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RESEARCH ARTICLE

The Role of Environmental Costs on the Relationship Between Good Corporate Governance and Firm Value During COVID-19 Conditions

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Abstract: The objective of this study is to investigate the impact of corporate governance on the valuation during COVID-19 conditions and the role of environmental expenditures on the relationship. This study employed purposive sampling to select publicly traded companies from the LQ45 index list spanning the years 2018 to 2022. The data were examined by panel data modeling with the weighted least square technique. The evaluation of good corporate governance is conducted through the utilization of a score derived from the corporate governance perception index, whereas the assessment of business value is accomplished by employing the Tobin's *Q* ratio. The moderating variable of environmental costs is assessed by considering the costs associated with corporate social responsibility programs. The results indicated that good corporate governance exerts a negative influence on the value of firms during COVID-19 conditions. The present study did not achieve success in establishing the moderating effect of environmental costs on the association between good corporate governance and firm value. The present study provides several implications for corporate governance practitioners in managing companies during crisis and also investors in formulating future investment decisions.

Keywords: good corporate governance, firm value, environmental cost

1. Introduction

The objective of this study is to investigate the impact of corporate governance on the valuation during COVID-19 and the moderation impact of environmental cost on the relationship. The theme of this study is related to Sustainable Development Goal number 8 which is to promote sustained, inclusive, and sustainable economic growth by discussing about impact of good corporate governance and environmental cost on the firm valuation. The main goal of a company implementing corporate governance and promoting environmental concern is to achieve sustainable economic growth which resulted in long-term firm value.

The valuation of a company can be assessed by examining its stock price and the extent to which management effectively handles its operating finances [1]. When investors make the decision to invest in a corporation, they assess the profitability of the company based on its valuation. The presence of a high firm value has the potential to generate profitability for investors, thereby enticing them to allocate their cash towards the company [2]. As a result, corporations endeavor to enhance their firm's value in order to attract potential investors and cultivate a favorable public perception. Effective corporate governance (GCG) has the potential to impact the value of a firm. According to Amanti [3], the optimal execution of corporate governance signifies favorable company performance and enhanced value proposition for prospective investors, hence contributing to the rise of firm value. According to Mariani et al. [4], companies that adhere to effective corporate governance practices have the potential to enhance their reputation and augment their overall firm worth. This finding aligns with the research undertaken by Mariani et al. [4] as well as Irawan and Deviesa [5], which posits that enhancing corporate governance practices can lead to an improved corporate image and increased firm value.

The concept of good corporate governance, as defined by the Forum for Corporate Governance in Indonesia [6], pertains to a set of regulations that control the interplay between the rights and obligations of various entities, including investors, management, creditors, government, employees, and stakeholders. The use of Good Corporate Governance is a fundamental principle employed by companies to effectively manage and oversee their operations, with the ultimate objective of enhancing value for both shareholders and stakeholders [7]. The National Committee for Corporate Governance Policy (KNKG) posits that corporate governance encompasses five fundamental concepts, namely openness, accountability, responsibility, independence, and fairness. These principles are important to create a transparent, trusted company and accountable business management performance. Implementation of good corporate governance can improve the quality of financial statements and reduce fraud [8].

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It is known that the concept of Corporate Governance is still not well applied by several companies in the world. The Coordinating Ministry for Economic Affairs stated that until 2021 [9], Good Corporate Governance is still one of the weaknesses for most companies in Indonesia. One of the clear pieces of evidence of the consequences of poorly implemented Corporate Governance is the economic crisis in the late 90s. In addition, the weakness of Corporate Governance is shown by the ASEAN Corporate Governance Scorecard (ACGS) assessment released by the Organization for Economic Cooperation and Development. Over the years, the Otoritas Jasa Keuangan, which is Indonesia's Domestic Ranking Body, has conducted an ACGS assessment of the 100 issuers with the largest market capitalization in each ASEAN country. Through this research, it was found that, in 2018, Indonesia increased by 0.3 percent from 70.59 in 2017 to 70.8 in 2019. However, this growth did not experience a significant increase unlike other countries.

