The Impact of ESG Implementation on Financial Performance: A Case Study of Indonesia Stock Market

A Thesis

Submitted to the Master's Study Program of Economic at the Faculty of Economic and Business in partial fulfillment of the requirements for the degree of

Master of Arts (M.A.)

by:

Dio Darmawan

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ABSTRACT

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This Study examines whether there is a relationship among companies between disclosure of environmental, social, and governance (ESG), operational performance (ROA), financial performance (ROE), market performance (Tobin's Q), and market value (PER). And if these relationships are positive, negative, or simply neutral. This study aims to assess the influence of Environmental, Social, and Governance (ESG) implementation in Indonesia, comparing it to the situations in Japan and South Korea. It will consider the discrepancies in results found in previous studies conducted in other countries. Panel regression analysis was used to examine the study hypothesis. The study sample from companies listed on the Jakarta Composite Index with a total sample of 87 companies or 696 observations for the period 2015 to 2022 is used. During the given observation period, the sample data from Japan, as reported on the Nikkei 225 Index, consisted of 221 firms, totaling 1768 during the observation time. Similarly, South Korea, as listed on the Kospi Index, has a sample size of 294 companies, totaling 2352 throughout the observation period. The analysis indicates that the introduction of Environmental, Social, and Governance (ESG) practices in Indonesia has a significant negative impact on market performance, particularly measured by Tobin's Q. ESG implementation has no significant impact on other variables. The comparison of countries shows vary. The implementation of Environmental, Social, and Governance (ESG) practices in Japan has a significant negative influence on Return on Assets (ROA) and Tobin's Q. Meanwhile, South Korea has a negative relationship with market value as measured by PER.

Keywords: *ESG, operational performance, financial performance, market performance and market value*

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ABBREVIATION DIRECTORY

PRI	: *United Nations Principle of Responsible Investment*
UNEP	: *The United Nations Environmental Program*
CERE	: *Coalition for Environmentally Responsible Economies*
SASB	: *Sustainability Accounting Standards Boards*
ISSB	: *the International Sustainability Standards Board*
GRI	: *Global Reporting Initiative*
CDP	: *Carbon Disclosure Project*
TCFD	: *Task Force for Climate Related Financial Disclosures*
DF	: *Disclosure factor*
DJSI	: *Dow Jones Sustainable Index*
JCI	: *Jakarta Composite Index*
ESG	: *Environmental, Social, and Governance*
ROA	: *Return on Asset*
ROE	: *Return on Equity*
TQ	: *Tobin's Q*
PER	: *Price Earning Ratio*
DAR	: *Total Debt to Total Asset Ratio*
TA	: *Total Asset*

CHAPTER I

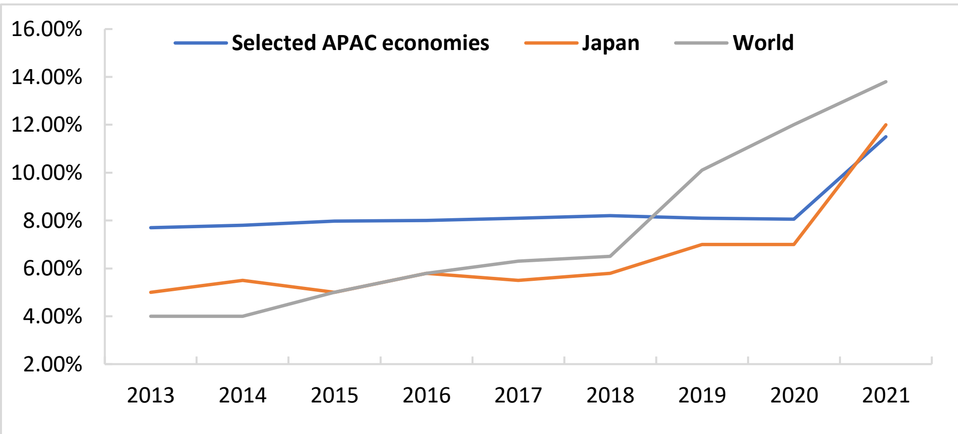
INTRODUCTION

1.1. Background

In recent years, despite traditional financing or investing products, most asset owners have been interested in sustainable investing related to ESG. This standard has evolved as an essential tool for investors aiming to pursue sustainable finance. Asset owners are increasingly including sustainability-related ESG factors in their investment decisions. The report explores the key trends and current state of ESG and climate investing in Asia, as well as legislative opportunities for enhancing ESG investing and assisting with climate transition financing. Several data points indicate that ESG and climate-related initiatives have made great development in Asia, represented by ESG rating coverage data. Several policymakers have established guidelines for ESG reporting methods. However, ESG practices are emerging at varying speeds across each Asian economic category.

Some Asia Pacific countries such as Japan have made significant advances in their ESG ratings and coverage. However, other countries have progressed more slowly and show significant variations in all areas. According to data in figure 1.1, there is a trend of increased coverage of data providers giving information on ESG ratings for Asian companies. This reflects the increasing interest of market players to incorporate and examine sustainability considerations in financial markets in Asia. Based on data from OECD Report 2021 (OECD 2023), the degree of ESG coverage performed significant growth from 2020 to 2021, which was contributed by Japan's ESG coverage rating amid the worldwide crisis caused by COVID-19.

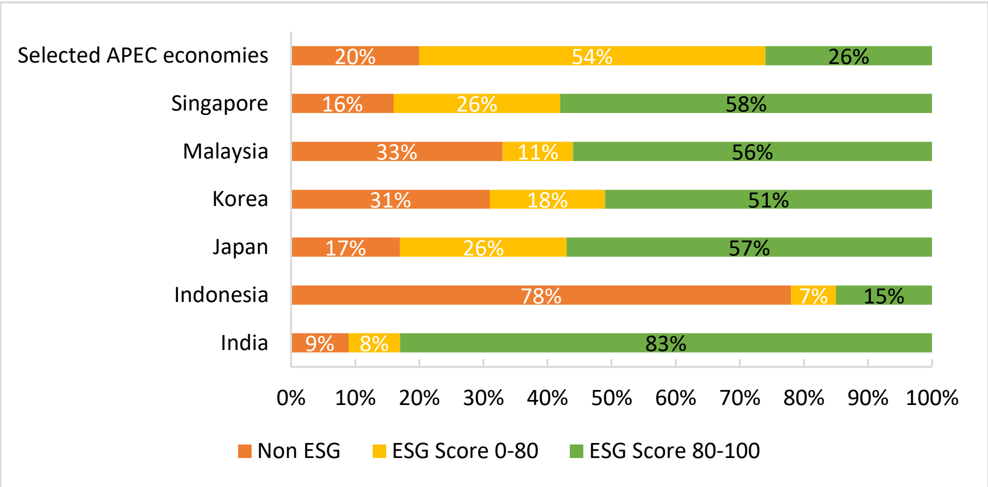
Figure 1.1 Coverage of ESG Rating for Public Companies in Asia and Pacific



Source: OECD Report 2021

However, not all ESG rating coverage in Asia is covered. According to statistics in figure 1.2. It shows countries with strong ESG coverage relative to market capitalization such as Japan (83%), South Korea (69%), Singapore (84%), and Malaysia (67%). Indonesia is still in the early phases of ESG coverage, accounting for 22%. This is mainly due to several factors including regulatory, social, and environmental awareness. Countries with strong ESG coverage typically have more robust governance structures and regulatory frameworks compared to Indonesia. These countries often have stronger enforcement of environmental regulations, greater corporate governance standards, and greater transparency in reporting. Besides, they have values that promote social responsibility and environmental sustainability to a greater level than Indonesia. This cultural mindset can influence organizational behavior and encourage companies to adopt ESG standards which imply to increase coverage of ESG ratings more broadly.

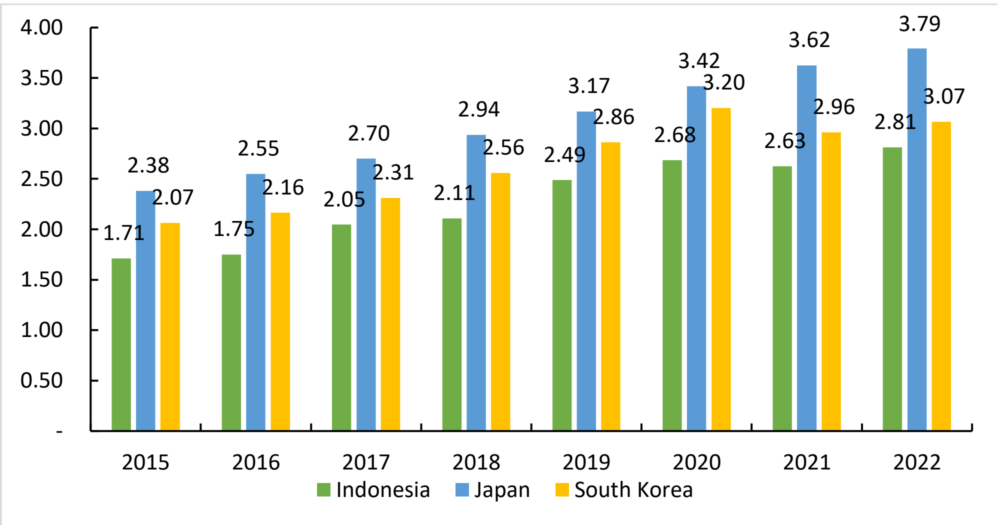
Figure 1.2 Coverage of ESG Ratings by Public Companies in Asia



Source: OECD Report 2021

According to data providers from Bloomberg, as shown in figure 1.3 ESG score has greatly improved in developed countries represented by Japan and South Korea. Both are more developed in economies compared to Indonesia, with higher levels of industrialization and technological advancement. Companies in developed economies often have increased funding and ability to commit to ESG initiatives and integrate sustainability into their operations. Investors in Japan and South Korea may place more emphasis on ESG performance when evaluating investment companies. As a result, Japanese and South Korean companies may face greater pressure to improve their ESG performance to attract investment and remain competitive in the global market. Japan and South Korea have implemented various government initiatives to promote ESG practices and sustainability. These initiatives may include incentives, subsidies, and regulatory frameworks that encourage companies to prioritize ESG considerations in their business strategies. Meanwhile, Indonesia continues to follow the trend compared with other countries. Even though, implementing ESG standards still becomes a challenge for companies in Indonesia, reporting ESG data and other non-financial information implies additional costs for the company. Aside from that, not all organizations have access to technical knowledge of ESG standards. Adopting a clear sustainability strategy is relatively new in Indonesia it has impacted several companies that provide sustainability reports remaining low. Moreover, the lack of awareness among market participants about ESG initiatives is less favorable compared to developed countries. This could be associated with the fact that market participants have very little motivation to encourage public companies to comply with environmental, social, and governance (ESG) standards.

Figure 1.3 ESG Scoring Trend Indonesia Compare with Japan and South Korea



Source: Bloomberg database

Many literatures have studied the relationship between ESG adoption to the financial market, and to company performance. The ESG implementation proxies are derived from research conducted (Buallay, 2019). Sustainability related to environmental, social, and governance performance is assessed by the Bloomberg ESG score, while financial condition is assessed by return on asset, return on equity, market performance by Tobin's Q, as well as market value. In addition, the study is used proxies for company size, financial leverage, and industrial sector, which are represented by total assets, debt to assets, and financial or non-financial for industrial. Furthermore, public companies traded in Indonesia will be used as samples compared with public companies traded in South Korea, and Japan which represent developed countries.

These countries are chosen based on a prior study by (Tarmuji & Maelah, 2016), who claimed that ESG research is typically conducted in developed countries, indicating that further research on ESG performance in developing countries is needed. As a result, a selected sample of countries is used as examples to assess whether ESG performance varies when conducting research in developing countries represented by Indonesia. The objective of this study is to gain a comprehensive understanding of the influence of sustainable practices related to environmental, social, and governance (ESG) implementation on the performance of companies in Indonesia. Furthermore, the study seeks to elucidate the discrepancies in the influence of ESG adoption on corporate performance between Indonesia and a selection of developed nations. The importance of a company's sustainability in relation to social, environmental, and governance norms for stakeholders requires the examination of the relationship between ESG disclosure and performance.

Few comparative studies have been conducted to examine the relationship between sustainability reporting and company performance across the world. As a result, there are various ways that the current study contributes to the literature. First, it reviews several previous studies on sustainability reporting. These studies have examined different areas of corporate performance (operational, financial, as well as market). In addition, empirical evidence of sustainability reporting practices in two different industries will be compared. As a result, it is hoped that this will increase the understanding of sustainability on a corporate level across industry sectors. This will ultimately enhance the comprehension of sustainable reporting methods for stakeholders, investors, decision-makers, regulators, legislators, and researchers.

1.2. Problem Statement

In the context of the problems discussed above, the author highlights several things related to the implementation of ESG (Environmental, Social, and Governance) standards to the financial performance of companies in Indonesia. The concern is the lack of awareness among companies in Indonesia about the importance of implementing ESG standards besides the low percentage of transparency and accountability financial disclosure still highlighted. This is a challenge, considering that the adoption of ESG standards can have an advantageous impact on the company's reputation and long-term financial sustainability.

The authors also highlight the fact a company's operational, financial, or market position could be affected by other factors after it follows the standards of ESG. These aspects could result from changing statutes, changing market conditions, or even internal corporate adjustments to the recently enacted ESG criteria. To minimize the disadvantages and maximize the advantages of implementing ESG standards, businesses must have an extensive strategy in place for managing these types of changes.

The author also notes the difference in performance results between companies that have ESG standards in their operations, and those that have not implemented ESG standards. This results that not all companies will get the same response after implementing ESG standards, so some more specific approaches are needed that have been adjusted for each company. The size of the company also influences the implementation of ESG standards, as companies with a large size have more resources to implement ESG, while companies with a smaller size need to find innovative ways to implement it effectively.

Finally, the author underlines that there are differences in performance results between emerging market countries and non-emerging market countries. In the implementation of ESG standards, the author then compares emerging market countries, namely Indonesia, with non-emerging market countries represented by Japan and South Korea. The author combines the impact of the implementation of ESG standards on corporate financial performance between the two categories of countries.

The author also focusing on the short-term effects of implementing ESG standards on financial performance, this research also aims to understands the immediate consequences of adopting these standards. The short-term impact may differ among countries depending on how important ESG issues are adopted by companies. Understanding the short-term impact on companies will be beneficial to be well informed due to the scaling of ESG standards, balancing the need for sustainable operations with the necessity of maintaining financial performance in the near term.

The author also understands this research may show limitations, reflecting that the regulatory context and business environment are crucial in assessing the effectiveness of ESG standards implementation. This emphasizes the need for further research focusing on the Indonesian context to fully understand how ESG standards can be optimally implemented and provide maximum benefits for companies in Indonesia.

1.3. Research Question

Based on the background explanation above, several issues will be examined in this research, which leads to the following questions:

1. How does implementing ESG standards affect operational performance in Indonesia?
2. How does implementing ESG standards affect financial performance in Indonesia?
3. How does implementing ESG standards affect market performance and market value in Indonesia?
4. What is the impact of implementing ESG standards on the financial performance in Japan and South Korea?

1.4. Research Objective

Based on the previous problem formulation, the objectives of this research are as follows:

1. Identifying the impact of implementing ESG standards on operational performance in Indonesia.
2. Identifying the impact of implementing ESG standards on financial performance in Indonesia.
3. Identifying the impact of implementing ESG standards on market performance and market value in Indonesia.
4. Identifying the impact of implementing ESG standards on the financial performance in Japan and South Korea.

1.5. Hypothesis

The first relationship that this research tries to identify is whether ESG performance has a positive impact on company performance, in the sense that a high ESG score leads to high company performance. The hypothesis is broken into four sub-hypotheses, just like the measurement: operational, financial, market performance, and market value.

