

Article

The Impact of ESG Activities on Firm Value: Multi-Level Analysis of Industrial Characteristics

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Abstract: The study attempted to identify how ESG (Environment, Social, Governance) activities affect firm value depending on the industrial environment to which the entity belongs, taking into account industrial characteristic factors that may affect the activities and performance of the entity from a strategic perspective. In order to analyze ESG activities, sustainability report data of South Korea containing ESG information of 87 domestic companies for the period 2002–2020 were collected, and then the effect of ESG according to industrial characteristics on firm value was investigated in depth. The empirical results are as follows. First, it was confirmed that ESG was found to have a positive effect on the firm value. Second, we found that industrial concentration and industrial growth rate, which are industrial characteristic variables, moderate the relationship between ESG and firm value. Through this study, it was possible to identify the importance of the industrial environment surrounding the company in enhancing firm value through ESG activities and to confirm its influence. These results may suggest which ESG strategy directions are needed internally according to the characteristics of the industry in which the company is engaged. We hoped that this study will serve as a stepping stone to broaden the scope of business management research on ESG and to contribute to the field of business strategy, subsequently contributing to the development of ESG in the future.

Keywords: ESG; industrial concentration; industrial growth; firm value; sustainability



Citation: Chang, Y.-J.; Lee, B.-H. The Impact of ESG Activities on Firm Value: Multi-Level Analysis of Industrial Characteristics. *Sustainability* **2022**, *14*, 14444. <https://doi.org/10.3390/su14211444>

Academic Editor: Mikhail Kozhevnikov

Received: 3 October 2022

Accepted: 1 November 2022

Published: 3 November 2022

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1. Introduction

With the global financial crisis and a series of natural disasters caused by climate change emerging as global issues, ESG started to become a global trend. ESG is an abbreviation for environmental, social, and governance [1]. It refers to carrying out corporate management activities that comply with laws and ethics with environmental and social responsibility. In the past, the traditional management method of companies focused on financial performance, but recently, it is evolving towards the direction of enhancing sustainability by pursuing both financial performance and ESG-centered non-financial performance [2]. ESG is information on the potential risks of a company, and it is a global trend that is positioned as an essential strategy for long-term investment. Companies use ESG as a signal to inform their stakeholders of the sustainability of their business [3], and stakeholders can sense corporate risks through ESG [4]. Factors influencing corporate risk include government regulations, social factors, and environmental factors. When the ESG level of a company is high in the capital market, it has the ability to prevent such conflicts in advance and reduce the operating risk [5]. In addition, by establishing the moral capital of ESG activities, companies not only pinpoint defensive aspects of risk management, but also strategies to use them as new business opportunities.

A common interest in ESG from both academia and industry is the effectiveness of ESG. ESG is about the advantages of a company's non-financial performance in managing the company. In fact, it has yet to be clear whether ESG, a non-financial performance, has a positive impact on firm value. ESG activities are managers' strategic decisions to increase

future firm value. Reducing the cost of ESG activities to be treated as expenses can certainly bring about cost savings in the current financial statements, but there is no guarantee that increasing ESG expenses will increase sales for the year or for the next period. A manager's strategic actions to increase future firm value are ultimately influenced by the environment because the firm must survive the competition or gain a competitive advantage [6].

Accordingly, it is necessary to consider external environmental factors that affect ESG activities. The external environment that directly affects a company includes industrial characteristics such as the intensity of competition and growth rate within the industry to which the company belongs. As companies grow in the interaction with the environment surrounding them, the industrial environment that directly affects companies is closely related to the value improvement of companies [7]. Therefore, depending on the industrial environment, a company's ESG activities may be performed differently, and the impact on the firm value may also be different. In other words, ESG activities may vary depending on the industrial environment to which the company belongs. However, if the industrial environment that affects the company is not considered, practical implications between ESG and firm value may become insufficient. Consequently, managers need to consider the environmental characteristics of the industry to which the company belongs in order to determine to what level ESG should be increased for future performance.

ESG is an important asset that determines the future competitive advantage and profitability of a company that does not appear in its financial statements, so analyzing the value effect of its performance will be one of the important research tasks. In addition, for this research to become practical academic research, it must be a study that can solve the company's concerns and meet its needs. In order to continuously promote ESG, which is gradually expanding, it is necessary to analyze the impact on firm value considering the characteristics of the industry to which the company belongs. Therefore, this study focused on factors of industrial characteristics and tries to empirically confirm that the impact on firm value may vary depending on the level of ESG from the perspective of a company's survival.

2. Theoretical Background

2.1. Sustainable Management

Sustainable management refers to management activities that pursue sustainable growth by increasing firm value and corporate competitiveness by meeting the expectations of various stakeholders [8]. Sustainable management is at reducing negative social and environmental impacts and contributing to sustainable development [9]. These various definitions of sustainable management emphasize the harmonious development of the economy, society, and environment, by highlighting non-financial performance. Accordingly, individual investors, including institutional investors, and many stakeholders of the company, including consumers and workers, evaluated the company according to the TBL of sustainability management. TBL (triple bottom line), the three pillars of sustainability management, was defined as a management form that pursues sustainable growth based on a harmonious foundation of economic profitability, environmental soundness, and social responsibility for sustainable management [10].

Accordingly, the TBL of sustainability management can be divided into economic, environmental, and social responsibility aspects. Economic profitability includes economic factors from profitability to job creation, environmental soundness range from greenhouse gases to eco-friendly production, and social responsibility range from human rights to social contribution. As a result, he argued that all three viewpoints should be satisfied, and that these three concepts are interrelated and interdependent so that they can have a total impact in various ways. The universal criterion used to judge the non-financial TBL factor is ESG. ESG-related information can be a defense against potential risks of a company by minimizing the disadvantages that a company may have on the environment and society and maximizing the effect of corporate governance. Interest in the non-financial performance of companies began when skepticism about the nature of capitalism emerged

after the global financial crisis in 2008. Reflecting this, ESG-related research is steadily increasing in academia.

In addition, the concept of socially responsible investment (SRI) emerged for the purpose of promoting overall economic growth and further development of society through the sustainable growth of companies. The phenomenon of reflecting ESG in the investment decision process has become even more remarkable during the COVID-19 outbreak. Even before COVID-19, ESG was spotlighted as a new trend in corporate management by pursuing carbon reduction, a circular economy, social contribution, and transparent corporate governance. However, the recent COVID-19 outbreak has reaffirmed the importance of ESG as businesses experience business disruptions, supply chain disruptions, improved air quality, and fundamental shifts in customer value. The Norwegian Central Bank Investment Management Agency (NBIM) has announced that it will exclude companies with poor ESG performance from investment. The same is true in the South Korean situation. The National Pension Service has set a policy to invest 50% of its assets under management in companies that value ESG by 2022. Korean banks are vying for loans to companies with good ESG performance, which lower the interest rate while increasing the limit.

2.2. ESG and Firm Value

Firm value studies of ESG are less quantitative than individual E (environment), S (social), and G (governance) studies, but have been recently conducted by several scholars. The concept of ESG and its consequences had been intensely researched within the sustainability and business ethics literature.

