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Corporate Economic, Environmental, and Social Sustainability Performance Transformation through ESG Disclosure

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Abstract: Within the environmental, social, and governance (ESG) disclosure–corporate sustainability performance (economic, environmental and social; EES) framework, our empirical analysis examined the impact of ESG information disclosure on EES sustainability performance among Asian firms from 2005 to 2017. The positive ESG disclosure–EES sustainability performance relationship found in this study provides evidence that disclosing the implementation of environment and social strategies within an effective system of corporate governance in the organization strengthens corporate sustainability performance. The results also show that environmental performance and social performance are significantly positively related to economic sustainable performance, indicating that the corporation’s economic value and creating value for society are interdependent. In line with the stakeholder theory and the shared value theory, ESG information disclosure to all stakeholders is an important factor in creating a competitive advantage for enhancing corporate sustainability performance.

Keywords: environmental, social, governance (ESG); corporate performance; sustainability; Asia

1. Introduction

Over the last few decades, and particularly as a result of the 2007–2009 global economic crises due to improper business conduct, societal problems, and environmental catastrophes associated with poor risk management practices, the issue of corporate sustainability development has gained considerable attention amongst scholars [1,2]. The World Commission on Environment and Development describes sustainable development as development that meets the needs of present generations without compromising the ability of future generations to meet their own needs [3]. It comprises three primary components: economic, environmental, and social (EES) performance. Corporate sustainability is achieved by combining these three primary components, which enhance efficiency, sustainable growth, and shareholder value. Hence, the traditional shareholder-oriented view [4] that focuses mainly on maximizing the financial return to shareholders has changed. Companies have started to realize that their future landscape can hardly be achieved without paying due attention to their sustainability strategies and without disclosing environmental, social, and governance (ESG) information, which includes various dimensions related to the environment, society, and government.

In response to the increased intention of responsible investors to consider a company’s performance on the ESG factors when making their investment decisions, companies have started to adopt stakeholder-oriented strategies and maximize social value. Furthermore, the authors of [5,6] have provided evidence that companies that actively manage ESG sustainability reap the benefits of superior

shared value for both the business and society. Porter and Kramer [7] described corporate shared value as a set of policies and operating practices by which companies create economic value through societal benefits. They gave an example of a firm enhancing its economic value (i.e., cost reduction) by reducing its negative externalities (i.e., waste reduction). The integration of ESG strategies in management enables firms to develop a competitive advantage, increased operational efficiency and reputation, and waste reduction, thus improving the shared value and EES performance.

Growing public awareness and corporate acknowledgement has led to an increase in the number of firms that employ sustainability strategies and disclose their ESG information globally [8]. A report by the Global Reporting Initiative [9] in 2018 showed that 12,964 companies worldwide have issued 50,197 sustainability reports on a voluntary basis regarding various dimensions of ESG information disclosure. While ESG emphasis has been on the agenda for some time in Europe, it is now playing a more important role in Asia. In China, 80% of corporations published ESG reports in 2009, compared to just 4% in 2005 [10]. A recent survey by Klynveld Peat Marwick Goerdeler (KPMG) [11] indicated that several of the countries with the highest levels of corporate responsibility reports, which ESG disclosure is considered a part of, are in the Asia Pacific region (Asia and Oceania). The survey also indicated that the overall rate of reporting of corporate responsibility in the Asia Pacific region represents 78% of the worldwide reporting rate, compared to only 52% for the Middle East and Africa. There has also been an increase in Asian investors incorporating ESG factors into their investment analysis, partly due to financial data indicating that ESG integration may attract foreign investors, and thus increase returns [12].

This growing volume of reports has attracted a significant growth in academic studies related to sustainability assessment, but the association between ESG disclosure and corporate sustainability performance is still not well understood [13]. Furthermore, most of these studies have focused on Western and developed countries (see, e.g., [14–16]). Little attention has been given to studying the impact of practices of ESG disclosure and corporate sustainability performance in the context of developing countries [13]. More specifically, previous studies in developing countries have focused on either studying a single dimension of ESG—like the environmental dimension or firm performance—in a single developing country (see, e.g., [17,18]), the social dimension and firm performance [19], or governance and performance [20]. There have also been studies that have examined the combined effect of ESG disclosure on firm performance [6,21–23]. However, few, if any, have focused on examining the impact of the aggregate ESG on sustainable performance (economic, environmental, and social) in a single setting, particularly in Asia. Hence, the current study explores the impact of the aggregate of these factors—environmental, social, and governance (ESG) practices disclosure—on the components of corporate sustainability performance (economic, environmental, and social; EES) among Asian companies in 2005–2017.

The need for ESG research in Asian countries is urgent at present. Besides the increasing number of public listed Asian companies employing sustainability strategies and disclosing their ESG information, there has been an increase in the number of Asian investors incorporating ESG factors into their investment analyses. Accordingly, due to the region and the ESG literature gap in Asia, this study aims to contribute to the body of knowledge examining whether ESG disclosure creates EES sustainability performance among stakeholders in Asia. Secondly, in line with previous studies that examine the impact of ESG disclosure and economic sustainability performance, our study further examines the impact of ESG on economic, environmental, and social sustainability performance in evaluating environmental and social returns alongside the financial returns. This is deemed necessary to understand the true economic, environmental, and social cost of doing business with the shared value created and an understanding of who gets a share. Hence, this study examines whether EES sustainability performance is appropriately valued by stakeholders.

Our analysis incorporates 12 years of data (2005–2017) to provide some assurance that our results are not disproportionately influenced by events from a short period of time. Our results provide evidence that improved accountability, transparency, and stakeholder trust, as a consequence of in

corporating and disclosing a robust structure combining the three pillars (ESG) in the organization, strengthens the corporate sustainability performance (EES) among firms in Asia. The results also imply that the three components of corporate sustainability performance (economic, environmental, and social) make identical contributions to the overall corporate sustainability performance and have causal relationships between themselves. In ensuring efficient allocation of limited resources, policy reform is able to identify that social performance makes the greatest contribution to the aggregate performance of corporate sustainability.

