippel, 1998).

The primary objective of EI is to reduce the negative influence of industrial practices on the environment, and develop sustainable development rather than optimizing commercial benefits (Chen & Chang , 2013). Liu (2024) supported that EI plays a significant role in restricting energy consumption, supporting ESG activities, and improving environmental performance. It aims to reduce negative environmental harm by reducing waste, emissions, and pollution throughout the consumption and production cycle (Shu et al., 2024). By addressing environmental harm, it helps firms to reduce

operational costs, acquire profitable opportunities, and manage potential risks (Xie et al., 2021). Moreover, it helps firms to comply with environmental policies and regulations by avoiding environmental penalties (Chen et al., 2025). it plays a critical role in building investors trust and legitimacy by enhancing relationship with investors, customers, regulators, and communities (Liao et al., 2019).

Iqbal et al. (2022) supported that firms adopt EI initiatives to run their business operations in accordance to norms, values, and environmental regulations, that enable them to long-term survive. It also supports SDG by aligning operational activities with environmental goals (Meqbel et al., 2025). EI can be divided into environmental product, process, marketing and organizational innovation (OECD, 2005). The most popular types of the EI are environmental process innovation, and environmental product innovation; because they are widely implemented by firms to diminish negative environmental effects through technological improvement (Truong & Berrone, 2022). The first type of innovation refers to the implementation and improvement of new production processes, strategies, technologies, and improved operational strategies that reduce a firm's negative effects on the environment (Khan et al., 2020). It focuses on efficiency of production processes with less adverse environmental impact and lower consumption of scarce resources (Yao et al., 2019). It is driven by internal source with the requirement to develop internal production process (Khan et al., 2021). Environmental process innovation can help the firms to reduce water and air emissions, develop internal process efficiency, and enhance market valuation (Liu et al., 2021). However, the adoption of environmental process innovation is costly and it take a lot of time to reflect its positive impact (Yang et al., 2024).

However, the second type of innovation refers to the production or improvement new products or developing existing products with less adverse environmental impact and consumption of energy or economic resources (Adomako & Nguyen, 2023). It focuses on designing the product in order to produce products more sustainable to develop environmental effect or reduce environmental harm. Environmental product innovation emphasizes on three key elements: energy efficiency, material-saving, and pollution-reduction relating to various stages of production cycle (Iqbal et al., 2022). It is impacted by market-driven and regulation-driven from the external environment (Meqbel et al., 2025). Xie et al. (2021) revealed that environmental process innovation has a positive

effect on environmental product innovation, and both of them enhance competitive advantages and develop a firm's financial performance.

Literatures indicate internal and external determinants impact firm' EI. Internal determinants comprise scarce resources availability, including financial and human resources, firm age, nature, CG framework, organizational Strategy and culture, top management commitment, R&D intensity, financial capacity, and technological proficiency (Liu et al., 2021; Makpotche et al., 2024). Firms with a large size have better resources and capacity conditions, while also facing pressure from stakeholders and social responsibility (Salihi et al., 2024). Therefore, they need to develop their competitive advantages by improving several EI strategies (Elamer & Boulhaga, 2024). Additionally, employees' awareness of environmental benefits has a positive impact on EI initiatives.

External factors include environmental regulations (Liao et al., 2019), cultural and institutional contexts, government support, shareholders pressure (Abu Alia et al., 2024), stakeholders' awareness of environmental harm, market competition (Xie et al., 2021), and the influence of customers and suppliers, who are motivated to adopt EI initiatives because they prefer eco-friendly products (Truong & Berrone, 2022). Higher foreign ownership percentages also tend to encourage firms to invest in environmental practices (Semenova & Semenov, 2024). Both internal and external determinants are crucial in shaping the direction, scope, and effectiveness of a firm's environmental strategy. EI demonstrates a firm's social commitment to the society in which it operates (Xie et al., 2021). When the firm adopts cleaner processes, improvement of eco-friendly products, and sustainable business models, it significantly reduces the negative impact of their operational activities, such as resource inefficiency, environmental pollution, and greenhouse gas emissions (Chen et al., 202; Wanga & Ahmad, 2024).

Cheng et al. (2025) supported that the adoption of environmental strategies with scarce resources and capabilities helps firms to improve their financial performance. The firms can develop environmental products and processes by collaborating with suppliers, customers, and other entities rather than depending on their internal resources (Hippel, 1998). EI initiatives generally lead to enhance firm value, as they help firms to minimize the cost of raw materials and waste disposal, optimize product value and competitive advantages, reduce public pressure, and affect future environmental regulations which

increase competitors' relative costs (Khalil et al., 2024; Ma et al., 2021). Abu Alia et al. (2024) and Mansour et al. (2024) also indicated that EI initiatives can enhance productivity, develop environmental image, gain competitive advantages, and increase firm value. However, Hirigoyen & Poulain-Rehm (2015) have shown the investment in EI practices have a negative effect on current market value due to the significant production costs associated with implementing EI initiatives.

The adoption of EI is significantly impacted by CG system and strategic policies designed to enhance sustainable development (Dwekat et al., 2025). Effective CG mechanisms ensure that board members and executives incorporate ESG practices into decision-making process instead of focusing on short- term financial benefits (Dwekat et al., 2020). These mechanisms impact a firm's environmental performance by increasing mangers' awareness of stakeholders' preferences (Tsang et al., 2023). Strong CG framework provides a system that develop goals to satisfy the interests of both shareholders and society (Teixeira & Carvalho, 2024). Firms with well-governed systems are more likely to achieve SDGs and operate as socially responsible entities (Hu & Wu, 2024). The firm with a higher CG rating correlates with the developments in environmental products and processes. Xue et al. (2024) and Meqbel et al. (2025 supported that effective CG mechanisms enhance the investment in environmental initiatives by enhancing accountability, reliability, and transparency.

EI is regarded a valuable resource (Liu, 2024), but it is still risky investment due to several limitations. First, the adoption and improvement of environmental initiatives require substantial capital investments, sufficient trained and qualified employees (Zhang & He, 2024). Second, these initiatives require significant investment in R&D, infrastructure development, and technological integration (Mansour et al., 2024). Third, small and medium-sized enterprises (SME) face challenges in allocating their scare resources for investment in EI initiatives, accessing to funding sources, and improving technological capabilities (Meqbel et al., 2025). Fourth, the design and adoption of EI initiatives can be restrictive and complex process, involving significant collaboration across several organizational units (Yang et al., 2024). Fifth, experts also face difficulties in measuring the level of adoption EI initiatives; because environmental returns are intangible and can be observed over long-term (Jaffe & Palmer, 1997). Some previous studies have utilized R&D spending or patents as proxies for EI initiatives, which may not accurately indicate

the practical adoption of environmental practices (Abu Alia et al., 2024). Sixth, the financial benefits of EI initiatives are uncertain that lead to reduce firms' motivation of investment in environmental practices (Xie et al., 2021). Seventh, market demand for environmental products tends to be slow if customers are unwilling to pay for these products, especially in developing countries (Weston & Nnadi, 2023).

2.2.2 Firm Value

The term " firm" refers to a legally organized entity consisting of one or more individuals and is distinct from its shareholders (Dai & Xue, 2022). The main objective of a firm is to maximize the wealth of its owners or shareholders. Firm value is the valuation of the entire business, including its assets, debts, equity, and other claims (Salihi et al., 2024). It reflects a firm's ability to maximize shareholders' wealth while maintaining its competitive edge in the market (Salihi et al., 2024). From a strategic standpoint, firm value refers to the market's perception of a firm's ability to generate sustainable earnings, optimize growth opportunities, and mitigate potential risks (Dang et al., 2019). According to Hao et al. (2022), firm value represents the present value of all expected future cash inflows and future cash outflows produced from firm activities, at an appropriate discount rate that reflects the risk level of these future cash flows.

There are several elements that impact a firm's value, including capital structure, financial liquidity, profitability, board structure, managerial incentives, environmental practices, and future growth opportunities (Dai & Xue, 2022). Dang et al. (2019), Jensen (1993), and Rajan and Zingales (1995) revealed that a firm a higher profitability and an optimal capital structure is more likely to gain and maintain investor trust, which lead to enhance firm value. According to Singh et al. (2018), the concept of Firm value considers an essential indicator of the firm's financial performance. It takes into account investors' anticipations for all future cash inflows and cash outflows in contrast to other financial and accounting measures such as return on assets (ROA) and return on equity (ROE), which merely relies on past results, firm value considers the expectations of investors about future cash flows (Dang et al., 2019).

A high firm value indicates the trust and confidence of investors and other stakeholders about the firm's ability to implement effective strategies, maintain sustainable profits, and optimize long-term wealth (Truong & Berrone, 2022). This trust is developed by several

elements, involving effective CG mechanisms, strong financial performance, firm's strategic efficiencies, and social and environmental initiatives (Jiang et al., 2024). In contrast, a decline in market valuation may reflect ineffective CG framework, weak financial performance, firm's strategic inefficiencies, failure to satisfy expectations of its stakeholders, which result in reducing market trust and competitive advantages (Hao et al., 2022; Xie et al., 2021).

In the context of environmental performance and CG research, firm value is often considered as a dependent variable because the adoption of environmental practices and effective CG mechanisms are anticipated to align decision- making process with interests of its stakeholders, thereby enhancing market valuation (Hizarci-Payne et al., 2021). Furthermore, EI impacts firm value by signaling to the market a company's obligated to operational efficiency, sustainable development, and long-term competitive advantages (Truong & Berrone, 2022). However, the effect of EI on firm value may be either positive or negative relying on how these environmental initiatives are integrated and governed into company strategy (Bui & Krajcsák, 2024; Truong & Berrone, 2022; Weston & Nnadi, 2023).

2.2.3 Corporate Governance

CG was advocated by Cadbury Committee (1992). This committee was created in the United Kingdom (UK) to address public concerns about corporate failures and financial scandals during the 1980s. (Code, 1992). The Cadbury Committee aimed to develop standards of firm accountability and to enhance investors' confidence. It published a report known as the Cadbury Report, which explained key principles for strong CG mechanisms, emphasizing accountability, transparency, and the effective role of the board of directors (Zaman et al., 2021). CG refers to the system of practices, rules, and processes by which a firm is controlled and directed (Teixeira & Carvalho, 2024). CG represents the structures and mechanisms that enhance accountability and align the interests of both a firm's shareholders and management (Meqbel et al., 2025). It refers to all factors impacting the institutional process, including regulators and controllers, which is used as tool to satisfy shareholders' interests and maintain a balance among various stakeholders (Yang et al., 2024).

The mechanisms of CG can be classified into internal control mechanisms and external control mechanisms. Internal control mechanisms contain board composition, ownership structures, executive compensation, and audit committees (Code, 1992; García-Meca, Ramón-Llorens, & Martínez-Ferrero, 2024). The primary objective of these mechanisms is to reduce agency costs and mitigate managerial opportunism by aligning the interests of agents with those of principals (Jensen & Meckling, 1976). Whereas, external control mechanisms contain regulatory frameworks, institutional pressures, investor activism, and market competition (Yang et al., 2024).