The preceding studies of ESG on firm value are as follows. Ghoul et al. [11] analyzed the relationship between ESG performance and firm value in 53 countries and found a positive relationship. Furthermore, Friede et al. [12] performed a meta-analysis of 2200 research papers that analyzed the relationship between ESG indicators and corporate financial performance indicators published after 1970. As a result of the study, 48% of the papers showed that the relationship between ESG and financial performance was positive, 11% was negative, and 23% was neutral. Deng et al. [13] found that the ESG index has a positive effect on firm value (EPS) for Chinese companies. It was also verified that the impact was remarkable in private companies that are more market-friendly than state-owned companies and where investors' expectations are well reflected in the stock market. Xie et al.; Yu et al. [14,15] used a large sample of companies worldwide and found a positive relationship between ESG and financial performance. Sohn [16] found that E, S, and G were used as proxy variables for sustainable management to analyze the impact of each performance or integration performance on the long- and short-term effects of a company. The listed companies were sampled from 2011 to 2017. The relationship between stock returns, ROA (Return Of Assets), and ROE (Return On Equity) was examined. The results showed positive relationships, except for the integrated ratings and environmental ratings for each of the ratings. Byun [17] found that in a sample of 2525 companies from 2011 to 2014, KCGS (Korea Institute of Corporate Governance and Sustainability) ESG rating has a positive effect on corporate credit ratings. Kaspereit and Lopatta [18], a study that sampled 600 European conglomerates from 2001 to 2011, found a positive relationship between corporate sustainability and market value. Weber [19] found a positive effect of ESG on the financial performance of large Chinese firms. The study also found a significant impact of ESG performance on the market value of acquiring companies after mergers.

However, there are also negative or neutral studies on ESG investment performance. In an IMP (Impact Management Project) report in 2019, there was no consistent evidence that sustainable funds had higher returns than regular funds, and it was noted that restrictions on investment targets for sustainable funds led to lower performance. Auer and Schuhmacher [20] found that ESG factors do not affect investment returns in the US and Asian markets and that in Europe, investment returns tend to decrease when ESG factors are considered.

2.3. Competition within the Industry

Industrial concentration indicates how concentrated the distribution of firms is by calculating the proportion of small firms in an industry. As it is an indicator of the degree of competition among firms within an industry, the level of industrial concentration and industry competition are related [21]. According to the industrial structure analysis theory, Porter had to create a strategy to create profitability by considering the five-force competitive factors that affect the industry to which they belong. It can be seen that competition within the industry acts as an important determinant in corporate decision making.

The preceding studies of Competition within the Industry are as follows. Yeo et al. [22] analyzed that measuring corporate performance and intensity of competition using ROA and the Hufindahl–Hirschman index (*HHI*). It was found that the higher the intensity of competition, the more positive the performance of companies with excellent CSR. Ryu and Ryu [23] analyzed the effect of industrial concentration on firm value under the assumption that market competition and industrial concentration have an inverse correlation. As a result, when the degree of market competition was high, the industrial concentration had a negative effect on the firm value. On the other hand, when the degree of market competition is low, industrial concentration has a positive effect on the firm value. Park and Yoon [24] found that low industrial concentration had a significant impact on firm performance. Nickell [25] found that competition can increase the productivity and performance of firms through theoretical evidence and empirical analysis of 670 UK firms. Above all, it has been demonstrated that increasing the number of competitors or lowering the barriers to market entry can have a very significant positive effect on the productivity growth of competitors. Roure and Madique [26] analyzed the success factors of venture companies by measuring ‘industrial growth rate, estimated market, market share, buyer concentration, and degree of competition’ as proxies. It was found that when the industry growth rate and buyer concentration were high and the intensity of competition within the industry was low, the company’s performance was high.

On the other hand, there is also an opinion that competitive intensity increases the risk of failure due to the initiative of innovation and the difficulty of achieving competitive advantage. Hay and Liu [27] analyzed that only the most efficient companies can survive in a highly competitive market, such as producing a single item, based on the results of empirical analysis of 19 British manufacturing industries. On the other hand, he argued that in a less competitive market, even less efficient firms had a chance to survive.

2.4. Industrial Growth

In the past, environmental preservation and social contribution were recognized as costs and viewed as incompatible with industrial growth. In most cases, many companies in the process of industrialization considered growth as a higher value and sacrificed social values. However, as ESG management has recently emerged as one of the important corporate paradigms, companies are conducting business activities simultaneously pursuing two goals: social value and economic feasibility for sustainable development. As the industry grows, a wider variety of stakeholders, including consumers, local communities, governments and local governments, and environmental groups, are demanding ESG responses from companies. As the industry grows, consumer demand for eco-friendly and social products, awareness of ethical management, and business opportunities will increase accordingly, and companies will increase their firm value through non-financial performance such as eco-friendly product development and social contribution marketing.

Studies related to ESG activities according to industrial growth are as follows. According to [28], there is a high correlation between corporate environmental performance and financial performance and, in particular, in the case of the latest high-growth industries and environment-related companies, the environmental contribution activities and profit rates of companies show a high correlation. Russo and Fouts [29] analyzed the effect of a company’s environmental performance on firm value from a resource-based perspective, and proved that the higher the environmental performance of a company in a high-growth

industry, the higher the company's performance. Ullman [30] considered that companies with relatively more leeway in social responsibility activities and supported growth were more prosperous. Therefore, it is believed that companies with high corporate surplus funds, corporate size, and corporate performance are more likely to engage in social responsibility activities [22,31]. These results can be inferred that social activities are active in high-growth industries where many growing companies are concentrated. Burke et al. [32] stated that as a company grows, it receives more attention from stakeholders, so a growing company will invest more in areas that can realize social value, which will have a positive effect on the improvement of firm value. Fama and French; Yoon [33,34] analyzed future investment opportunities according to industrial growth. Results showed that if a company belongs to a high-growth industry, there will be many future investment opportunities. Therefore, profitability showed a negative relationship with the debt-to-equity ratio by internally retaining revenue.

3. Research Hypotheses and Models

3.1. Research Hypothesis Development

ESG is an acronym for environmental, social, and governance. It is a framework for evaluating the non-financial performance of a company [1]. ESG is information about the potential risks of companies, and is used as an essential strategy for long-term investment. Companies use ESG information as a signal to inform stakeholders of the sustainability of their business [4]. Furthermore, ESG disclosure increases transparency within the company about its environmental, social, and governance practices [2,35]. The ESG of these aspects creates more incentives for managers, investors, and stakeholders to make better decisions and evaluations. Therefore, ESG causes an increase in the availability and quality of information [36]. This is expected to reduce the information asymmetry between firms and stakeholders [37]. ESG information can evaluate and quantify positive and negative environmental, social, and economic impacts, so it can effectively manage risks, develop strategies, provide new perspectives for growth opportunities, and address the needs of different stakeholders. According to Russo and Perrini [38], from the stakeholder theory view, stakeholders' primary interests are environmental, social, and governance issues. There is a relevance between ESG performances of organizations and their economic performances which has been created by the perceptions of the stakeholders [39]. Clarkson [40] claimed that companies' ability in contributing to stakeholders' demands is the key to firm performance.