Operational performance, as measured by ROA, is related to ESG performance, which is explained by the disclosure of the sustainability report, which is considered part of corporate value. Thus, better disclosure of the report leads to a higher ESG score, which increases corporate ROA (Buallay, 2019).

(Buallay, 2019) notes that in terms of financial performance. It is expected that sustainable development activities will create more demand for products and products and services, which will be a driver of business growth and a mitigator of business risk. The study conducted by Margolis, Elfenbein, and Walsh (2007) in (Buallay, 2019) further supports the theory that there is a direct correlation between ESG performance and financial performance.

Finally, a study by Barth, Cahan, Chen, and Venter (2016) in the journal (Buallay, 2019) shows a positive relationship between ESG performance and market performance. Companies conducting sustainability activities through CSR or reporting sustainability reports can provide an increase in cash flow so that the value of the company can be higher (Tarigan, J., & Semuel, 2015; Velte, 2017; Wagner, 2010). Furthermore, the researcher aims to ascertain whether there is a positive correlation between ESG performance and market value. In light of the aforementioned considerations, the following hypotheses are proposed:

H_1: ESG implementation positively and significantly impacts the Operational performance

H_2: ESG implementation positively and significantly impacts the Financial Performance

H_3: ESG implementation positively and significantly impacts the Market performance

H_4: ESG implementation positively and significantly impacts the Market value

1.6. Significance of Thesis

Based on the research objectives to be achieved, this study is expected to provide benefits to all parties involved and interested in the issues discussed. This paper has the potential to present important empirical data for future research regarding the impact of the implementation of ESG (Environmental, Social, and Governance) standards on the financial performance of companies in Indonesia. Thus, the results of this study will provide relevant insights for various groups.

The findings of this study can be used as a guide for companies, businesses, and policymakers to examine the influence of applying ESG guidelines on a company's performance. The data produced could help with strategic decision-making, which can enhance the sustainability and efficacy of operations. For policymakers to create more suitable policies to address shifting market dynamics, this research can also highlight the opportunities and difficulties they encounter when applying ESG standards.

For investors, this research could provide relevant knowledge and information in making investment decisions. By understanding how the implementation of ESG standards can affect company performance, investors are expected to be wiser in choosing companies that have the potential to provide good results. This is important, especially in an era where awareness of sustainability and corporate social responsibility is increasing among policymakers, business owners, and investors.

For academics, the results of this study could be used as additional knowledge and references in the academic literature that examines the effect of the implementation of ESG standards on the financial performance of companies in Indonesia. This contribution not only enriches the academic discourse in this field but also provides a solid foundation for future studies. Thus, this study has the potential to be a valuable reference source for researchers who want to delve further into the relationship between ESG standards and corporate performance, especially companies in Indonesia.

1.7. Thesis Outline

This thesis contains 5 chapters with the following descriptions starting from the introduction, the literature review, research methodology, results and discussion, and conclusion. Each chapter that serves as a source for this thesis is explained as follows:

The first chapter is an introduction where in this chapter explains the background of the problem that is the focus of this research, namely The Impact of ESG Implementation on Financial Performance: A Case Study of Indonesia Stock Market. Where it is explained that each company that has implemented ESG standards has a different impact, besides the lack of literacy and awareness in companies in Indonesia in adopting ESG standards. The first chapter also explains the problem statement as the main topic to be addressed. Research questions and objectives that have been clearly outlined. And a description of how this study can provide theoretical and practical benefits. Finally, it explains the structure of this thesis by providing an overview and context of each chapter.

The second chapter, the literature review, examines the main theories relevant to the research topic, key concepts, and definitions used, such as the Stakeholders theory where it is explains how companies do not only focus on shareholders, but companies must also be concerned with the social environment, workers, communities, supply chain, and government. Where it is explained that companies that can combine all the above concerns can achieve financial success which is the main goal of shareholders. In addition to the Fama-French theory, it explains how company size can have its own risks in the calculation of the capital asset pricing model. This chapter also explains the conceptual framework that is relevant to this discussion. In addition, this chapter tries to find the gap between theory and previous studies so that this research has a strong foundation.

The third chapter is research methodology, where it is explained that this thesis research uses quantitative research using multiple linear regression models with cross section data panels from a total of 4816 company observations consisting of three countries Indonesia, Japan, South Korea with the following details Jakarta composite Index (696 companies), Nikkei 225 Index (1768 companies), Kospi Index (294 companies). Where this data is derived from secondary data. In addition, analysis techniques based on data that has been obtained include Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM). Then, the hypothesis test used to determine the best analysis technique is the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test.

The fourth chapter, result and discussion, explains the results of the study by describing graphs, tables, and narratives. These results are examined and discussed. The interpretation of the study's findings, connections with previous studies, and the research's implications for theory and practice are all covered in the discussion.

The final chapter contains the conclusion, which summarizes the main points of the research and answers any questions that have arisen. This also includes recommendations for future research and practical applications based on the research topic. The final section contains recommendations and thoughts on the research that has been conducted, providing a comprehensive picture of the significance of this research.

CHAPTER II

LITERATURE REVIEW

2.1. Theoretical framework

This section will explain the essential theoretical foundations that form the foundation of this research. The theoretical foundation provides an understanding of how to think and analyze the problem statement to be solved. This study takes the theoretical framework regarding stakeholder theory, legitimacy theory, and Fama-French theory. Legitimacy theory postulates that companies that possess the knowledge and expertise to implement sustainability practices can gain legitimacy from the robust social environment in which they operate. Furthermore, the Fama-French theory posits that company size is an important determinant of risk in the calculation of the capital asset pricing model.

2.1.1. Stakeholder theory

This thesis refers to the stakeholder theory introduced by R. Edward Freeman who proposed stakeholder theory in 1984, which is part of the sustainability and ESG reporting initiative (Velte, 2017). Freeman believes that firms should focus not just on shareholders, but also on employees, society, citizens, and others. Donaldson and Preston's (1995) study supports this viewpoint, as cited in (Tarigan, J., & Semuel, 2015), who claim that companies have duties beyond shareholders. Employees, consumers, suppliers, financiers, communities, governments, political parties, trade groups, and, on occasion, rivals are all examples of stakeholders, according to Freeman (1984) (Velte, 2017). According to stakeholder theory, merging the interests of the numerous coalition partners to whom the firm (stakeholders) interacts through a network that includes numerous collaborations can ultimately determine product and service success. Since the company needs support from the community in managing its operations, success in realizing the expectations of the surrounding community is an indicator of the company. Management needs to consider all aspects from stakeholders to the community so that the company's objectives can be achieved. It is of the utmost importance to ensure the long-term sustainability of a company in order to guarantee that the expectations of its stakeholders are met. In practice, it is essential to implement effective communication strategies that facilitate a clear and transparent exchange of information between the company's sustainability initiatives and its key stakeholders. The establishment of effective communication between the company's sustainability objectives and its stakeholders is a key factor in the production of positive sustainability reporting. The impact of sustainability reporting can facilitate effective communication between stakeholders, the environment, and society (Robin W. Roberts, 1985). Because stakeholders are concerned with the company's long-term goals, improved ESG reporting will result in improved CSR performance indicators, such as CSR ratings or reputational considerations. As a result, the company's future financial success may improve (for example, in the marketable asset), by establishing a relationship of trust with key stakeholders, the company is better positioned to achieve its non-financial performance objectives..

The company's capabilities are determined by its capacity to produce new combinations of current information and leverage its knowledge of unexplored potential value (Kogut & Zander, 1992). Capabilities for integrating knowledge are crucial for building personal knowledge, which leads to efficient knowledge management at the corporate level (Alavi & Tiwana, 2002).

2.1.2. The Legitimacy theory

Refers to the theory of legitimacy an organization's belief that it has the right and authority to act and make decisions that it deems appropriate. This right can be exercised in various ways, such as democratically, traditionally, or through the principles of law and justice (Deegan, C., Rankin, M. and Tobin, 2002). In the area of ESG issues, perceived legitimacy can play an important role in determining whether such issues are accepted by society. Business ethics in this case provide public confidence that companies have the right and authority to conduct business and make decisions that respect the environment and society.

Companies that have good and transparent ESG practices will more easily gain legitimacy and support from society. This is because the company has fulfilled the environmental and social expectations and standards accepted by society (Pfeffer, 1997). Legitimacy theory helps to understand how to gain the support of society through good and transparent ESG practices, especially for companies. In addition, it also helps ensure that companies that have socially and environmentally responsible practices and actions will gain support and long-term success (Deegan, C., Rankin, M. and Tobin, 2002).

Another opinion also explains that legitimacy theory is a sociological theory used by companies or institutions to maintain and gain support from the environment and society. This theory focuses on building and maintaining the legitimacy of companies in the social environment, and this legitimacy can influence the behaviour and actions of companies or institutions (Tilling, 2004).

Based on (Lindblom, 1994) there are several strategies that can be applied to gain company legitimacy towards the social environment and society. Among them, companies can form alliance strategies with other companies to strengthen legitimacy and build public trust, and then companies can show commitment or attention to the environment and society by providing CSR programs, besides that companies can also increase transparency and accountability through timely and accurate information disclosure to stakeholders. Finally, companies can conduct corporate branding so that they can form a positive reputation through effective communication with stakeholders.

So that companies that have strong legitimacy are better able to maintain public support and influence community behaviour. Legitimacy also has an impact on the company, companies that can maintain their legitimacy will be more responsible and have ensured that the company's operations meet environmental and social standards (Brown, N. and Deegan, 1998).

2.1.3. The Fama French theory

The Fama French Theory, proposed by Eugene F. Fama and Kenneth R. French (1992), is used by researchers at the medium-range theory level. Eugene Fama and Kenneth French established the Fama-French Three-Factor Model, a finance theory. This model extends the Capital Asset Pricing Model (CAPM) by incorporating three risk factors: market risk, size risk, and value risk. The first element, market risk, assesses how closely an investment follows market trends. The second component, size risk, evaluates the capacity for smaller companies to outperform as it evaluates stock performance based on market capitalization. Meanwhile, the third element, value risk, considers the difference between high and low-price equities to capture a stock's relative worth.

Based on this framework, the author then created a theoretical framework as shown in the following table 2.1:

Table 2.1 Theoretical Framework

Grand Theory	
Stakeholder Theory	Freeman (1984)
Legitimacy Theory	Pfeffer (1997)
Middle Theory	

Fama French Theory	Eugene F. Fama dan Kenneth R. French (1992)

2.2. Conceptual Framework

It is a framework that explains the general description of the writing process. The conceptual framework also explains the variables that become the relationship in this research. The author also explains the concept of ESG, and how ESG standards become the company's initiative. The author also explains the relationship between the performance of companies that have implemented sustainable standards and the performance in their financial markets.

2.2.1. Environmental, Social, and Governance (ESG)

The concepts of Environmental, Social, and Governance (ESG) are getting more frequently utilized in the finance and business industries. Businesses are making significant efforts to incorporate socially and sustainably conscious practices into the ESG framework. According to (Tarmuji & Maelah, 2016), It functions as a measure of the company's non-financial performance, as well as the abilities of the firm's management and risk management. The ESG criteria assess the company's approach to environmental, social, and governance issues. A company's energy, natural resource conservation, carbon dioxide emissions, water consumption, waste, and pollution are all evaluated by the environmental factor. Corporate social responsibility includes human rights, lawful trade, gender equality, and employee health and safety. The terms corporate governance and leadership, reporting, management, bribery, and corruption prevention are used interchangeably.

According to the CFA Institute ESG refers to three factors, consisting of the Environmental on how the company can manage the company's operations to have an environmental impact, while the social aspect focuses on how the corporation can effectively manage the link between the environment and society. the governance in practice the company must ensure accountability and transparency in decision-making and management of the company's financial operations. Then the factors that can affect the assessment and ranking of companies based on sustainability issues related to environmental, social, and governance, several things can be measured (Bassen & Kovács, 2008), An ESG score is an assessment of a company to see how well it meets standards and best practices in the ESG space. This score varies between reports and ESG ratings, but generally uses a numerical or letter scale. In addition, the ESG Index is a ranking of companies based on ESG factors, which investors use as a reference in making investments. Then the ESG report, is a report issued by the company that contains disclosure of information about governance and ESG factors that affect the company's operations. This measurement and assessment factor plays a very important role in helping stakeholders to assess and compare companies in terms of social and environmental responsibility. However, these ESG measurement factors are still subjective and vary between reports and ESG ratings.

When investors showed interest in learning about a company's social and environmental performance from business reports in the late 1970s, the concept of ESG standards was applied. (Belkaoui & Karnik, 1989; Neu et al., 1998; Wiseman, 1982). The United Nations Principle of Responsible Investment (PRI), which introduced a framework for tracking investor decisions and emphasized the idea of sustainability aspect consisting of environmental, social, and governance norms, gave rise to the second wave of ESG in 2006 (Eccles & Stroehle, 2018). A collaboration between the United Nations Environmental Programme (UNEP) and the Coalition for Environmentally Responsible Economies (CERE) resulted in the development of the GRI framework, which identifies three core concepts. The third generation (G3) of GRI is concerned with practices other than environmental issues; however, the third idea is centered on environmental matters. The GRI framework is comprised of six distinct categories: economics, the environment, corporate social responsibility, human rights, and employee safety. Within its economic category, the GRI framework has a corporate governance component that addresses ESG issues. The most recent edition (G4) of the GRI was published in 2013, and it is widely utilized by governments, enterprises, and regulatory entities to create standards for ESG reporting and activities. In addition, other international standards are used as global references (Galbreath, 2013) such as the Sustainability Accounting Standards Board (SASB) is an independent institution that sets standards for ESG reports for companies that aim to help investors understand risks and opportunities in making investment decisions, then there is the Task Force on Climate-related Financial Disclosures (TCFD) is a global initiative that aims to help companies disclose relevant and useful information regarding the environmental and community impacts of climate change. And finally, the Dow Jones Sustainable Index (DJSI) is an ESG index that ranks companies based on sustainability performance and helps investors measure and compare companies on social and environmental responsibility. A globally recognized ESG standards framework can help companies ensure all aspects are meeting standards and practices in terms of social and environmental responsibility. Additionally, this provides investors and stakeholders with a greater comprehension of the company's operational management and ESG-related considerations.

In addition, there are several organizations responsible for assessing and ranking companies based on ESG factors. These institutions that are well-known in ESG measurement include Sustainalytics, which is an independent company that provides ESG measurement and analysis solutions for investors and companies, then there is MSCI ESG research, which is an institution that helps companies understand how to influence and manage ESG factors. Furthermore, ISS ESG is a company that provides ESG analysis and measurement services for companies and investors, and helps to understand and manage ESG factors, Finally, the data provided by Thompson Reuters ESG data is an institution that provides ESG data and analysis for investors and companies and helps companies to understand and manage ESG factors. These organizations help companies ensure they meet standards and best practices in social responsibility and help investors and stakeholders understand the ESG factors that can affect a company's operations.

According to earlier studies, ESG practices were looked into right away (Alareeni & Hamdan, 2020). The financial performance of the companies has been the subject of numerous studies. Most research concentrated on just one aspect of ESG, including corporate governance, social responsibility (CSR), or the environment. Of the three reflective variables in ESG, only one was examined in the majority of research on ESG and firm financial performance (Barnett & Salomon, 2012). Because of the interdependence of the three ESG components, it would be impossible to determine the actual relationship between ESG practices and business success if any one of them were ignored. Given the limitations mentioned earlier, a study that tackles ESG across all domains is necessary (Alareeni & Hamdan, 2020).