When companies have strong CG mechanisms, it will ensure the commitment of companies with environmental and legal regulations (Teixeira & Carvalho, 2024). Dwekat et al. (2020) supported that strong CG framework has positive impacts represented in improving operational activities, gaining and maintaining organizational legitimacy, and enhancing companies to invest in EI initiatives and practices. The degree of implementing environmental practices in compaines are affected positively by strong CG mechansims (Salihi et al., 2024). Dwekat et al. (2025) found that companies develop strong CG framework in order to enhance environmental policies, improve accountability and transparency, encourage the implementation of EI projects, and control managerial behaviors in the process of decision-making.

Bui and Krajcsák (2024) supported that strong CG mechanisms enhance operational activities and develop sustainable development that lead to enhance firm value. According to Janang et al. (2020) and Meqbel et al. (2025), when companies integrate effective CG mechanisms into their operational activities, it will enhance the implementation of several environmental practices, which lead to amplify future cash inflows and enhance firm value. On the other hand, weak CG framework decreases the operational efficiency and increase the possibility of financial crisis and corporate scandals (Teixeira & Carvalho, 2024). Xia et al. (2022) revealed that a weak CG framework reduce the ability of companies to invest in environmental initiatives and projects and focus only on achieving short-term financial benefits.

2.3 Theoretical Framework

Companies are compelled to optimize their environmental practices due to the growing awareness of stakeholders about the environmental effects of corporate activities (Abu Alia et al., 2024). Over the last few decades, they are integrating sustainable strategies, involving environmental practices, processes, initiatives, and organizational structures into their operational activities (Jaffe & Palmer, 1997). Nadeem et al. (2020) supported that the implementation of sustainable strategies helps companies to develop financial performance, enhance competitive advantages, and diminish negative impacts of corporate activities. Moreover, Abdelhaq and Dwekat (2024) revealed that the design and adoption of several sustainable initiatives require strong CG mechanisms, effective organizational structures, and committed leadership, which ensure that companies increase their EI initiatives and achieve their strategic objectives.

A lot of theories have been employed in sustainable development studies to clarify the drivers of adoption EI initiatives. The complete conceptual lenses of theories contain Agency theory, Stakeholders theory, Legitimacy theory, Resources–Based View (RBV) theory, and Institutional theory.

2.3.1 Agency Theory

According to Jensen and Meckling (1976), agency theory offers a comprehensive framework that displays the relationship between managers (agents) and shareholders (principles). This theory posits the conflict of interests that occurs between managers and shareholders as a result of information asymmetry between two parties (Meqbel et al., 2025). The concept of information asymmetry takes place when managers have more or better information about business activities rather than shareholders, involving an imbalance of power between two parties that leads to an ineffective decision–making process (Chen et al., 2025). According to Zaid et al. (2025), they approved that the mangers are selected by shareholders to manage and oversee the operational activities on the own behalf of shareholders, but the managers may prioritize their own interests over the interests of shareholders that lead to incur additional costs by shareholders, called by agency costs.

Jensen and Meckling (1976) defined agency costs as the additional costs that incur due to the conflicts of interest between agents and principles. They include bonding costs to

assure that agents will behave in the principles' interests, monitoring costs to control and oversee agents' actions, and residual loss that arises after bonding and monitoring mechanisms have been incurred (Abu Alia et al., 2024; Zaid et al., 2025). These costs aim to monitor the agent's operations and minimize the information asymmetry between parties (Liu, 2024). Fuadah et al. (2022) revealed that the agency costs have a negative impact on shareholder's wealth and firm value resulting from information asymmetry between principles and agents.

From an environmentally friendly standpoint, environmentally oriented firms are more likely to adopt various EI initiatives to enhance their positive image among several shareholders and therefore reduce information asymmetry through increasing the transparency of their environmental disclosures (Zaid et al., 2025). Because these initiatives require sustainable product improvement and cleaner production processes they encourage agents to focus on long-term financial performance by aligning managerial behavior with shareholder interests (Zhang & He, 2024). In addition, the adoption of EI initiatives requires transparent reporting, reliable monitoring, and long-term investment strategy that diminish agents' opportunistic behavior (Elamer & Boulhaga, 2024). Moreover, many firms have aim to develop EI by encouraging mangers to consider environmental matters when making their decisions and not only focus on financial outcomes (Semenova & Semenov, 2024).

According to agency theory, EI is considered as an effective tool to minimize information asymmetry and agency costs (Abu Alia et al., 2024). Liu (2024) revealed that the EI plays a critical role in reducing agency costs through several environmental initiatives. In order to diminish agency costs, companies integrate EI initiatives into their business activities (Jensen & Meckling, 1976). This theory reveals that the managers may do not manage their operational activities in order to maximize the shareholders' wealth (Chen et al., 2025). Healy and Palepu (2001) confirmed that the shareholders are more interested on the long-term value of the company, while the managers are more concerned in maximizing the current value of the company. Goud (2018) and Meqbel et al. (2025) supported that the interests of managers and shareholders can be aligned by implementing strong CG mechanisms, including board independent, incentive corporate systems, and transparent reporting.

In order to minimize the conflict of interests between managers and shareholders and reduce manger's misconduct in business activities, companies adopt strong and effective CG mechanisms as a monitoring tool (Jensen & Meckling, 1976). Abu Alia et al. (2024) also displayed that CG mechanisms play a critical role in reducing agency costs. The effectiveness of CG mechanisms in carrying out the responsibilities relies on the characteristics and qualifications of its board members (Elamer & Boulhaga, 2024).

2.3.2 Stakeholder Theory

According to Freeman (1984), a stakeholder is any individual or group directly influenced by the firm's objectives and achievements or can influence them, or both. Primary stakeholders include government, employees, suppliers, consumers, and competitors Primary stakeholders include the government, employees, suppliers, consumers, and competitors (Farza et al., 2021). Whereas, secondary stakeholders involve the local community, non-governmental organizations, and media (Freeman et al., 2021). Stakeholder theory persists that firms run their activities within a complex interaction between stakeholders where each stakeholder has expectations and interests that must be managed to achieve long-term value. This theory encourages firms to recognize their stakeholders, whether they are primary stakeholders or secondary stakeholders, it also encourages understanding and satisfying their requirements to enable firms to maximize value creation, maintain their sustainability, and success over the long-term (Semenova & Semenov, 2024).

The stakeholder theory posits that the main firm's objective is to satisfy the interests and expectations of various stakeholders and maximize the value of shareholders (Xie et al., 2021). From the perspective of this theory, it supports the importance of creating sustainable relationships with several stakeholders; because they are critical to exist, survival, and success of the firm (Freeman et al., 2021). Engaging with several stakeholders involving investors, customers, regulators, employees, and local community helps to understand expectations, anticipate potential risks, and proactively respond to environmental concerns (Elamer & Boulhaga, 2024). Environmental initiatives are strategies that differ from traditional strategies (Farza et al., 2021). According to stakeholder theory, traditional strategies optimize short-term financial performance and profitability and often ignore significant environmental issues (Khamisu et al., 2024).

To maximize value for several stakeholders, EI is used as an organizational resource to satisfy their needs (Salihi et al., 2024). By adopting EI initiatives, firms accomplish both their financial obligations and their social and environmental responsibilities that align with stakeholders' expectations. When a firm design and implement EI initiatives, it will increase the firm value by converting production waste into environmentally friendly products (Adomako & Nguyen, 2023). EI strategies are adopted by top management in response to pressures from their stakeholders and also enhance financial benefits that increase the firm's value (Cheng et al., 2023). Farza et al. (2021) revealed that firms will adopt EI initiatives in order to enhance brand loyalty, boost employee motivation, and facilitate access to financing sources, all of these factors improve long-term firm value.

A lot of stakeholders nowadays are more worried about environmental issues and how firms respond to these issues (Khamisu et al., 2024; Zhang & He, 2024). Investors are incorporating Environmental, Social, and Governance (ESG practices) into their decision-making process, customers highly demand eco-friendly products and services, whereas employees prefer to work within firms that show a commitment to environmental sustainability (Donaldson & Preston, 1995). Governments and regulators are imposing strict environmental policies, and communities frequently advocate for firms to reduce their environmental harm (Freeman, 1984). This theory aims to satisfy stakeholder's interests, supported by increasing the importance of Corporate Social Responsibility CSR research, including EI literature (Lopez-Manuel et al., 2023). Stakeholder pressure can encourage organizational efforts by creating new strategies that diminish ineffective practices and enhance environmental practices. Elamer and Boulhaga (2024) revealed that engaging in environmental and sustainable practices considers reactive response from firms to stakeholder pressure, which indicates the firm is obligated to implement these practices. Firms adopt CSR practices, containing EI initiatives, not only to maximize the wealth of their shareholders, but also to eliminate administrative opportunism, boost their reputation, and satisfy stakeholders' needs (Lin, 2024).

According to stakeholder theory, EI is a reactive strategy that converts stakeholder pressures into opportunities for differentiation, innovation, and competitive edge (Dwekat et al., 2025; Zhang & He, 2024). EI initiatives enhance the firm's competitive position by improving intangible benefits, enhancing the relationship between firm and its stakeholders, and addressing the environmental concerns of their stakeholders (Adomako

& Nguyen, 2023). ESG initiatives are used by firms to satisfy their stakeholder's needs by achieving societal and environmental objectives. This theory indicated that ESG initiatives maximize a firm value by building favorable relationships with their stakeholders (Zhang & He, 2024). According to stakeholder theory, firm should optimize stakeholders' needs in order to create a long-term relationship with them that support the long-term expansion (Donaldson & Preston, 1995).

Stakeholders impose pressure on firms to improve their environmental initiatives (Abu Alia et al., 2024). Environmental regulations have compelled firms to adopt environmental initiatives that are overseen and monitored by CG framework (Lin, 2024). The existence of CG structure can impact a firm's ability to satisfy expectations of its stakeholders and respond to environmental requirements (Xue et al., 2024). In addition, Salihi et al. (2024) supported that effective CG mechanisms encourage the involvement of stakeholders in decision-making process that lead to increase the investment in EI initiatives and sustainable development. By adopting strong CG framework, it will enhance the relationship between companies and their stakeholders and address environmental issues efficiently (Cheng et al., 2025).

2.3.3 Legitimacy Theory

Legitimacy theory was propounded by Dowling and Pfeffer (1975), who argued that the ability of companies to develop and survive relies on how they manage and run their operations inside their society constructed system of value, norms, and beliefs. legitimacy theory involves an implied social contract between the company and its society, which help companies to obtain valuable resources, gain public trust, and enhance sustainable development goals (Zhou et al., 2022). Preston et al. (1995) supported that legitimacy is evaluation of a company's behavior in accordance to common or shared value in light of its engagement in its society. When company activities are managed in accordance with social norms and value, the company will gain and maintain legitimacy. Akhter et al. (2023) supported that the legitimation is the process by which a company confirms its rights to present and survive in order to obtain, import, alter, and export information or energy.

Companies can obtain and maintain legitimacy only if they satisfy the need and expectation of their stakeholders, which are influenced by institutional, regulatory,

normative pillars (Zhou et al., 2022). According to Preston et al. (1995), legitimacy theory regards as a crucial framework that are utilized to explain the strategies and motivations of a company, and how they respond to environmental crisis. The concept of social contract, which considers the basis of a legitimacy theory and reflect the level of alignment between the company's activates and societal values and norms (Zhou et al., 2022). When the company distributes its economic, social, and political resources effectively and achieve social objectives and goals, it will obtain and maintain legitimacy that lead to enhance its existence and survive (Abu Alia et al., 2024). The company runs its business in a way that can satisfy societal expectations who have an impact over the firm (Li et al., 2018).