The paper proceeds as follows: Section 2 reviews the literature background and hypothesis development; Section 3 describes the data sample; and Section 4 describes the research design and empirical models. Furthermore, the descriptive results and findings from the regression analyses are discussed in Section 5. Section 6 concludes with a summary and a discussion of the results.

2. Literature Review and Hypothesis Development

According to [24], the concept of ESG is used in different contexts and has no specific definition. The academic community uses the terms CSR (corporate social responsibility), ESG, and EGSEE (economic, governance, social, ethical, and environmental) sustainability interchangeably [25,26]. Based on the United Nations Environmental Programme Financial Initiative (UNEP FI), the United Nations Global Compact, and other such declarations, the United Nations' Principles for Responsible Investment (UN-PRI) were established in 2006 to encourage financial institutions to integrate ESG factors into the decision-making process [25]. Studies by [27–29] provide evidence that investors are currently incorporating sustainability data into their investment decision processes. Socially responsible investing (SRI) is an investment strategy that seeks to consider two components: (1) financial return, which focuses on long-term financial performance to create shareholder value; and (2) nonfinancial returns (social/environment) for protecting the interests of other stakeholders. Global SRI has increased from \$3.74 trillion in managed assets during 2010–2012 [28] to \$30.7 trillion, a 34% increase from 2016 [30]. While Europe accounts for the largest concentration of sustainable investment assets globally, SRI has grown in all regions, such as the USA, Australia, New Zealand, and Japan [30]. Other parts of Asia, excluding Japan, have also begun to take note of the benefits of ESG investing. However, the pace of change has been slow, maybe due to a lack of disclosure or regulatory pressure to integrate ESG factors into their investment analysis [12].

Hence, timely, reliable, consistent, and comparable ESG information is relevant to investors for assessing corporate behavior and ensuring the sustainability of corporations with regard to their investment decisions. Environmental practices and disclosure include the measures of a company's emissions, waste, pollution, the climate change risks it faces, and its environmental and natural resource conservation. Social information runs the gamut from labor relations to product liability such as supply chain management, community investment, labor and human right policies, and how effective their health and safety policies are in protection against accidents. Furthermore, corporations must have an effective system of corporate governance (such as board structure, auditing procedures, ethical principles, and shareholders' rights) in place within an individual company, as well as across the whole economy, which builds trust and fosters innovation in a market economy. On this basis, a robust structure combining the three dimensions (ESG) is created to strengthen management practices in monitoring and enhancing corporate sustainable performance.

Corporate sustainable performance includes the concept of the "Triple Bottom Line," introduced by [31], in which companies incorporate EES in their business strategy, aiming at protecting and sustaining society and the environment for future generations while maximizing the market capitalization objective. While corporations previously focused primarily on the company's shareholders, now other stakeholders are also viewed as important. Specifically, for an organization to be sustainable, it must be financially secure to create long-term value, it must be able to reduce the impact on the environment through its product innovations and activities, and it must adopt a strategy to generate a competitive advantage that is in line with societal expectations [32].

The number of firms employing sustainability strategies and disclosing qualitative and quantitative ESG data has increased over the years as a result of the importance of such information being recognized by many regulatory institutions, exchanges, and investors. ESG information disclosure is deemed as necessary to strengthen corporations' sustainable growth, as well as to provide the market with metrics beyond a company's financial risks forming business and investment decisions. Besides countries in Europe, other countries—particularly in Asia, such as Japan, China, Hong Kong, Taiwan, India, Malaysia, Singapore, the Philippines, and South Korea—have made sustainability disclosure mandatory to provide better transparency since the late 2000s [2,33]. However, the disclosure is on a “comply or explain” basis, so corporations can get away with non disclosure provided that they justify their position.

In disclosing ESG information, a firm's corporate reporting is extended not only to the traditional financial information, but also to environmental, social, and governance information. A number of sustainability theories such as agency/shareholder, stakeholder/shared value, legitimacy, and signaling, provide possible explanations for corporations disclosing ESG information beyond that required by law. According to the agency/shareholder theory developed by [34], moral hazards occur in the presence of information asymmetry, where the management (the agent) knows more about the company's information and decides to withhold relevant information from the investors (the principal). Based on the limited information available, investors will undervalue well-performing corporations and overvalue poorly performing corporations, and thus the market will fail to optimally allocate resources. Due to a lack of proper monitoring of the agent, management incentives and activities often focus on short-term earnings, which are normally linked to executive compensation rather than sustainable (long-term) performance for shareholders and other stakeholders. Hence, firms disclose additional information as a means of communication between the management and shareholders, which minimizes the principal–agent problem and the cost of equity capital considered in the agency theory. From the investors' perspective, additional disclosure provides transparency on the potential future risks and opportunities of the company, and thus increases investors' confidence to invest in the company.

Drawing on the stakeholder-oriented management theory [35], a large amount of empirical literature has demonstrated that corporate sustainability performance (EES) is enhanced through an improved stakeholder relationship. To create corporate sustainability value in the long term, companies must consider all stakeholders, including shareholders, financiers, consumers, customers, communities, and other interested groups that can affect the company's performance or that are affected by the achievements of the organization. In fact, the maximization of corporate sustainability performance (EES) is an important criterion in balancing the interests of all stakeholders, as argued by stakeholder theory [36] and the “enlightened value maximization” theory [37]. A firm engaged in ESG activities will enhance its long-term value by fulfilling its social obligations, meeting its environmental responsibilities, and improving its reputation [25].

Furthermore, Porter and Kramer [7] introduced the concept of corporate shared value theory, which incorporates societal issues into the corporation's strategy and operations, ultimately boosting the competitive position of the company while simultaneously serving as a catalyst to advance EES performance in the communities in which it operates. Creating shared value is about creating policies and practices that allow firms to maximize their economic value while simultaneously solving societal challenges and needs. Porter and Kramer [7] identified three ways in which companies can create shared value: (1) reimagining products and markets; (2) redefining productivity in the value chain, which includes improving practices for more efficient use of materials, financial resources, and employees' skills; and (3) knowledge sharing and support through local cluster development.