2.2.2. Environmental, Social, and Governance Standards as a Company Initiatives

A notable proportion of existing research has focused on a specific aspect of ESG performance. This has included, for example, environmental performance, social responsibility and corporate governance performance. However, there has been a notable absence of studies investigating the relationship between ESG and financial performance. The majority of studies demonstrate a positive correlation between a company's sustainability practices, environmental impact and financial performance. Most theoretical evaluations indicate that companies that improve their environmental performance stand to gain significant societal recognition and improve their reputation. This will enable companies to enhance their financial performance by gaining favor with both suppliers and customers in the supply chain. Extensive research has been conducted on the correlation between financial performance and environmental performance. Through empirical research from a variety of perspectives, several empirical models, and different measurements of both financial and environmental performance, these studies established the relationship between environmental success and financial success. Typical research includes (Feltham & Xie, 1994)**,** From the standpoint of environmental control, it has been proven that tightening environmental control might raise operational effectiveness without increasing the cost of environmental management, therefore enhancing the business's financial performance.

Study from (Telle, 2006) the initial approach primarily involved utilizing pollutants as a metric to assess environmental performance. The focus was on the notion that enterprises with lower emissions of pollutants would achieve superior financial performance under equivalent circumstances. (Sharfman & Fernando, 2008) found through empirical study that businesses can successfully lower their loan costs and thereby enhance their financial performance by addressing environmental concerns. (Iwata & Okada, 2011) researchers have studied the association between financial and environmental performance using data from 2004 to 2008 from Japanese companies. According to the estimation results, the impact of environmental performance on financial performance varies. Waste disposal generally has little to no impact on the financial outcomes.

Nevertheless, some studies have indicated that there is a negative correlation between environmental sustainability and a company's financial performance. This theoretical position is founded upon the premise that environmental concerns engender greater costs for businesses and result in a reduction in financial performance. Typical studies from (Stanwick & Stanwick, 1998) Empirical research findings indicate a discernible negative relationship between financial performance and environmental performance. Furthermore, the correlation between company profitability, as measured by return on total assets, and the level of pollution generated by the company is positive. Based on research result, (Horváthová, 2010) claims that there is a significant increase in the likelihood of detecting a negative association between environmental and financial performance when basic correlation coefficients are used in place of more sophisticated econometric analysis. Furthermore, the nexus's empirical methodology is important.

2.2.3. Financial Market

The finance literature investigates the creation (or acquisition) of information in financial markets. It was pioneered by (Grossman, S.J., Stiglitz, 1980), and (Verrecchia, 1982). A model in which two different sets of financial traders are aware of various securities fundamentals is examined in a recent study by (Goldstein & Yang, 2017). They illustrate how these two categories of financial traders strategically complement each other in terms of trading and information gathering. (Ganguli & Yang, 2009) examine a situation where traders can obtain exclusive information regarding the supply and reward of a stock. They show that there are several equilibria and complementarity in information acquisition. The model combines aggregate production and the real sector into a Grossman-Stiglitz-style model; in our model, information is acquired in financial markets as well as the real sector. This study strengthens the body of evidence showing complementary information generation between the financial and real sectors. gives the two-factor asset payoff concept proposed by Goldstein (Yang, 2018) a micro foundation. By showing that the informational interplay between the real and financial sectors may have important macroeconomic repercussions, our work adds to the body of existing knowledge (Goldstein & Yang, 2017).

(N. K. Shanmugam & T. Yamuna, 2023) Financial performance is a key factor that determines an organization's long-term profitability, stability, and liquidity. Financial performance can be evaluated using comparative balance sheet analysis, trend analysis, and ratio analysis, all of which were applied in this research. These tools, when used by financial experts, will be qualified to solve the financing issues companies face. When the right tools for each difficulty are employed, experts can reach judgments. All of a company's financial issues are analyzed, interpreted, and improved upon through financial analysis. (Adhana & Gulati, 2019).

The financial sector is a key indicator at the country's level and plays a crucial part in the economic development of a nation. Any organization's records and documentation cannot be used to evaluate its financial performance. It must be determined by strategic evaluation. Personal decisions influence the selection and application of strategies. Ratio analysis and comparative balance sheet examination on a certain period are two of the most significant and commonly used techniques. (Thakur, 2019) The financial performance analysis of Dabur India Ltd evaluates the viability, dependability, and profitability of the company in addition to accounting and financial analysis. This study's main goal is to investigate Dabur India Ltd's financial status. The present study was conducted utilizing secondary data sourced from Dabur India Limited's Annual Report. A variety of financial metrics, including profitability and liquidity ratios, can be used to estimate financial performance. According to research, the company has sufficient finances to fulfill its responsibilities, including debts and liabilities.

(Gopi, 2018), When making investment decisions, reasonable investors analyze financial performance as it relates to company profitability. Investors utilize the return on equity metric to assess a company's ability to create profits from its equity, as well as the economic efficiency of management in allocating the business's resources. The return on equity measures the amount of profit available to shareholders compared to the investment shareholders have made in the company. Essentially, it examines how efficiently a company utilizes shareholder equity to generate profits, which includes the sale of shares and retained earnings.

2.2.4. Sustainability and Market Performance

Sustainability refers to the ability to coexist with both the natural environment and people. The core idea of sustainability states that the natural assets of the planet cannot be permanently consumed, exhausted, or harmed (Portney, 2015). The environment, society, and economy are the three key domains that are involved in sustainability (EPA 2015). The three subdomains of sustainability are political, technical, and cultural (James, 2014; Magee et al., 2013). Three categories comprise current sustainability strategies: technology, wealth, and population (Holdren & Ehrlich, 1974). The development of new innovative solution that address the connections between the environment, society, and economy such as ones connected to product design, manufacture, transportation, usage, and disposal is the most promising strategy for ensuring sustainability. The most important role in sustainability is to do a thorough evaluation of all environmental, social, and economic factors affecting a product.

The market performance is a key metric used by both internal and external stakeholders to evaluate the company's advancement. Multiple techniques exist for assessing a company's market performance. Tobin's Q ratio (Rizki & Patuh, 2016) is one of the most effective proxies. Tobin's Q is used to assess corporate performance since it can determine the firm's market value, which indicates future earnings. When a firm has a higher value than the previous one, it incurs costs to grow and generate a profit. When securities (shares) give future earnings that may be sold for more than the investment expenses, there is a strong incentive to raise more capital (Vivianita & Nafasati, 2018). The Tobin's Q ratio considers both the future stock prices and the management capabilities in asset management, together with the possibility for investment growth (Geldenhuys et al., 2014).

2.3. Previous Studies

In this section, the author presents some previous research to find out the results of several studies that have been conducted. Therefore, the author could get comprehensive data insight from previous studies that have been done. The author tries to find a knowledge gap to get an extensive analysis of the current studies.

2.3.1. The Impact of ESG implementation on companies in the Europe Market

Several studies have examined subjects comparable to this topic, specifically the adoption of ESG implementation on company financial performance. A single reference has been assessed by (Ahmad et al., 2021) using a sample of 351 companies gathered from the FTSE350 index the data available over the years 2002 - 2018, This study explores the relationship between ESG (economic, environmental, social, and corporate governance performance) and the financial success of companies based in the UK. This study examines the effects of high and low ESG (economic, social, environmental, and governance) ratings, as well as the overall impact of ESG and the dimensions of each ESG component on companies' financial performance. It utilizes both static and dynamic panel data methodologies to achieve a comprehensive understanding. A comprehensive evaluation of the company's ESG performance reveals that ESG has a considerable and beneficial effect on the financial performance of the company. By contrast, the evidence regarding the impact of an individual's ESG performance is inconclusive. The overall findings support the hypothesis that, when compared to low-ESG enterprises, high-ESG firms demonstrate superior financial performance. The relationship between a company's financial performance and its environmental, social, and governance (ESG) performance is contingent upon the size of the company in question.

Other research was also conducted (Velte, 2017) the samples used were companies that were publicly listed in Germany with a total sample of 412 companies from 2010 until 2014. The study employed correlation and regression analysis to examine the potential relationships between accounting-based metrics and ESG performance from the Thomson Reuters database, as well as financial performance as determined by the ROA and Tobin's Q ratio. In the case of German companies, the return on assets (ROA) is observed to exhibit a positive impact in conjunction with environmental, social, and governance performance (ESGP). The analysis was conducted on a set of publicly listed companies on the German Prime Standard over a period spanning from 2010 to 2014. The study revealed a statistically significant positive relationship between accounting-based financial performance (ROA) and overall ESGP, along with the constituent elements of environmental, social, and governance performance. In comparing the impact of governance performance on environmental and social performance, it is evident that the former exerts the greatest influence on financial performance.

Then, a second investigation was carried out (Buallay, 2020) which examines how sustainability reports affect business performance when compared to the industrial and banking industries. This study is quantitative and is based on an analysis of information gathered over ten years from 2008 to 2017 from 932 manufacturers and 530 banks registered in 80 countries, collecting 11,705 observations. Multivariate models are employed to assess whether sustainability reporting (ESG) have positive or negative affects the performance of businesses. This study demonstrates that ESG implementation improves operational, financial, and market performance in the manufacturing industry. However, ESG has a negative impact on operational, financial, and market performance in the banking sector. The differences in the results find that there are different characteristics in ESG implementation according to sectors. In the manufacturing industry, ESG relates to Environmental, Social, and Governance considerations largely focus on the business' processes and the relationship with environmental issues in the nations where it operates. The aim is to achieve green production by minimizing or eliminating the misuse of environmental resources. Conversely, within the banking industry, ESG considerations primarily prioritize the social aspect. Banks endeavor to develop a conducive social framework that fosters enduring and sustainable business operations. In addition, the banking sector is also significantly impacted by governance challenges such considerations include information asymmetry, transparency, and debt financing. This paper also suggests that banking sectors should produce sustainability reporting regularly, due to the report explaining how comprehensive sustainability aspect in the companies. This really matters, to improve knowledge for stakeholders. This paper also recommends institutions for instance the Central Bank, Ministry of Finance, and external parties to emphasize sustainability reporting for the Banking sectors.

In addition, study assessed by (Giannopoulos et al., 2022), The present study examines the impact of ESG activities on the financial performance of Norwegian listed companies between 2010 and 2019. The Thomson Reuters Eikon ESG disclosure score is utilized to assess the ESG performance of the companies in question, whereas Tobin's Q and ROA are employed to gauge their financial performance. To ascertain the impact of ESG activities on financial performance, This study utilizes panel data regression analysis, employing two proxies to measure the dependent variable, namely financial performance. The conclusions of this study are inconclusive. The study's findings demonstrate a robust and statistically significant correlation between ESG initiatives and financial performance. The regression model analysis indicates that, in particular, ESG initiatives have a negative effect on the dependent variable, namely the return on assets (ROA). Conversely, the ESG score had a notable effect on the Tobin's Q variable.

2.3.2. The Impact of ESG implementation on companies in the US Market

The researchers examined on how the impact of sustainability refer to ESG initiatives on companies in the United States market. Some researchers examine whether there is a causal relationship between a company's environmental, social, and governance (ESG) practices and its operational (ROA), financial (ROE), and market performance (Tobin's Q) outcomes. In order to test the aforementioned hypothesis, a sample of companies listed in the United States and included in the S&P 500 index was used. This sample included all companies listed in the S&P 500 index over the period from 2009 to 2018 (Alareeni & Hamdan, 2020). The researcher tested the research hypothesis and accomplished the research goals, panel regression analysis was employed. The findings indicate that the revelation of environmental, social, and governance information ESG disclosure has a favorable impact. The study revealed a favorable correlation between a firm's disclosure of environmental, social, and governance (ESG) factors and its performance metrics, including operational indicators such as return on assets (ROA), financial indicators such as return on equity (ROE), and market performance indicators such as Tobin's Q. However, it is interesting to note that specific components such as environmental and corporate social responsibility disclosures may have a negative effect on some performance indicators. Corporate governance transparency typically demonstrates a favorable correlation with performance. The study emphasizes the significance of ESG (Environmental, Social, and Governance) issues in corporate governance and indicates that more disclosure of ESG information is associated with improved business performance. This suggests that a greater level of Corporate Governance is a significant factor in improving firm performance in the best interests of investors and other interested parties, allowing firms to continue operating as going concerns. Nevertheless, the study also discovered a substantial inverse correlation between Corporate Governance practices and the financial performance (ROE) of enterprises. This study also discovered that the selection of ESG disclosure techniques by a company does not influence ESG scores. Different classifications of environmental, social, and governance (ESG) variables can have varied effects on the performance of enterprises. Nevertheless, when various types of ESG disclosure are combined into a consolidated score, the consequences may offset one another, thereby confusing the evaluation of the true influence.

Moreover, research by (Daszynska-zygadlo et al., 2016) also examined and investigated the relationship between corporate social responsibility and financial performance in 10 Global Industry Classification System (GICS) sectors. The performance of ESG ratings on a sample of 2,428 enterprises worldwide between 2009 and 2012 was measured by the researchers using data from Thomson Reuters. The impact of CSR efforts can be assessed by examining the increase in value they generate, as well as their temporary influence on earnings, which may vary depending on the company's sector. Firstly, this research demonstrates that investments in eco-efficiency have a negative impact on value in 8 out of 10 sectors. Significant results in corporate governance are only found in three industries with uncertain characteristics. Although the addition of the third, Social dimension is there, the research study sees a significantly smaller influence of CSR measures on the financial performance of enterprises in four sectors.

2.3.3. The Impact of ESG implementation on companies in the Asia Market

To get clear differences in ESG adoption in every notion. The author also provides some research related to this topic that has also been undertaken in Asia (Nareswari et al., 2023). This research aimed to examine the investment performance of the top 9 ESG elements in comparison to the LQ45 index. The researchers chose non-financial companies listed on the Indonesian Stock Exchange as a representative sample, covering the period from 2016 to 2021. The techniques utilized consist of adjusted Sharpe ratio and panel data regression. The findings indicate that the ESG portfolio has a higher Sharpe ratio compared to the LQ45. Nevertheless, the regression analysis indicates a negative impact of the ESG score on financial success. Higher investment and opportunity expenses associated with increasing the ESG score led to a deterioration in financial performance. This research offers various recommendations for the incorporation of Environmental, Social, and

Governance (ESG) standards inside company operations. Furthermore, based on the empirical test, it is reasonable to assert that the ESG performance in Indonesia is markedly inferior to the average. Companies exhibiting superior Environmental, Social, and Governance (ESG) performance tend to yield poor financial performance, thus requiring further examination and analysis of this study. The successful implementation of Environmental, Social, and Governance (ESG) practices requires the involvement of various stakeholders, including not only corporations but also investors, stakeholders, regulatory bodies, and government entities. The low ESG index in Indonesia may be attributed to the prevalence of institutional ownership among Indonesian enterprises.

Another study was also conducted by (Zhou et al., 2022) in order to examine the relationship between financial performance and other variables, linear regression and mediation effect models were constructed, with financial performance serving as a mediating variable. These models were used to analyze the relationship between ESG performance, financial performance, and firm market value, as well as the underlying mechanism of influence. The sample data used were the ESG ratings of Chinese-listed firms created by SynTao Green Finance between 2014 to 2019, which were chosen for empirical testing. The results suggest that improving the Environmental, Social, and Governance (ESG) performance of publicly traded organizations has a beneficial effect on their operational capacities. Nevertheless, it does not exert a substantial impact on their profitability and prospects for expansion. Enhancing the environmental, social, and governance (ESG) performance of publicly traded firms yields advantages in terms of boosting their market value. The operational capabilities of these organizations are pivotal in mediating the connection between ESG performance and market value. Additional research indicates that there is a clear and complete mediation effect for listed businesses that have a non-state-funded real controller. However, there is no mediation impact observed for listed companies with a state-funded actual controller.