Although there are opinions that ESG is only a defensive measure to reduce risk and has no relation to financial performance, the majority of studies claim that ESG enhances firm value [11,13–15,18,19]. Deng and Cheng [13] found that the ESG index has a positive effect on firm value (EPS) for Chinese companies. It was also verified that the impact was remarkable in private companies that are more market-friendly than state-owned companies. Yu et al. [14,15] used a large sample of companies worldwide and found a positive relationship between ESG and financial performance. Ref. [12] performed a meta-analysis and found a mostly positive association between ESG and financial performance. Accordingly, the following hypothesis is proposed.

Hypothesis (H1). *ESG activities have a positive effect on firm value.*

We conjecture that the effectiveness of ESG is differentiated according to the level of concentration in the industry in which the firm is located. Industrial concentration, an indicator of the degree of competition among firms within an industry, is related to the level of industry competition [21]. Depending on the industrial structure, the degree of competition differs by industry, and there is a difference between industries that are highly competitive and those that are not. As competition intensifies, managers make various strategic efforts to achieve target profits or prevent competitors from entering the market. In the product market, the lower the industrial concentration, the fiercer competition becomes,

resulting in lower profitability of a company and an increase in operating risk. In a highly competitive market, companies face high bankruptcy risk and competitive threats [41], so stakeholders, as well as shareholders, will increase their interest and monitoring of the company. In these situations, not only strategies related to business activities, but also various strategies that reflect stakeholders including social investment and financial activities must be developed and implemented. Recent studies suggest that ESG activities can be used as a competitive strategy to gain a sustainable competitive advantage. ESG information reduces information asymmetry between companies and stakeholders [37] and is used by investors to make decisions about a company's financial performance [5]. In a low-concentration industry where competition is fierce and business risks are increasing, ESG information will play a risk-reducing function [42–44], which will increase corporate sustainability in the long run. On the other hand, as the market becomes monopolized due to high industrial concentration, there are no competitors, so profits can be easily obtained without special investment or effort [23]. Thus, financial performance will be relatively less affected by ESG initiatives. Accordingly, the following hypothesis is proposed.

Hypothesis (H2). *Low industrial concentration will have a moderating effect on the relationship between ESG and firm value.*

Industrial growth is an important variable of industrial structure and is a determinant commonly cited when measuring future performance among various industries' competitive environments, and is an indicator of industrial development in relation to new entry [45–47]. Companies in high-growth industries will be perceived as a more attractive market from the perspective of investors [48]. Therefore, industrial growth acts as an important factor in deciding the expansion or contraction of business areas for companies [49]. As the industry grows, companies become part of a mature society and are responsible for all actions they do, and there is a growing consciousness that owners and managers take responsibility for wrongdoings. This means that, as the industry grows, corporate responsibility and interest in ethical management such as the expansion of public interest and national policies are steadily increasing. In other words, environmental, social, and governance activities are also expanding in proportion to the growth trend of the industry. Therefore, ESG activities have become an essential task for companies as the environment changes, such as industrial growth [50]. Growing industries also provide relatively more opportunities for companies to expand their business. New business opportunities can be created in the process of resolving social problems such as environmental pollution, aging, and jobs' unethical management that can occur in high-growth industries [51,52]. For example, the increase in sales of environmental products due to the increase in fine dust, the creation of the active senior market due to the aging population, and the shortage of jobs provide opportunities to secure talented people. In addition, these activities can enhance the corporate image, strengthen customer loyalty, and further accelerate the growth rate of sales, thereby promoting firm value. In such a growing industry, ESG will increase the agility of the company to secure additional business and increase its value. On the other hand, as the industry enters the mature stage, the potential for further growth is limited, and thus the financial performance will be relatively less affected by ESG initiatives [53]. Accordingly, the following hypothesis is proposed.

Hypothesis (H3). *Industrial growth rate will have a moderating effect on the relationship between ESG and firm value.*

3.2. Research Model

In this research model, considering the hierarchical relationship in which a company belongs to an industry, the first level was set as the ESG activities, which are the characteristics of the company. The second level was set as the 'industrial concentration' and 'industrial growth rate' which are the upper variables, and analysis using a multi-level

model was conducted. The multi-level model is a method to verify the influence of variables of different levels, and is an appropriate method for hierarchical data analysis in which samples are organized with an organization first selected and a group belonging to the organization is selected again [54]. If the data or hypothesis to be analyzed have a multilevel characteristic, and if the data are analyzed using the existing same level statistical tool, it may be difficult to clearly analyze these impact relationships since the lower level belongs to the same higher level. This inevitably results in an ecological fallacy that generalizes the results of the lower level to the higher level [55]. The research model is shown in Figure 1.

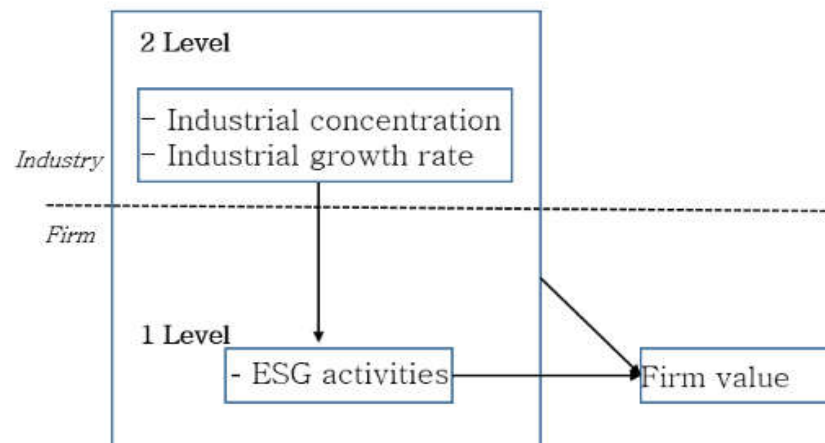


Figure 1. Research Model.

4. Research Design

4.1. Independent Variable

4.1.1. ESG activities (Firm-Level Variable)

This study collected ESG data through the sustainability report from 2002–2020 on Korean companies. For the variables of corporate governance activities not disclosed in the sustainability report, the disclosure of corporate financial information was used. The sustainability report is an ESG report written in accordance with international indicators such as ISO 26000, AA1000, and GRI, which provides guidelines on social responsibility. The report discloses non-financial data and ESG activities that can promote social goals, and provides guidelines for companies to follow universal principles on human rights, labor, the environment, and anti-corruption. So far, there is no clear definition of the rational indicators for measuring ESG activities in academia and practice. Therefore, it is deemed necessary to analyze various indicators and variables of sustainability reports prepared on the basis of international standards in a situation where it is difficult to affirm reasonable proxy variables of ESG activities.

For environmental activities, data on energy consumption reduction, greenhouse gas emissions reduction, waste discharge reduction, environmental investment cost, and R&D expenditure were collected. For social activities, data on training hours, social contribution costs, volunteer hours, continuous years of service, resignation rate, collective agreement ratio, employment rate for the disabled, new employee recruitment rate, employment growth rate, the amount of parental leave, parental leave return rate, the number of supply chains, and the supply chain purchase amount were collected. For governance activities, data on liability ratio, the number of communication with auditors, the number of outside directors, dividends to shareholders, and major shareholders' shares were collected. The definitions of variables for measuring ESG are as follows Table 1.