The legitimacy theory is another motivation for ESG disclosure. The legitimacy theory comes from the idea that an organization is capable of existence and growth through social acceptance [38]. Hence, the legitimacy theory argues that companies must disclose certain information (community involvement, human resources, physical resources, environmental contributions, and product and service contributions) to convince society that the organizational activities are permissible and

contribute to social value. Under the increasing pressure of social media and the attention of stakeholders, ESG disclosure provides potential business with benefits that may include transparency enhancement, motivating employees, and improving reputation and brand value, hence avoiding the market stigma associated with a reputation for environmental recklessness [39,40].

Pursuant to the legitimacy theory, firms provide ESG disclosure on a voluntary basis to signal that they are complying with societal expectations and norms. Therefore, the disclosure of ESG can reduce information asymmetry and avoid adverse selections as a result of one party to a potential transaction (managers) having more or better-quality company information than various stakeholders. As argued by [25,41,42], signaling theory suggests that voluntary disclosure decisions lead to value-relevant information about economic, environmental, and social performance. As corporate disclosure helps investors to predict future earnings, firms choose to signal their sustainability achievements by voluntarily issuing ESG reports, thus increasing EES performance. As highlighted by [43], ESG disclosure acknowledges three consequences of a high degree of transparency: (1) reducing information asymmetry between firm management and external users of firm information, such as investors and other stakeholders; (2) signaling organizational legitimacy and excellence (or superior quality) to the society; and (3) increasing perceptions of firm accountability in various external users of firm information, such as investors and other stakeholders.

In general, these theories are related and support each other in explaining the relation between ESG disclosure practices and corporate sustainability performance (EES).

2.1. ESG and Economic Sustainability Performance

The main objective of the majority of businesses is to maximize and increase their market value on a long-term basis. Hence, economic sustainability performance encompasses financial costs and benefits, and reflects the long-term profitability and financial sustainability of a company. Economic sustainability performance is measured in terms of long-term operational effectiveness, efficiency, and productivity, and is normally disclosed by financial indicators in financial statements, such as return on equity (ROE), return on assets (ROA), and economic value added (EVA). These key performance indicators (KPIs) help investors to better assess the risks and returns associated with their investments. Thus, fair disclosure of economic sustainability performance assists investors and other stakeholders in properly assessing the long-term profitability, earnings quality, and cash flows of companies [33,44].

Several studies have analyzed the impact of ESG information disclosure on economic sustainability performance, but the results have been equivocal. In fact, [45] provided a thorough review of the accounting and finance literature focusing on the effect of ESG disclosure and performance on firm value. Taliento et al. [6] analyzed the impact of sustainability indicators (ESG) on economic (market and financial) performance among primary companies listed in major European indices in Belgium, France, Germany, Italy, and Spain; the results depicted a significant positive relationship. In examining the impact of ESG practices on economic performance in Malaysia and Singapore, [22] provided evidence that social responsibility and corporate practices influence the economic performance of Singapore and Malaysia, respectively. Using data from 65 Indian public listed firms from 2015–2017, [46] found that good corporate ESG disclosure enhances economic performance. Other studies [8,10,47–49] that found a positive relationship between ESG disclosure level and firm value also suggested that improved transparency and accountability and enhanced stakeholder confidence play a role in boosting firm value. Market forces generally reward companies with a high level of ESG.

The underlying principle behind ESG disclosure–economic sustainability performance lies in identifying and quantifying the intangible value possessed by environmentally friendly, socially responsible firms with robust governance policies in place. In line with the stakeholder theory, the agency theory, and the information asymmetry theory, managers that disclose their ESG practices can reduce the company's exposure to future risks, which in turn creates value for investors and other stakeholders with long-lasting business models. As a consequence of incorporating ESG

strategy and policies within a firm, the improved accountability and enhanced stakeholder trust (social reputation) will enhance said firm's economic performance. In fact, a firm's economic sustainability performance is formed by means of investors' appreciation, as well as customers'/stakeholders' trust, which supports income. Hence, this study formulates the following hypothesis to test if the level of ESG information disclosure is positively related to economic sustainability performance.

Hypothesis 1 (H1). *There is a significant positive relationship between the level of ESG information disclosure and economic sustainability performance.*

2.2. ESG and Environmental Sustainability Performance

The relationship between corporate environmental performance and corporate financial performance has been extensively studied (for example, [50–52]), but less attention has been paid to the relationship between ESG practices and corporate environmental performance.

Friedman [53] argued that a firm's main responsibility is to its shareholders and that social and environmental activities (CSR) create additional costs, thus eroding their profitability and competitiveness. Environmental practices draw resources and management away from core areas of the business while increasing production costs, which leads to poor economic performance. Using a sample of Canadian firms, [52] found a negative relationship between environmental disclosure and environmental performance. Furthermore, the negative relationship between ESG disclosure level and corporate efficiency in the study by [8] indicates that a high disclosure level, especially in terms of environmental disclosure, will expose unfavorable information that will destroy corporate reputations. On the other hand, [54] claimed that well-designed environmental regulations can induce and encourage innovations, such as cleaner technologies and environmental improvements, thus offsetting compliance costs and helping enhance business competitiveness. The studies by [50,51] provide evidence that corporations' commitment to environmental management practices enhances financial performance.

Environmental disclosure is the basis for environmental management. Hence, in integrating environmental management practices into the decision-making process (ESG), organizations need to establish an environmental management framework to control and prevent environmental impact during the supply chain through the analysis of input and output indicators [55,56]. The environmental management framework considers various inputs (such as materials, energy, and water) and outputs (such as emissions, waste, and effluents). According to [57], environmental performance is a matter of output in environmental management, normally measured in terms of the amount of reduction in carbon footprint (pollution and CO₂ emissions) and improvement in the air and water quality of the property and the surrounding community. An improvement in environmental performance reflects how effectively a company is addressing its environmental challenges in leaving a better environment for future generations [58]. Furthermore, a reduction in pollution and CO₂ emissions means increasing resource efficiency and decreasing waste, which will have an impact on the organization's economic performance [51].