Supporting this, Shu et al. (2024) showed that the legitimacy is a critical for a firm, it gains the stakeholder's support. Legitimacy is gained when a firm's norms align with societal expectation relating to environmental issue (Dowling & Pfeffer, 1975). According to this theory, the companies must be accountable toward society in order to obtain social credibility and acceptance (Zhou et al., 2022). When a firm's objectives and behaviors align with societal expectations in which it operates, it obtains legitimacy that translates into trust, reputation, long-term support, competitive advantages, and long-term sustainability (Agustia, 2023). Moreover, when a firm obtain legitimacy, it minimizes uncertainty about its behaviors, enhance investors to provide financing sources, enhance employee's satisfaction, and reassure customers and suppliers about the firm’s integrity and reliability (Shu et al., 2024).

Growing awareness of environmental degradation, climate change, and resource scarcity, has led stakeholders—including investors, customers, regulators, and communities to impose pressure on firms to balance between profitability and environmental performance (Shu et al., 2024). By adopting EI initiatives such as environmental process design, eco-friendly products, and cleaner technologies, firms demonstrate that they obtain and maintain legitimacy (Akhter et al., 2023). EI is being regarded as an essential strategy by which the firms can obtain and maintain legitimacy (Wanga & Ahmad, 2024). These initiatives help firms align their operational activities with societal norms and values, reduce environmental harm, and boost trust with several stakeholders (Dowling & Pfeffer, 1975).

Moreover, the commitment to EI initiatives is regarded as a proactive behavior, showing that the firm impacts environmental performance positively, which reduce any legitimacy gap that may arise from poor compliance with environmental regulations (Agustia, 2023). According to legitimacy theory, failure to participate in EI initiatives that lead to damage organizational legitimacy, increase potential restrictions, and damage public trust (Li et al., 2017). However, active EI initiatives can enhance a firm's legitimacy and translate into long-term competitive position and increase market value (Abu Alia et al., 2024). EI initiatives do not only develop operational efficiency but they also serve as visible signals that the firm run its operational activities responsibly toward the environment and society (Hu & Wu, 2024).

Firms encourage their engagement in EI initiatives to guarantee a high level of legitimacy. Li et al. (2017) supported that EI plays a critical role in promoting financial and environmental performance by satisfying stakeholders' expectations. According to legitimacy theory, firms will implement several strategies to prove their alignment with society (Hu & Wu, 2024). According to legitimacy theory, firms will design and adopt several strategies to enhance their alignment with society (Agustia, 2023). CG mechanisms are considered as a cornerstone for enhancing a firm's legitimacy (Janang et al., 2020). Effective CG mechanisms indicate that firms operate in accordance with societal expectations (Li et al., 2017). The existence of effective CG mechanisms enhances firm's social contracts in order to ensure compliance with principles and norms of its society (Zhou et al., 2022).

These mechanisms are crucial elements to achieve high level of accountability and fairness that lead to maintain organizational legitimacy and satisfy the expectations of stakeholders in the process of decision-making (King Committee on Corporate Governance, 2016). Dwekat et al. (2025) supported the presence of effective CG mechanisms helps companies to show their commitment with ethical norms and values through boosting confidence and trust between companies and their shareholders, regulators, and public. According to Chen et al. (2021) and Janang et al. (2020), when companies manage and run their operational activities in accordance to societal expectation, it will allocate their resources effectively, enhance competitive advantages, and increase their market valuation over the long period of time.

2.3.4 Resources–Based View (RBV) Theory

According to Barney (1991) and Salihi et al. (2024), superior competitive advantages can be gained by a firm with distinct, non-imitable, superior economic resources and capabilities. Barney (2001) defined resources as all accessible assets, skills, abilities, knowledge, and information that are utilized by firms to adopt several strategies that improve operational activities effectively. These economic resources are difficult to obtain or transfer, and require suitable culture and environment. The major types of economic resources are physical assets, intangible assets, organizational resources, and human capital resources (Agrawal et al., 2024). When companies determine and obtain these economic and scarce resources, they will develop their involvements in sustainable development practices. Lukovszki et al. (2021) supported that scarce resources have crucial effects in creating organizational strategies that are difficult for competitors to imitate, and developing operational activities, which lead to accomplish superior competitive position.

They facilitate the firm to develop strategies that competitors cannot imitate easily, resulting in superior financial performance (Dwekat et al., 2025). Jiang et al. (2024) supported the significance of companies to interact with its investors, customers, suppliers, other companies, and government, which lead to help companies to facilities their access to scarce resources and develop the implementation of EI initiatives and practices (Freeman et al., 2021). Salihi et al. (2024) supported that EI has unique features and characteristics that differ from other forms of traditional innovations. Barney (1991) supported that EI is a scarce resource that helps companies to develop operational activities efficiency, reduce environmental costs, and amplify future financial benefits. Fulfilling EI initiatives is considered as an effective way to enhance the company's image that attract more scarce resources to the company.

In other words, when a company desires to develop operational activities, improve eco-friendly products and processes, environmental technologies, and sustainable systems, it acquires investments in environmental practices (Barney, 2001). Efficient and effective usage of scarce resources boosts the firm's value. The design and adoption of environmental practices have a vital role in motivating the firm's ability to gain competitive position (Lukovszki et al., 2021). This theory focuses on a firm's capabilities and resources, indicating that environmental practices enhance firm value through several

strategies such as sustainable development, pollution prevention, and product management (Agrawal et al., 2024). Firms with advanced EI initiatives can differentiate their eco- friendly products and services, access new markets, and benefits from regulatory incentives, which lead to enhance competitive advantages and increase market valuation (Dowling & Pfeffer,1975).

The adoption of ESG initiatives is considered as effective method to enhance the firm's ability to attract more scarce resources. According to RBV theory, ESG initiatives develop competitive advantages by improving and maintaining of unique organizational capabilities and competencies (Elamer & Boulhaga, 2024). Barney (2001) revealed that CG mechanisms are classified as a firm' resource. Salihi et al. (2024) supported that the existence of strong CG mechanisms and growing customers awareness about environmental practices encourage top management to integrate EI into firm's operational activities.

This theory posits that effective CG mechanisms help firms acquire valuable resources essential for a firm's success (Barney, 1991). Dowling and Pfeffer (1975) revealed the effective CG mechanisms with scare resources can enhance the firm value by reducing its dependance on external resources. In addition, these effective help firms protect their intangible resources, including intellectual capital, reputation, and stakeholder trust, which are difficult for rivals to imitate (Dwekat et al., 2025).

2.3.5 Institutional Theory

According to DiMaggio and Powell (1983), a firm adjusted its behaviors to comply with institutional guidelines and expectations. This may lead to standardize procedures, social norms and organizational structure between firms within specific sector (Risi et al., 2023). The surrounding institutional environment in which a firm runs its activities plays a significant role in determining its behaviors and capacity to innovate regarding environmental practices (Agrawal et al., 2024). The effectiveness of organizational regulations depends on how they are designed, implemented, and enforced within the organization. Adomako and Nguyen (2023) confirmed that institutions significantly influence a firm's behavior and decision-making process as part of a social game. Khan et al. (2020) agreed that the cultural and social environment heavily influences a firm's activities and decisions.

DiMaggio and Powell (1983) argued that firms face three types of institutional forces that shape their practices and behaviors. First, coercive pressure refers to the extent to which firms are influenced by regulations driven by powerful parties, such as customers, suppliers, and governments (McDougall et al., 2022). Additionally, mimetic pressures refer to the tendency of firms to imitate successful peers, especially under conditions of uncertainty (Risi et al., 2023).

In recent years, environmental pollution accidents have drawn more attention to EI initiatives (Adomako & Nguyen, 2023). According to Risi et al. (2023), EI helps firms comply with legal regulations and boosts their competitive advantages. Firms become more interested in EI as environmental regulations become stricter (Khan et al., 2020). Due to increasingly stringent environmental regulations, companies are starting to utilize several strategies to reduce their negative environmental effects and optimize legitimacy and governmental support (Yang et al., 2024). By imposing environmental restrictions, the government sends obvious signals to companies regarding the importance of developing environmental activities (Dong et al., 2024). These regulations may encourage companies to increase investments in environmental practices. Agrawal et al. (2024) revealed that institutional pressure enhance company to implement identical processes and practices of other companies in similar sector in order to satisfy the expectations of organizational institutions.

In order to mitigate pressures from their investors, stakeholders, and regulatory bodies, companies implement several environmental practices (DiMaggio & Powell, 1983). EI initiatives play crucial effects in enhancing good reputation, maintaining of organizational legitimacy, and increasing compliance with their organizational structures and regulations, which lead to enhance firm value (Semenova & Semenov, 2024). According to Adomako and Nguyen (2023), when companies satisfy societal expectations about environmental performance, they will increase market valuation through minimizing production costs that can be avoidable, attracting potential investors, and maximizing customer loyalty.

According to this theory, institutional pressures have a crucial effect in developing strong CG mechanisms. Coercive pressures indicate that companies implement effective CG mechanisms in order to adhere with legal standards, board structures, disclosure

requirements (Khan et al., 2020). Whereas, Normative pressures supported that the adoption of CG practices are regarded as best practices such as ethical leadership, board independence, and stakeholder engagement in order to comply with professional and societal expectations (DiMaggio & Powell, 1983). Risi et al. (2023) supported that the existence of strong CG mechanisms reflects an effective internal control system in order to enhance transparency and address several forces from external institutions.

This indicates the adoption of CG framework is considered as a dual mechanism that ensure accountability and internal control in response to external institutional forces (Adomako & Nguyen, 2023). Firms adopt several CG mechanisms to reduce information asymmetry, obtain legitimacy, and enhance trust with several stakeholders, rather than only aiming to optimize shareholder value (Aibar-Guzmán et al., 2024; Risi et al., 2023). Institutional theory supports that CG mechanisms help to adopt similar procedures across firms in similar regions or industries (Agrawal et al., 2024).

2.4 Literature Review and Development of Hypothesis

2.4.1 Environmental Innovation and Firm Value

Traditionally, economists considered that the investment in EI would increase capital costs, limit other profitable investment opportunities, and attract management attention (Palmer et al., 1995). However, over the last two decades, Jaffe and Palmer (1997) provided evidence that the EI initiatives may generate benefits for both firms and environment. EI has considered as a critical driver of firm strategy in response to regulatory pressures, growing environmental concerns, and stakeholder demands for sustainability development goals (Dwekat et al., 2025).

It involves the adoption and development of novel processes, products, or organizational practices aimed at reducing environmental effects while enhancing or maintaining a firm's financial performance (Bui & Krajcsák, 2024). By adopting EI initiatives, the firms can mitigate pressures from shareholders and society, maximize product value, and enhance competitive advantages (Mansour et al., 2024). It also develops reputation and consumer demand for eco - friendly products and services (Cheng et al., 2025). Moreover, it reduces production costs, and influence future environmental regulations that increase competitors' compliance costs, resulting in benefits that are expected to be generated more than the costs of these initiatives (Liu, 2024).