Table 1. Variables Used to Measure ESG.

	Variable	Definition
E	Energy consumption reduction	Energy consumption reduction in the current year compared to the previous year (Unit: TJ)
	GHG reduction	Greenhouse gas emission reduction in the current year compared to the previous year
	Waste discharge reduction	The reduced amount of waste generated in the current year compared to the previous year
	Recycling rate	The reuse or repurposing of waste products
	R&D rate	The R&D expenses for eco-friendly products and product portfolio expansion Calculated as the R&D expenses/total sales
	Environmental investment cost	The facility investment and current expenses incurred in carrying out environmental protection activities
S	Training hours	The training hours for employees on anti-corruption education, information protection education, education by position, safety and health education, and human rights education
	Employment rate for the disabled	The percentage of employees with disabilities working in the firm Calculated as the number of workers with disabilities/number of regular workers
	Resignation rate	The proportion of retirees among employees Calculated as the number of employees who retire in a year/number of employees at the end of the previous year
	Contribute Cost	Social contribution expenses such as donations, social welfare, education, culture/art, medical/health, overseas support, etc.
	Volunteer hours	The volunteer hours performed by employees for social contribution
	Years of service	The continuous years of service for employees
	New employee recruitment rate	The employment rate of new full-time employees for the year Calculated as (the number of new employees/total employees)
	Employment growth rate	The quantitative increase in employment at the firm for the year Calculated as [(the current number of employees–last year’s number of employees)/last year’s number of employees]
	Collective agreements ratio	Autonomous labor laws are concluded by an agreement between a trade union and an employer or its organization The employee collective agreement (labor union) ratio is calculated as the number of union employees
	Parental leave	The number of parental leaves (a system that allows workers with children under the age of 8 or under the second grade of elementary school to take a leave of absence for up to one year for aid to work to raise children) availed among all employees
Parental leave return rate	The percentage of returning to the company after parental leave	
Number of supply chains	The number of companies that are in a relationship to help each other by exchanging technology, capital, or manpower	
Supply chain purchase amount	Purchases amount from business partners among sales	
G	Number of outside directors	The number of directors who do not belong to the management of the company
	Liability	The liability ratio to assets owned by a company
	Communication	The amount of communication between the governing body (audit committee) and external auditors during an audit
	DVD	The distribution of a company’s profits to its shareholders is called a dividend In the case of a KOSDAQ-listed company, a major shareholder is a stake of 2% or more or a valuation of 2 billion won or more (Article 23 Paragraph 1 of the Capital Market Act)
	Major shareholder’s share	

4.1.2. Industrial Concentration (Industry-Level Variable)

The degree of competition within the industry was measured using the Herfindall–Herschmann index (*HHI*), which is widely used in domestic and foreign studies [56–58]. *HHI* is calculated as follows.

$$HHI = \sum_{j=1}^n S_{ijt}^2 \quad (1)$$

HHI_{jt} : Industrial concentration of j industry at t point.

S_{ijt} : Market share of i of j industry at t period based on the sales.

Herschmann index (HHI) is the sum of the squares of the market share of all companies participating in a particular market. A value closer to one means a situation in which a specific company monopolizes, and a value closer to zero means that the sales of individual companies in the industry are more dispersed and the degree of competition is high due to a large number of companies in the industry.

4.1.3. Industrial Growth

The industrial growth rate is an indicator of how the industry's domestic market will change in the future, and an industry with a high growth rate is evaluated as an attractive market for companies [59]. Industrial turnover for the current period or total asset return can also be evaluated as an important measure of the industrial growth rate, but it is difficult to accurately measure future changes. $CAGR$, on the other hand, is a model that uses the geometric mean of industry growth in recent years, assuming that the industry has maintained a constant annual growth rate over the past few years. $CAGR$ is calculated as follows.

$$CAGR(t_0, t) = \left(\frac{S_t}{S_{t_0}} \right)^{\frac{1}{t-t_0}} - 1 \quad (2)$$

t_0 is the starting point and t is the final point, and S_t and S_{t_0} are the market size of the first year and the final point, respectively.

When based on the accumulated value of the previous year, such as the growth rate, it is possible to more accurately analyze the growth rate by the geometric average concept of $CAGR$.

4.2. Dependent Variable

Tobin's Q was used as a proxy for the dependent variable, firm value. In the case of Tobin's Q, which is the ratio of a company's market value and asset replacement cost, it is difficult to measure the replacement cost of corporate assets, so Tobin Q was calculated using the ratio of market value to book value proposed by [60]. Tobin's Q reflects the share of shareholders, does not have the possibility of accounting manipulation such as depreciation, is easy to compare between companies through investor evaluation, and has the advantage of reflecting future profits [61,62]. Tobin's Q is calculated as follows.

Tobin's Q = {(number of shares of common stock × year-end closing price of common stock) + (number of shares of preferred stock × year-end closing price of preferred stock) + book value of liabilities} / book value of assets.

According to [63,64], Tobin's Q is a value obtained by dividing the market value of an asset by the replacement cost, and if the value evaluated in the market is high, this ratio will be high, and is, therefore, interpreted that the firm value is high.

4.3. Control Variable

In this study, company size, number of employees, foreign investment share, year characteristics, and industrial characteristics were applied as control variables. The size of a company is expected to be deeply related to a company's ESG and financial performance. The size of a company is an important factor in determining profitability and firm value, and since large companies have more usable resources than SMEs, it can be said that large companies have relatively higher ESG investment capabilities. In this study, the natural logarithm of total assets [65] and the number of employees [66] were used. To control the characteristics of each year, the year dummy variable and the industry dummy variable were used to control the industry factor. This is because ESG can be affected by year-specific characteristics and industrial characteristics. The industry dummy variable classified 10 types of industries selected in the sample according to the major classification criteria of the Korea Stock Exchange. The higher the foreign investor's equity ratio is, the more active it is required to respond to ESG activities to enhance the firm value of the

investment company. According to previous studies, the foreign investor's equity ratio has a positive relationship with CSR, so foreign investors are more active in CSR activities. However, when there is a major foreign shareholder with a stake of 5% or more, the ability to control CSR activities is further strengthened [67].

4.4. Data Collection

The data used for the empirical analysis in this study were the subjects of 102 Korean companies that published sustainability reports from 2002 to 2020, and data on 1190 cases of ESG activities of each company were collected. Among them, 728 samples of 87 companies were used, excluding 15 financial companies and unlisted companies. Table 2 shows the distribution of sample companies by industry. Financial data were obtained through TS-2000. In other words, the sample companies in this study are those that satisfy all of the following constraints.

- (1) Companies listed on the Korea Exchange at the end of 2020
- (2) Companies that do not belong to the financial industry
- (3) December settlement corporation
- (4) A company without capital erosion
- (5) Companies that can obtain financial data from TS-2000

Table 2. Distribution of Sample Companies by Industry.