As discussed earlier, the legitimacy theory and the stakeholder theory indicate that organizations engage in ESG activities to sustain legitimacy and to gain the support of all their stakeholders. Organizations are encouraged to disclose environmental information, as the current market is paying increasing attention to environmental issues. Voluntarily issuing ESG reports in addition to their mandatory financial statements can reduce the information asymmetry and can increase investors' and stakeholders' positive perceptions of firm accountability. Based on the legitimacy theory and the stakeholder theory, it is hypothesized that high compliance with the disclosure of environmental requirements enhances corporate reputation, which is associated with high corporate efficiency, thus improving its environmental sustainability performance.

Hypothesis 2 (H2). *There is a significant positive relationship between the level of ESG disclosure and environmental sustainability performance.*

2.3. ESG and Social Sustainability Performance

Social sustainability performance reflects how and to what extent a company has translated its social goals into practice, among others, including working conditions, health and safety, relationship with employees, wellness, diversity, human rights, fair labor practices, community engagement, and philanthropy. The theoretical framework used to determine the relationship between ESG and social sustainability performance combines the stakeholder, legitimacy, and signaling theories.

Friedman [4] argued that socially responsible policies constitute a misallocation and misappropriation of valuable company resources due their high implementation costs, which outweigh any potential tangible benefits and are detrimental to shareholders. Brammer and Millington and Sila and Ceka [59,60] are among the researchers that have found a negative or a very weak relationship between the aforementioned variables.

However, studies (for example, [61,62]) that provide evidence of a positive relationship between ESG disclosure and social sustainability performance have argued that ESG practices provide several benefits, such as enhanced efficiency and competitiveness, reduced operating costs and financial risks, as well as increased corporate reputation and consumer trust. Based on the stakeholder and legitimacy theory, companies integrate ESG in their policies and operating practices to gain or maintain legitimacy because they recognize that conforming to stakeholder norms and expectations will result in improved access to resources. Having good relations with multiple stakeholder groups may lead to increased social sustainability performance in the long term by assisting in developing and maintaining valuable intangible assets (both internal and external benefits).

The internal benefits of improved health and safety conditions include a positive impact on employees' motivation and morale, as well as commitment and loyalty to the company, which may lead to increased productivity and reduced costs for recruitment and training [59,63]. External benefits of ESG practices are related to their effect on improving corporate reputation and consumer trust in brand value, which provide the firm with a sustainable competitive advantage [64,65]. Xie et al. [8] claimed that companies that integrate ESG in their policies and operating practices, such as favorable working conditions that attract productive employees, will increase their competitiveness and enhance their economic and social performance. Thus, it is hypothesized that high compliance with social norms will enhance organizational legitimacy and social sustainability performance.

Hypothesis 3 (H3). *There is a significant positive relationship between the level of ESG disclosure and social sustainability performance.*

3. Sample and Data

The initial sample selection included downloading information on public companies in Asia for 2005–2017 from the Thomas Reuters database. Based on the United Nations' official statistics, there are currently 48 countries in Asia. As shown in Table 1, only 20 countries were found in the Thomas Reuters database. Firms with missing data were excluded from the original sample and matching on sector resulted in a final sample of 1244 companies, which included 9954 firm-year observations, as shown in Table 1.

Table 2 presents the sample distribution of Asian firms across industries, based on the Thomson Reuters Data stream. As shown in Table 2, the industrial sector is the most representative sector, totaling 23.17% of the sample. Other primary sectors represented include consumer discretionary (21.12%), consumer staples (7.84%), and real estate (7.73%). The smallest representations, with less than 5%, are from the energy, health care, and telecommunications and utilities sectors.

Table 1. Sample of public listed companies in Asian countries from 2005 to 2017.

Country	No. of Firms	Percentage of Firms	No. of Observations	Percentage of Observations
Bahrain	6	0.48%	12	0.12%
China	156	12.54%	981	9.86%
Cyprus	1	0.08%	12	0.12%
Hong Kong	119	9.57%	998	10.03%
India	91	7.32%	560	5.63%
Indonesia	34	2.73%	201	2.02%
Israel	16	1.29%	99	0.99%
Japan	399	32.07%	4307	43.27%
South Korea	110	8.84%	704	7.07%
Kuwait	7	0.56%	21	0.21%
Macau	3	0.24%	19	0.19%
Malaysia	45	3.62%	290	2.91%
Oman	4	0.32%	7	0.07%
Philippines	21	1.69%	129	1.30%
Qatar	9	0.72%	32	0.32%
Singapore	40	3.22%	411	4.13%
Taiwan	121	9.73%	822	8.26%
Thailand	32	2.57%	168	1.69%
Turkey	20	1.61%	139	1.40%
UAE	10	0.80%	42	0.42%
	1244	100%	9954	100%

Table 2. Industry classification of Asian companies for 2005–2017.

Sector	No. of Observations	Percentage of Observations
Basic Materials	918	9.22%
Consumer Discretionary	2102	21.12%
Consumer Staples	780	7.84%
Energy	474	4.76%
Financial	529	5.31%
Health Care	416	4.18%
Industrials	2306	23.17%
Real Estate	769	7.73%
Technology	727	7.30%
Telecommunications	497	4.99%
Utilities	436	4.38%
	9954	100%

The information on ESG disclosure was retrieved from the Bloomberg Environmental, Social, and Governance Database, which has a wider coverage of all ESG datasets of global companies than other third-party providers like the Corporate Knights Global 100 and Dow Jones Sustainability Index (DJSI). The ESG data in the Bloomberg database originate from company annual reports, sustainability or CSR reports, press releases, and company websites. Every data point collected is weighted in terms of importance and tailored to different industry sectors. The weighted ESG disclosure score is normalized to range from the lowest disclosure level, indicated by “0.1” (for companies that have minimum disclosure of ESG data), to the highest disclosure level of “100” (for companies that disclose every data point collected by Bloomberg) [33].

The information on corporate sustainability performance, namely, economic, social, and environmental factors, was retrieved from the Thomson Reuters Data stream, similar to previous studies [49,66]. Thomson Reuters’ comprehensive corporate sustainability performance database contains information on 5000 companies around the globe and over 400 available data categories,

including all exclusion (ethical screening) criteria and all aspects of sustainability performance [66]. The control variables were size and leverage, which were also retrieved from the Thomson Reuters Data stream.