The case of the Aneka Tambang (ANTM) company listed on the LQ45 index serves as an illustrative instance of inadequate corporate governance. In the realm of investment decision-making, the LQ45 index holds significant importance since it encompasses a collection of 45 companies characterized by their substantial market capitalization [10]. However, starting in 2018, ANTM experienced a corruption case along with Budi Said. This incident occurred between ANTAM Company and Budi Said, who carried out a fake gold buying and selling transaction by setting the selling price below the initial price on the grounds of a discount. Therefore, Budi Said and 4 employees of ANTAM Company were named as suspects in a corruption case. Corruption cases arise from the breach of a fundamental value of corporate governance, namely openness. Transparency refers to the act of being open and disclosing important information about the company's decision-making process [11]. Insufficient transparency signifies inadequate corporate governance and is anticipated to impact the value of the company.

A Company's environmental concern can be reflected in the costs incurred by the company to realize its responsibility for the environment. Sulistiawati and Dirgantari [12] said that some modern industries are fully aware that in addition to efforts to achieve profits, management realizes the importance of environmental and social issues. Companies that are concerned about the environment are likely to make transparent and comprehensive environmental disclosures regarding the environmental impacts caused by the company's activities and including efforts to overcome these impacts. Environmental disclosure is a form of corporate responsibility expressed through information about its environmental activities [13]. Firm value can be influenced by environmental disclosure. According to Saputra and Bernawati [14], companies that make good environmental disclosures will attract investors and can increase firm value. Besides firm value, environmental disclosure is also closely related to good corporate governance. Good corporate governance itself acts as supervision by stakeholders on management so that companies are able to increase transparency, accountability, and corporate responsibility for the environment [15].

This research aims to serve as a benchmark for future studies examining the impact of environmental concerns on the correlation between effective corporate governance and firm value. Furthermore, this study aims to enhance agency theory by examining investor assessments of environmentally oriented corporate governance procedures that have the potential to impact firm value. Moreover, this study is expected to provide a basis for investors in making investment choices by using data on the influence of environmental considerations on the relationship between efficient corporate governance and shareholder value.

2. Literature Review

2.1. Theoretical framework

The concept of agency theory states that actions taken by management (agent) in a transaction affect the assessment of investors (principal), but the principal cannot monitor these actions [16]. In accordance with the concept of agency theory, management is called agents because they act on behalf of investors in carrying out investor interests, such as monitoring capital growth, providing clear and accurate information, and paying attention to consistent returns. Meanwhile, investors are called principals because they give management the task and power to carry out the interests of investors that have been mentioned. The condition of the company is only known by management so that investors must have a strong trust relationship with management. Thus management is tasked with reporting all accounting information regarding the development of the company to investors [17]. This theory is also related to good corporate governance, which is a set of rules regarding the company's responsibility to investors. Effective implementation of good corporate governance will help minimize conflicts of interest, increase investor confidence, and improve company performance, which can affect company valuation. Environmental disclosure is one of the corporate governance and efforts made by management to increase investor confidence so that investors are interested in investing.

2.2. Firm value

Firm value is the investor's view of how successful management is in managing the company [18]. Investors' views are a very important issue because in investing their capital, investors see a good performance from the company so that it is expected to produce good opportunities as well [19]. One of the investor assessments is through the company's stock price. A high stock price indicates investor confidence in the company's current performance and future growth [20]. Firm value is closely related to company growth and stability, so it is often associated with stock prices.

2.3. Good corporate governance

Effective corporate governance encompasses the adoption of efficient management strategies inside an organization with the aim of promoting accountability and attaining increased firm value. The aforementioned process involves the careful consideration of the interests of all relevant stakeholders, while adhering to the legal, regulatory, and ethical principles established by the organization [21]. Nur'ainy et al. [22] assert that the primary aim of effective corporate governance is to thwart the misappropriation of resources and foster sustained company expansion through the establishment of a system of oversight and accountability. Therefore, good corporate governance based on agency theory is expected to be used to provide investors with confidence in the return that will be obtained from the funds they invest. Good Corporate Governance has five main principles which can be defined as follows [23]:

1) Transparency refers to the degree of openness exhibited by a corporation in its decision-making process and the presentation of pertinent company information and materials.