This study examines the relationship between ESG rating performance and the stock market in Japan. It focuses on a sample of listed firms in Japan from January 2016 to December 2021, using a new dataset. The study specifically investigates how corporate (ESG) performance influenced the Japanese stock market during the COVID-19 outbreak. (Liu et al., 2023). This research suggested that corporate ESG performance had a significant impact on Japan's stock market during the COVID-19 pandemic. Specifically, companies with superior ESG performance have experienced increased stock prices and returns amidst the COVID-19 pandemic. Furthermore, improved ESG performance has the potential to decrease fluctuations in the stock market and increase the ease of which securities can be traded during the COVID-19 period. These findings support the idea that engaging in ESG practices allows companies to enhance their social reputation and gain public trust, which is crucial for maintaining financial stability, particularly in times of economic depression when public confidence in businesses and financial markets unexpectedly decreases. During times of crisis, investors with a strong level of public trust are likely to show a greater interest in equities that have high Environmental, Social, and Governance (ESG) scores.

Moreover, research conducted by (Yoon et al., 2018) this research examines environmental, social, and corporate governance (ESG) scores to evaluate CSR performance and analyze the effect on firm valuation. The data use secondary sources from WISEfn database for financial performance and the sample comes from a list of Korea Stock Exchange during period between 2010 and 2015. This research divided the dependent variable of ESG into each of the categories consisting of environmental, social, and governance scores. And for the independent variable the researcher using price per share, book value per share, and earning per share. This research also categorize company based on chaebol affiliates this is the distinctive of company size. Chaebol categorize consider as larger group with total asset over KWN 2 trillion and is owned and run by specific controlling shareholders or founder-family. This paper the findings indicate that investors have a favorable perception of the corporate social responsibility (CSR) initiatives undertaken by Korean companies. This aligns with the current empirical research that supports the notion that CSR activities contribute to boosting a firm's value. However, we have also discovered that a company's corporate social responsibility (CSR) practices do not have uniform effects on valuation. In contrast to existing research, the analysis finds that the impact of corporate social responsibility (CSR) on valuation is less significant for industries that are environmentally sensitive in the Korean financial market. Furthermore, in accordance with the current need for the restructuring of chaebols, the beneficial impact of corporate social responsibility (CSR) on their valuation is more pronounced. Specifically, our findings indicate that the impact of corporate governance practices on valuation is highly positive for chaebols, while it is either negative or not significant for regular Korean enterprises.

Then (Hwang et al., 2021) empirical studies have been conducted to determine the impact of the adoption of ESG criteria on financial performance during the period of the global pandemic caused by the spread of the SARS-CoV-2 virus, commonly known as the

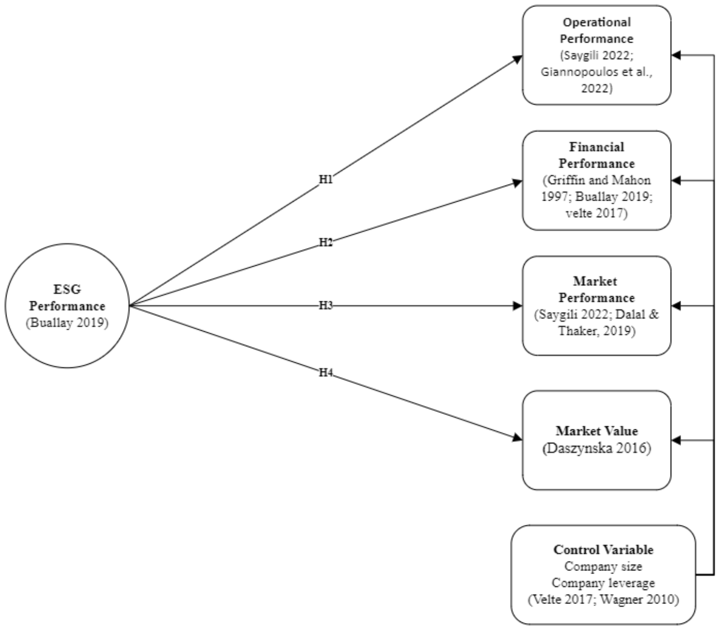
Coronavirus Disease 2019 (Covid-19). In this research, financial performance is used as a dependent variable. The ESG total score serves as the independent variable, with a number of additional control variables included in the analysis to account for factors such as firm size (as measured by total assets), leverage (as measured by debt-to-asset ratio), firm performance (as measured by return on assets), sales growth, the percentage of shares held by the company's largest shareholders, the firm age, cash holdings, and the inclusion of firms that have incurred losses. Furthermore, this paper introduces a variable indicating the presence or absence of the pandemic, measured during the observation period. These findings indicate that in the initial quarter of 2020, when the impact of the pandemic was most noticeable, companies experienced a substantial decrease in profits. However, this analysis demonstrates that organisations with superior performance in environmental, social, and governance (ESG) activities experienced a comparatively lesser reduction in earnings. The findings indicate that in circumstances of considerable uncertainty, a company's financial performance is shaped by its environmental, social and governance (ESG) initiatives. This result indicates that when the overall level of sustainability in markets is significantly impacted, the trust and relationship between businesses and stakeholders, which are formed through investments in social capital, are acknowledged and appreciated. Furthermore, our findings indicate that the effectiveness of non-financial activities provides valuable insights for stakeholders when making decisions in the context of market instability.

Based on several previous studies in the table above, researchers found several different results, especially regarding the impact of applying ESG standards on companies' financial performance in different countries. Hence, it is imperative to assess the influence of implementing ESG standards on the financial performance of Indonesian companies, considering variables such as operating performance measured by Return on Assets (ROA), financial performance measured by Return on Equity (ROE), market performance measured by Tobin's Q, and market value measured by Price to Earnings Ratio (PER). Additionally, this study expands the research by examining the effects of implementing ESG guidelines on the financial performance of corporations in various nations, with a specific focus on Japan and South Korea. This study intends to bolster the idea that there exist disparities in results between nations classified as emerging markets and those classified as non-emerging markets. Furthermore, emphasizing the immediate effects of implementing ESG practices on financial performance will be advantageous for organizations to understand the significance of adopting ESG standards.

2.4. Research Framework

According to an explanation of the research variables in past studies that were used as references and the findings of hypothesis testing (Junius et al., 2020), This research project will develop a conceptual model, which will be carried out in accordance with the methodology illustrated in Figure 2.1:

Figure 2.1 Research Framework



CHAPTER III

RESEARCH METHODOLOGY

3.1. Data Description

This research uses panel data with cross-section, a type of data collection that combines information from the time series dimension, which includes a series of observations at different points in time, and the cross-section dimension, which includes distinctions among units of observation at a specific point in time. According to Gujarati and Porter (2009), data is a time series if the variables are in one set of times, while data is said to be a cross-section if they are at the same time.

This research utilizes secondary data, which allows a more in-depth analysis of the implementation of Environmental, Social, and Governance (ESG) in the Indonesian stock market. This technique allows for a comprehensive knowledge of how ESG principles influence the financial performance of publicly traded companies by focusing on one or many sample cases. Using multiple sources of quantitative data, this study aims to provide a fuller and more contextual picture of the influence of ESG adoption on financial performance in the Indonesian stock market. By using a case study approach, this study not only seeks generalizations but also enables a comprehensive study of specific dynamics and characteristics that might arise in the context of companies that have gone public on the Indonesian stock market. As a result, it is believed that this study will contribute significantly to our understanding of the relationship between ESG and financial success by highlighting more contextual and relevant characteristics of the stock markets examined.

3.2. Sample Data

Data are gathered from the Bloomberg database for both ESG scores and all the variables both independent and dependent. The samples are public companies listed in Indonesia, Japan, and South Korea data are collected from 2015 until 2022. The following is a sample of data that will be collected over a specified period. The population is collected from each country represented in a specific index as mentioned in Table 3.1 Jakarta Composite Index (Indonesia), Nikkei 225 Index (Japan), and South Korea (Kospi Index).

The author considers that by utilizing a general index not specific index such as the Jakarta Composite Index (JCI), Nikkei 225 Index, and Kospi Index the study would still contain a subset of companies that are also included in the Socially Responsible

Investment (SRI) Index. The study not only eliminates the selection bias associated with the SRI Index, but also benefits from including a sample of companies known for their good ESG policies. This approach provides a balanced and thorough study of the short-term financial implications of ESG disclosure, considering a diverse variety of organizations from various industries and stages of ESG maturity. It permits the research to offer insights that are generally applicable to the Indonesian market while still assessing the performance of ESG leaders within the component of ESG standards.

The author considered country specification is different between emerging and non-emerging markets. Indonesia will become the main objective meanwhile non-emerging markets represented by Japan and South Korea as comparative data. The samples are taken by evaluating Bloomberg ESG scoring data from the country, together with the outcomes of the available data selection, data sample based on ESG scoring Bloomberg as shown in table 3.1:

Table 3.1 Observation and Sample

Sample	**The initial sample universe was derived from data sourced from Bloomberg**	**Data with ESG disclosure score Bloomberg**
Indonesia		
Sample Period	2015 - 2022	2015 – 2022
Index	JCI Index	JCI Index
No. of Companies	742	87
Total Observation	5936	696
Japan		
Sample Period	2015 - 2022	2015 – 2022
Index	Nikkei 225 Index	Nikkei 225 Index
No. of Companies	225	221
Total Observation	1800	1768
South Korea		
Sample Period	2015 - 2022	2015 – 2022
Index	Kospi Index	Kospi Index
No. of Companies	820	294

Total Observation	6560	2352

Source: Bloomberg database

The process of selecting companies for a study based on their ESG (Environmental, Social, and Governance) disclosure score. Companies were selected based on the availability of ESG scores from the Bloomberg database. Then, companies were further evaluated for their consistency in ESG reporting over a period of three consecutive years. Companies that were inconsistent in their reporting were excluded from the observation period. In total, there were 87 companies from Indonesia included as a sample of the Jakarta Composite Index, resulting in a total observation of 696 companies. Similarly, there were 221 companies from Japan included in the Nikkei Index, with a total observation of 1768 companies. Additionally, there were 294 companies from South Korea included, resulting in a total observation of 2352 companies. The availability of financial performance data was also taken into consideration in the study.

3.3. Dependent variables

Some researchers use Tobin’s Q as proxy company value (Atan, R., Alam, M.M., Said, J., and Zamri, 2017; Dalal & Thaker, 2019; Giannopoulos et al., 2022; Naeem, M., Ullah, H., Shahid, J., & Kakakhel, 2022; Saygili et al., 2022) similarly, many researchers use Return on Assets (ROA) as proxy to calculate financial performance (Giannopoulos et al., 2022; Naeem, M., Ullah, H., Shahid, J., & Kakakhel, 2022; Saygili et al., 2022). Other studies have also added other variables such as Returns on Equity (ROE) to see financial performance besides Tobin's Q and Returns on Assets (ROA) (Buallay, 2019; Griffin & Mahon, 1997; Velte, 2017). Other studies have also used Price to Earnings Ratio (PER) as proxy to measure market value (Daszynska-zygadlo et al., 2016).

The Return on Assets (ROA) and Return on Equity (ROE) ratios are widely used by analysts, professionals, and investors in the capital market to evaluate a company's financial performance. Companies consider this ratio essential as Return on Assets (ROA) measures the company's capacity to create net income in relation to its asset ownership. Additionally, the Return on Equity (ROE) indicator is used by top level management to manage the company's capital in comparison to other competitors in the industry. This ratio serves as an indicator of the financial success of the company's operation. The ROE ratio is a reliable indicator of companies' efficiency in utilizing their capital to produce profits.

Both ratios suggest that whenever the generated ratio increases, the company's performance improves. Here are the formulas to calculate these two ratios:

$$ROA = Net\ Income\ /\ Total\ Assets$$

$$ROE = Net\ Income\ /\ Total\ Equity$$

Tobin's Q is a ratio utilized assessing a company's worth, specifically by dividing its market value by its total assets. The Tobin's Q ratio is mostly used to determine whether a corporation is overpriced or underpriced. According to capital market analysts, this ratio can be effortlessly implemented through the utilization of the subsequent ratio formula:

$$Tobin's\ Q\ (TQ) = (Market\ Capitalization + Liabilities)\ /\ Total\ Asset\ of\ Company$$

Some analysts use Price to Earnings Ratios (PER) to determine whether a firm is overvalued or undervalued by doing a comparative analysis against other companies. Market participants and investors typically refer to this ratio. The formula for the price-to-earnings ratio (PER) is as follows:

$$Price\ to\ Earnings\ Ratios = Market\ price\ per\ share\ /\ Earning\ per\ share$$

3.4. Independent variables

In this study, the author utilized the ESG overall score from Bloomberg's database, an indicator that has been employed by other researchers (Alareeni & Hamdan, 2020; Buallay, 2019; Jing, 2023). Bloomberg is an ESG data provider that provides Sustainalytics ESG research and ratings that inquiries through a combination of weighted assessments that include three pillars of sustainable related to ESG disclosure: Environmental disclosure, Social disclosure, and Governance disclosure. The prioritization and weighting of factors are made by following the guidance provided by the Sustainability Accounting Standards Boards (SASB) and the International Sustainability Standards Board (ISSB). This is further complemented by reviewing the Global Reporting Initiative (GRI) disclosure framework, CDP, Task Force for Climate Related Financial Disclosures (TCFD), and industry-specific guidelines (Bloomberg, 2023). By integrating these frameworks and guidelines, the company may effortlessly incorporate material issues, KPIs, and other significant factors into its ESG performance evaluation. The author also consider that Sustainalytics methodology are more suitable and fits the samples in Indonesia. This is mainly due to majority of companies in emerging market are associated with environmental issue and controversies. Furthermore, the Sustainalytics offers forward looking view of companies ESG risks as well as insights into how well these risks are managed by the companies.

Bloomberg utilizes a system that integrates data provided by corporations with the company's internal quantitative calculations. The disclosure factor (DF) is a significant contributor to the comprehensive evaluation of environmental, social, and governance (ESG) performance. Bloomberg utilizes a variety of data sources, including information directly provided by companies through annual reports, 10-Ks, integrated reports, corporate responsibility reports, and disclosures against ESG reporting frameworks and standards, such as the SASB index tables and proxy voting records, are among the documents included in the category of corporate governance. Additionally, releases related to environmental, social, and governance (ESG) matters, such as sustainability reports, are also encompassed. In order to assess a company's ESG performance, Bloomberg employs an ESG disclosure score, which is calculated by assigning a value between 0 and 100 to each disclosed item. A higher score indicates a greater level of transparency in regard to environmental, social, and governance performance.

3.5. Control variables

We also incorporate control variables such as company size and leverage (Buallay, 2019; López et al., 2007; Velte, 2017; Wagner, 2010). Investors and market participants usually use this ratio in the capital market to determine a company's leverage level concerning its assets. Additionally, it is employed to evaluate the company's position relative to its industry. The author considered that total asset already includes intangible asset or goodwill in the parameter. Even though, this parameter will beneficiary of ESG aspect. Because companies with strong ESG practices could build significant goodwill through enhanced brand image and reputation responsibility. However, not many companies are relying on goodwill as one of the firm sizes, this parameter could be biased in term of valuation aspects. Companies which recorded reliant on intangible assets factor more fragile or volatile compared to companies that have more tangible assets. Moreover, companies with recorded low in leverage could achieve strong performance due to company with larger size, which positively impacts their performance in the capital market (Prince Acheampong, 2014). These two ratios are additionally used for evaluating the company's sustainability, a lower leverage becoming preferable. The equations for financial leverage and firm size are as follows:

$$\text{DAR} = \text{Total liabilities}/\text{Total Asset}$$

$$\text{Firm size} = \text{Total Asset of company}$$

3.6. Descriptive Statistic

Descriptive statistical analysis in the context of the research titled "The impact of ESG implementation on financial performance: A case study of Indonesia stock market" aims to provide a comprehensive understanding of the characteristics of companies' financial performance and the execution of Environmental, Social, and Governance (ESG) practices in the Indonesian stock market. Through the computation of the mean and standard deviation of financial performance metrics, this study will illustrate the level of variation and distribution of the accumulated data. Analyzing the distribution of ESG variables, such as environmental, social, and governance scores, will offer profound insights into the patterns of ESG practices within the Indonesian stock market. Furthermore, correlation analysis will help measure the extent of the relationship between ESG scores and companies' financial performance. This research will identify patterns and potential outliers in financial performance and ESG variables by visualizing the data distribution through histograms or boxplots. Group comparison analysis will highlight the differences in the average financial performance between companies implementing ESG in Indonesia with developed countries, with statistical tests providing clarity to these findings.