To understand the impact of ESG information disclosure on a firm's future sustainability performance, this study used one period lag of ESG, which was for the period 2005–2016, and for the other variables from 2006–2017.

4. Research Design

In line with [33,67,68], the association between the ESG disclosure score and corporate sustainability performance (EES), in addition to the control variables, was assessed by running the following multiple regression model:

$$\text{EconomicSustainabilityPerformance (ECN)} = \alpha_0 + \sum \beta_i \cdot \text{ESG Score} + \sum \beta_i \cdot \text{Control}_i + \sum \text{Country} + \sum \text{Industry} + \varepsilon \quad (1)$$

$$\text{EnvironmentalSustainabilityPerformance (ENV)} = \alpha_0 + \sum \beta_i \cdot \text{ESG Score} + \sum \beta_i \cdot \text{Control}_i + \sum \text{Country} + \sum \text{Industry} + \varepsilon \quad (2)$$

$$\text{SocialSustainabilityPerformance (SOC)} = \alpha_0 + \sum \beta_i \cdot \text{ESG Score} + \sum \beta_i \cdot \text{Control}_i + \sum \text{Country} + \sum \text{Industry} + \varepsilon \quad (3)$$

All variables (dependent, explanatory, and control) are defined as follows.

4.1. Dependent Variables (EES Corporate Sustainability Performance)

The dependent variable in this study was the EES corporate sustainability performance indicators, which was divided into three components: environmental (ENV), social (SOC), and economic (ECN) performance. Similar to the studies by [49,66,69], we obtained the company-level EES sustainability performance data from the Thomson Reuters Asset4 dataset for a sample of 1244 companies in Asia for the fiscal years 2006–2017. Each dimension score ranges from 0 to 100, with a higher score indicating good corporate sustainability performance.

ECN: The economic (ECN) sustainability performance indicator in the Thomas Reuters dataset is not financially based. It is based on shareholders; loyalty, performance (production process innovations), and client loyalty, which reflect a company's capacity to use its resources efficiently to generate a high return on investment and sustainable growth [66,67]. Thus, it indicates a company's overall financial health and its ability to generate long-term shareholder value through the use of best management practices.

SOC: The social (SOC) performance indicator measures a company's ability to use the best of its management practices to generate trust and loyalty among customers, employees, and society, which are key factors determining its ability to generate long-term shareholder value. There are 60 indicators in the Thomson Reuters data set, which include information on product responsibility, community, human rights, diversity, employment quality, health and safety, and training and development [66,67].

ENV: The environmental (ENV) performance indicator measures corporate impacts on living and nonliving natural systems, including land, air, and water, as well as on natural ecosystems, in order to avoid environmental risk. Environmental performance has three subcategories, emission reduction, product innovation, and resource reduction. This covers phenomena such as hazardous waste recycled toxic release, pollution levels in discharged water, the reuse of water, carbon dioxide emissions, and waste recycling [66,67].

4.2. Explanatory Variables

4.2.1. Environmental, Social, and Governance Performance (ESG Disclosure Score)

The environment, social, and governance performance—or ESG disclosure score—the independent variable retrieved from Bloomberg, represents the proxy for sustainability reporting practices for a sample of 1244 companies in Asia. To understand the impact of ESG disclosure on a firm's future

sustainability performance, this study used one period lag of ESG, which was for 2005–2016, and for the other variables from 2006–2017.

All of the data points used by Bloomberg in calculating the composite ESG disclosure score and its sub scores (ESG performance) were derived from the company's original source of documents. Thus, the ESG scores reflect the company's transparency in reporting its ESG information [33]. The environmental data in Bloomberg consider various inputs such as emissions, materials, hazardous waste, renewable energy, water pollution, and operational policies around environmental impact. In calculating the social disclosure score, Bloomberg uses data related primarily to policies on employees, products, and impact on communities such as employee turnover, percentage of women in the workforce, lost time incident rate, number of customer complaints, human rights, community spending, and policies on health and safety. Governance data include information such as board structure and function, executive compensation, board committee activities, and company political involvement. The ESG sustainability disclosure component scores range from 0.1 for companies that disclose the minimum amount of ESG data to 100 for those that disclose every data variable collected by Bloomberg [33].

4.2.2. Control Variables

We also included control variables in our regression models, namely leverage and size. Firms are vulnerable to financial burden, and there is a high possibility that firms with a high financial burden are more likely to lose market share and to experience a negative effect on profitability. To control for financial risk, leverage (LEV) is measured by total debt divided by total assets [44,70]. Larger firms may take advantage of economies of scale to enhance performance value. The natural logarithm of a firm's total assets is used as a proxy for size. Due to the economies of scale, an increase in firm size may lead to high corporate performance [71,72].

Appendix A provides variable definitions and related data sources for all of the variables used in this study. To estimate the hypotheses, this study relied on multiple linear regressions for the sample of Asian corporations (9954 firm-year observations) for 2015–2017, including the abovementioned dummy and control variables. The causal relationship between ESG disclosure and EES sustainability performance could result in simultaneity, reversed causality, or other endogeneity problems in model estimation. Following [73], we verified the robustness of our results by using lagged independent variables. It is reasonable to believe that effect of ESG disclosure will be reflected in the next year's performance. Hence, this study used one period lag of ESG, which was for 2005–2016, and for the other variables from 2006–2017. To address the endogeneity problems, this study also applied the three static panel approaches, namely, the pooled ordinary least squares (OLS), fixed-effects, and random-effects models. As a highly restrictive model, pooled OLS imposes a common intercept and slope coefficients for all cross sections; hence, it disregards individual heterogeneity. The fixed-effects panel data model was used, after executing preliminary Breusch–Pagan, Lagrange multiplier, and Hausman tests, to control for pooled and/or random effects. The fixed-effects model analyzes the impact of variables that change overtime, but it cannot permit estimation of variables that do not change overtime [2,44]. Hence, the random-effects model was also used to allow the estimation of effects for time-invariant variables.