EI is a crucial intangible asset that shapes firm value by enabling firms to incorporate environmental objectives with attractive investment opportunities (Dwekat et al., 2025). Hirdinis (2019) revealed that the value of firms is equal the present value of all future cash flows produced by its assets. It should consider the value of intangible assets if they are anticipated to impact on the future cash flows (Zaman et al., 2021). As a result, the value of the firm will be influenced by the firm's profitability and capability of sustainable development. Xie et al. (2021) supported that the EI is likely to impact future cash flows of a company through marketing, production, firm's reputation, and management strategies which may enhance the market valuation. As well as, EI play a critical role in cost saving by reducing avoidable costs, developing energy efficiency, avoiding environmental penalties, and reducing input consumption, which directly amplify future cash flows (Semenova & Semenov, 2024).

By adopting EI initiatives, firms can create new revenue streams by improving environmental products, environmental services, access to environmentally-focused markets, and eligibility for tax incentives and environmental subsidies (Abbas et al., 2024). From the perspective of benefits, adopting EI initiatives enable firms to reduce avoidable resources waste, and encourage efficient usage of scare resources (Mansour et al., 2024). It assists firms to create long- term competitive advantages, and promote sustainable development (Chen et al., 2025). On the other hand, EI requires substantial resources that might otherwise be appointed to daily operations or alternative investment opportunities, probably impairing current sales and production (Sharif et al., 2024). In addition, resources allocated to EI initiatives often contain a highly uncertain and long-term payback period (Abbas et al., 2024; Zaman et al., 2021).

Until now, there are still ongoing arguments about whether EI can enhance firm value. Agustia et al. (2019) conducted a study using data collected from Indonesian listed firms. They revealed that EI initiatives significantly reduce energy consumption and regulatory risks, which leads to minimize operational costs, develop operational efficiency, promote competitive advantages, and enhancing firm value. Mansour et al. (2024) discovered that EI initiatives play a significant role in improving production capacity and creating entry barriers for competitors. The investment in EI initiatives result in exploring and attracting scarce resources and the improvement of unique competence within a firm (Zaid et al., 2025). Iqbal et al. (2022) indicated a positive impact of EI on firm value for many reasons.

It can maximize the firm’s production structure, provide eco - friendly products and technologies, and produce distinctive products that enhance competitive advantages.

Mansour et al. (2024) revealed that the EI initiatives help firms to enhance their image, manage their interactions with several stakeholders. Truong & Berrone (2022) also supported that EI initiatives minimize the negative risks of losing the firm's image and reputation. The firm with effective EI initiatives increases the firm's financial performance, enhances operational activities, and increase market valuation (Liu, 2024). Other studies by Khalil et al. (2024) and Truong and Berrone (2022) found that firms can improve both their financial and environmental performance by incorporating EI initiatives into their operational activities. In addition to, EI initiatives have a significant positive impact on firm value by reducing the risk of crashes in share price (Cheng et al., 2025).

Many theories are utilized to explain and support a positive relationship between the implementation of EI initiatives and firm value, including agency theory, RBV theory, legitimacy theory, stakeholder theory and institutional theory (Xie et al., 2021). Agency theory posits that EI initiatives minimize an information asymmetry and agency conflicts between shareholders and managers (Liu, 2024). In other words, EI initiatives allocate the company's resources effectively and decrease manager's opportunistic behaviors in decision-making process that lead to develop operational activities, enhance the reputation of the company, decrease environmental penalties, and enhance firm value (Abu Alia et al., 2024; Meqbel et al., 2025).

According to RBV theory and legitimacy theory, EI initiatives and practices help companies to allocate their economic resources efficiently (Salihi et al., 2024). Barney (2001) supported that EI initiatives enable companies to obtain and maintain environmental legitimacy, enhance their public trust and companies' reputation, and develop superior products and processes (Chen et al., 2025; Truong & Berrone, 2022). Furthermore, according to stakeholder theory and institutional theory, when companies satisfy and meet the needs and expectations of their external institutional organization and stakeholders by implementing several EI initiatives and practices, it will enhance firm value (Farza et al., 2021). In other words, these environmental practices help companies to develop financial performance and achieve sustainable development (Hao et al., 2022; Risi et al., 2023).

On the other hand, Rexhäuser and Rammer (2014) revealed that when EI initiatives only develop environmental performance without developing resource efficiency, the firm value will not increase. Yao et al. (2019) conducted a study using a sample of 88 firms over four years in emerging countries, and that found a negative impact of both environmental process innovation and environmental product innovation on firm value; because the emerging markets suffer from inefficient supply chains and weak infrastructure. Przychodzen et al. (2020) conducted a study using a sample of 9,009 company-year observations from 1999 to 2016, which revealed that EI initiatives tend to negatively influence financial performance, especially in the short term, because the investment in EI initiatives generates additional costs, requires high compliance with environmental regulations, and involves the implementation of new technologies (Dorfleitner et al., 2015).

According to Voinea et al. (2020), the negative impact of environmental management systems and environmental performance on financial performance may indicated that the resources are required to develop environmental performance are higher than cost savings from improved reputation or eco-efficiency. Furthermore, Xie et al. (2021) found that the application of green patents devalues firm value in the short term among heavily polluting Chinese listed firms from 2008 to 2017, because EI initiatives require firms to invest significant scarce resources and incur opportunity costs by diverting resources from other profitable activities. Furthermore, the implementation of EI initiatives demands additional resources and new knowledge, which can reduce future cash inflows. In light of these findings, the hypothesis is developed:

H1. Environmental innovation positively affects the firm value.

2.4.2 The Moderating Effect of Corporate Governance

Despite the importance of CG mechanisms in the decision-making process, little is understood about the relationship between CG and investment in EI initiatives (Bui & Krajcsák, 2024). CG mechanisms influence a firm's sustainable performance by increasing managers' awareness of stakeholders' preferences (Abdelhaq & Dwekat, 2024). Effective CG mechanisms provide a framework that helps develop strategies to satisfy the interests of stakeholders and society (Abu Alia et al., 2024). Well-governed firms are more likely to promote EI initiatives to enhance firm value. Robust CG

mechanisms can enhance oversight of the managerial decision-making process, ensuring that investments in sustainable practices, such as EI, are prioritized over self-serving interests (Goud, 2018).

The resource-based view (RBV) theory indicates that a firm's ability to develop and implement EI practices is viewed as a scarce resource that provides a competitive advantage (Liu et al., 2021). From an agency theory perspective, agency costs affect investments in EI initiatives (Abu Alia et al., 2024). This means that asymmetric information between agents and principals enables agents to optimize their own interests, rather than focusing on sustainable investments, which can reduce firm value in the absence of effective incentive and monitoring mechanisms (Jensen & Meckling, 1976). Meqbel et al. (2025) support the idea that poor CG cannot protect shareholders' interests, so it cannot build their confidence, resulting in diminished investment opportunities.

EI is an environmentally friendly initiative resulting from the decision-making process of executives (Abu Alia et al., 2024). According to Abbas et al. (2024), EI is a form of sustainability linked to business strategy to achieve long-term objectives. Liu et al. (2021) indicated that the impact of CG mechanisms on environmental initiatives depends on the level of internal governance and the availability of scarce resources. Xue et al. (2024) supported that the interaction between CG framework and environment can be illustrated from stakeholders' perspective. The role of stakeholders represented in motivating management to adopt several strategies and policies by using a firm's resources, thereby promoting the adaption EI initiatives (Semenova & Semenov, 2024). Dwekat et al. (2020) and Liu et al. (2021) supported that effective CG mechanisms encourage companies to increase their investments in sustainable development practices, including EI initiatives.

These mechanisms direct and control managerial behaviors in their decision-making process through identifying the company's environmental, social, and ethical standards and policies, which lead to develop enhance the implementation of EI practices (Dwekat et al., 2025). According to stakeholder theory, when companies integrate a CG framework in their operational activities, it will satisfy the needs and expectations of stakeholders and develop environmental performance, which lead to enhance firm value (Janang et al., 2020). Makpotche et al. (2024) also revealed a positive effect of a strong CG framework on developing EI practices. The implementation of EI initiatives faces several difficulties

and challenges such as uncertainty of financial benefits and operational complexity, which makes it's difficult to evaluate the effectiveness of environmental investments in the financial market (Howell, 2017; Salihi et al., 2024).

The existence of a CG framework can moderate the complex and unclear relationship between the implementation of EI initiatives and firm value. In other words, Teixeira and Carvalho (2024) suggested the feature and effectiveness of a CG framework can moderate the strength and direction the relationship between the implementation of EI initiatives and firm value. An effective CG structure can develop an environment where the benefits of EI initiatives are translated into cash flows that enhance firm value (Meqbel et al., 2025). It plays a significant role in allocating scarce resources and monitoring management in decision making process (Kolk, 2008). According to stakeholder theory, the firm should take into consideration the interest of all stakeholders containing employees, investors, customers, and society (Iqbal et al., 2022).

Management should satisfy stakeholders interests, including employee's satisfaction, return on investment, environmental sustainability, pollution reduction, and the quality of environmental products and services (Adomako & Nguyen, 2023). By existing strong CG mechanisms, a firm can utilize and manage EI initiatives, which supports the trust of several stakeholders to maximize firm value (Dai & Xue, 2022; Makpotche et al., 2024). To our knowledge, this study is the first to examine the moderating effect of CG on the relationship between EI and firm value among European firms. In this study, we aim to address this gap by focusing on European firms. Based on these insights, the hypothesis is developed:

H2. The presence of CG positively moderates the relationship between Environmental innovation and firm value.

Table 1
Summary of Hypotheses

Hypothesis	Content
H1	Environmental innovation positively affects the firm's value
H2	The presence of CG positively moderates the relationship between Environmental innovation and firm value.

Chapter Three
Research Methodology

3.1 Introduction

This study aims to investigate the impact of EI on firm value, as well as the moderating effect of CG on the relationship between EI and firm value across European firms. In this chapter, the author presents data sources, study population and sample, measurement of dependent, independent, moderating, and control variables, the study model, and the study methods used to conduct the current study.

3.2 Data Collection

In order to conduct the current study, the required secondary database was gathered from the London Stock Exchange Group (LSEG) Workspace database (previously known as Refinitiv Eikon database). This database is regarded one of the global providers of financial markets databases and is widely employed in previous research that examined the relationship between study variables (Abu Alia et al., 2024; Dwekat et al., 2025; Nadeem et al., 2020). It offers reliable and high-quality data sources by offering robust and comprehensive details about both of financial and non-financial information, involving EI score, Tobin Q, CG score, sales growth, financial leverage, and firm size.

In addition, the theoretical background and literature review of the present study were developed based on published academic papers, journal articles, and books collected from relevant websites, recognized academic databases, and libraries to support this part of the study. Table 2 summarizes the study variables, their labels, and the data sources from which they are derived.