Sector	Sample Company
Rubber and plastic manufacturing industry	4
Public industry	3
Metal manufacturing industry	4
Tobacco manufacturing industry	1
Wholesale and commodity brokerage	5
Purpose machine manufacturing business	5
Leisure and personal service	2
Petroleum refining industry	5
Food manufacturing industry	3
Engineering and related technology service business	2
Transportation equipment manufacturing industry	4
Pharmaceutical manufacturing industry	5
Automobile manufacturing industry	5
Electric equipment manufacturing industry	9
Information and communication industry	7
Comprehensive construction industry	5
Transport and warehousing	5
Chemical substance manufacturing industry	12
Total	87

5. Empirical Analysis Results

5.1. Exploratory Factor Analysis

The exploratory factor analysis was conducted to extract the ESG's abbreviated variables. The principal component was used for estimating the factor loading, and the varimax method was used for rotation. If the factor loading value is too low or if it is tied to a logically inappropriate construct, these variables were excluded, and a new factor analysis was performed. Results showed that when the ESG factor was high, the company was eco-friendly, had good governance, and had active corporate social activities Table 3. In addition, the eigenvalue was 7.086, which was 1.0 or higher, and the explanatory power of the factors was 64.418%, which was 50.0% or higher, indicating that the model was good.

Table 3. Extract the ESG Factor.

Item	Factor	Eigen Values	% of Variance	Cum. %
Greenhouse gas emission reduction	0.549			
Waste discharge reduction	0.587			
Recycling rate	0.629			
Volunteer hours	0.622			
Years of service	0.807			
Collective agreements ratio	0.674	7.086	64.418	64.418
Employment rate for the disabled	0.541			
Parental leave return rate	0.725			
Outside directors	0.756			
DVD	0.899			
Major shareholder's share	0.520			

5.2. Descriptive Statistics and Correlation Analysis

To verify the hypothesis of this study, descriptive statistics and correlation analysis were performed on the variables used in the analysis. Table 4 presents descriptive statistics of variables used in empirical analysis, and Table 5 presents correlation analysis.

Table 4. Descriptive Statistics of Variables.

Variable Name	Mean	SD	Minimum	Maximum
Energy consumption reduction (TJ)	−4640	144,710	−1,475,037	2,369,125
GHG emissions reduction (tCO ₂ eq)	−42,180	501,700	−4,317,504	8,084,702
Waste amount reduction (TON)	−10,183	257,691	−4,534,000	1,937,200
Recycling rate (%)	0.68	0.25	0.02	1
Environmental investment cost	59,430	327,390	1	4,858,500
R&D for ECO (%)	0.03	0.05	0	0.41
Training hours	69.07	41.91	3.3	323
Contribute cost	20,740	56,540	4	536,000
Volunteer hours	6.95	6.24	0	46
Resignation rate (%)	0.06	0.06	0	0.5
Years of service	11.15	3.93	0.74	21.7
Collective agreements (%)	0.52	0.32	0	1
New employee recruitment rate (%)	0.12	0.1	0	0.53
Employment rate for the disabled (%)	0.02	0.01	0	0.07
Employment growth rate (%)	0.01	0	0	0.05
Parental leave	170	470	0	3900
Return rate from parental leave (%)	0.86	0.19	0	1
Number of supply chains	1900	3600	58	23,000
Supply chain purchase amount	7,791,000	18,195,000	13,000	173,300,000
Liability (%)	0.71	0.64	0.12	10.7
Communication	2.29	2.21	0	12
Outside directors	4.41	1.65	1	12
DVD (K)	183,217	374,034	1507	3,850,352
Major shareholders' share (%)	0.28	0.15	0.03	0.82
Asset	15.52	1.41	10.75	19.2
Employee	11,600	9200	169	310,000
Foreign Equity (%)	24.14	16.18	0	65
HHI (%)	0.46	0.21	0.27	1
Growth (%)	0.01	0.04	−0.09	0.06
Tobin's Q	1.12	1.01	0.07	6.74

Table 5. Correlation between Variables.

	ESG	Asset	Employee	Foreign Equity	HHI	Growth	Tobin's Q
ESG	−0.320 **	1					
Asset	−0.101 *	0.502 ***	1				
Employee	−0.129 **	0.492 **	0.397 ***	1			
Foreign equity	−0.201 *	0.124 *	0.063	0.021	1		
HHI	−0.184 **	0.349 ***	0.076	0.098 *	0.060	1	
Growth	0.413 ***	−0.192	0.004	0.374 ***	0.387 ***		1
Tobin's Q			69.07	41.91	3.3	323	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.3. Multiple Regression Analysis Results

In order to test Hypothesis 1, the impact of ESG activities on firm value was analyzed. The company size (the natural log of total assets and the number of employees), the foreign investor's share, the industrial dummy, and the year dummy, which can affect the firm value, were used as control variables. In order to reflect a certain level of time lag, the effect of ESG activities of the previous year ($t - 1$) on the firm value of the current year (t) were analyzed. Verification results are as follows Table 6.

Table 6. ESG Impact on Firm Value.

	Non-Standardization		Standardization		t	p
	β	S.E	β			
ESG	0.330	0.042	0.308		7.795	0.000 ***
Asset	−0.292	0.039	−0.371		−7.517	0.000 ***
Employee	0.000	0.000	−0.029		−0.684	0.494
Foreign equity	0.040	0.003	0.596		13.219	0.000 ***
Industry			Include			
Year			Include			
Model statistics			$R^2 = 0.426$, $F = 31.255$ ***			

(Note1) *** $p < 0.001$. (Note2) The results of the analysis of industry control variables according to the Korean Standard Industrial Classification are omitted for space reasons. (Note3) The results of the year control variable analysis are omitted for space reasons.

ESG had a significant positive effect ($\beta = 0.308$, $p < 0.001$) on firm value. In other words, when ESG rises, firm value also rises significantly. Looking at the model statistics, the coefficient of determination was 0.426, which accounted for 42.6% of the total variation, and the model came out significant with $F = 31.255$ ($p < 0.001$). These results support a number of previous studies that ESG can become a corporate strategy to prevent risk factors, and that it will influence the sustainable growth of the company by preoccupying the competitive advantage as well as securing the company's competitiveness [13–15,18,19]. Therefore, Hypothesis 1 was accepted.

5.4. Multi-Level Analysis (Moderating Effect)

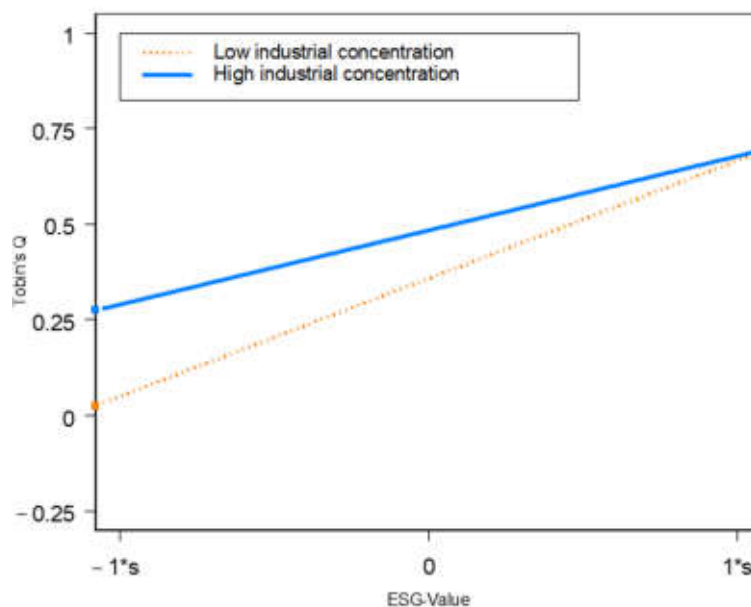
We sought to investigate the impact of the level of industrial characteristics (industrial concentration and industrial growth rate) on the effect of ESG on firm value. The results of the analysis on the moderating effect of industrial characteristics between ESG and firm value are as follows Table 7.