5. Empirical Tests and Results

In this section, we present the descriptive statistics, correlation analysis, and panel regression analysis, which demonstrate the relationship between ESG information disclosure and corporate sustainability performance. We used three indicators for corporate sustainability performance (EES): economic (ECN), environmental (ENV), and social (SOC) sustainability performance.

5.1. Descriptive Statistics and Correlations

Table 3 shows the results of the descriptive statistics of all of the variables used for the 9954 firm-year observations in our sample for 2005–2017. In the study, we winsorized all continuous variables at 1% and 99% to reduce the impact of outliers. The equally weighted overall score ranges between 0 and 100, with higher scores indicating more desirable corporate sustainability performance. In addition, the median score for corporate sustainability performance was divided into three levels—above, below, or equal to 50—classified into three discrete categories: outperformance (O), underperformance (U), and neutral (N), respectively. Consequently, we interpreted the corporate sustainability performance data based on the median score, similarly to in the study conducted by [49].

Table 3. Descriptive statistics.

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
ESG	41.788	38.400	91.202	3.430	30.043	0.170	1.482
ECN	46.743	44.410	95.815	2.988	30.099	0.120	1.614
ENV	53.601	54.580	95.070	9.628	32.286	(0.048)	1.358
SOC	48.036	45.280	95.160	4.580	31.819	0.095	1.453
LEVERAGE	0.231	0.210	0.667	0	0.178	0.567	2.522
ROA	0.068	0.052	0.288	(0.050)	0.067	1.256	4.813
SIZE	19.149	19.238	24.733	13.141	2.634	(0.072)	2.643
Basic Materials	0.075	0	1	0	0.263	3.240	11.498
Consumer Discretionary	0.186	0	1	0	0.389	1.614	3.606
Consumer Staples	0.076	0	1	0	0.265	3.201	11.244
Energy	0.046	0	1	0	0.210	4.318	19.642
Financials	0.147	0	1	0	0.354	1.995	4.980
Health Care	0.043	0	1	0	0.204	4.481	21.079
Industrials	0.201	0	1	0	0.401	1.491	3.223
Real Estate	0.075	0	1	0	0.263	3.240	11.498
Technology	0.062	0	1	0	0.242	3.624	14.136
Telecommunications	0.049	0	1	0	0.216	4.168	18.375
Utilities	0.040	0	1	0	0.195	4.708	23.169

ESG—economic, social, and governance disclosure; ECN—economic performance; ENV—environmental performance; SOC—social performance.

As shown in Table 3, the Bloomberg Composite ESG disclosure score has a mean value of 41.79 (median:38.4), and it ranges from 3.43 to 91.20, suggesting significant panel data variation in ESG disclosure efforts for the Asian firms in our sample. Using the FTSE KLD 400 Social Index ESG database, [26] found that the composite ESG score in their sample ranged from −15 to 23. However, [6] found European companies in their sample recorded a relatively high ESG mean disclosure score of 71.34 (median: 72.0). To be on par with their European counterparts, Asian government regulatory bodies must enforce and encourage improved ESG disclosure through legislated requirements, as well as professional standards and recommendations.

Table 3 also shows that the mean (median) score of environmental sustainability performance (ENV) has the highest value, followed by social (SOC) and then economic (ECN) sustainability performance. ENV is the best-in-class pillar for the three categories of product innovation, emission reduction, and resource reduction with a median score of 54.58%. Good environmental performance is associated with high corporate efficiency among our Asian firms in addressing their environmental challenges, thus resulting in a high possibility of reducing said firms' exposure to future environmental costs. The SOC sustainability performance provides a median score of 45.28%,

suggesting as light underperformance of the management practices among the Asian firms in our sample to generate trust and loyalty among customers, employees, and society. Finally, ECN, which is a measure of a firm's efficiency in generating a high return on investments and sustainable growth, had the lowest median score of 44.41%, indicating underperformance of management in terms of using resources efficiently. The results of this study are in line with that of previous studies (e.g., [49]), with a median score for EES performance of around 50%.

Table 4 reports the Pearson pairwise correlation coefficients between all of the variables used in our model. A preliminary analysis shows that the ESG disclosure score is positively correlated with corporate sustainability performance, ECN, ENV, and SOC. Furthermore, the results do not establish a strong correlation among all of the explanatory variables, which shows that the variables do not suffer from any multicollinearity concerns in our regressions models.

Table 4. Spearman correlation matrix.

Coefficient	1	2	3	4	5	6	7
ESG 1	1						
	(—)						
ECN 2	0.845885 ***	1					
	(0.0001)	(—)					
ENV 3	0.834527 ***	0.586751 ***	1				
	(0.0001)	(0.0001)	(—)				
SOC 4	0.92681 ***	0.717599 ***	0.808794 ***	1			
	(0.0001)	(0.0001)	(0.0001)	(—)			
LEV 5	0.056573 ***	−0.029334 ***	0.079754 ***	0.060869 ***	1		
	(0.0001)	(0.0016)	(0.0001)	(0.0001)	(—)		
ROA 6	0.049422 ***	0.129146 ***	0.00716	0.025531 ***	−0.221753 ***	1	
	(0.0001)	(0.0001)	(0.4402)	(0.0059)	(0.0001)	(—)	
SIZE 7	0.250733 ***	0.246506 ***	0.367217 ***	0.305183 ***	0.071716 ***	−0.206179 ***	1
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(—)

*, **, *** indicate that the correlation is significant at the 0.1, 0.05, and 0.01 levels, respectively (two-tailed).

5.2. Results of the Regression Analysis

Table 5 presents the result of the panel data regression to predict the relationship(s) among the dependent variable (ESG disclosure), the explanatory variables, corporate sustainability performance (ECN, ENV, SOC), and the control variables (size and leverage). In line with the studies by [26,49], we applied the three panel approaches—the pooled OLS, random-effects, and fixed-effects models—to test the three hypotheses (H1, H2, and H3). The first set of columns corresponds to hypothesis H1 (ESG–ECN), the second set to hypothesis H2 (ESG–ENV), and the last three columns to hypothesis H3 (ESG–SOC).