Table 2

Study Variables and Sources of Data

Variables	Label	Source of data
Firm Value	FV	LSEG Workspace database
Environmental Innovation	EI	LSEG Workspace database
Corporate Governance	CG	LSEG Workspace database
Financial Leverage	LEV	LSEG Workspace database
Firm Size	SIZE	LSEG Workspace database
Sales Growth	GROWTH	LSEG Workspace database

3.3 Study Sample

The dataset used in the current study involves European-originated firms during the period 2010-2023, derived from the LSEG Workspace database. The sample of the current study comprises a wide range of firms from 24 European countries. The initial sample involved 2,576 firms consisting 36,064 company-year observations. To avoid any regulatory discrepancy, we excluded all firms that were incorporated outside of European countries. The researchers also excluded all European firms with less than three consecutive years of required data. In addition, we exclude all European firms with missing values of the study variables. The final sample consisted of 17,430 company-year observations. Moreover, the period of this study began from 2010 to 2023 because the data of EI score and governance score were more reliable and complete, offering consistent measurement of EI between companies.

The selected sample is appropriate for EI initiatives and CG studies for several reasons. First, European-originated firms have a well-recognized reputation for their commitment to environmental concerns, driven by the growing emphasis on environmental practices across various industries. To develop both of financial performance and sustainable development, the European Union (EU) and Environmental Research and Innovation Policies develop cooperative environmental initiatives among several sectors (Mongo et al., 2021). In addition, the increasing demand for environmental products and services has motivated many firms to design EI strategies that improve product and services quality while ensuring compliance with environmental regulations (Dwekat et al., 2025). Second, the broad geographic range of the study sample makes it suitable for investigating the moderating effect of CG mechanisms on the relationship between environmental practices and firm value among 24 European countries, containing the diverse regulatory frameworks, environmental policies, and market dynamics. Third, involving firms from various sectors offers comprehensive understanding of the relationship between study variables (Albitar et al., 2023).

3.4 Variable Measurement

The purpose of present research is to explore the effect of EI on firm value and the moderating impact of existence of CG mechanism on the connection between EI initiative and firm value, there are various of independent variable, dependent variable, moderating variable, and control variables was used in study model. Firm value is dependent variable environmental innovation is independent variable, whereas corporate governance is moderating variable, and firm size, financial leverage, and sales growth are control variables.

3.4.1 The Dependent Variable: Firm Value

Firm value was considered as an important concept in decisions making process for mangers and investors (Dang et al., 2019). Xie et al. (2021) supported that the concept of a firm value reflects the investors assessment about the capability of a company to create future cash inflows. In addition, it evaluates how much the investors will spend money in order to obtain the business (Hao et al., 2022). Firm value shows the ability of companies to run their operational activities, decrease potential risks and environmental penalty, develop financial returns, and enhance their environmental performance (Macchioni et al., 2024).

The adoption and implementation of environmental practices represented in EI has an impact on the value of business in positive way (Truong & Berrone, 2022). However, the impact of EI initiatives on firm value can be either positive or negative, driven by how these initiatives are incorporated and governed within the firm’s activities (Xie et al., 2021). Moreover, firm value is critical in CG research, indicating that the effective CG mechanisms play a crucial role in satisfying shareholders' interests, that lead to increase market valuation (Singh et al., 2018).

There are various ways to measure firm value, involving Tobin's Q (Hao et al., 2022; Xie et al., 2021), market-to-book ratio (Zaid et al., 2025), and market value of equity per share (Macchioni et al., 2024). Most of previous studies measure firm value by using the indicator of Tobin's Q. This indicator represents the company's market value that relies on share prices and it is complex for management to manipulate. (Hao et al., 2022). In the current study, the indicator of Tobin's Q is used to measure firm value by following several prior researches such as: Hao et al. (2022) and Xie et al. (2021). According to Dang et al.

(2019), the indicator of Tobin's Q is a proportion of market value of firm to the replacement value of assets. On the other hand, Xie et al. (2021) measured Tobin's Q as a proportion of company's book value of total debts, plus market value of company's total equity to the book value of company's total assets.

In the current study, we rely on the approach utilized by Dang et al. (2019), Hao et al. (2022), and Xie et al. (2021). A high firm value indicates that the market has a positive expectation about the firm's current performance and future success, resulting in increasing market valuation (Truong & Berrone, 2022). Moreover, it indicates that a firm has a strong financial performance and future growth opportunities, that lead to attract investors to invest in the firm with high value (Dai & Xue, 2022).

When Tobin's Q is higher than 1, it indicates that the firm's market value is greater than replacement value book value, creating value for investors and stakeholders. This means that the firm allocates its scarce resources effectively, and it has profitable investment initiatives (Xie et al., 2021). By contrast, when Tobin's Q is lower than 1, it indicates that the firm's market value is less than replacement value book value, reflecting poor financial performance, inefficient use of resources, and inefficient industry conditions (Dai & Xue, 2022). Finally, when Tobin's Q equal or close to 1, it indicates that the firm is valued without any significant discount or premium placed on firm's future growth. This indicates that investors expect the future opportunities as stable, without any expectation of developments or declines in firm's performance (Xie et al., 2021).

3.4.2 The Independent Variable: Environmental Innovation Score

According to Abu Alia et al. (2024), Albitar et al. (2023), and Nadeem et al. (2020), the basic issue of measurement EI is that the companies are not obligated to disclose their spending on sustainable development practices and researches or new eco-friendly products, services, and systems. In order to address this issue, we depend on the information from the LSEG Workspace database (Nadeem et al., 2020). This database offers objective, auditable, relevant, and credible EI information. It also reduces the reliance on self-reported data, which eliminates replication mistakes, and enhance the generalizability (Dwekat et al., 2025). Various methods can be employed in order to measure EI initiatives such as: eco-labeling products (Lin et al., 2014), green patents (Xie et al., 2021), and EI scores (Abu Alia et al., 2024; Albitar et al., 2023; Nadeem et al., 2020).

The present study measure independent variable represented in EI by using EI score; because it is considered as the most appropriate measure and involves environmental product innovation, environmental process innovation, and environmental technological innovation (Albitar et al., 2023). This score involves four key elements represented in product innovation, green revenue, environmental R&D, and green capital expenditure. Green innovation access whether the firm produce and develop environmental products or technologies that minimize the consumption of economic resources, emission, and environmental pollution. The second element measure the portion of the firm's revenue produced from environmental products or services. Environmental R&D access investment in R&D activities to develop green technologies and environmental performance. Whereas, green capital expenditure evaluates capital investment in pollution control systems, environmental technologies, or infrastructure. Dwekat et al. (2025) supported that the EI score provides a comprehensive insight of the company's capability to optimize available environmental opportunities represented in sustainable innovations, technological advancements, and reductions in environmental costs. Abu Alia et al. (2024) used the score of EI displays the improvement in companies' processes and products to promote the process of waste recycling and diminish a negative impact of companies on environment. Furthermore, the score of EI is related to environmental initiatives that indicate the adoption of environmental methods lead to reduce environmental harm (Nadeem et al., 2020).

According to Agustia (2023), the score of EI displays the capability of a company to minimize environmental burdens and production costs, which lead to improve market opportunities, enhance the importance of using eco-friendly designed processes, and technologies, and develop environmental products. When EI score closes to 100, it represents a greater EI efficiency which lead to minimize environmental costs and reduce negative impacts of business activities on its environment (Zaman et al., 2021).

3.4.3 The Moderating Variable: Corporate Governance Score

The current study uses CG as a moderating variable. The term of CG indicates how power is utilized to manage and direct social and economic resources for achieving sustainable development objectives (Meqbel et al., 2025). It creates and develops the framework that determines the rights and obligations of all participants in the firm, including shareholders, managers, the board of directors, and stakeholders (Iqbal et al., 2022). The

main objective of CG framework is to diminish agency conflicts between managers and shareholders, enhance accountability and transparency in decision-making processes by aligning managerial decisions with shareholders' interests (Bebchuk et al., 2009).

The Primary structures and mechanisms of CG contain the composition of the board of directors (such as the board independent, board size, and board gender), the company's ownership structure (including the institutional ownership, director ownership, block-holder ownership and other types of ownership), executive compensation, and the rights of shareholders (Aibar-Guzmán et al., 2024; Hao et al., 2022). Effective CG mechanisms enhance operational efficiency, facilitates financing sources, and stimulates investment in environmental practices (Dwekat et al., 2020; Dwekat et al., 2025).

There are various methods employed to measure CG framework, represented in: GIM-index, E-index, and Environmental, Social, and Governance (ESG) score. The GIM-index contains 24 CG provisions that involve several aspects of shareholders' rights and managerial behaviors (Gompers et al., 2003). The E-index includes of only 6 components from these 24 provisions (Bebchuk et al., 2009). Whereas, the Environmental, Social, and Governance (ESG) score is an indicator to measure environmental, social, and governance performance (Dwekat et al., 2020). Dwekat et al. (2020) measured the CG score based on elements of CG structures in the ESG score. The CG score is a non-financial indicator that are used to evaluate the degree in which CG mechanisms are integrated in the company's operational activities. The governance score is an intangible indicator that are utilized to evaluate elements and factors, including expected risks and opportunities for company and industry sector. This score primary aims to evaluate the company's performance and challenges about its CG practices.

The present study measures the moderating variable represented in CG score based on the governance pillars derived from a company's ESG score. This pillar involves 54 items, which 34 items are related to management, indicating the adherence and effectiveness of a management in applying CG mechanisms, which involve board structure and compensation represented in board independence, board committees, and board diversity. Many previous studies use board characteristics as proxies for CG score. Additionally, 12 items relate to the shareholders' score, reflecting the firm's efforts to ensure fair treatment of investors, while 8 items pertain to CSR strategy, which relates to a firm's ability to integrate economic, environmental, and social considerations into decision-making,

including strategy, transparency, and ESG reporting. For example, transparency is a key component of CG. Despite the importance of ESG practices, it is also essential to recognize that financial performance remains crucial for a firm's survival.

There are various databases that provide CG scores, such as KLD ratings, Bloomberg, and the LSEG Workspace database. The KLD (Kinder, Lydenberg & Domini) ratings do not offer an individual sub-criterion of ESG score or an overall ESG score; this means that the ESG score is replaced by binary indicators of ESG (Dorfleitner et al., 2015). Meanwhile, the Bloomberg Terminal is criticized because it amplifies financial profits, which can increase the risk of bias and reduce data integrity (Dorfleitner et al., 2015). Thomson Reuters supported the improvement of the ESG score to address CSR issues and assist agents who believe that ESG is important for increasing consistency and transparency among firms (Dwekat et al., 2025). The CG score from the LSEG Workspace database was used because it covers both CSR concerns and agency problems. It also involves firms worldwide (Dwekat et al., 2020).

3.4.4 Control Variables

To mitigate biases caused by unobservable firm heterogeneity and improve the accuracy of results, we include a set of control variables relevant to the firm's financial characteristics that align with previous studies (Abdelhaq & Dwekat, 2024; Abu Alia et al., 2024; Cheng et al., 2025; Farza et al., 2021; Khalil et al., 2024; Macchioni et al., 2024; Mansour et al., 2024; Xie et al., 2021). These contain financial leverage/gearing ratio, firm size, and sales growth.