Table 7. Moderating Effect of Industrial Characteristics.

	Moderating Effect of Industrial Concentration between ESG and Firm Value	Moderating Effect of Industrial Growth Rate between ESG and Firm Value
constant	0.357 (4.119) ***	0.347 (4.427) ***
ESG	0.298 (5.905) **	0.288 (5.795) **
Asset	−0.301 (−7.005) ***	−0.310 (−7.218) ***
Employee	−0.018 (−0.202)	−0.016 (−0.197)
Foreign equity	0.133 (5.691) ***	0.144(5.860) ***
HHI	0.128 (1.984) *	
Growth		0.118 (2.084) *
ESG×HHI	−0.114 (−2.162) *	
ESG×Growth		0.113 (2.281) *
σ^2	0.59813	0.60045
τ	0.17047	0.15508
Deviance	1242.92	1242.77

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The main effect of industrial concentration was significant ($\beta = 0.128$, $p < 0.05$). In other words, regardless of the ESG, industrial concentration had the effect of raising the overall firm value. Additionally, the interaction term ($\beta = -0.114$, $p < 0.05$) had a significant moderating effect. In other words, the firm value of the group with low industrial concentration rose faster when ESG increased than the group with high industrial concentration. Hypothesis 2 was adopted because industrial competition positively moderated the relationship between ESG and firm value. This suggests that companies can improve sustainability through ESG as part of a differentiation strategy in a highly competitive industry. Figure 2 illustrates this result.

**Figure 2.** Graph of Moderation Effect of Industrial Concentration.

The main effect of industrial growth rate was significant ($\beta = 0.118$, $p < 0.05$). That is, regardless of the value of ESG, industrial growth had the effect of raising firm value overall. Additionally, the interaction term had a significant moderating effect ($\beta = 0.113$, $p < 0.05$). In other words, when ESG increased in the high industrial growth group compared to the low industrial growth group, firm value rose faster. Hypothesis 3 was supported by showing high industrial growth rate has a moderating effect that increases the relationship between ESG and firm value. This suggests that it can create new business opportunities

and create firm value, mainly in the process of solving environmental pollution, social problems, and ethical management caused by industrial growth. Figure 3 shows this result.

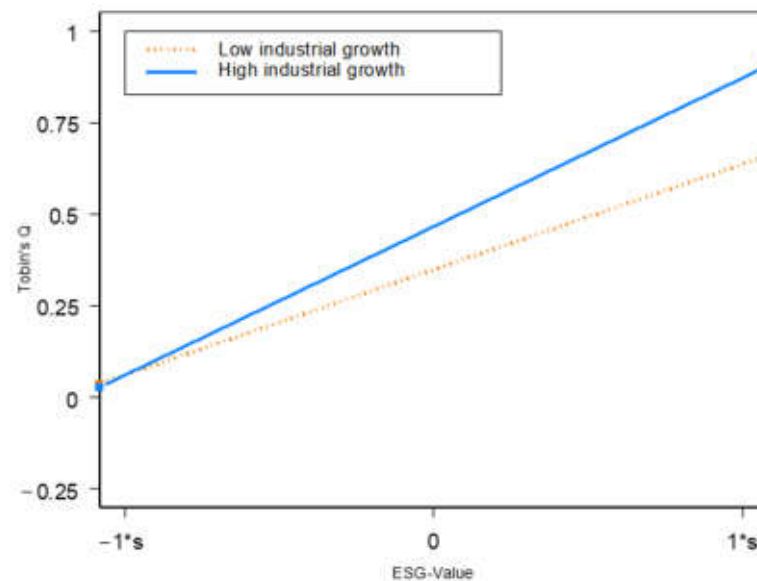


Figure 3. Graph of Moderation Effect of Industrial Growth Rate.

6. Conclusions

This study is anchored in a strategic perspective to find out how ESG activities affect firm value according to industrial characteristics. The empirical results are summarized as follows. First, ESG was found to have a positive effect on firm value. The results of this study support prior studies and confirm that ESG can be a corporate strategy to prevent risk factors and can serve as an advantage in creating competitiveness and a sustainable management strategy [13–15,18,19]. Second, we found that industrial competition positively moderated the relationship between ESG and firm value. The company faces high bankruptcy risk and competitive threat in an industry where competition is fierce [41], so stakeholders, as well as shareholders, will increase their interest in and monitoring of the company. Therefore, in a low-concentration industry where corporate operational risks are increased, ESG can act as an index to determine corporate sustainability, becoming a differentiation tool that can appeal to stakeholders and create firm value. The results of this study support previous studies [42–44]. Third, we found that ESG activities were found to have a positive effect on firm value in a high-growth industry. This supports existing prior research on increasing firm value through the realization of corporate social value in a high-growth industry [32].

The academic and practical implications of this study are as follows. First, from the end of 2019 to the present, in which the world has yet to overcome the COVID-19 pandemic, interest in ESG management is emerging as a controversial topic not only overseas but also in Korea. Therefore, both academia and industry are interested in the effectiveness of ESG; that is, what advantages a company has in its non-financial performance. This study will be meaningful because it provides additional evidence to previous studies on the relationship between non-financial performance and firm value by examining the influence of ESG. Second, it is methodologically significant because it suggested a research model that considers the impact of ESG on firm value based on the hierarchical relationship between companies and industries. Third, it was possible to identify the importance of the industrial environment surrounding the company in enhancing firm value through ESG activities and to confirm its influence. Based on these results, this may suggest ESG strategy directions are needed internally according to the industrial characteristics to which the company belongs.

The limitations of this study and future research tasks are as follows. First, in the case of sustainability reports of South Korea, a sample of small- and medium-sized enterprises

could not be obtained as most of the reports published were centered on large companies. In order to solve the problem of the representativeness of the sample, continuous research on an expanded sample including small- and medium-sized enterprises should be conducted in the future. Second, in this study, hierarchical data were collected to perform multi-level analysis. However, due to the practical difficulties of data collection, sufficient data could not be collected. Although there is no agreed guideline on the sample size required for a hierarchical linear relationship, it has been known that a sample of 30 or more groups is generally required [68]. This is not a strict sampling rule, but if additional analysis is performed on more samples in consideration of the sustainability report to be updated later, it will be a more precise analysis. Third, in this study, industries were classified using the KSIC medium classification industry code based on the degree of competition in the industry. However, modern companies are placed in a very complex competitive relationship, and although there are companies that operate in different industries but may have a competitive relationship, limitations may occur because they are classified using the medium classification industry code.