The results in Column 1a (OLS), Column 1b (random effects), and Column 1c (fixed effects) in Table 5 provide evidence that the ESG scores in our Asian sample firms are statistically significant in influencing economic sustainability performance. The ECN indices capture highly significant coefficients of 0.043, 0.086, and 0.027 with adjusted R-squared values of 0.89, 0.41, and 0.82 for the three panel approaches (OLS, random effects, and fixed effects), respectively. The results provide evidence that there is a significant positive relationship between the level of ESG information disclosure and economic sustainability performance, thus confirming the first hypothesis (H1).

The significantly positive ESG disclosure–economic sustainability performance relationship among our Asian sample firms indicates that environmentally friendly, socially responsible firms with robust governance policies in place enhance their economic performance. The results found in this study are similar to the results found in the studies by [10,46,49,65,66,74]. In line with the stakeholder theory, the agency theory, and the information asymmetry theory, companies that practice

higher ESG disclosure reduce their exposure to future risks, which in turn enhances their economic sustainability performance.

Table 5. The regression between ESG disclosure and firm sustainability performance (ECN, ENV, and SOC).

	ECN			ENV			SOC		
	OLS	Random Effects	Fixed Effects	OLS	Random-Effects	Fixed Effects	OLS	Random Effects	Fixed Effects
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
ESG	0.043 *** (3.537)	0.086 *** (5.932)	0.027 ** (5.804)	0.088 *** (6.023)	0.135 *** (13.079)	0.175 *** (14.667)	0.167 *** (6.526)	0.246 *** (10.821)	0.159 *** (13.484)
ECN				0.013 *** (3.104)	0.015 ** (1.976)	0.011 (1.555)	0.117 *** (8.5)	0.302 *** (26.708)	0.115 *** (17.709)
ENV	0.063 *** (4.893)	0.034 ** (2.234)	0.024 (0.889)				0.439 *** (20.038)	0.583 *** (54.014)	0.408 *** (42.288)
SOC	0.487 *** (34.35)	0.477 *** (31.437)	0.363 *** (11.741)	0.456 *** (23.262)	0.585 *** (61.375)	0.475 *** (41.271)			
Leverage	0.269 *** (15.117)	0.225 *** (11.54)	−0.394 *** (8.987)	−0.002 (−0.107)	0.054 *** (3.458)	0.055 *** (2.606)	−0.007 (−0.504)	0.005 (0.948)	−0.006 (−0.305)
Size	0.022 *** (13.169)	0.016 *** (8.922)	0.047 *** (4.333)	0.026 *** (11.752)	0.023 *** (13.847)	0.01 * (1.708)	0.016 *** (4.396)	0.01 *** (13.028)	0.001 (0.128)
Intercept	−0.365 *** (−8.088)	−0.167 *** (−4.382)	−0.502 *** (−2.744)	−0.204 *** (−3.405)	−0.305 *** (−8.742)	−0.275 ** (−2.146)	−0.136 (−0.928)	−0.259 *** (−25.457)	0.093 (0.745)
AutoR(1)	0.703 *** (97.686)		0.283 *** (7.485)	0.928 *** (96.309)		0.463 *** (45.806)	0.852 *** (48.095)		0.491 *** (52.528)
Crossection dummies	No	No	Yes	No	No	Yes	No	No	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
R2	0.8941	0.4051	0.8214	0.9904	0.5609	0.9384	0.9258	0.7833	0.9463
F	2440.3490	225.1957	28.1460	29892.8700	422.5014	93.2341	3602.9870	1195.7370	107.8050
p < f	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
DW	2.1370	1.2145	2.0758	2.2019	0.9063	2.0823	2.2336	0.4597	2.0887
Obs.	8700	9954	8700	8700	9954	8700	8700	9954	8700

T-statistic in brackets. *, **, *** indicate that the correlation is significant at the 0.1, 0.05, and 0.01 levels, respectively (two-tailed). ESG—environmental, social, and governance disclosure; ECN—economic performance; ENV—environmental performance; SOC—social performance.

With respect to hypothesis **H2**, the results of the multivariate regression in Columns 2a–c in Table 5 provide evidence of a significant positive relationship between the level of ESG disclosure and environmental sustainability performance. The positive ESG–ENV relationship found in this study is similar to the results found in the studies by [27,50,51,66]. For the three panel approaches (OLS, random effects, and fixed effects), the ENV indices capture highly significant coefficients of 0.088, 0.135, and 0.175 with adjusted R-squared values of 0.99, 0.56, and 0.93, respectively. In line with the legitimacy and stakeholder theories, the improved transparency and accountability of firms in disclosing their ESG reduces their exposure to future environmental costs, which is associated with corporate efficiency and will enhance environmental sustainability performance.

The results in Columns 3a–c in Table 5 also provide evidence that the ESG scores in our Asian sample firms are statistically significant in influencing social sustainability performance (SOC), thus confirming the third hypothesis (**H3**). For the three panel approaches (OLS, random effects, and fixed effects), the ESG disclosure–social sustainability performance relationship reports highly significant coefficients of 0.167, 0.246, and 0.159 with adjusted R-squared values of 0.93, 0.78, and 0.95, respectively. The results provide evidence that companies that integrate ESG into their management and that have high compliance with social norms will enhance their organizational legitimacy and social sustainability performance.

Among the different components of corporate sustainability performance, the results in Table 5 highlight that social performance has the strongest positive relationship with ESG disclosure, followed by environmental performance and then economic performance.

The further analysis in Table 5 highlights that environmentally sustainable performance and social sustainable performance are positively significantly related to economic sustainable performance

in all models. Al-Tuwaijri et al. [51] also found that good economic performance is positively correlated with good environmental performance. Firms that implement proactive environmental strategies in their production process are able to create their own competitive advantages that result in improved environmental performance, which includes increased operational efficiency and reputation, reductions to the risk of environmental disasters, reductions in emissions, and superior economic performance [50]. Similarly, firms that adopt a socially oriented management control system consistent with the goals and values of the community will create a dominant competitive position that includes reputation enhancement and the enhanced ability to recruit and retain quality workers. This attracts consumers and other key stakeholders with socially friendly behaviors, thus raising the revenues and ultimately enhancing corporate economic performance [61].