1. Financial Leverage (LEVE)

The financial leverage/ Gearing ratio is the first control variable that are used in regression analysis model. Financial leverage is an effective tool are utilized to assess the effectively of a company in using its debts. It reflects the degree to which a firm depends on debt financing sources relative to its assets in order to fund its operational activities and investments (Liu et al., 2024). This ratio indicates the proportion of a firm's total assets that are financed by debt instead of equity (Rajan & Zingales, 1995). it calculated as a proportion of total liabilities related to its total assets (Abdelhaq & Dwekat, 2024; Dwekat et al., 2025; Salihi et al., 2024). It represents the financial strategy of a company, which refers to the capacity of a company to invest in several EI practices and initiatives (Abu Alia et al., 2024).

The concept of liabilities represents the contractual obligations exists between two parties in order to manage their investments and operational activities (Myers, 1984). Financial leverage has a critical effect on a firm's ability to invest in environmental practices, which means that firms with high financial leverage ratio may face pressure from several stakeholders to manage potential risks (Liu, 2024). A high ratio of financial leverage amplifies potential risks for shareholders because it increases the firm's fixed obligations, such as periodic interest payments (Bui & Krajcsák, 2024).

In previous studies, there are no agreements about the impact of financial leverage on firm value. According to Jensen (1993), a high leverage ratio enhances firm value, that means high debts help to mitigate overinvestment of cash flow by mangers in order to satisfy their own interests. This ratio positively impacts firm value when potential investment opportunities are restricted (McConnell & Servaes, 1990). In addition, debtholders play a crucial role in enhancing monitoring and supervision of a firm (Rajan & Zingales, 1995). On the other hand, firm value may be reduced due to high leverage ratio. Bui and Krajcsák (2024) found that high financial leverage ratio can decrease financial stability, and increase a firm's risk of insolvency. It is related to financial costs and debt interests (Cheng et al., 2025).

2. Firm Size (SIZE)

Firm size has an important effect on firm value, as it impacts the firm's capital structure. It is measured by using the natural logarithm of a firm's total assets (Abdelhaq et al., 2025; Farza et al., 2021; Liu, 2024). It can affect the degree of adoption sustainable practices and policies, indicating that larger firms have more resources to invest in environmental and sustainable practices (Liu, 2024). Compared to smaller size, large size helps firms to increase earnings and profits, which lead to amplify future cash inflows (Lin et al., 2019). It reflects the positive growth, protecting existing investors and attracting potential investors that lead to increase firm value (Farza et al., 2021).

Firms with large size have ability to access to scarce resources. According to Xie et al. (2021), firms with large size have a significant positive impact on firm value because they play a crucial role in minimizing production costs. Hizarci-Payne et al. (2021) supported that firms with large size enable them to acquire funding sources, develop investment opportunities and enhances firm value. Investor confidence is also affected by firm size;

because large firms are known to the public, facilitating their ability to access to funding that can positively impacts share prices (Cheng et al., 2025). It is suggested that larger firms possess greater resources and wealth compared to smaller firms, which attracts investors and positively market value.

According to Khalil et al. (2024), investors may pay more attention to large firm size because they expect to receive a favorable return from the firm. Large firms shape investors' expectations about dividend payouts, increasing demand for the firm's shares, which results in rising share prices and enhances firm value (Hizarci-Payne et al., 2021). Furthermore, they are less risky than small firms because large companies have significant control over market conditions, enabling them to face their competitors (Farza et al., 2021). Furthermore, larger firms are more focused on boosting EI initiatives (Cheng et al., 2025). However, Lin et al. (2019) found that large-sized firms achieved a lower return from EI initiatives compared to small–sized firms. Smaller firms are more likely to have growth opportunities (Khalil et al., 2024). Furthermore, when companies have inventories and accounts receivable that form a majority of their total assets, they will reduce the ability of companies to pay dividends (Hirdinis, 2019).

3.5 The Regression Model

The regression models aim to investigate the direct effect of adoption EI initiatives on firm value, and examine the moderating effect of CG mechanisms on the relationship between EI initiatives and firm value among European firms during the period of time 2010-2023. We develop the two regression models in order to achieve the objectives of study as follows:

(1) The first multiple regression model to examine the direct impact of EI on firm value **(Main Impact)** is as follows:

$$FV_{it} = \beta 0 + \beta_1 EI_{it} + \beta_2 CG_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 LEVE_{it} + \varepsilon_{it} \ldots\ldots (1)$$

(2) The second multiple regression model to investigate the moderating effect of CG on the relationship between EI and firm value **(Interaction Impact)** is as follows:

$$FV_{it} = \beta 0 + \beta_1 EI_{it} + \beta_2 CG_{it} + \beta_3 (EI_{it} \times CG_{it}) + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 LEVE_{it} + \varepsilon_{it} \ldots. (2)$$

Where:

FV_{it}: Firm value of firm *i* in year *t*.

EI_{it}: Environmental innovation.

CG_{it}: Corporate governance.

$SIZE_{it}$: Firm size.

$GROWTH_{it}$: Sales growth.

$LEVE_{it}$: Financial leverage.

(i): the firm.

(t): the year.

ε_{it}: the error term, indicating the unobserved factors impacting firm value that are not explained in the proposed models.

Table 3
Measurement of Study Variables

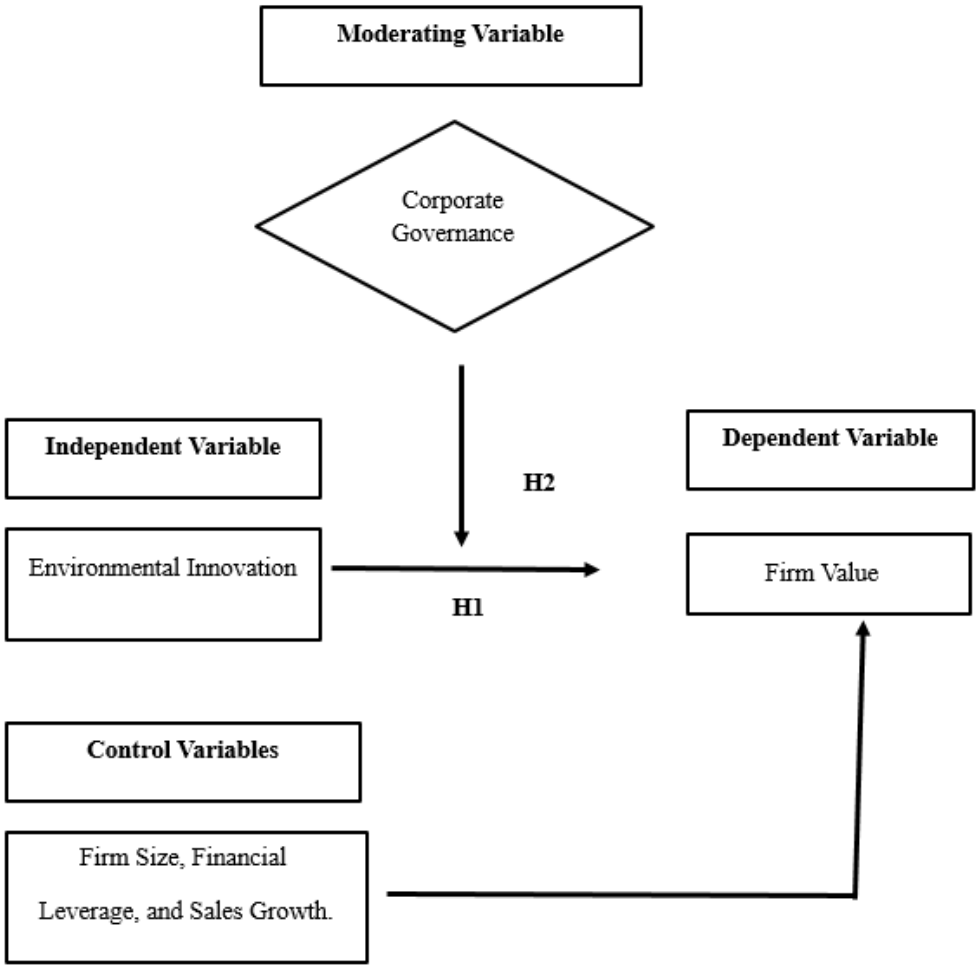
Variable	Measurement	Reference(s)
	Dependent variable	
Firm Value	Tobin's Q is calculated by dividing the Book value of the firm's total debts, plus the market value of the firm's total equity by the book value of the firm's total assets.	Dang et al. (2019), Xie et al. (2021), Yang et al. (2024)
	Independent variable	
Environmental Innovation Score	Environmental innovation score ranges from 0 to 100. Greater environmental innovation efficiency is indicated by a higher score that is close to 100.	Abu Alia et al. (2024), Albitar et al. (2023), Nadeem et al. (2020)
	Moderator variable	
Corporate Governance Score	CGS includes 54 items represented in 34 items related to management score, 12 items related to shareholders score, and 8 items related to corporate social responsibility (CSR) strategy.	Dwekat et al. (2020)
	Control variables	
Financial Leverage	The formula for calculating leverage (LEVE) is dividing total debts by total assets.	Abdelhaq and Dwekat (2024), Cheng et al. (2025); Salihi et al. (2024)
Firm Size	The natural logarithm of total assets.	Abdelhaq et al. (2025), Farza et al. (2021), Liu (2024)
Sales Growth	The ratio of calculating sales growth is dividing growth of current revenue by revenue in previous year.	Dai & Xue (2022)

3.6 Study Model

The study model summarizes the two hypotheses derived from the theoretical framework that the current study aims to investigate. First, this study examines the direct impact of EI on firm value. Second, it analyzes whether CG mechanisms moderate the relationship between EI and firm value. Figure 1 provides an overview of the model used in the current study.

Figure 1

The Moderating Effect of CG on the Relationship between EI and Firm Value



Chapter Fourth
Discussions and Conclusions

4.1 Introduction

The data collected from the LSEG Workspace database were transferred into STATA software to investigate the theoretical model and hypothesis development in the current study. A number of specific statistical tests were conducted. As a first step, the empirical data is organized and summarized using descriptive statistics, including the mean, standard deviation, minimum value, maximum value of all study variables to provide a comprehensive oversight of the sample. Second step was performing a Pearson's correlation analysis to investigate the strength and direction of the association between the variables. Finally, a Hausman test was conducted to determine whether a fixed effect panel regression or a random effect panel regression is more appropriate. This study relied on fixed effect panel regression to test the direct impact of EI on firm value, and to test the moderating role of CG on the relationship between EI and firm value; because the Hausman test was less than .05.

4.2 Descriptive Statistics

This section presents the descriptive statistics for all study variables. It contains the number of observations, mean, standard deviation, minimum, and maximum values for each variable.

Table 4
Descriptive Statistics Results

Variable	Obs	Mean	Std. Dev.	Min	Max
TOBIN Q	17,430	0.698	0.408	.009	1.597
EIS	17,430	32.289	31.765	0.061	99.89
CGS	17,430	53.078	22.464	5.65	98.57
LEV	17,430	.216	0.175	0.103	0.861
SIZE	17,430	13.884	2.003	1.979	20.06
GROWTH	17,430	0.0654	23.272	-.0.371	0.617

Note: Table 4 displays the results of descriptive statistics for the study sample during the period 2010-2023, including 17,430 observations.