Author Contributions: Y.-J.C. and B.-H.L. conceived of the framework of this paper. Y.-J.C. developed the research model and collected data, analyzed the data, and wrote the paper. B.-H.L. developed the research objectives and conceptualized. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Bassen, A.; Kovács, A.M. Environmental, social and governance key performance indicators from a capital market perspective. In *Wirtschafts-und Unternehmensethik*; Springer: Berlin/Heidelberg, Germany, 2020; pp. 809–820.
2. Eccles, R.G.; Ioannou, I.; Serafeim, G. The impact of corporate sustainability on organizational processes and performance. *Manag. Sci.* **2014**, *60*, 2835–2857. [\[CrossRef\]](#)
3. Connelly, B.L.; Certo, S.T.; Ireland, R.D.; Reutzel, C.R. Signaling theory: A review and assessment. *J. Manag.* **2011**, *37*, 39–67. [\[CrossRef\]](#)
4. Limkriangkrai, M.; Koh, S.; Durand, R.B. Environmental, social, and governance (ESG) profiles, stock returns, and financial policy: Australian evidence. *Int. Rev. Financ.* **2017**, *17*, 461–471. [\[CrossRef\]](#)
5. Amel-Zadeh, A.; Serafeim, G. Why and how investors use ESG information: Evidence from a global survey. *Financ. Anal. J.* **2018**, *74*, 87–103. [\[CrossRef\]](#)
6. Miller, D.; Friesen, P.H. Strategy-making and environment: The third link. *Strateg. Manag. J.* **1983**, *4*, 221–235. [\[CrossRef\]](#)
7. Dess, G.G.; Beard, D.W. Dimensions of organizational task environments. *Adm. Sci. Q.* **1984**, *29*, 52–73. [\[CrossRef\]](#)
8. Claudy, M.C.; Peterson, M.; Pagell, M. The roles of sustainability orientation and market knowledge competence in new product development success. *J. Prod. Innov. Manag.* **2016**, *33*, 72–85. [\[CrossRef\]](#)
9. Schaltegger, S.; Hörisch, J. In search of the dominant rationale in sustainability management: Legitimacy-or profit-seeking? *J. Bus. Ethics* **2017**, *145*, 259–276. [\[CrossRef\]](#)
10. Jhavar, N.; Gupta, S. Understanding CSR-Its history and the recent developments. *J. Bus. Manag.* **2017**, *19*, 105–109. [\[CrossRef\]](#)
11. Ghoul, S.E.; Guedhami, O.; Kim, Y. Country-level institutions, firm value, and the role of corporate social responsibility initiatives. *J. Int. Bus. Stud.* **2017**, *48*, 360–385. [\[CrossRef\]](#)
12. Friede, G.; Busch, T.; Bassen, A. ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *J. Sustain. Financ. Invest.* **2015**, *5*, 210–233. [\[CrossRef\]](#)
13. Deng, X.; Cheng, X. Can ESG indices improve the enterprises' stock market performance?—An empirical study from China. *Sustainability* **2019**, *11*, 4765. [\[CrossRef\]](#)
14. Xie, J.; Nozawa, W.; Yagi, M.; Fujii, H.; Managi, S. Do environmental, social, and governance activities improve corporate financial performance? *Bus. Strategy Environ.* **2019**, *28*, 286–300. [\[CrossRef\]](#)
15. Yu, E.P.y.; Guo, C.Q.; Luu, B.V. Environmental, social and governance transparency and firm value. *Bus. Strategy Environ.* **2018**, *27*, 987–1004. [\[CrossRef\]](#)

16. Son, J.Y. The Effects of ESG on Firms' Long and Short-Term Performance. Ph.D. Thesis, Semyung University, Chungcheongbuk-do, Korea, 2018.
17. Byun, H.Y. Impact of ESG factors on firm value in Korea. *Trade Res.* **2018**, *14*, 135–160. [[CrossRef](#)]
18. Kaspereit, T.; Lopatta, K. The value relevance of SAM's corporate sustainability ranking and GRI sustainability reporting in the European stock markets. *Bus. Ethics: A Eur. Rev.* **2016**, *25*, 1–24. [[CrossRef](#)]
19. Weber, O. Environmental, social and governance reporting in China. *Bus. Strategy Environ.* **2014**, *23*, 303–317. [[CrossRef](#)]
20. Auer, B.R.; Schuhmacher, F. Do socially (ir) responsible investments pay? New evidence from international ESG data. *Q. Rev. Econ. Financ.* **2016**, *59*, 51–62. [[CrossRef](#)]
21. Kohli, A.K.; Jaworski, B.J. Market orientation: The construct, research propositions, and managerial implications. *J. Mark.* **1990**, *54*, 1–18. [[CrossRef](#)]
22. Yeo, Y.; Choi, S.; Kwon, O. CSR activities as a competitive strategy based on industry competition and firm performance: Focusing on the market type. *Korean Account. Rev.* **2015**, *40*, 1–37.
23. Ryu, D.; Ryu, D. How Does Industrial Concentration Affect Firms? An Empirical Study of the Relationships among Industrial Concentration, Firm Value, and Debt Ratio. *J. Korean Manag. Rev.* **2013**, *2*, 435–456.
24. Park, Y.; Yoon, C. An exploratory study on the determinants of management performance to venture business. *Korean Ventur. Manag. Rev.* **2001**, *4*, 3–34.
25. Nickell, S.J. Competition and corporate performance. *J. Political Econ.* **1996**, *104*, 724–746. [[CrossRef](#)]
26. Roure, J.B.; Maidique, M.A. Linking prefunding factors and high-technology venture success: An exploratory study. *J. Bus. Ventur.* **1986**, *1*, 295–306. [[CrossRef](#)]
27. Hay, D.A.; Liu, G.S. The efficiency of firms: What difference does competition make? *Econ. J.* **1997**, *107*, 597–617. [[CrossRef](#)]
28. Peters, R.; Mullen, M.R. Some Evidence of the Cumulative Effects of Corporate Social Responsibility on Financial Performance. *J. Glob. Bus. Issues* **2009**, *3*, 1–14.
29. Russo, M.V.; Fouts, P.A. A resource-based perspective on corporate environmental performance and profitability. *Acad. Manag. J.* **1997**, *40*, 534–559. [[CrossRef](#)]
30. Ullmann, A.A. Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms. *Acad. Manag. Rev.* **1985**, *10*, 540–557. [[CrossRef](#)]
31. Waddock, S.A.; Graves, S.B. The corporate social performance–financial performance link. *Strateg. Manag. J.* **1997**, *18*, 303–319. [[CrossRef](#)]
32. Burke, L.; Logsdon, J.M.; Mitchell, W.; Reiner, M.; Vogel, D. Corporate community involvement in the San Francisco Bay area. *Calif. Manag. Rev.* **1986**, *28*, 122–141. [[CrossRef](#)]
33. Fama, E.F.F.K.R. Testing Trade-Off and Pecking Order Predictions about Dividends and Debt. *Rev. Financ. Stud.* **2002**, *15*, 1–33. [[CrossRef](#)]
34. Yoon, B.H. A long-run analysis of the determinants of capital structure. *Korean Manag. Rev.* **2005**, *34*, 973–1000.
35. Li, Y.; Gong, M.; Zhang, X.-Y.; Koh, L. The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *Br. Account. Rev.* **2018**, *50*, 60–75. [[CrossRef](#)]
36. Cheng, B.; Ioannou, I.; Serafeim, G. Corporate social responsibility and access to finance. *Strateg. Manag. J.* **2014**, *35*, 1–23. [[CrossRef](#)]
37. El Ghoul, S.; Guedhami, O.; Kwok, C.C.; Mishra, D.R. Does corporate social responsibility affect the cost of capital? *J. Bank. Financ.* **2011**, *35*, 2388–2406. [[CrossRef](#)]
38. Russo, A.; Perrini, F. Investigating stakeholder theory and social capital: CSR in large firms and SMEs. *J. Bus. Ethics* **2010**, *91*, 207–221. [[CrossRef](#)]
39. Barnett, M.L. Stakeholder influence capacity and the variability of financial returns to corporate social responsibility. *Acad. Manag. Rev.* **2007**, *32*, 794–816. [[CrossRef](#)]
40. Clarkson, M.E. A stakeholder framework for analyzing and evaluating corporate social performance. *Acad. Manag. Rev.* **1995**, *20*, 92–117. [[CrossRef](#)]
41. Schmidt, K.M. Managerial incentives and product market competition. *Rev. Econ. Stud.* **1997**, *64*, 191–213. [[CrossRef](#)]
42. Cai, L.; Cui, J.; Jo, H. Corporate environmental responsibility and firm risk. *J. Bus. Ethics* **2016**, *139*, 563–594. [[CrossRef](#)]
43. Sassen, R.; Hinze, A.-K.; Hardeck, I. Impact of ESG factors on firm risk in Europe. *J. Bus. Econ.* **2016**, *86*, 867–904. [[CrossRef](#)]
44. Benlemlih, M.; Shaukat, A.; Qiu, Y.; Trojanowski, G. Environmental and social disclosures and firm risk. *J. Bus. Ethics* **2018**, *152*, 613–626. [[CrossRef](#)]
45. Porter, M.E. Industry structure and competitive strategy: Keys to profitability. *Financ. Anal. J.* **1980**, *36*, 30–41. [[CrossRef](#)]
46. Yip, G.S. Diversification entry: Internal development versus acquisition. *Strateg. Manag. J.* **1982**, *3*, 331–345. [[CrossRef](#)]
47. McDougall, P.P.; Covin, J.G.; Robinson Jr, R.B.; Herron, L. The effects of industry growth and strategic breadth on new venture performance and strategy content. *Strateg. Manag. J.* **1994**, *15*, 537–554. [[CrossRef](#)]
48. Siegel, R.; Siegel, E.; Macmillan, I.C. Characteristics distinguishing high-growth ventures. *J. Bus. Ventur.* **1993**, *8*, 169–180. [[CrossRef](#)]
49. Hill, C.W.; Jones, T.M. Stakeholder-agency theory. *J. Manag. Stud.* **1992**, *29*, 131–154. [[CrossRef](#)]
50. Lins, K.V.; Servaes, H.; Tamayo, A. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *the J. Financ.* **2017**, *72*, 1785–1824. [[CrossRef](#)]