The use of descriptive statistics also involves the analysis of categorical variables, such as financial ratio, and company sizes through methods like frequency or percentage analysis to understand the distribution of categories within the sample. Additionally, trend analysis over time will help identify the evolution in the implementation of ESG practices and the financial performance of companies in the Indonesian stock market. With these steps, data analysis will provide a robust foundation for an in-depth understanding of the impact of ESG implementation on financial performance studies in the Indonesian stock market and other countries.

Table 3.2 Descriptive Statistics – Indonesia, South Korea, and Japan Variables

Country	*Variables*	*Obs.*	*Mean*	*SD*	*Min*	*Max*
	Independent variables:					
	ESG Score (%)	696	38.68	12.13	12.52	74.58
	Dependent variables:					
	ROA (%)	696	5.41	8.43	-45.6	55.73
	ROE (%)	696	13.19	23.78	-88.01	281.46
Indonesia	*TQ (x)*	696	2.14	4.48	0.44	96.42

	PER (x)	696	29.79	142.26	-1,138	2,189
	Control variables:					
	DAR (x)	696	0.55	0.24	0.09	1.92
	Total Asset (USD in billion)	696	6.10	14.23	0.03	112.41
Japan	Independent variables:					
	ESG Score (%)	1,768	46.27	11.43	19.29	77.97
	Dependent variables:					
	ROA (%)	1,768	4.02	4.64	-39.57	50.39
	ROE (%)	1,768	8.70	10.85	-197.4	116.5
	TQ (x)	1,768	1.43	1.34	0	20.11
	PER (x)	1,768	18.0	77.7	-2475	1099.2
	Control variables:					
	DAR (x)	1,768	0.54	0.21	0.01	1.02
	Total Asset (USD in billion)	1,768	67.98	255.03	0.17	2650.2
South Korea	Independent variables:					
	ESG Score (%)	2,352	44.61	13.36	20.61	82.69
	Dependent variables:					
	ROA (%)	2,352	3.06	8.88	-68.79	252.02
	ROE (%)	2,352	4.36	25.07	-318	428.58
	TQ (x)	2,352	1.34	1.29	0.28	17.29
	PER (x)	2,352	16.46	209.91	-6911	3801.71
	Control variables:					
	DAR (x)	2,352	0.51	0.24	0.04	1.47
	Total Asset (USD in billion)	2,352	14.36	45.70	0.02	489.33

Source: Bloomberg database

Table 3.2 summarizes the descriptive statistics of all variables in Indonesia. Based on the data, the level mean of the ESG score was recorded as 38.68% with minimum score 12.52% dan maximum 74.58%. According to the statistics provided, some companies show low in transparency in refer to ESG (Environmental, Social, and Governance) disclosure score, while others show outstanding results in financial areas. The statistical data above indicates that the average for the ratio of Return on Assets (ROA) is 5.41%, and for Return on Equity (ROE) it is 13.19%. In general, return on assets (ROA) and return on equity (ROE) are key ratios used to assess a company's profitability. Return on assets (ROA) is a measure used to assess the efficiency with which management utilizes assets to generate firm profits. A higher ROA indicates that the organization is proficient in managing its assets. Unlike Return on Equity (ROE), this ratio quantifies the amount of return that shareholders have invested in the company. This table includes Tobin's Q (TQ) statistics, which has an average value of 2.14x, and the Price to Earnings Ratio (PER), which has an average value of 29.79x. Both variables serve as indicators to determine the relative costliness or affordability of the organization. Typically, the value of TQ or PER is limited to a suitable ratio of 1x. Based on this information, we may conclude that companies listed in Indonesia are overvalued. The control variables were derived from the average value of financial leverage or debt to asset ratio, which was recorded at 0.55x, with a maximum of 1.92x. Based on the financial leverage or Debt to Total Asset (DAR) data of companies in Indonesia, they were still considered manageable. In addition, the average total asset was reported as USD 6.1 billion, with a maximum of USD 112.41 billion.

According to table 3.2 shows ESG disclosure from Japan and South Korea, which recorded an average of 46.27% and 44.61%. From this data, it can be said that companies in developed countries are superior to Indonesia in terms of ESG standards disclosure. In addition, the ESG disclosure score data is even the highest recorded at 77.97% and 82.69%. Other data such as Return on Assets (ROA) was recorded on average by Japan and South Korea at 4.02% and 3.06% respectively. In addition, Return on Equity (ROE) was recorded at an average of 8.70% and 4.36%. From the financial performance data, it can be said that the volatility in company performance is relatively low. The standard deviation of ROA and ROE in Japan and South Korea is 4.64% (Japan), 3.06% (South Korea) and 10.85% (Japan).

In addition, market performance and market value data recorded an average of TQ 1.43x (Japan) and 1.34x (South Korea), while for Price Earnings ratio (PER) data recorded 18x (Japan) and 16.46x (South Korea). It has been seen from the perspective of the value of non-emerging market country companies relatively have a higher company value compared to emerging markets with recorded Price to Earnings Ratios (PER) above 1x. Meanwhile, volatility is also recorded as low volatile respectively with a standard deviation value of TQ 1.34x (Japan), 1.29x (South Korea), and PER standard deviation of 77.7x (Japan), 209.91x (South Korea). Other data such as financial leverage and firm size recorded Debt to Total Asset Ratio (DAR) of 0.54x (Japan), 0.51x (South Korea) and total assets recorded USD 67.98 in billion (Japan), USD 14.36 in billion (South Korea).

3.7. Model Specification

As stated in the previous subchapter, the sample results are based on the Bloomberg database ESG rating. The data will be classified into several categories; starting from independent variables, and then dependent variables, followed by control variables. Independent variables were measured by using the disclosure company's report which consists of all scores from sustainable standards each of them referring to environmental, social, and governance. Dependent variables have used the company's performance using operational and financial performance which is measured by Return on Asset (ROA), Return on Equity (ROE), and market performance (TQ). Besides that, another measure of the dependent variable was market valuation represented by the Price to Earnings Ratio (PER). Control variables are also represented by firm size and financial leverage. The study aims to investigate whether ESG performance benefits profitability, market performance, and market value. An overview of the object and subject of research is mentioned in table 3.3:

Table 3.3 Object And Subject Of Research

Definition	**Variable**	**Description**
Independent variables		
ESG disclosure	ESG	Bloomberg scores include with all the disclosure of Environmental, Social, and Governance of companies (i), in the period (t)
Dependent variables		
Operational performance	ROA	Net income divided by total assets of companies (i), in the period (t)
Financial performance	ROE	Net income divided by total equity of companies (i), in the period (t)
Market performance	TQ	Total market capitalization and liabilities divided by total asset of company (i), in the period (t)

Market values	PER	Market price divided by total earnings of companies (i), in the period (t)
Control variables		
Financial leverage	DAR	Total liabilities divided by total assets of companies (i), in the period (t)
Firm size	TA	Total assets of companies (i), in the period (t)

The model of this research to check the hypotheses will be as follows:

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 DAR_{it} + \beta_3 TA_{it} + \epsilon_{it} \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 DAR_{it} + \beta_3 TA_{it} + \epsilon_{it} \quad (2)$$

$$TQ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 DAR_{it} + \beta_3 TA_{it} + \epsilon_{it} \quad (3)$$

$$PER_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 DAR_{it} + \beta_3 TA_{it} + \epsilon_{it} \quad (4)$$

Where ROA_{it} refers to operational performance denotes the dependent variable ROA for company *i* in period *t*; ROE_{it} refers to financial performance denotes the dependent variable ROE for company i in period t; TQ_{it} refers to market performance denotes the dependent variable TQ for company *i* in period *t*; PER_{it} refers to market value denotes the dependent variable PER for company i in period t; ESG_{it} refers ESG disclosure scores denotes the independent variable ESG for company i in period t; DAR_{it} refers to financial leverage denotes the control variable DAR for company *i* in period *t*; TA_{it} refers to firm size denotes the control variable TA for company *i* in period *t*; and ϵ is the error term.

3.8. Estimation Technique

In this study panel data regression analysis was used. Panel data is defined as a combination of time series data and cross-section data. Panel data allows simultaneous observation of cross-section data over time (time series) (Kuncoro, 2003). The use of panel data provides more information, is more efficient, and more varied, and can reduce the bias that occurs when regressing individuals or companies in large aggregates. However, the use of panel data also makes the model more complex. Several techniques are commonly used for estimating regression models with panel data: pooled least squares (common effect), fixed effects model, and random effects model.

3.8.1. Common Effect Model

Panel data regression analysis is conducted with the least complex model, namely the common effect model. The parameters are estimated utilizing the first-order assumption introduced in panel data regression, employing the Ordinary Least Square (OLS) approach. The common effect model posits that the intercepts and slopes are constant both over time and across individuals. The common effect model presents a significant challenge in discerning changes between individuals, as all individuals are assumed to possess the same attributes. The following procedure will be followed in the testing phase:

H_0: There is no statistically significant correlation between the independent and dependent variables.

H_1: There is a notable association between the independent and dependent variables. If the p-value is less than the significant level, then the null hypothesis can be rejected, which indicates the existence of a statistically significant relationship between the independent and dependent variables.

3.8.2. Fixed Effect Model

This method uses panel data estimation. Dummy variables are added to capture differences in the intercept between individuals. In this model, it is assumed that each individual's intercept is unique, whereas the slope is assumed to be constant across all individuals. Fixed effects posit that the discrepancies between individuals (in the cross-sectional data set) may be attributed to variations in the intercepts. To estimate the fixed effects model with different intercepts between individuals, the dummy variable technique must be employed. This estimation model is frequently referred to as the least squares dummy variable technique, which is abbreviated as LSDV. The following procedure is used for testing:

H_0: There is no statistically significant correlation between the independent and dependent variables.

H_1: A notable correlation exists between the independent and dependent variables. If the p-value is less than the significance level, the result is rejected. In other words, the null hypothesis is refuted, indicating a statistically significant relationship between the independent and dependent variables.

3.8.3. Random Effect Model

This method uses panel data estimation. The regression model's error is calculated using the Generalized Least Square (GLS) method. This method assumes that everyone has a random intercept. Thus, everyone is a random variable. The possibility of correlation of errors in cross sections and time series is also considered in this model.

3.9. Hypothesis Testing

The present research employs the methodology of panel data regression analysis. For the regression to be unbiased, consistent, and capable of elucidating the relationship between the independent, and dependent variables, many steps must be taken. Such procedures comprise the selection of a model that is suitable for the specific data set and the testing of the model.

3.9.1. Chow Test

The following presents a methodology for utilizing the F-test to determine which model is superior between the CEM and FEM models. In the Chow test, the probability value of the F-test serves as the basis for the decision-making process.
In the event that the probability value of the cross-section F is greater than 0.05, the selected model is that of common effects.
In the event that the aforementioned probability value is below 0.05, the selected model is the fixed effects model.

3.9.2. Hausman Test

The Hausman Test is employed to differentiate between the fixed effects model and the random effects methodology. The Hausman test is employed to ascertain the most appropriate approach for modelling panel data, namely whether to utilise random or fixed effects. The cross-sectional random probability constitutes the basis for decision-making in the Hausman test (Widarjono, 2009).
A fixed effect model is used if the cross-sectional random probability value is less than 0.05.
In the event that the calculated random probability value exceeds 0.05, it can be determined that a random effect model is the optimal choice of model for analysis.

3.9.3. Lagrange Multiplier Test

The Lagrange multiplier test is a statistical tool employed in the identification of the optimal model for the analysis of panel data. It is used to differentiate between random effects and common effects approaches, to determine the most suitable methodology for the given data set. The Lagrange multiplier test and the Lagrangian multiplier test are two distinct, yet analogous, terms. As the two identities share the same meaning, namely the Lagrange multiplication test, which serves the function or usage of determining the most suitable estimate of whether random effects should be employed, they are considered to be two sides of the same coin. The Lagrange multiplier test serves to ascertain the relevance of the optimal common effect or random effect model. In the event that the Chow and Hausman tests indicate that the fixed effects model represents the optimal fit, the Lagrangian multiplier test is not employed.

3.10. Classical Assumption Test

The classical assumption tests employed in panel data regression include the multicollinearity, heteroscedasticity, and autocorrelation tests.

3.10.1. Multicollinearity Test

The term "multicollinearity" is utilized within the field of statistical analysis, specifically in the context of regression modelling, to denote a situation whereby a correlation or a pronounced interdependence exists between two or more independent variables. A test for multicollinearity is required when a regression model includes more than one independent variable. In the event that a model contains a single independent variable, the probability of multicollinearity is relatively low. The identification of the presence of multicollinearity is achieved through the utilisation of statistical software, whereby the coefficient value between the independent variables is determined. The Variance Inflation Factor (VIF) is employed to ascertain the strength of the relationship between independent variables. The calculation is performed by regressing one variable against the remaining variables. The VIF score of an independent variable provides insight into its explanatory power in relation to other independent variables. If the correlation coefficient between independent variables is equal to one, then there is no evidence of multicollinearity. A correlation coefficient exceeding 5 or 10 indicates the presence of multicollinearity.

3.10.2. Heteroscedasticity Test

A heteroscedasticity test is conducted to ascertain whether there exists inequality in the variance of residuals between observations within a regression model. If the variance is constant, this is defined as homoscedasticity; if it varies, it is defined as heteroscedasticity. Several methods may be employed in the testing of heteroscedasticity.

The Breusch-Pagan test is a statistical test used to determine whether there is heteroscedasticity in a given set of data. The decision criteria of the Breusch-Pagan test are as follows:

If the significance value is greater than 0.05, it can be concluded that there is no heteroscedasticity. If the calculated p-value is less than 0.05, the null hypothesis that the variance is constant can be rejected, indicating that heteroscedasticity is present.

3.10.3. Autocorrelation Test

The autocorrelation test is a statistical tool which is used to determine the strength of any potential relationship between data points which occur at different times within a time series. The run test is a statistical method employed to ascertain the presence of autocorrelation. The run test is a non-parametric statistical technique that may be used to ascertain the existence of a robust correlation between residuals. In the absence of a correlation between the residuals, the latter are regarded as being random.

CHAPTER IV

RESULT AND DISCUSSION

4.1. ESG and Performance through the Years 2015 - 2022

During the observation period, the ESG disclosure data has shown positive progress, showing a greater recognition of the significance of ESG values among companies in each country. Furthermore, ethical investing related to ESG standards has experienced rapid growth around the world, it promotes greater investor awareness regarding the advantages of opting for impact investment, wherein companies who are dedicated to incorporating ESG criteria in alignment with the PRI's UN guidelines become attractive to institutional investors or asset managers (Renneboog et al., 2008).

4.1.1. Indonesia ESG disclosure trend and financial performance over the year

During the observation period in table 4.1, A consistent upward trend was observed in the ESG data for Indonesia. In 2015, the ESG score of companies stood at 30.42%; by 2022, however, this had risen to 47.03%, indicating an average growth of 54.6% or an annual compound growth rate of 5.6%. The rising number of published ESG data sets suggests that organizations are making an effort to make their ESG performance more transparent. Nevertheless, there is still room for enhancement of the current level.