With respect to our control variables, the significantly positive association between leverage and economic performance (ECN) indicates that the Asian firms in our study prefer debt financing to improve economic sustainability performance through higher leverage. As argued by [75], debt may serve as an effective motivating force driving operational and organizational change to make firms more efficient. Debt can improve the value of a firm because it forces management to spend their available cash on more value-maximizing projects. Furthermore, the positive significant leverage–environmental sustainability performance relationship supports the idea that lenders favor firms with higher (better) environmental performance. Firms require higher financing for the relevant environmental investments in their efforts to reduce emissions. According to the trade-off theory, low emitters are less volatile firms facing lower expected costs of financial distress, hence banks reward firms with better environmental performance with more favorable financing terms [76]. Leverage, on the other hand, was not found to be significant for corporate social sustainability performance.

Size, measured as the natural logarithm of a firm's total assets, was found to have a positive and significant relationship with all corporate sustainability performances. Larger firms have the ability to exploit economies of scale, more effectively formalize procedures, and implement operations, which leads to better corporate sustainability performance.

6. Discussion and Conclusions

The empirical models in this study offer strong evidence that both incorporating and disclosing a robust structure combining the three pillars (ESG) in an organization strengthens corporate sustainability performance (EES) among firms in Asia. Providing transparency and high-quality firm ESG information fosters improved opportunities for increasing confidence among stakeholders, thus leading to higher firm performance.

In line with the stakeholder-oriented management theory and consistent with the shared value theory, this study confirms that there is a need for a proper balance among the three dimensions of the corporate sustainability performance: economic, environmental, and social (EES) performance, which aims at protecting and sustaining society and the environment for future generations, while maximizing the market capitalization objective [31]. The results in our study indicate that the improved accountability and transparency in disclosing the implementation of environmental and social strategies within an effective system of corporate governance in the organization will not contradict the pursuit of environmental and social goal or the pursuit of economic profit. In fact, all three objectives (economic, environmental, and social performance) may be pursued simultaneously because of the competitive advantages that environmentally, socially, and governance-responsible firms enjoy [6,7]. The competitive advantages of ESG-responsible firms, including enhanced efficiency and competitiveness, reduced operating costs and financial risks, and increased corporate reputation and consumer trust, are the factors that lead to higher corporate sustainable performance.

Social performance has the strongest positive relationship with ESG disclosure, followed by environmental performance and then economic performance. The results also show that environmental performance and social performance are positively significantly related to economic sustainable performance, indicating that the corporation's economic value and creating value for society are

interdependent. Economic, social, and ecological factors are thus combined as a win–win concept. The result also implies that the three performance components (economic, environmental, and social performance) make identical contributions to the overall corporate sustainability performance and have causal relationships between themselves. That is, strength or weakness in one component can affect the other components as well. In developing policy reforms, corporations should realize the interdependence between performance components and the most critical component in contributing to the overall performance of corporate sustainability. This is to ensure the efficient allocation of limited resources, with the highest priority given to enhancing corporate sustainability performance [66].

The particular implications of this research will be useful to policy-makers in order to improve corporate sustainability practices in Asia. The aggregate ESG disclosure score of Asian corporations found in this study is, on average, lower than that reported by their European counterparts. This may be due to a lack of regulatory pressure in some of the countries to incorporate ESG factors in their reporting. Some Asian countries, such as Japan, China, Hong Kong, Taiwan, India, Malaysia, Singapore, the Philippines, and South Korea, have made sustainability disclosure mandatory, al be it on a “comply or explain” basis [2,33]. In an attempt to improve ESG disclosure in Asia, government regulatory bodies must enforce and encourage such disclosure through legislated requirements and professional standards and recommendations. Our results provide evidence that ESG disclosure improves an organization’s corporate image, creates a better understanding of its products and services, and, most importantly, improves its relationships with various stakeholders [43].

We hope that these findings stimulate more precise empirical work and theoretical development on the topic of ESG disclosure and corporate sustainability performance. Future research may examine the relationship between corporate governance and sustainability among Asian firms. Li [77] provides a synthesis of research that explores the implications of different corporate governance mechanisms and corporate sustainability. Future empirical models may also include changes in economic cycle such as the economic growth or recession triggered by natural disasters or the Covid-19 pandemic. For example, economic growth or recession may influence decision-making that reacts to various programs of ESG differently, such as corporate resource allocation, community and employee relations, environmental protection, and product/safety quality, which affects firm performance. Firms may neglect some aspects of social responsibility during bad times and may restore their vigilance in these areas when there is a strong economy.

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Appendix A

Variables		0
Dependent Variables:	Definition	Data Sources
EES corporate sustainability performance	Economic (ECN), environmental (ENV), and social (SOC) performance. Each dimension score ranges from 0 to 100, with a higher score indicating good corporate sustainability performance [66].	Thomson Reuters Asset4
FIRM LEVEL VARIABLES:		
ESG	All the data points used by Bloomberg in calculating the composite ESG disclosure score and its subscores (environmental, social, and governance). For the ESG sustainability disclosure component, scores range from 0.1 for companies that disclose the minimum amount of ESG data to 100 for those that disclose every data variable collected by Bloomberg [33].	Bloomberg
ENV	The environmental data in Bloomberg consider various inputs such as emissions, materials, hazardous waste, renewable energy, water pollution, and operational policies around environmental impact [33].	Bloomberg
SOC	The social disclosure score uses data relating primarily to policies on employees, products, and impact on communities such as employee turnover, percentage of women in workforce, lost time incident rate, number of customer complaints, human rights, community spending, and policies on health and safety [33].	Bloomberg
GOV	Governance data include information such as board structure and function, executive compensation, board committee activities, and company political involvement.	Bloomberg
LEVERAGE	Leverage (LEV) is measured by total debt divided by total assets.	Thomson Reuters
SIZE	The natural logarithm of a firm's total assets	Thomson Reuters

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