51. Baughn, C.C.; Bodie, N.L.; McIntosh, J.C. Corporate social and environmental responsibility in Asian countries and other geographical regions. *Corp. Soc. Responsib. Environ. Manag.* **2007**, *14*, 189–205. [[CrossRef](#)]
52. Dobers, P.; Halme, M. Corporate social responsibility and developing countries. *Corp. Soc. Responsib. Environ. Manag.* **2009**, *16*, 237–249. [[CrossRef](#)]
53. Withisuphakorn, P.; Jiraporn, P. The effect of firm maturity on corporate social responsibility (CSR): Do older firms invest more in CSR? *Appl. Econ. Lett.* **2016**, *23*, 298–301. [[CrossRef](#)]
54. Hox, J.J.; Maas, C.J.; Brinkhuis, M.J. The effect of estimation method and sample size in multilevel structural equation modeling. *Stat. Neerl.* **2010**, *64*, 157–170. [[CrossRef](#)]
55. Raudenbush, S.W.; Bryk, A.S. *Hierarchical Linear Models: Applications and Data Analysis Methods*; Sage: Thousand Oaks, CA, USA, 2002; Volume 1.
56. Karuna, C. Industry product market competition and managerial incentives. *J. Account. Econ.* **2007**, *43*, 275–297. [[CrossRef](#)]
57. Li, X. The impacts of product market competition on the quantity and quality of voluntary disclosures. *Rev. Account. Stud.* **2010**, *15*, 663–711. [[CrossRef](#)]
58. Dhaliwal, D.; Huang, S.; Khurana, I.K.; Pereira, R. Product market competition and conditional conservatism. *Rev. Account. Stud.* **2014**, *19*, 1309–1345. [[CrossRef](#)]
59. Short, J.C.; McKelvie, A.; Ketchen Jr, D.J.; Chandler, G.N. Firm and industry effects on firm performance: A generalization and extension for new ventures. *Strateg. Entrep. J.* **2009**, *3*, 47–65. [[CrossRef](#)]
60. Chung, K.H.; Pruitt, S.W. A simple approximation of Tobin's q. *Financ. Manag.* **1994**, *23*, 70–74. [[CrossRef](#)]
61. Alajlani, S.E.; Posecion, O.T. Measuring Market Valuation of Amman Stock Exchange Industrial Sectors: Tobin's Q Ratio as Investors' Market Performance Indicator. *Res. J. Financ. Account.* **2018**, *9*, 77–84.
62. Jinji, N.; Zhang, X.; Haruna, S. Does a firm with higher Tobin's q prefer foreign direct investment to foreign outsourcing? *North Am. J. Econ. Financ.* **2019**, *50*, 101044. [[CrossRef](#)]
63. Varaiya, N.; Kerin, R.A.; Weeks, D. The relationship between growth, profitability, and firm value. *Strateg. Manag. J.* **1987**, *8*, 487–497. [[CrossRef](#)]
64. Marvadi, C. Determinants of shareholder value creation in Indian banking sector. *Int. J. Bus. Adm. Res. Rev.* **2015**, *1*, 75–84.
65. Nelling, E.; Webb, E. Corporate social responsibility and financial performance: The "virtuous circle" revisited. *Rev. Quant. Financ. Account.* **2009**, *32*, 197–209. [[CrossRef](#)]
66. Gupta, A.K.; Govindarajan, V. Knowledge flows within multinational corporations. *Strateg. Manag. J.* **2000**, *21*, 473–496. [[CrossRef](#)]
67. Kim, S.H.; Jung, Y.K. The monitoring power of foreign ownership on corporate social responsibility: Evidence from Korea. *Account. Stud.* **2012**, *37*, 1–62.
68. Kreft, I.G. Are Multilevel Techniques Necessary? An Overview, Including Simulation Studies. Unpublished manuscript, California State University, Los Angeles 1996. Available online: <https://www.semanticscholar.org/paper/Are-multilevel-techniques-necessary%3A-An-overview%2C-Kreft-Kreft/7187167f53c10eb74d363dac73d671414fed8683> (accessed on 30 August 2005).