2) Accountability refers to the effectiveness of a company's functions, implementation, and management. These elements must be organized systematically, quantifiable, and aligned with the concerns of stakeholders in order to ensure efficient operation of firm management.
3) Responsibility refers to the adherence of corporation management to relevant laws, regulations, and ethical corporate standards.
4) Independence refers to a state in which a firm is operated in a professional manner, free from any external influence or coercion that goes against the laws and regulations of the company. Ensuring independence is of utmost significance for the organization, as it prevents any individual from exerting dominance over others and safeguards against external interference.
5) Fairness refers to the principle of justice and equity in upholding the rights of stakeholders, as dictated by agreements, rules, and regulations. It is essential for ensuring the fulfillment of stakeholders' rights.

Companies that have implemented the five main principles of good corporate governance that have been mentioned tend to have positive impacts. One of them is by implementing good regulations, and it is expected to prevent any form of dishonesty or fraud in financial reporting that will be seen by investors. Therefore, companies can build strong trust with their investors, improve their reputation in the eyes of investors, and strengthen their position in the market. Companies with high-quality good corporate governance have an incentive to communicate to stakeholders, namely investors, about the company's superior potential [24].

2.4. Environmental cost

Environmental costs refer to the expenses that companies bear in order to mitigate the adverse environmental impacts resulting from their operations and to prevent the deterioration of environmental conditions [25]. The company's environmental costs can be viewed as a strategic benefit, as they reflect a commitment to corporate responsibility and proactive measures taken to address the adverse consequences associated with their actions. The company's commitment to environmental sustainability has the potential to bolster its reputation and is anticipated to be taken into account by investors when making decisions that are advantageous to the company [26]. The extensive corporate social responsibility (CSR) initiatives undertaken by the corporation are indicative of the significant environmental expenses incurred. The rationale behind engaging in CSR initiatives lies in their potential to mitigate the occurrence of environmental consequences.

2.5. Hypothesis development

Studies investigating the impact of Good Corporate Governance on Firm Value have been conducted; however, the findings of these studies have been inconclusive. Permatasari and Musmini [27] conducted research that demonstrates a direct correlation between effective corporate governance and increased firm value. These findings suggest that when corporate governance is at its best, it creates a favorable perception and boosts investor trust in transparency. This, in turn, attracts investors and has a favorable impact on the overall value of the company. Research conducted by Hapsari [28] states a negative relationship between good corporate governance and firm value, which means that when the implementation of corporate governance practices is not in accordance with existing principles, it will trigger conflicts between investors and management, which will have an impact on firm value growth. Rustendi [29] shows that external shareholders do not see good corporate governance information as a consideration for making investment decisions due to asymmetric information that is less useful. One of them is the demands of legislation on companies to implement good corporate governance. Based on some of these research results, it can be suspected that it is influenced by other factors such as the issue of environmental concern. Companies that pay more attention to the environment can improve investors' perceptions or views of the company so that firm value will increase in line with the good environmental management activities [30].

A high Good Corporate Governance score signifies superior execution of corporate governance inside the organization. Based on agency theory, the adoption of effective corporate governance practices, such as enhancing transparency, accountability, oversight, and trust, can impact the interaction between management and investors, ultimately leading to long-term growth in firm value. Furthermore, organizations that exhibit strong corporate governance demonstrate an effective management framework, hence enhancing investor evaluations. The reason for this is that investors have confidence in the equitable treatment of all investors, which encourages them to invest their capital without hesitation in order to obtain a justifiable return [31]. The empirical investigations conducted by Permatasari and Musmini [27], Al-Khouri [32], Gwenda [33], Bastomi [34], and Manurung [35] offer substantiation for the notion that the implementation of efficient corporate governance practices yields advantageous outcomes in terms of enhancing business value. Therefore, a high corporate governance score indicates that the company has successfully implemented corporate governance standards, potentially resulting in an augmentation of the firm's shareholder value. It can be inferred that a positive correlation exists between a higher score in strong corporate governance and a rise in business value, so the hypothesis is formulated:

H1. *Good Corporate Governance has a positive effect on firm value during* COVID-*19 conditions*.