Table 4.1 Time series of Indonesia data

	Years							
Mean of Variables	2015	2016	2017	2018	2019	2020	2021	2022
Independent variables								
ESG Score	30.42	32.05	34.98	36.98	39.70	42.68	45.68	47.03
Dependent variables								
ROA (%)	5.36	5.73	6.39	5.44	5.30	2.96	5.60	6.56
ROE (%)	15.19	14.46	15.97	12.54	12.33	4.99	13.58	16.48
TQ (x)	2.34	2.37	2.20	1.92	1.82	1.79	2.95	1.75
PER (x)	26.89	1.72	36.03	30.60	30.60	17.78	58.31	36.41

Control variables								
DAR (x)	0.57	0.55	0.54	0.55	0.54	0.54	0.55	0.55
Total Asset (USD in billion)	4.26	4.65	5.15	5.76	6.37	6.85	7.39	8.38

Source: Bloomberg database

The data indicate a decline in the company's financial performance during the 2020 period, as reflected in a decrease in both its Return on Assets and its Return on Equity. This downturn can be attributed to the impact of the global outbreak of the novel coronavirus, commonly referred to as "Covid-19". Furthermore, the outbreak of the novel coronavirus (Covid-19) resulted in a significant increase in the company's leverage during that period.

4.1.2. Japan ESG disclosure trend and financial performance over the year

Based on data in table 4.2, ESG development in Japan has recorded a growth trend, from 2015 to 2022 the ESG score growth rate is 41% or 4.4% per year (CAGR). The average company in Japan already recorded high in term of awareness with ESG principles, it is referred to ESG disclosure score at 53.95% in 2022, indicating a score in this range implies good relative ESG performance and above-average transparency in public disclosure of relevant ESG data. It could also be seen that the financial performance of companies also had a positive average growth. Over the last eight years of financial performance companies in Japan is recorded improved by 32% (ROA) and 29% (ROE) or 3.52% (ROA) and 3.72% (ROE) per annum (CAGR). In terms of market value, the average company in Japan has been able to maintain a stable market value at 1.32x over the past eight years. In addition, it seems that the performance of companies in Japan was not significantly affected when there was a Covid-19 in 2020-2021. And this may indicate that companies with strong ESG standards could survive the global economic squeeze.

Table 4.2 Time series of Japan data

	Years							
Mean of Variables	2015	2016	2017	2018	2019	2020	2021	2022

Independent variables								
ESG Score	38.23	40.29	42.40	44.85	47.85	50.09	52.48	53.95
Dependent variables								
ROA (%)	3.86	3.45	4.14	4.87	4.47	3.05	3.25	5.09
ROE (%)	8.12	7.91	9.50	11.05	9.40	6.18	6.94	10.51
TQ (x)	1.30	1.32	1.47	1.52	1.39	1.47	1.64	1.33
PER (x)	18.92	8.03	21.53	15.69	19.38	17.17	23.87	19.44
Control variables								
DAR (x)	0.55	0.54	0.54	0.54	0.54	0.55	0.55	0.54
Total Asset (USD in billion)	60.58	61.23	63.59	65.35	67.03	70.49	75.40	80.19

Source: Bloomberg database

4.1.3. South Korea ESG disclosure trend and financial performance over the year

According to data in table 4.3 parameter from South Korea shows a higher ESG disclosure score compared with Indonesia an average of 44.61%, it may be inferred from these scores that a company's ESG performance is relatively strong, and that the relevant ESG data is disclosed with a high degree of transparency to the public. Korea's ESG data has also experienced growth, which records an increase of 45% over the last eight years. Companies in Korea also show a good level of resilience, which aimed at no significant change when COVID-19 in 2020-2021, this data shows that companies with good ESG standards can perform well when the economy is suffering.

Table 4.3 Time series of South Korea data

	Years							
Mean of Variables	2015	2016	2017	2018	2019	2020	2021	2022
Independent variables								
ESG Score	37.67	38.45	39.54	42.17	45.87	49.06	51.77	52.36

Dependent variables								
ROA (%)	3.27	3.20	4.89	2.90	1.93	1.77	3.91	2.64
ROE (%)	4.16	4.30	8.00	4.68	2.19	2.18	6.48	2.89
TQ (x)	1.52	1.42	1.34	1.44	1.18	1.33	1.43	1.06
PER (x)	32.02	19.72	36.80	16.34	14.44	-0.11	4.86	7.65
Control variables								
DAR (x)	0.52	0.52	0.51	0.50	0.50	0.51	0.51	0.52
Total Asset (USD in billion)	10.82	11.82	12.74	13.57	14.51	15.73	17.08	18.59

Source: Bloomberg database

4.2. Empirical analysis

This section shows the results of the Pearson correlation matrix, validity tests based on normality, Multicollinearity, Autocorrelation, and Heteroscedasticity tests. Finally, the selection of the best model is based on the Hausman test and the Chow test.

4.2.1. Pearson correlation analysis

The results of Pearson correlation output, show how the relationship between dependent and independent variables, and most importantly between independent variables. From the correlation results, there is a positive relationship between ESG and DAR, and Size, the correlation between firm size and ESG has a high correlation level of 33.2%, firm size, and DAR has a correlation of 42.6% while DAR to ESG recorded a correlation of 1.8%. Following the Pearson correlation Indonesia data in table 4.4:

Table 4.4 Pearson correlation Indonesia data

Variables	ESG	DAR	TA
ESG	1.000		
DAR	0.018***	1.000	
TA	0.332***	0.426	1.000

Note: the difference significance at *10%; **5%; ***1% levels

Source: Statistics result

ESG data along with other components are highly correlated. This study also concludes that there is no evidence of multicollinearity among the independent variables in the study because the correlation coefficient of ESG, DAR, and Size is <0.75 which is moderately correlated.

4.2.2. Validity test

Validity assessment evaluates the accuracy of the association between a measure and its underlying trait (Gaur and Gaur, 2009). In order to ascertain the relationship between the performance and sustainability reporting, a panel regression analysis was undertaken. In order to ascertain whether the data obtained for the purposes of this study satisfy the assumptions made by the panel, a number of tests have been conducted. As illustrated in Table 4.5, the objective was to approximate the data to a normal distribution. For this purpose, the Skewness-Kurtosis and Jarque tests were employed. Consequently, the null hypothesis is rejected, indicating that the data exhibit non-normality when the p-value is less than the specified 0.05. As illustrated in the table, the p-values for each variable were less than 0.05. To address this issue, one of the variables, total assets, was transformed into a logarithm. It can be reasonably assumed that the credibility of the study will not be affected by the presence of non-normally distributed data, given the size of the sample.

For each of the independent variables, the continuous tolerance quotient was employed by the collinearity diagnostics standard to actualize this. The variance inflation factor (VIF) needs to be determined later. The benchmark for determining how independent factors affect a test was this one. A VIF greater than 10 suggests that there may be an issue with multicollinearity for the independent variable of interest, according to Gujarati and Porter (2003). The study models do not present any problems with collinearity, as shown in Table 4.5 where the VIF values for each independent variable are all less than 10.

Table 4.5 Validity test of Indonesia data

Variables	*Normality* Skewness /Kurtosis/	*Multicollinearity* VIF test	*Autocorrelation* Breusch Godfrey	*Heteroscedasticity* Breusch Pagan

		Jarque Bera			
Dependent variables					
Operational performance	ROA	0.141		0.56	0.000
Financial performance	ROE	0.234		0.45	0.000
Market performance	TQ	0.000		0.62	0.000
Market value	PER	0.000		0.82	0.000
Independent variable					
ESG disclosure	ESG		1.15		0.000
Control variables					
Financial leverage	DAR		1.25		0.000
Firm Size	LnTA		1.40		0.000

Source: statistic result

This study employed the Breusch-Godfrey test to examine the autocorrelation issue in the research models. Considering that the p-value is higher than 0.05, the null hypothesis cannot be ruled out. This indicates that the autocorrelation at lag 1 in the residuals of the regression model is not statistically significant, according to the test findings. Stated differently, this model's residuals do not exhibit a strong autocorrelation pattern at lag 1, indicating that the regression model's residuals appear to be independent at that lag across periods. This suggests that the autocorrelation in this model exists.

One important assumption of regression models is the existence of homoskedasticity. The author assesses the presence of heteroskedasticity using the Breusch-Pagan tests. According to the data presented in Table 4.5, the author observes that the p-values of the three models are less than 0.05. This suggests that we should reject the null hypothesis, indicating that these models exhibit true Heteroskedasticity.

In summary, this study exhibits cross-sectional dependence. However, due to the large number of companies (N = 696) and the relatively short time (T = 8 years) in the panel data structure, this does not pose any complications in the results. The model also exhibits heteroskedasticity and serial correlation. To address these issues, the researcher employs the White robust correction (vcovHC), also referred to as the sandwich estimator.

4.2.3. Test result

Before conducting panel data regression, the author used some test to determine the appropriate model. Several regression models that may be used as options include the common effects model, random effects model, and fixed effects model. As well as conducting a series of tests to find the best model. First, compare the common effect model with the fixed effect model. This study uses the Chow test to see the probability F test cross-section where the model on each variable that is appropriate based on the Chow test is the fixed effect model.

Second, comparing the fixed effect model with the random effect model. The author used the Hausman test method to see the probability of each model. The following is a summary of the test results that have been carried out for each variable in table 4.6.

Table 4.6 Test model result of Indonesia data

Dependent Variables		Chow Test p-Value	Hausman Test p-Value	Test Result
Operational performance	ROA	0.000	0.057	Fixed effect
Financial performance	ROE	0.000	0.053	Fixed effect
Market performance	TQ	0.000	0.004	Fixed effect
Market value	PER	0.000	0.021	Fixed effect

Note: Chow test p-value < 0.05% model fixed effect, Hausman test p-value < 0.05% fixed effect

Source: Statistics result

After examining the results of the Hausman test, it is found that the p-values for the operational and financial performance variables are slightly higher than the standard significance level of 0.05. To obtain more reliable results by considering the correlation and heteroscedasticity in the data, a fixed effect model is ultimately chosen for testing (Mahmut Aydo gmus, 2022). Throughout the observation period, each company in the study exhibits consistent characteristics that only slightly change. The fixed effect model has the advantage of eliminating the need to assume that the error component is not linked with the independent variable.

4.3. Model regression panel data

After conducting validity tests using the Hausman and Chow tests, the results show that a fixed effect model is used for the Indonesian model. The author also assesses the results of the regression model for Japan, and South Korea.

4.3.1. Model regression panel data of Indonesia

Table 4.7 and 4.8 present the results of Indonesia regression models. This study also conducts all tests and regressions in R. As seen in table 4.7 and 4.8, ESG disclosure score has a coefficient of -0.012 for ROA, -0.068 for the ROE model, -0.007 for the TQ model, and -0.115 for the PER model. Most of the parameters exhibited strong regression values in terms of R squared. Specifically, the ROA model recorded a R squared value of 88.8%, the ROE model recorded 85%, the TQ model recorded 79%, and the PER model recorded 42%. This suggests a positive correlation between the variability explained by the model and the level of variability itself. When considering the control variable, the findings reveal that companies leverage have varying effects on financial (ROA model), operational (ROE model), market performance (TQ model), and market value (PER model). The impact values are -5.846, 8.666, -1.697, and -8.813, respectively, which are significantly higher compared to ESG. Furthermore, the influence of company's size on all dependent variables are greater in comparison to ESG, which exhibited values of -0.727, -3.003, -0.056, and 5.526.

Table 4.7 Indonesia panel regression model of variable operation

Variables		ROA model			ROE model		
		β	t-statistic		β	t-statistic	
Constanta		16.549	5.478***	(0.000)	41.945	3.247***	(0.001)
Independent Variable							
ESG Disclosure	ESG	-0.012	-0.859	(0.390)	-0.068	-1.560	(0.119)
Control variables							
Financial leverage	DAR	-5.846	-3.764***	(0.000)	8.666	1.676*	(0.094)
Firm Size (log)	TA	-0.727	-1.804*	(0.071)	-3.003	-1.913*	(0.056)
R^2		0.881			0.849		

Adj. R^2	0.863	0.827
F-statistic	50.394***	38.509***
Hausman Test		
Chi-Sq.	7.503	7.653
p-value	0.057	0.053

Note: the difference significance at *10%; **5%; ***1% levels

Source: Statistics result

As a result, on table 4.7 shows that the ESG score has a negative impact but no significant relationship with (ROA) operation, and (ROE) financial performance. This indicate that improving the ESG score involves more investment and opportunity cost, therefore lowering financial performance. This substantial investment may come from to upgrade facilities, adopt new technologies or restructure operational to more align with the ESG standards. This result is also in line with many other studies suggesting that there was no conclusive evidence on the relationship between ESG and financial performance (Nareswari et al., 2023; Soana, 2011). Similarly, the ESG implementation is negatively affected with no relationship to market value. Interestingly, there is a negative and significant relationship between market performance measured by TQ and ESG implementation which is contrary to some studies (Alareeni & Hamdan, 2020; Buallay, 2020; Giannopoulos et al., 2022), the regression analysis is presented in table 4.8. Therefore, the model between TQ as market performance and ESG disclosure is as follows:

Market performance (TQ) = 3.926 - 0.007*ESG - 1.697*DAR - 0.056*LogTA

Table 4.8 Indonesia panel regression model of variable market performance

Variables		TQ model			PER model		
		β	t-statistic		β	t-statistic	
Constanta		3.926	26.599***	(0.000)	-17.678	-0.865	(0.387)
Independent Variable							
ESG Disclosure	ESG	-0.007	-4.089***	(0.000)	-0.115	-0.874	(0.382)
Control variables							
Financial leverage	DAR	-1.697	0.356***	(0.000)	-8.813	-0.895	(0.371)
Firm Size (log)	TA	-0.056	-2.294**	(0.022)	5.526	2.255**	(0.025)

R^2	0.790	0.420
Adj. R^2	0.759	0.336
F-statistic	25.690***	4.494***
Hausman Test		
Chi-Sq.	13.004	9.698
p-value	0.004	0.021

Note: the difference significance at *10%; **5%; ***1% levels

Source: Statistics result

According to result, if the companies recorded improved significantly on ESG standards will directly be decreased to valuation or market performance. Commonly, companies come in the specific sectors for instance construction, mining, or agriculture. In addition, most of the companies that want to implement on ESG standards, associate to the need of capital expenditure to implement more sustainable or renewable energy.

4.3.2. Model regression panel data of Japan

Based on the data result in table 4.9 and 4.10, the regression model of Japan is mixed according to the Hausman Test, the fixed effect model is more suitable for ROA, and TQ. Meanwhile, ROE and PER are best using a random effect model. Table 4.9 and 4.10 ESG disclosure score has a coefficient of -0.005 for ROA, -0.038 for the ROE model, -0.002 for the TQ model, and 0.078 for the PER model. Most of the parameters exhibited strong regression values in terms of R squared except ROE and PER model. Specifically, the ROA model recorded a R squared value of 92%, and the TQ model recorded 85%, this suggests a positive correlation between the variability explained by the model and the level of variability itself. Meanwhile, the ROE model recorded R squared value 19%, and the PER model recorded 15%. This indicates that the regression deviates significantly from the real data, suggesting the presence of another parameter that explains most of the patterns in the models. When considering the control variable, the findings reveal that companies leverage have varying effects on financial (ROA model), operational (ROE model), market performance (TQ model), and market value (PER model). The impact values are -0.228, -0.840, 0.041, and -2.603, respectively, which are significantly higher compared to ESG. Furthermore, the influence of company's size on all dependent variables are greater in comparison to ESG, which exhibited values of -0.037, 2.542, 0.072, and 16.759.