Table 4 presents the findings of the descriptive statistics analysis to provide a comprehensive overview of the dataset by organizing and summarizing the key characteristics of the variables under study, including dependent, independent, moderating, and control variables. This table offers comprehensive characteristics of

these variables. The dependent variable is Tobin q, has an average 0.698 accompanied with a standard deviation is, that indicate the market value is lower than book or replacement value with a ranges from 0.009 to 1.597. The EI score level is approximately 32%, with a standard deviation of 31.765. The EI score varies widely, ranging from 0.061 to 99.89, indicating a significant variation in the extent of companies; commitment to sustainability practices and engagement in EI initiatives.

Regarding moderating variable, the average CG score is approximately 53%, with a standard deviation is approximately 22%. The CG score ranges from 5.65 to 98.57, indicating differences in the adoption of CG mechanisms across sampled firms indicating differences in adoption of CG mechanisms across sampled companies. Whereas control variables, the average financial leverage (lev), measured as total debts to total assets, stands at 0.216, with standard deviation of 0.175. The financial leverage ranges widely from 0.103 to 0.861, This shows that sampled companies have different levels of financial risks. The mean firm size (Size), represented the natural logarithm of total assets is 13.884, with a standard deviation of 2.003. The firm size ranges from 1.979 to 20.06, reflecting a significant difference in operational scales. The mean of sales growth (GROWTH) is about 6%, with a standard deviation of 23.272. The GROWTH ranges from -.0.371 to 0.617, indicating varying levels of financial efficiency and profitability.

4.3 Correlation Matrix

Table 5
Correlation Matrix for the Study's Sample

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) TOBIN Q	1.000					
(2) EIS	0.090	1.000				
(3) CSG_	0.090	0.287	1.000			
(4) LEV	0.076	0.045	0.091	1.000		
(5) SIZE	-0.296	0.434	0.505	0.202	1.000	
(6) GROWTH	0.008	-0.019	0.002	-0.012	-0.034	1.000

The findings of the Pearson's correlation analysis are displayed in Table 5. Correlation is used to measure the direction and strength of the association between two variables, indicating the relationship between dependent, independent, moderating, and control variables (Dwekat et al., 2025). Where a change in one variable are related to change in another variable. It ranges from -1 to 1, where +1 represents a perfect positive linear relationship between two variables, 0 reflects no linear relationship between study

variables, and -1 implies a perfect negative linear relationship between two variables (Schober et al., 2018). It also helps to identify the presence or absence of multicollinearity among independent variables in the study (Meqbel et al., 2025). Multicollinearity occurs when two independent variables are highly correlated, leading to unreliable and inconsistent results (Abdelhaq & Dwekat, 2024). The highest correlation coefficient observed is 0.505 between firm size and corporate governance. The correlation coefficients between other variables are low or moderate, and all are significantly below the widely accepted threshold of .70, which is considered the standard for identifying multicollinearity issues. In other words, there is no multicollinearity between study variables.

4.4 Regression Analysis and Testing Study Hypotheses

4.4.1 Introduction

In this section, the Hausman test was conducted to identify the most appropriate estimator for panel data regression analysis, specifically whether a fixed effects panel regression or a random effects panel regression was more suitable. Then, a fixed-effect panel regression is used to examine the impact of EI on firm value and the moderating effect of CG on the relationship between EI and firm value among European firms from 2010 to 2023.

4.4.2 Regression Results

Before conducting the regression models, a Hausman test was applied to determine whether a fixed-effect panel regression or a random-effect panel regression was more suitable. The Hausman test found a p-value less than 0.05, indicating that the fixed-effect panel regression was the more suitable choice for this study. Furthermore, we employed industry fixed effects and country fixed effects to control for time-invariant industry and country variations, and a year fixed effect to account for macroeconomic and business cycle differences, as well as to identify any variation in output that occurs over time.

Table 6 presents the regression analysis results, with Model 1 indicating the direct relationship between EI and firm value, and Model 2 examining the moderating effect of CG on relationship between EI and firm value. According to Table 6, Model 1 has an adjusted R-squared (R^2) value of 0.36, indicating that 36% of the variation in the dependent variable (firm value) is explained by the independent variables in the proposed

model. However, in Model 2, after adding the moderating variable (CG score), the adjusted R^2 increased to 0.48, suggesting that the moderating variable improves the model's explanatory power and provides a deeper understanding of the variation in the dependent variable (firm value).

Table 6
Regression Results Using the Fixed Effect Model

VARIABLES	(1) TOBIN Q	(2) TOBIN Q
EI	0.00857***	0.00345***
	(0.00205)	(0.00539)
CGS	0.00823***	0.00313***
	(0.00310)	(0.00375)
CGS*EI		0.000204**
		(8.48e-05)
LEV	-3.675***	-3.657***
	(0.331)	(0.331)
SIZE	-0.631***	-0.635***
	(0.0402)	(0.0402)
GROWTH	-0.00212	-0.00209
	(0.00228)	(0.00228)
Year fe	Yes	Yes
Country fe	Yes	Yes
Industry fe	Yes	Yes
Constant	11.75***	11.84***
	(2.463)	(2.462)
Observations	17,430	17,430
R-squared	0.361	0.482

Robust standard errors in parentheses:

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

4.4.3 Testing of Study Hypotheses

This section explains the two hypotheses developed in the chapter two relying on the results of the regression analysis displayed in table 6. The criteria utilized to test the proposed hypotheses include the value of Sig and the direction of Coefficient sign of the independent variable as follow:

1. If the significant level (p-value) is ≤ 0.05, the support is considered statistically significant.
2. If the direction of T-Statistic is consistent with the expected direction, then the hypothesis is accepted.
3. In order to support a hypothesis, both conditions have to be met.

H1. Environmental innovation positively affects the firm value.

The first hypothesis was investigated to determine whether EI positively enhance firm value in European companies. The results in Model 1 indicate that EI significantly enhances firm value, the coefficient of the EI in model 1 (Table 6) is positive significant at the 1% level for firm value in European companies ($\beta = 0.00857$, $p < 0.01$). Therefore, our first hypothesis (H1) is supported. The results indicate that EI initiatives play a significant role in enhancing firm value. This confirms with the previous studies such as Bai et al., (2024); Khalil et al., (2024); Liu (2024); Prakash, 2002; Tian et al., (2023); Truong & Berrone (2022); and Xie et al., (2019) that found a significant positive impact of EI on firm value. A possible explanation for the positive association between EI and firm value is that EI initiatives reduce production costs, maximize production capacity, and improve competitive advantages that lead to enhance firm value. It also helps firms gain legitimacy, enhance their competitive advantage and reputation, reduce environmental regulations and risks, and improve the effective use of scarce resources by integrating environmental values into their operational activities (Dwekat et al., 2025).

Conversely, these results are inconsistent with Hirigoyen and Poulain-Rehm (2015); Voinea et al. (2020); Yao et al. (2019), who argued that environmental practices create additional operational costs by requiring new knowledge resources, which can decrease future cash flows, increase compliance and implementation costs related to environmental regulations, and require the adoption of new technologies. In addition, environmental initiatives and practices reduce investors' confidence about company's financial performance, especially in short- term period of time. Przychodzen et al. (2020) discovered that financial benefits were generated from environmental investment are unpredictable and uncertain benefits, which may lead to an underestimation of the firm’s current value.

The findings of the current study support the existing theory represented in agency theory, legitimacy theory, stakeholder theory, institutional theory, and RBV theory. Firstly, agency theory posits when firms optimize the investment in environmental practices and initiatives, it will diminish information asymmetry between principles and agents and minimize the level of uncertainty, eliminate agency costs, and promote the effectiveness and efficiencies in managerial decision-making process (Liu, 2024). Abu Alia et al. (2024) supported that the implementation of EI project provides an insight that firms are

committed toward environmental performance and sustainable development. In other words, the adoption of EI initiatives helps companies to diminish agency conflicts between agents and principles through enhancing the alignment between managerial decisions and satisfying the interests of shareholders, and enhancing transparency and accountability, which leads to minimize monitoring costs and enhance firm value (Zaid et al., 2025).

Moreover, the stakeholder theory and institutional theory posit that the design and adoption of several organizational strategies represented in environmental initiatives and practices are vital to increase stakeholders' confidence and reduce the pressure from external institutions, which satisfy the expectations of several stakeholders, reduce the degree of external institutional pressures, diminish negative environmental effects that result in enhancing firm value (Adomako & Nguyen, 2023; Agrawal et al., 2024; Cheng et al., 2023). Khamisu et al. (2024) supported that the companies implement several environmental strategies in their operational activities in order to reduce the environmental fines and penalties, improve their environmental reputation, and strengthen the relationships between companies and their stakeholders. When the company satisfy the expectations of stakeholders, it will obtain and maintain organizational legitimacy, enhance investors' confidence, and increase market valuation on long-term period (Dwekat et al., 2025).

Furthermore, legitimacy theory and RBV theory ensure that a higher level of EI score enables companies to gain organizational legitimacy and diminish legitimacy gaps, obtain scarce and novel resources and reallocate their resources efficiency, enhance the alignment between operational activities with environmental standards, and improve the company’s market position, which lead to maximize their value (Truong & Berrone, 2022).

The findings of regression analysis model also present the impact of control variables on firm value in Model 1 (Table 6). Firstly, the findings show a significant negative impact of financial leverage (LEV) on firm value are measured by Tobin_Q ($\beta = -3.675$, $p < 0.01$). This finding is aligned with previous research (Bui & Krajcsák, 2024; Cheng et al., 2025), who argued that a company with high ratio of financial leverage can minimize a firm's financial stability, amplify the risk of insolvency and financial cost, resulting in

reducing firm value. Secondly, the findings reveal a significant negative impact of firm size (Size) on firm value are measured by tobin_Q (β = -0.631, p < 0. 01), indicating that a company with small size are more interested to invest in environmental, which enhance the expected cash inflows. This finding is aligned with previous research (Khalil et al., 2024; Lin et al., 2019), who found that companies with small size may have more growth opportunities, develop environmental investment, and accomplish a higher financial return from the investment in EI initiatives, that lead to enhance firm value. In addition, the current study concludes that there is no association between sales growth and Tobin_Q (β = -0.00212).

H2. The presence of CG positively moderates the relationship between Environmental innovation and firm value.

The second hypothesis proposed that a CG significantly moderates the relationship between EI and firm value in European firms. The regression analysis results, shown in Table 6 (Model 2), support this hypothesis. The coefficient for the interaction between EI and CG score is positive and highly significant at the 5% level for firm value in European firms (β = 0.000204, p < 0.05). Therefore, we accept the second hypothesis (H2), suggesting that firms with stronger CG mechanisms strengthen the link between EI and firm value. In other words, CG mechanisms positively amplify the impact of EI initiatives on firm value. This finding is consistent with previous research, which revealed that CG mechanisms play a crucial role in developing EI initiatives and allocating scarce resources that translate into future cash inflows, ultimately enhancing firm value (Adomako & Nguyen, 2023; Dai & Xue, 2022; Makpotche et al., 2024).

The theoretical framework supports this result. According to agency theory, the existence of strong CG mechanisms diminishes the information asymmetry and agency costs by integrating EI initiatives into their operational activates that lead to enhance firm value (Abu Alia et al., 2024). Luo and Tang (2021) found that a strong CG structure decrease agency conflicts that are incurred by principles through integrating environmental objectives into decision-making process, resulting in improving market valuation. The effective CG structure that are represented in efficient CSR practices and independent board of directors have a key role in directing and controlling management decisions, improve sustainable practices, and satisfies the interests and expectation of a firm's shareholders (Dwekat et al., 2020).