The incorporation of environmental costs into governance systems represents a manifestation of business commitment and accountability towards the environment. The evaluation of investor decision-making on investment in a firm encompasses multiple dimensions, including the company's environmental considerations. Disclosure refers to the financial expenses associated with mitigating environmental harm. If corporations aim to enhance their overall firm value, it is imperative for management to prioritize social and environmental concerns. This assertion is substantiated by a study conducted by Putri and Wahidahwati [36], which demonstrates a positive correlation between business value and the level of environmental cost expenditure, and the extent of environmental information provided in the annual report. This finding aligns with the research undertaken by Renaldi and Anis [37], which posits that there is a positive relationship between environmental expenses and performance of a corporation, and its firm value. Hence, the impact of effective corporate governance results in a more pronounced enhancement of firm value for enterprises with elevated environmental costs, as compared to those with lower environmental costs, so that the second hypothesis can be concluded:

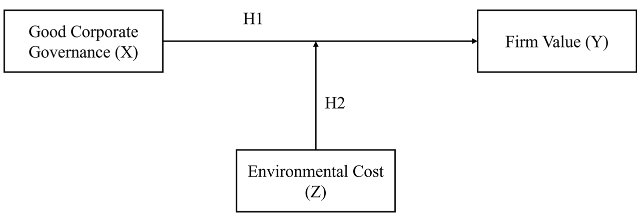
H2. *Environmental costs strengthen the relationship between good corporate governance and firm value during* COVID-*19 conditions*.

3. Research Methodology

3.1. Research design

This research employs quantitative methodology, utilizing panel data to gather information pertaining to the variables under investigation. The data is obtained from the respective annual reports of companies listed on the official website of the Indonesia Stock Exchange (IDX), specifically www.idx.co.id. The primary objective of this study is to assess the appropriateness of the panel data regression model in order to get the outcomes of the fixed effect model. In addition, heteroscedasticity test was also conducted, and heteroscedasticity results were obtained. From these two tests, the weighted least square method was used to overcome the heteroscedasticity problem. Figure 1 illustrates the theoretical background for this study.

Figure 1
Theoretical framework



3.2. Participants

The sample for this study comprises companies that are publicly listed on the IDX and the LQ45 index over the time frame spanning from 2018 to 2022. A sample of 56 firms was acquired for this study through purposive sampling, employing three criteria: inclusion in the LQ45 index for the period of 2018–2022, possession of annual reports for the same time, and engagement in CSR initiatives. The selected sample consists of companies that were included in the LQ45 index during the research period spanning from 2018 to 2022. Furthermore, it is imperative for companies to release their annual reports within the designated research period. The absence of annual reports from two companies can be attributed to their non-listing status during the study year. In order to mitigate the influence of moderating variables, it is imperative for the corporation to engage in CSR initiatives throughout the research year. During the research year, it is imperative for the company to undertake a comprehensive evaluation of corporate governance, utilizing the corporate governance perception index (CGPI), in order to appropriately calculate the independent variable.