Table 4.9 Japan panel regression model of financial performance

Variables		ROA model			ROE model		
		β	t-statistic		β	t-statistic	
Constanta		4.267	3.912***	(0.001)	2.487	0.197	(0.843)
Independent Variable							
ESG Disclosure	ESG	-0.005	-2.220**	(0.026)	-0.038	-0.809	(0.418)
Control variables							
Financial leverage	DAR	-0.228	-0.558*	(0.576)	-0.840	-0.181	(0.856)
Firm Size (log)	TA	-0.037	0.133	(0.894)	2.542	0.620	(0.535)
R^2			0.92			0.188	
Adj. R^2			0.90			0.070	
F-statistic			80.045***			1.600***	
Hausman Test							
Chi-Sq.			13.528			0.936	
p-value			0.0036			0.817	
Model			FEM			REM	

Note: the difference significance at *10%; **5%; ***1% levels

FEM: fixed effect model, REM: random effect model

Source: Statistics result

From the data, it shows that ESG implementation has a strong significant relationship with a negative impact on ROA and TQ. This means that higher ESG disclosure will decrease (ROA) financial and (TQ) market performance. Meanwhile, the Return on Equity (ROE) exhibits a negative value and does not display any meaningful correlation with Environmental, Social, and Governance (ESG) factors. The outcome remains consistent, as the presence of PER is detected as positive without any notable correlation to ESG disclosure score. Model statistics are determined as follows:

Financial performance (ROA) = 4.267 - 0.005*ESG - 0.227*DER + 0.037*LogTA;

Market performance (TQ) = 1.287 - 0.002*ESG + 0.041*DER + 0.071*LogTA

Table 4.10 Japan panel regression model of variable market performance

Variables		TQ model			PER model		
		β	t-statistic		β	t-statistic	
Constanta		1.287	3.321***	(0.000)	-39.850	-0.433	(0.665)
Independent Variable							
ESG Disclosure	ESG	-0.002	-3.991***	(0.000)	0.078	0.225	(0.822)
Control variables							
Financial leverage	DAR	0.041	1.191	(0.233)	-2.603	-0.076	(0.939)
Firm Size (log)	TA	0.072	0.637	(0.524)	16.759	0.560	(0.575)
R^2			0.845			0.154	
Adj. R^2			0.822			0.032	
F-statistic			37.807***			1.262	
Hausman Test							
Chi-Sq.			68.655			1.899	
p-value			0.000			0.594	
Model			FEM			REM	

Note: the difference significance at *10%; **5%; ***1% levels

Source: Statistics result

According to result in table 4.10, the short term financial and market performance in Japan also no necessary impact positively to companies through adopting ESG standards. Long-term value creation is more key highlight rather than search for benefits of ESG implementation that might impact positively in the short-term. By incorporating Environmental, Social, and Governance (ESG) standards into business operations, companies are not only mitigating potential risks but also positioning companies to be a market leader in sectors where customers and investors increasingly prioritize sustainable principles. The strategic benefits, although not solely visible in the financial metrics, will be essential to long-term success. This aligns with the stakeholder's theory and the legitimate theory.

4.3.3. Model regression panel data of South Korea

Based on the result of table 4.11 and 4.12 the regression model of South Korea is more suitable with the fixed effect model for all the parameters. ESG disclosure score has a coefficient of 0.005 for ROA, -0.046 for the ROE model, -0.001 for the TQ model, and -2.202 for the PER model. Most of the parameters exhibited strong regression values in terms of R squared. Specifically, the ROA model recorded a R squared value of 80%, the ROE model recorded 58.5%, the TQ model recorded 83.2%, and the PER model recorded 47.4% this suggests a positive correlation between the variability explained by the model and the level of variability itself. When considering the control variable, the findings reveal that companies leverage have varying effects on financial (ROA model), operational (ROE model), market performance (TQ model), and market value (PER model). The impact values are 0.773, -5.835, 0.938, and -3.675, respectively, which are significantly higher compared to ESG. Furthermore, the influence of company's size on all dependent variables are greater in comparison to ESG, which exhibited values of -2.098, -3.604, -1.130, and -12.230.

According to result the effect of ESG implementation to the three models of variable has no significant relationship. Aside from that, there is still a positive correlation between ESG adoption and financial performance.

Table 4.11 South Korea panel regression model of variable financial performance

Variables		ROA model			ROE model		
		β	t-statistic		β	t-statistic	
Constanta		9.730	5.355***	(0.000)	34.168	7.692***	(0.000)
Independent Variable							
ESG Disclosure	ESG	0.005	1.091	(0.275)	-0.046	2.619***	(0.009)
Control variables							
Financial leverage	DAR	0.773	0.738	(0.459)	-5.835	-1.539	(0.124)
Firm Size (log)	TA	-2.098	-4.486***	(0.000)	-3.604	-7.26***	(0.000)
R^2			0.796			0.585	
Adj. R^2			0.767			0.525	
F-statistic			27.167***			9.772***	

Hausman Test		
Chi-Sq.	44.656	25.866
p-value	0.000	0.000
Model	FEM	FEM

Note: the difference significance at *10%; **5%; ***1% levels

FEM: fixed effect model, REM: random effect model

Source: Statistics result

Despite, no significant association between ESG and the two models (ROA, and TQ model) this study finds that ESG disclosure for South Korea companies has a significant relationship with a negative impact on (ROE) financial performance and (PER) market value. This result indicates that capital allocation to improve the ESG disclosure score will impact to company financial performance and company's value downturn, due to improvements in costs will directly result in a decline in financial performance. This model statistics will be as follows:

Market value (PER) = 66.195 - 0.202*ESG + 3.67*DAR - 12.229*LogTA

Table 4.12 South Korea panel regression model of variable market performance

Variables		TQ model			PER model		
		β	t-statistic		β	t-statistic	
Constanta		4.801	9.562***	(0.000)	66.195	5.468***	(0.000)
Independent Variable							
ESG Disclosure	ESG	-0.001	-0.112	(0.911)	-0.202	-3.57***	(0.000)
Control variables							
Financial leverage	DAR	0.938	10.190***	(0.000)	-3.675	-0.76	(0.445)
Firm Size (log)	TA	-1.130	-7.170***	(0.000)	-12.230	-3.78***	(0.000)
R^2			0.832			0.474	
Adj. R^2			0.807			0.398	
F-statistic			34.378***			6.253***	
Hausman Test							
Chi-Sq.			78.708			15.024	

p-value	0.000	0.002
Model	FEM	FEM

Note: the difference significance at *10%; **5%; ***1% levels

Source: Statistics result

Refer to South Korea regression result, this is indicated that all the aspects on financial performance are negatively impact when implementing ESG standards in the short term. This study also reveals that ESG implication on companies may varied but most of the result that financial indicators may not instantly demonstrate the advantages of ESG implementation, the initial investments required for these practices do have a measurable influence on financial success.

CHAPTER V

CONCLUSION

5.1. Conclusion

This study aims to contribute to the existing body of knowledge by exploring the potential relationship between ESG performance, as evaluated by Bloomberg's ESG disclosure, and various financial outcomes. The analysis draws upon data from the Bloomberg database, spanning the period from 2015 to 2022. The final sample consists of 602 firms and 4816 observations in total. The study's independent variables are constituted by the ESG disclosure score, whereas the dependent factors are comprised of corporate performance, which is further categorized into operational performance (ROA), financial performance (ROE), market performance (TQ), and market value (PER). Additionally, this study incorporates business size, which is evaluated by total assets (TA), and financial leverage, which is quantified by the debt-to-asset ratio (DAR).

The results of the regression analysis indicated that all proposed hypotheses were unsupported by the data, given the absence of any positive significant effects observed in the variables about companies in Indonesia. This study examines the regression model incorporated under the fixed effect model. It can be inferred from the results that information about ESG disclosure by the company has no discernible positive impact on the company's financial performance and market value. This is primarily attributable to the ESG implementation approach, which is geared towards generating sustained value over the long term. Consequently, the outcome suggests that the adoption of ESG standards may not yield immediate, tangible returns in terms of profitability. In addition, the ESG disclosure standards show a significant relationship with the negative impact to TQ model or market performance. One of the explanations is that implementing ESG standards requires substantial capital expenditure. Implement ESG standard might not be immediately reflected to short-term financial metrics, the short-term impact of capital expenditures associated with ESG adoption could be significant. Besides that, there are also ongoing costs associated with compliance, monitoring, and reporting on ESG initiatives. However, this study also provides a balanced perspective that acknowledges both in the short-term financial performance and the long-term strategic company’s sustainable value. Long-term value creation is more key highlight rather than a search for benefits of ESG implementation that might impact positively in the short-term. By incorporating sustainable standards into business operations, companies are not only mitigating potential risks but also positioning companies to be a market leader in sectors where customers and investors increasingly prioritize sustainable principles. The strategic benefits, although not solely visible in the financial metrics, will be essential to long-term success. This aligns with the stakeholder’s theory and the legitimate theory.

The study also uses another country to examine the influence compared to Japan and South Korea. It is found that the results of ESG implementation vary. In Japan, ROA and TQ are strongly related to ESG, even though implementing ESG standards will have a negative influence on the company's performance and market. As seen from the data, companies in Japan already implement ESG standards as one of the mandatories from regulation and investors, that’s the reason the implication to financial performance shows significant. Meanwhile, South Korea results in a different way, implementing ESG standards influences negative relationships to financial performance (ROE) and (PER) company valuation.

Moving to empirical results, the findings in implementing ESG standards especially from companies in Indonesia have no significant positive impact significantly to financial performance. This is in contrast to research that has been conducted in the US and European countries (Alareeni & Hamdan, 2020; Aydoğmuş et al., 2022; Buallay, 2020) where ESG standards are proven to have a positive impact on financial performance. The lack of stakeholders' awareness of ESG and the unfamiliarity of companies with the ESG framework is one of the reasons that ESG adoption has not been seen significantly in the company's financial performance.

5.2. Policy Recommendations

The study's conclusions can help a variety of stakeholders, including regulators and government agencies. This study can be used by the government to establish references for categorizing corporations based on their ESG performance, providing the public with more accurate information. Furthermore, the objective is to encourage businesses to incorporate sustainability reporting into their financial efforts. For investors, this implies that companies must report and include ESG performance indicators in their overall performance measurements. In addition, this study attempts to make more contribution to the current literature on ESG's impact on operating, financial, market performance and market value. The study also highlight that the government should develop ESG framework adopted by any international organization that fits to the internal condition. Besides that, the government should accommodate and encourage companies that plan to implement ESG initiatives. Improving knowledge of ESG implementation will be advantageous for the companies, as this will contribute to long-term sustainable value and ultimately lead to the company's success.

5.3. Limitation of Study

The study's limitations use ESG scores are not separated by the subset of ESG disclosures that companies apply. A study by (Hillman, A.J. and Keim, 2001) discovered that different types of ESG can have varying effects on firm performance. Furthermore, the author also recommends separately evaluating the influence of ESG disclosure based on industries or sectors it could provide comprehensive analytics. According to findings that company’s total asset had negative implication significantly in the market performance. And this study does not recognized based on companies specific asset whether tangible or intangible asset or goodwill. It is believed that goodwill gives significant impact in the long run of the ESG implementation. Moreover, the author also recommends for future study to be categorized company based on intangible asset or goodwill it will more gives invaluable insight for companies according to specific sectors.

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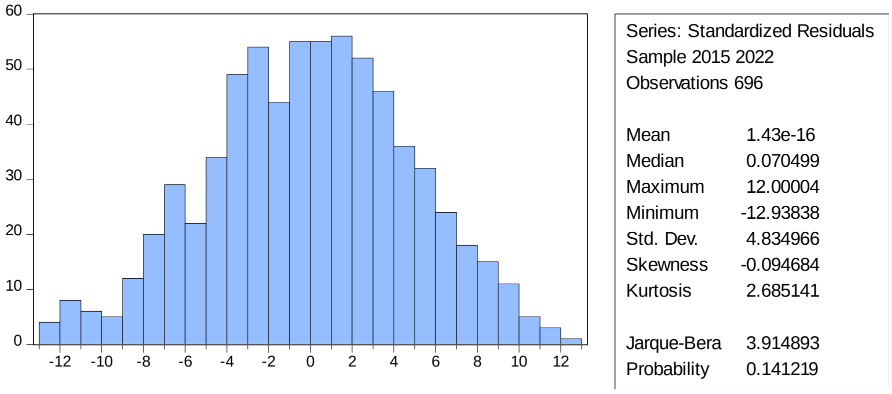
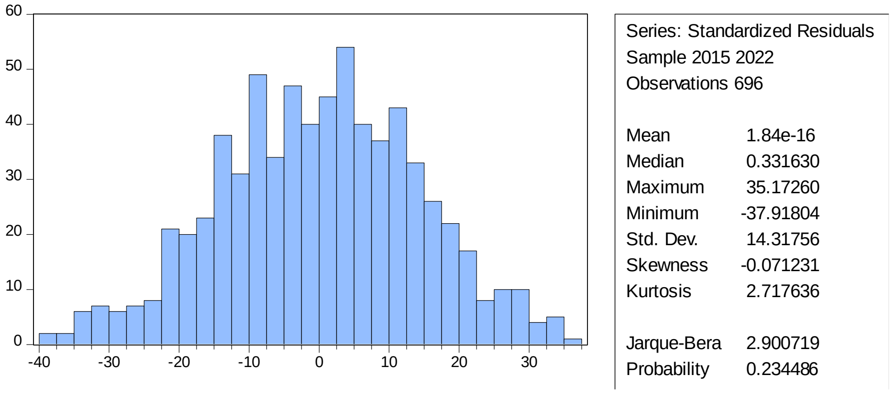
Appendix 1. Normality test Indonesia data

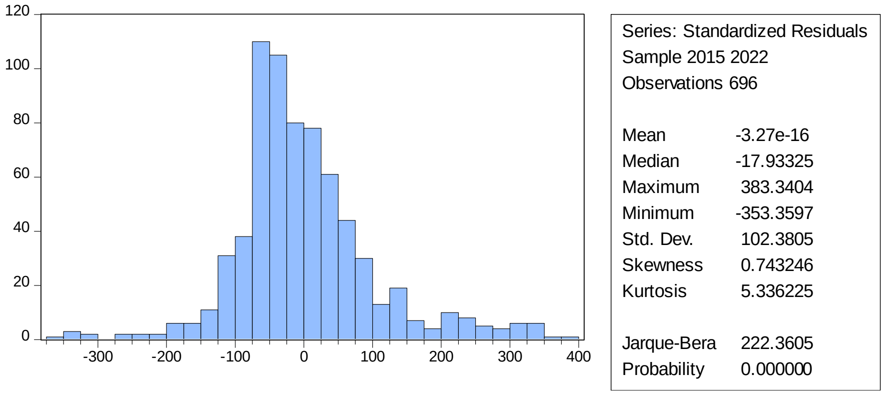
Variable ROA



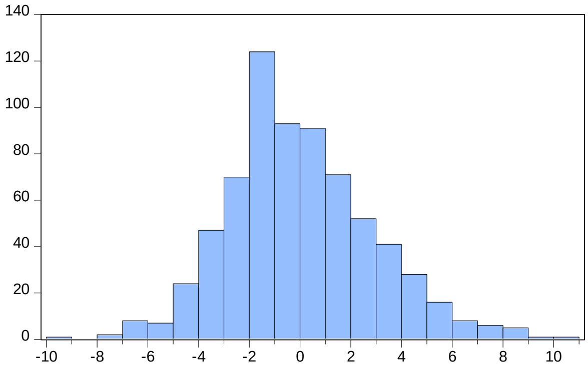
Variable ROE



Variable PER



Variable TQ



Series: Standardized Residuals	
Sample 2015 2022	
Observations 696	
Mean	1.16e-16
Median	-0.334084
Maximum	10.51963
Minimum	-9.359146
Std. Dev.	2.883625
Skewness	0.426623
Kurtosis	3.523468
Jarque-Bera	29.05936
Probability	0.000000