The legitimacy theory and RBV theory posit that strong CG mechanisms are regarded a cornerstone for obtaining scarce resources and reallocating their resources. Furthermore, efficient CG structure helps companies to obtain and maintain high levels of legitimacy that lead to improve market valuation (Janang et al., 2020). Abu Alia et al. (2024) found when companies that have strong CG framework design and implement several environmental activities, they can enhance firm value through building a positive reputation among stakeholders, minimizing negative environmental impacts, and developing a competitive position in the markets. Freeman et al. (2021) revealed the absence of an efficient CG structure in decision-making process can amplify the expected costs of adoption environmental practices and reduce future cash inflows. As well as, the stakeholder theory and Institutional theory suggest that effective CG mechanisms satisfy various stakeholders and Institutional expectations by improving environmental practices and EI initiatives that boost future cash inflows (Iqbal et al., 2022). Institutional theory considers CG mechanisms as responses to external institutional pressures, enhancing firms to design and adopt several environmental practices, which enhance market value (Dong et al., 2024; Salihi et al., 2024; Xue et al., 2024).

The results in Model 2 (Table 6), the results maintain both their direction and statistical significance of influence as found in Model 1 (Table 6), suggesting the moderating role of CG mechanisms on the relationship between EI and firm value. We find that leverage remains significantly negative associated with tobin_q ($\beta = -3.657$, $p < 0.01$) in both models, indicating that the companies with high leverage ratio can lead to reduce market valuation (Bui & Krajcsák, 2024; Cheng et al., 2025). Additionally, the results show a significant negative association between Size and tobin_q ($\beta = -0.635$, $p < 0.01$), which means that large firms may face potential problems in converting environmental practices into cash flows (Khalil et al., 2024; Lin et al., 2019). Finally, the results indicate that no association between sales Growth (GROWTH) and Tobin's Q ($\beta = -0.00209$).

Table 7
Summary of Hypotheses Results

Hypothesis	*Path analysis*	*Expected impac*	*Findings*	*Conclusion*
H1	EI ⟶ firm value	Significant positive	0.00857 ($p < 0.01$)	Supported
H2	EI × CG ⟶ firm valu	Significant positive	0.000204 ($p < 0.05$)	Supported

Chapter Five
Conclusions and Recommendations

5.1 Introduction

In the final section of the present study, I show conclusions and recommendations. In addition, I offer the limitations of this study and address multiple suggestions for future study.

5.2 Conclusions

The present research bridges two gaps in the literature of EI. It shows the extent and nature of EI practices among European firms by utilizing a sample from European firms that involves 17,430 firm-year observations during a period of 2010 – 2023 that are collected from the database of LSEG Workspace. It analyzes the effect of adoption EI initiatives on firm value. In addition, the current research explores the moderating role of adoption CG practices on the relationship between EI initiatives and firm value. The descriptive statistics show that the average of adoption environmental practices and innovation is approximately 32%, meaning that some of European companies adopt and implement several EI initiatives in their operational activities, whereas other European companies ignore investments in environmental practices. There are various factors that affect on adoption of EI initiatives among European companies represented in regulatory pressures, economic resources, institutional and stakeholder expectations, strategic decisions, and regulatory pressures.

The findings of this study present that the initiatives of EI have a significant positive effect on firm value, indicating that when companies develop their investments in environmental practices that ensure the efficiency in their operational activities and practices, decrease regulatory risks and environmental harms, and increase the powerful of competitive advantages. Moreover, when implying Environmental practices and friendly initiatives, companies can reduce waste, decrease avoidable production costs, increase the company's compliance with several environmental regulations and laws, improve the satisfying of expectations among institutions and stakeholders, and develop the reputation and gain legitimacy between their regulators, investors, and consumers, which result in improving the confidence of stakeholders and increasing market value.

The current findings support the proposed theories in this study such as: agency theory, stakeholder theory, legitimacy theory, RBV theory, and institutional theory, that means that several environmental practices and initiatives increase firm value.

This study also shows that mechanisms of CG moderate positively the relationship between adoption EI initiatives and firm value. The adoption and implementation of effective and strong mechanisms of CG encourage the integration of EI initiatives and innovation in the process of decision–making. In other words, strong CG mechanisms help companies to allocate their economic resources effectively, which lead to maximize their environmental and financial objectives. These strong and effective CG mechanisms increase the confident between investors and stakeholders, decrease the asymmetry of information among mangers and shareholders, increase competitive advantages for companies that adopted environmental practices, which enhance companies to adopt and implement several environmental practices in their operational activities. On the other hand, ineffective and poor CG mechanisms reduce the effectively of adoption and implementation of environmental initiatives. In addition, the companies with weak and ineffective board direction, ineffective accountability, and restricted monitoring on economic resources may adopt various environmental practices and initiatives for gaining and maintain reputation rather than maximizing environmental objectives, which lead to decrease operational effectively, allocate their economic resources ineffectively, and reduce the confident between investors and companies, and decrease the firm value. The current findings support the proposed theories used in this study such as: agency theory, stakeholder theory, legitimacy theory, RBV theory, and institutional theory, that means that several environmental practices and initiatives increase firm value.

5.3 Recommendations

Based on the results of the current research, which found that the adoption of EI will increase the market valuation of companies, and the existence of strong CG framework will lead to encourage companies to adopt and implement environmental practices in the process of decision-making that lead to increase market valuation of companies. That means when companies employ effective and strong CG framework that lead to increase the market valuation by implementing EI initiatives. According to the results of current research, we suggest various recommendations for regulators, policymakers, and CG bodies represented in:

1. The result of current research find that the level of adoption and implementation several EI initiatives is nearly 32%, which means that companies should adopt and consider several environmental initiatives as a strategic investment to gain and maintain the confident between various stockholders and company, obtain and maintain legitimacy, increase competitive advantages, and improve the market valuation.
2. The current study suggests that policymakers should build and develop effective programs of environmental strategies, enhance companies to disclose more information and details about adoption and implementation of environmental practices and initiatives, and focus on environmental practices in training programs to ensure that employees have enough information and knowledge for adoption and integrating environmental practices in their operational activities.
3. The present research recommend that managers should apply the culture of EI that encourage employees to discover creative ideas, improve their skills, and integrate environmental practices in their operational activities, which increase the market valuation of companies.
4. This research recommends regulators to create and improve uniform environmental regulations among companies that lead to enhance reliability, increase accountability, and improve comparability of annual reports between companies among several sectors.
5. The current study reveals that strong CG mechanisms enhance companies to adopt and implement EI practices that lead to increase firm value. Which means that government should focus on improving CG mechanisms that related to EI practices that lead to increase firm value and Gross Domestic Product (GDP) as a whole.
6. This research recommends That CG bodies should enhance companies to prepare and improve ESG committees that support the adoption of environmental practices and initiatives which result in maximizing financial objectives and SDGs.

5.4 Limitations

There is various limitation in the present research. First, the current study measure EI initiatives by adopting EI scores which are collected from the database of LSEG Workspace. This way may not consider the qualitative characteristics of environmental practices and initiatives. Second, to conduct the current research, we depend on the data

that are collected from the database of LSEG Workspace, that may don't involve some firms or countries, and restricted disclosure about environmental practices and initiatives. Third, the limited period of the current study from 2010 to 2023 may don't reflect any improvement in environmental initiatives and adoption of CG framework. Fourth, the present study involves a limited number of control variables represented in financial leverage, sales growth, and firm size, which indicate that may include other variables will affect on firm value. Finally, the study sample included only European countries, which generally have stronger institutional structure, more developed CG mechanisms, and stricter environmental regulations than emerging economies. These characteristics may restrict the generalizability of the results to emerging economies.

5.5 Further Research

1. Further research could examine the long – term impacts of environmental product innovation and environmental process innovation as a measure of EI across –several regions, especially in developing countries to explore potential variations in results.
2. Future research could utilize board characteristics as a measure of CG to examine the moderating role of board characteristics on the relationship between EI and firm value.
3. Investigating the impact of cultural influences, government policies, and environmental regulations on companies' EI initiatives and firm value, particularly in regions with varying levels of regulatory rigors.

List of Abbreviations

Abbreviations	Stand for
CG	Corporate Governance
CSR	Corporate Social Responsibility
EI	Environmental Innovation
EU	European Union
FV	Firm Value
LEVE	Leverage
LSEG Workplace	London Stock Exchange Group Workplace
R&D	Research and Development
RBV Theory	Resources-Based View Theory
SIZE	Firm Size
GROWTH	Sales Growth
SDGs	Sustainable Development Goals

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جامعة النجاح الوطنية
كلية الدراسات العليا

الابتكار البيئي وقيمة الشركة: التأثير المعدل لحوكمة الشركات في الشركات الأوروبية

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قدمت هذه الرسالة استكمالا لمتطلبات الحصول على درجة الماجستير في المحاسبة، من كلية الدراسات العليا، في جامعة النجاح الوطنية، نابلس–فلسطين.

2025

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الملخص

هدفت هذه الدراسة إلى دراسة تأثير الابتكار البيئي على قيمة الشركة. كما تدرس التأثير المُعَدِّل لحوكمة الشركات على العلاقة بين الابتكار البيئي وقيمة الشركة. استخدمت هذه الدراسة 17,430 مُلاحظة لعينة شركات من 24 دولة أوروبية خلال الفترة 2010–2023. تم قياس قيمة الشركة باستخدام مؤشر Tobin's Q، أما الابتكار البيئي وحوكمة الشركات، تم تطبيق مؤشر الابتكار البيئي ومؤشر حوكمة الشركات على التوالي بالاعتماد على البيانات المستمد من قاعدة البيانات LSEG Workspace. ولتحقيق أهداف الدراسة، تم استخدام أسلوب تحليل الانحدار المتعدد.

وتتوافق نتائج الدراسة مع توقعاتنا، حيث أن تطبيق مبادرات الابتكار البيئي يُعزز من قيمة الشركة بشكل إيجابي. كما أن وجود حوكمة الشركات الفعالة يُحسّن العلاقة بين الابتكار البيئي وقيمة الشركة. تُوفر هذه النتائج فهمًا أعمق لكيفية تطبيق الشركات الأوربية لمبادرات الابتكار البيئي، وكيف يُعزز الابتكار البيئي من قيمة الشركة. تُعد آليات حوكمة الشركات الفعالة أساسيةً لتعزيز مبادرات الابتكار البيئي وتحقيق تطورات مستدامة في العمليات التجارية. توصي الدراسة الحالية بضرورة قيام المدراء بتعزيز ثقافة الابتكار البيئي التي تُمكّن الموظفين من استكشاف الأفكار الإبداعية المتنوعة، وتطوير مهارات جديدة، وكيفية دمج التقنيات المتقدمة في أنشطتهم التشغيلية. علاوةً على ذلك، يجب على الحكومة وصانعي السياسات تحسين آليات حوكمة الشركات التي تُركز على أهمية تبني وتطبيق مبادرات الابتكار البيئي في أنشطتهم التشغيلية من أجل تعزيز قيمة الشركة.

الكلمات المفتاحية: الابتكار البيئي، قيمة الشركة، حوكمة الشركات، الشركات الأوروبية.