3.2.1. Instruments

Firm value in this study can be quantified by employing the *q* ratio or Tobin's *Q*, which involves dividing the market value of the company's equity and liabilities by the cost of its assets. A Tobin's *Q* rating of 1 indicates that the market is valuing the company accurately. The market value of equity can be determined by multiplying the total number of outstanding shares by the current stock price.

$$Tobin's\ Q = \frac{MVE + TL}{TA} \tag{1}$$

Description:
MVE = Market Value of Equity
TL = Total Liabilities
TA = Total Assets

Good Corporate Governance is measured using the GCG Score with the CGPI. CGPI is a ranking and research on the implementation of GCG in public companies and BUMN based on surveys and scores [38]. CGPI assessment is divided into 3 categories, which are very reliable for companies with scores of 85.01 to 100, reliable for companies with scores of 70.01 to 85.00, and quite reliable for companies with scores of 55.01 to 70.00. CGPI is obtained through the company's annual report or using the following formula.

$$CGI\ = A + \frac{(B + C)}{2} + D + E \tag{2}$$

Description:
A = Shareholder Rights
B = Boards of Directors
C = Outside Directors
D = Audit Committee and Internal Auditor
E = Disclosure to Investors

Each subindex above has criteria and each criteria will be given 1 point if fulfilled, 0 points if not fulfilled.

Environmental costs are measured using the total costs incurred by the company in CSR activities divided by total net profit after tax [39]. Therefore, environmental costs are formulated as follows.

$$Environmental\ Cost = \frac{CSR}{NI} \tag{3}$$

Keterangan:
CSR = Total Cost of Corporate Social Responsibility Activities
NI = Net Income

4. Result and Analysis

Based on the descriptive statistics shown in Table 1, the firm value variable which has been measured using the *q* or tobins'*q* formula, the average is 2.10. These results mean that there is 2.1% of the company's market value of all assets, which means that the company has good growth prospects. Good corporate governance calculated based on the corporate governance index gets an average of 73.9. Through these results, it means that the company is considered reliable in carrying out the company's operational activities. Environmental costs with the symbol EC which are calculated through CSR activities get an average of 0.09. The average indicates that the company spends 9% of csr costs from their net income. Size which is calculated based on total assets gets an average of 31.36 which is equivalent to 41.6 trillion Rupiah. The average return on assets or ROA is 7% of net income from all assets. The average research year distance since the company IPO or went public is 18.3 years ago.

Based on the results of the correlation test between variables as seen in Table 2, correlation coefficient below 0.5 signifies a poor statistical relationship between variables, whereas a coefficient

Table 1
Descriptive statistics

Var	Mean	S.D.	Min	Max
FV	2.10	2.17	0.46	18.20
GCG	73.90	14.00	44.70	99.00
EC	0.09	0.26	−0.0003	2.46
Size	31.36	1.31	28.80	35.10
ROA	0.07	0.10	−0.87	0.45
Age	18.30	9.73	0.00	40.0

Table 2
Correlation variables

	FV	GCG	BL	Size	ROA
FV	1.00	−0.19	−0.11	−0.31	0.53
GCG		1.00	0.01	0.35	−0.21
EC			1.00	−0.09	−0.14
Size				1.00	−0.25
ROA					1.00

beyond 0.5 suggests a high correlation between variables. From the analysis conducted, it was found that the correlation between *GCG* and *FV* obtained a value of −0.1885 which showed a weak and negative correlation so that if the *FV* variable increased, *GCG* decreased. The correlation between *EC* and *FV* obtained a value of −0.1068 which shows a weak and negative correlation so that if the *FV* variable increases, *EC* decreases. The correlation between *ROA* and *FV* obtained a value of 0.5277 which shows a strong and positive correlation so that if the *FV* variable increases, *ROA* will also increase.

The findings of the hypothesis test, as presented in Table 3, indicate a statistically significant negative relationship between good corporate governance and business value. This finding demonstrates that the implementation of enhanced corporate governance practices is associated with a decline in firm value. The findings of this study refute the hypothesis H1, which posits that effective corporate governance positively impacts firm value. Based on empirical evidence, the observed adverse impact can be attributed to the COVID-19 pandemic spanning the years 2020 to 2021. The COVID-19 pandemic has had a considerable impact on the world, especially Indonesia, such as the limitation of people to work, the worsening economic conditions of the country, and the drop in stock prices which has made investors sell shares on a large scale, thus affecting stock prices in Indonesia. Through the CNN Indonesia [40] page, the Jakarta Composite Index at the time of COVID-19 dropped dramatically to the level of 3,937