Appendix 2. Multicollinearity using VIF and Heteroscedasticity test in Indonesia data

Variance Inflation Factors
Date: 07/30/24 Time: 03:56
Sample: 1696
Included observations: 696

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.421087	16.13243	NA
ESG	0.000688	12.83928	1.148248
DAR	1.858224	7.589972	1.248383
LOGTA	0.056777	8.698803	1.402843

Variable ROA

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	20.47088	Prob. F(3,692)	0.0000
Obs*R-squared	56.73280	Prob. Chi-Square(3)	0.0000
Scaled explained SS	322.2844	Prob. Chi-Square(3)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/24 Time: 05:08
Sample: 1696
Included observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-11.21130	30.23995	-0.370745	0.7109
ESG	3.907745	0.665381	5.872945	0.0000
DAR	113.4443	34.57959	3.280673	0.0011
LOGTA	-41.97345	6.044439	-6.944144	0.0000

R-squared	0.081513	Mean dependent var	60.95748
Adjusted R-squared	0.077531	S.D. dependent var	206.8045
S.E. of regression	198.6259	Akaike info criterion	13.42645
Sum squared resid	27300954	Schwarz criterion	13.45258
Log likelihood	-4668.406	Hannan-Quinn criter.	13.43655
F-statistic	20.47088	Durbin-Watson stat	0.937304
Prob(F-statistic)	0.000000		

Variable ROE

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	17.49645	Prob. F(3,692)	0.0000
Obs*R-squared	49.07067	Prob. Chi-Square(3)	0.0000
Scaled explained SS	804.8595	Prob. Chi-Square(3)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/24 Time: 05:10
Sample: 1696
Included observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-787.8454	468.4182	-1.681928	0.0930
ESG	40.52034	10.30678	3.931427	0.0001
LOGTA	-570.8940	93.62862	-6.097430	0.0000
DAR	3088.326	535.6393	5.765682	0.0000

R-squared	0.070504	Mean dependent var	552.3901
Adjusted R-squared	0.066474	S.D. dependent var	3184.383
S.E. of regression	3076.724	Akaike info criterion	18.90685
Sum squared resid	6.55E+09	Schwarz criterion	18.93297
Log likelihood	-6575.583	Hannan-Quinn criter.	18.91695
F-statistic	17.49645	Durbin-Watson stat	1.360389
Prob(F-statistic)	0.000000		

Variable PER

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.302957	Prob. F(3,692)	0.2724
Obs*R-squared	3.909384	Prob. Chi-Square(3)	0.2714

Scaled explained SS	199.7623	Prob. Chi-Square(3)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/24 Time: 05:11
Sample: 1696
Included observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32866.99	31018.76	1.059584	0.2897
ESG	677.1661	682.5171	0.992160	0.3215
LOGTA	-9439.854	6200.108	-1.522531	0.1283
DAR	-13257.39	35470.15	-0.373762	0.7087

R-squared	0.005617	Mean dependent var	20036.87
Adjusted R-squared	0.001306	S.D. dependent var	203874.5
S.E. of regression	203741.3	Akaike info criterion	27.29282
Sum squared resid	2.87E+13	Schwarz criterion	27.31894
Log likelihood	-9493.902	Hannan-Quinn criter.	27.30292
F-statistic	1.302957	Durbin-Watson stat	1.899667
Prob(F-statistic)	0.272390		

Variable Tobin’s Q

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.141046	Prob. F(3,692)	0.0938
Obs*R-squared	6.400853	Prob. Chi-Square(3)	0.0937
Scaled explained SS	908.1974	Prob. Chi-Square(3)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/24 Time: 05:14
Sample: 1696
Included observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	30.35824	49.48533	0.613480	0.5398
ESG	1.299407	1.088844	1.193382	0.2331
LOGTA	-24.40135	9.891255	-2.466962	0.0139
DAR	37.72466	56.58681	0.666669	0.5052

R-squared	0.009197	Mean dependent var	19.21749
Adjusted R-squared	0.004901	S.D. dependent var	325.8353

S.E. of regression	325.0358	Akaike info criterion	14.41148
Sum squared resid	73108616	Schwarz criterion	14.43760
Log likelihood	-5011.194	Hannan-Quinn criter.	14.42158
F-statistic	2.141046	Durbin-Watson stat	1.907880
Prob(F-statistic)	0.093768		

Appendix 3. Chow Test

Variable ROA

Redundant Fixed Effects Tests
Equation: OUTPUT_ROA
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	23.858165	(86,606)	0.0000

Cross-section fixed effects test equation:
Dependent Variable: ROA
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:56
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Use pre-specified GLS weights
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.590128	0.405666	16.24522	0.0000
ESG	0.014525	0.005109	2.843201	0.0046
DAR	-12.13571	0.441894	-27.46291	0.0000
LNTA	0.374296	0.048504	7.716853	0.0000

Weighted Statistics

R-squared	0.477956	Mean dependent var	12.81546
Adjusted R-squared	0.475693	S.D. dependent var	14.26629
S.E. of regression	10.14747	Sum squared resid	71256.04
F-statistic	211.1860	Durbin-Watson stat	0.377897
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.106474	Mean dependent var	5.418161
Sum squared resid	44154.69	Durbin-Watson stat	0.488003

Variable ROE

Redundant Fixed Effects Tests
Equation: OUTPUT_ROE
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	33.399503	(86,606)	0.0000

Cross-section fixed effects test equation:
Dependent Variable: ROE
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:56
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Use pre-specified GLS weights
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.992996	1.037777	0.956850	0.3390
ESG	-0.006434	0.020155	-0.319216	0.7497
DAR	-16.17401	1.353215	-11.95228	0.0000
LNTA	1.927049	0.172972	11.14084	0.0000

Weighted Statistics

R-squared	0.137600	Mean dependent var	42.01474
Adjusted R-squared	0.133862	S.D. dependent var	60.22520
S.E. of regression	34.37630	Sum squared resid	817757.2
F-statistic	36.80407	Durbin-Watson stat	0.289763
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	-0.053272	Mean dependent var	13.19223
Sum squared resid	414228.0	Durbin-Watson stat	0.559821

Variable PER

Redundant Fixed Effects Tests
Equation: OUTPUT_PER
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.

Cross-section F	5.080034	(86,606)	0.0000

Cross-section fixed effects test equation:
Dependent Variable: PER
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:56
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Use pre-specified GLS weights
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.73723	2.785129	7.086650	0.0000
ESG	0.067793	0.043774	1.548714	0.1219
DAR	2.083979	3.252503	0.640731	0.5219
LNTA	-0.604036	0.435768	-1.386141	0.1662

Weighted Statistics

R-squared	0.003077	Mean dependent var	141.9927
Adjusted R-squared	-0.001245	S.D. dependent var	153.3281
S.E. of regression	134.5979	Sum squared resid	12536683
F-statistic	0.711865	Durbin-Watson stat	1.179070
Prob(F-statistic)	0.545096		

Unweighted Statistics

R-squared	-0.007987	Mean dependent var	29.79404
Sum squared resid	14178680	Durbin-Watson stat	2.062714

Variable Tobin's Q

Redundant Fixed Effects Tests
Equation: OUTPUT_TQ
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	24.160331	(86,606)	0.0000

Cross-section fixed effects test equation:
Dependent Variable: TQ
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:56
Sample: 2015 2022
Periods included: 8

Cross-sections included: 87
Total panel (balanced) observations: 696
Use pre-specified GLS weights
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.227141	0.167153	7.341408	0.0000
ESG	-0.000768	0.000746	-1.029247	0.3037
DAR	-0.649648	0.075306	-8.626759	0.0000
LNTA	0.033531	0.014485	2.314905	0.0209

Weighted Statistics

R-squared	0.072153	Mean dependent var	16.49203
Adjusted R-squared	0.068130	S.D. dependent var	14.68264
S.E. of regression	6.081574	Sum squared resid	25594.00
F-statistic	17.93743	Durbin-Watson stat	0.267338
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	-0.045544	Mean dependent var	2.142414
Sum squared resid	14607.43	Durbin-Watson stat	1.131260

Appendix 4. Hausman Test

Variable ROA

Correlated Random Effects - Hausman Test
Equation: OUTPUT_ROA
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.503121	3	0.0575

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ESG	-0.001406	0.012485	0.000512	0.5392
DAR	-6.995571	-8.588777	2.490456	0.3127
LNTA	-1.098993	-0.676082	0.535976	0.5635

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/30/24 Time: 02:15

Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.59727	8.149067	2.527561	0.0117
ESG	-0.001406	0.036998	-0.037998	0.9697
DAR	-6.995571	2.491626	-2.807633	0.0052
LNTA	-1.098993	0.848323	-1.295489	0.1956

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.668208	Mean dependent var	5.418161
Adjusted R-squared	0.619480	S.D. dependent var	8.432230
S.E. of regression	5.201533	Akaike info criterion	6.255935
Sum squared resid	16395.90	Schwarz criterion	6.843696
Log likelihood	-2087.065	Hannan-Quinn criter.	6.483199
F-statistic	13.71288	Durbin-Watson stat	1.263376
Prob(F-statistic)	0.000000		

Variable ROE

Correlated Random Effects - Hausman Test
Equation: OUTPUT_ROE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.653748	3	0.0537

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ESG	-0.105802	-0.009678	0.004540	0.1537
DAR	21.664796	16.057235	22.021431	0.2321
LNTA	-1.681477	-2.264542	4.768119	0.7895

Cross-section random effects test equation:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/30/24 Time: 03:05
Sample: 2015 2022
Periods included: 8

Cross-sections included: 87
Total panel (balanced) observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.67955	24.36422	0.930855	0.3523
ESG	-0.105802	0.110618	-0.956466	0.3392
DAR	21.66480	7.449506	2.908219	0.0038
LNTA	-1.681477	2.536330	-0.662957	0.5076

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.627329	Mean dependent var	13.19223
Adjusted R-squared	0.572597	S.D. dependent var	23.78795
S.E. of regression	15.55163	Akaike info criterion	8.446359
Sum squared resid	146563.1	Schwarz criterion	9.034120
Log likelihood	-2849.333	Hannan-Quinn criter.	8.673624
F-statistic	11.46178	Durbin-Watson stat	1.506990
Prob(F-statistic)	0.000000		

Variable PER

Correlated Random Effects - Hausman Test
Equation: OUTPUT_PER
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.698317	3	0.0213

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ESG	-0.695962	0.163267	0.738171	0.3173
DAR	-65.614990	-58.947614	3778.763101	0.9136
LNTA	63.042498	2.174315	496.671511	0.0063

Cross-section random effects test equation:
Dependent Variable: PER
Method: Panel Least Squares
Date: 07/30/24 Time: 02:14
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-554.8910	218.6510	-2.537793	0.0114
ESG	-0.695962	0.992717	-0.701068	0.4835
DAR	-65.61499	66.85385	-0.981469	0.3268
LNTA	63.04250	22.76171	2.769674	0.0058

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.160846	Mean dependent var	29.79404
Adjusted R-squared	0.037603	S.D. dependent var	142.2650
S.E. of regression	139.5645	Akaike info criterion	12.83508
Sum squared resid	11803820	Schwarz criterion	13.42284
Log likelihood	-4376.608	Hannan-Quinn criter.	13.06235
F-statistic	1.305119	Durbin-Watson stat	2.461578
Prob(F-statistic)	0.039882		

Variable Tobin's Q

Correlated Random Effects - Hausman Test
Equation: OUTPUT_TQ
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.004595	3	0.0046

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ESG	-0.015557	0.014753	0.000384	0.1221
DAR	-5.699795	-1.569334	2.047653	0.0039
LNTA	0.165983	-0.461381	0.329906	0.2747

Cross-section random effects test equation:
Dependent Variable: TQ
Method: Panel Least Squares
Date: 07/30/24 Time: 01:45
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	4.164439	5.868294	0.709651	0.4782
ESG	-0.015557	0.026643	-0.583911	0.5595
DAR	-5.699795	1.794266	-3.176673	0.0016
LNTA	0.165983	0.610893	0.271705	0.7859

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.391428	Mean dependent var	2.142414
Adjusted R-squared	0.302051	S.D. dependent var	4.483564
S.E. of regression	3.745720	Akaike info criterion	5.599256
Sum squared resid	8502.433	Schwarz criterion	6.187017
Log likelihood	-1858.541	Hannan-Quinn criter.	5.826520
F-statistic	4.379488	Durbin-Watson stat	1.972178
Prob(F-statistic)	0.000000		

Appendix 5. Fixed Effect Model of Indonesia data

Variable ROA

Dependent Variable: ROA
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 01:45
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.54944	3.020626	5.478811	0.0000
ESG	-0.011824	0.013754	-0.859687	0.3903
DAR	-5.846557	1.553189	-3.764229	0.0002
LNTA	-0.727030	0.402949	-1.804272	0.0717

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.880970	Mean dependent var	12.81546
Adjusted R-squared	0.863488	S.D. dependent var	14.26629
S.E. of regression	5.177851	Sum squared resid	16246.94
F-statistic	50.39487	Durbin-Watson stat	1.461815
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.668010	Mean dependent var	5.418161
Sum squared resid	16405.72	Durbin-Watson stat	1.255102

Variable ROE

Dependent Variable: ROE
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:06
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41.94529	12.91759	3.247144	0.0012
ESG	-0.068478	0.043900	-1.559859	0.1193
DAR	8.666086	5.171282	1.675810	0.0943
LNTA	-3.003752	1.570068	-1.913135	0.0562

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.849753	Mean dependent var	42.01474
Adjusted R-squared	0.827687	S.D. dependent var	60.22520
S.E. of regression	15.33293	Sum squared resid	142469.8
F-statistic	38.50952	Durbin-Watson stat	1.470361
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.625392	Mean dependent var	13.19223
Sum squared resid	147324.7	Durbin-Watson stat	1.513405

Variable PER

Dependent Variable: PER
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:56
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696

Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.67831	20.43960	-0.864905	0.3874
ESG	-0.115393	0.131997	-0.874207	0.3824
DAR	-8.813823	9.847895	-0.894996	0.3711
LNTA	5.526483	2.450404	2.255336	0.0245

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.420706	Mean dependent var	141.9927
Adjusted R-squared	0.335628	S.D. dependent var	153.3281
S.E. of regression	109.6411	Sum squared resid	7284834.
F-statistic	4.944960	Durbin-Watson stat	2.027401
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.147488	Mean dependent var	29.79404
Sum squared resid	11991716	Durbin-Watson stat	2.436851

Variable Tobin's Q

Dependent Variable: TQ
Method: Panel EGLS (Cross-section weights)
Date: 07/30/24 Time: 03:06
Sample: 2015 2022
Periods included: 8
Cross-sections included: 87
Total panel (balanced) observations: 696
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.926647	0.147624	26.59903	0.0000
ESG	-0.007042	0.001722	-4.089657	0.0000
DAR	-1.697066	0.356485	-4.760557	0.0000
LNTA	-0.056591	0.024660	-2.294837	0.0221

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.790492	Mean dependent var	16.49203
Adjusted R-squared	0.759723	S.D. dependent var	14.68264
S.E. of regression	3.088125	Sum squared resid	5779.130
F-statistic	25.69089	Durbin-Watson stat	1.208902
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.386031	Mean dependent var	2.142414
Sum squared resid	8577.848	Durbin-Watson stat	1.925522