Table 3
Weighted least square

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
const	7.32	1.01	7.26	<0.0001***
GCG	−0.004	0.002	−2.02	0.0443**
ECxGCG	−0.001	0.002	−0.78	0.4354
Size	−0.18	0.03	−5.72	<0.0001***
ROA	8.97	0.74	12.19	<0.0001***
Age	−0.002	0.004	−0.51	0.6071

Table 4
Mean firm value

Var	2018	2019	2020	2021	2022
FV	2.32	2.29	2.07	1.96	1.92

compared to the beginning of 2020 at the level of 6,300. The impact of these problems makes the firm's value drop even though the company runs corporate governance well. The decrease in firm value can be seen in Table 4. The company has tried to improve corporate governance in the hope that firm value will increase. But in reality, the COVID-19 pandemic is an external factor that inhibits firm value growth. This is in line with research conducted by Choi et al. [41] that COVID-19 has a negative effect on firm value growth.

According to the findings of the hypothesis testing presented in Table 3, it is evident that the correlation between environmental expenses and excellent corporate governance does not impact the value of the organization. This outcome refutes hypothesis H2, which posits that environmental costs enhance the correlation between excellent corporate governance and firm value. Investors frequently overlook the environmental cost when making investing decisions. This variation can arise due to the diverse tactics employed by investors while making investment decisions. Investors typically steer clear of investments that carry a significant amount of risk [42]. This attracts investors that favor medium-term investments with reduced risk and higher returns. However, the environmental costs mostly prioritize long-term advantages, which do not align with their investment strategy in the medium term.

The result of this study has similar tone with previous findings related to environmental cost and corporate governance in COVID-19 conditions. Tanjung's [43] study shows that companies with high ESG performance did not benefit well during COVID-19 conditions. Other research also found that COVID-19 weakens the influence of several dimensions in good corporate governance towards firm value [44]. However, other studies conducted in developed countries using US samples show different results which companies with good corporate governance outperformed companies with poor corporate governance during COVID-19 [45]. Thus, COVID-19 condition could present different results on the relationship between corporate governance, environmental cost, and firm value. Furthermore, the level of a country's development also provides different result.

5. Conclusion

Based on the empirical evidence and comprehensive analysis pertaining to the effects of proficient corporate governance on the valuation of firms, while considering environmental costs as a moderating variable, it can be deduced that sound corporate governance exerts a negative impact on firm value. The hindrance of company value growth can be attributed to the impact of COVID-19, which acts as an external factor. Furthermore, the impact of excellent corporate governance on business value is not mitigated by environmental costs. This discrepancy arises from variations in investment decision-making strategies. Investors typically engage in medium-term investments, but the allocation of funds towards environmental costs is mostly directed towards long-term advantages.

Recommendations

Previous studies show different results in different countries. In developing countries, COVID-19 conditions provide disadvantages both for good corporate governance and high environmental concern companies. Therefore, it is recommended that corporations adhere to existing standards and apply corporate governance practices with long-term perspective in order to potentially enhance firm value in the future. For investors, corporate governance should be considered as an important variable when making long-term investment decisions beyond crisis conditions. Additionally, investors should feature higher risk appetite when considering investment in companies with high environmental concerns. Future researchers can pursue this subject once the COVID-19 pandemic subsides, as it now hinders the accuracy of research findings. Furthermore, researchers have the ability to analyze additional moderating variables that may influence the correlation between effective corporate governance and the value of a corporation.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Author Contribution Statement

Yulius Jogi Christiawan: Conceptualization, Methodology, Software, Validation, Formal analysis, Writing – review & editing, Supervision. **Jennifer Budiman:** Investigation, Resources, Writing – review & editing. **Natasya Angie Alfonso:** Data curation, Writing – original draft, Writing – review & editing. **Hendri Kwistianus:** Writing – review & editing, Visualization, Project administration.

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