Research Article

The Mediating Role of Investment Decisions in the Influence of Sustainability Reports and ERM on the Firm Value

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Abstract.
In the era of sustainability, there has been a shift in indicators for assessing company performance. Stakeholders are not only concerned with financial performance but pay great attention to non-financial performance in the form of sustainability performance and risk management. This study was conducted to find empirical evidence of whether investment decisions mediate the effect of the quality of sustainability reporting and ERM on company prices. We use a sample of 648 firm years of public companies listed on the Indonesia Stock Exchange. In general, the level of conformity of sustainability reports for public companies in Indonesia reaches 61.2% of the Global Reporting Initiative standard. By using multiple regression path analysis the results were obtained: first, sustainability reports and ERM have a direct positive effect on company value. Second, ERM has a direct positive effect on investment decisions but sustainability reports are not significant. Third, investment decisions mediate the impact of ERM on firm value. The implications of this study are important for company management to build quality sustainability reporting and effective ERM to maximize firm value.

Keywords: sustainability report, ERM, investment decision, company value

1. Introduction

In the era of sustainability, there has been a shift in the assessment of public companies. Stakeholders assess the performance of public companies no longer solely based on financial performance, but give more value to how the company is able to maintain environmental and social balance. Based on a study conducted by Ernst & Young in collaboration with the Boston College Center for Corporate Citizenship, it was found that before 2000 the value of an organization was determined by 83% financial aspects and 17% non-financial aspects, however data in 2009 showed that the value of a business organization was only determined by 19% financial aspects and 81% non-financial aspects [1].

The issue of sustainability has become an interesting research topic in Indonesia after the publication of Financial Services Authority (OJK) regulation number 51/POJK.03/2017 which requires public companies to present sustainability reports as part of their communication and accountability requirements [2]. This regulation aims to increase the commitment of business actors in implementing sustainable governance and developing sustainable financial products that support the Indonesian government's commitment to sustainability. economic growth, low carbon development, and the 2030 Sustainable Development Goals (SDGs) agenda.

Why is a sustainability report important for a company? According to the Global Reporting Initiatives (GRI), a company's compliance with sustainability reports will have benefits including: improving sustainability performance, improving relationships between the company and stakeholders, building credibility as a committed and effective corporate citizen, and improving sustainability strategies and selection of performance indicators and targets [3]. GRI is an international organization that focuses on achieving transparency regarding the disclosure of sustainability reporting standards and guidelines. The sustainability reporting framework established by GRI has been adopted by multinational organizations, governments, small and medium enterprises (SMEs), NGOs and industry groups around the world.

Because publishing sustainability reports has become mandatory for public companies in Indonesia and the benefits of sustainability reports in improving sustainability performance, the research question arises: is the quality of sustainability reports able to increase company value?. Sreepriya [4], states that companies that can survive in the future are companies that are able to create value through good financial performance, are able to fulfill environmental and social performance and play a role in solving environmental and social problems that occur. According to Yan [5], value creation is the ultimate goal of a company which will lead to the maximization of shareholder wealth.

Previous research regarding the influence of sustainability reports on company value, cases in Indonesia are still limited and the results are not yet conclusive. Several studies have found that sustainability reports have a positive effect on company value [6,7]. Other research finds that sustainability reports do not have a significant effect on company performance [8,9]. The inconclusive results, especially from research in Indonesia, may be due to the research being conducted when sustainability reports were still voluntary, so there was a diversity of formats and differences in the complexity of sustainability reports submitted by companies. Apart from that, previous studies only focused on sectors that have an impact on causing environmental damage or disruption, such as: the mining, plantation, agricultural and manufacturing sectors. Based on this background, the first aim of this research is to examine the influence of the quality of sustainability reports on company value. In contrast to previous research, this research was conducted when sustainability reports were mandatory.

Apart from sustainability issues, this research also raises issues related to the Enterprise Risk Management (ERM). The issue of ERM began to attract attention since the financial reporting fraud scandal was revealed by Enron and WorldCom involving Public Accountant Athur Anderson, who is the number one public accountant in the world, until the global financial crisis emerged in 2008. Until now, problems related to the implementation of risk management are still massive along with the many bankruptcy cases of large companies in China such as the Evergrande Group, Silicon Valley Bank, Jeep, it is feared that these cases could potentially lead to a global financial crisis [10].

Company management's concern for ERM in Indonesia is still relatively low. This is proven by the many failures of large companies such as the case of PT. Jiwasraya Insurance experienced a payment default in 2019, the liquidation of SNP Finance's business activities in mid-2018, the bankruptcy of PT Nyonya Meneer in 2017 and others. This phenomenon shows that company mismanagement has occurred due to ignoring risks. In a literature review of ERM research Fujita [11], states that every company activity at any level contains risks that have an impact on company performance, therefore it is important for companies to implement ERM to protect company value.

How does ERM affect company value?" To answer this question, empirical evidence is needed. Previous ERM research focused more on examining the relationship between ERM and financial performance [12,13]. Research conducted by Berry-Stölzle [14], found that ERM was negatively related to the cost of capital. The limited research on ERM on company value is a research opportunity, therefore the second research objective is to examine the effect of ERM on company value. This research is needed to prove that the goal of ERM is to protect company value [15].

This research also carries out further development of existing research by proving whether investment decisions play a mediating role in the influence of sustainability reports and ERM on company value. Investment decisions are how company management chooses to utilize the resources it has to create the company's competitive advantage [16]. The advantage of implementing effective risk management is being able to require management to choose accurate investment decisions based on inherent risks. Bailey [13], states that maturity in the implementation of risk management will direct management to act carefully in managing resources.

The accuracy of the investment decisions chosen by company management will determine the volatility of investment results which will lead to the creation of company value. Therefore, the third objective is to find empirical evidence whether investment decisions mediate the impact of the quality of sustainability reports and ERM on company value. Farrell [17], states that effective ERM and quality reporting will encourage the company's competitive advantage and create value for stakeholders. This argument supports the findings of Hoyt [18], that if a company implements effective ERM, it will be able to identify potential risks so as to produce the most profitable investment decisions.

This research was conducted on public companies in the non-regulated industry category in Indonesia. It is hoped that the results of this research can contribute to developing existing literature regarding sustainability and ERM issues in public companies which are linked to investment decisions. The findings of this research can provide practical insights that can be taken into consideration by regulators in determining the obligation to present sustainability reports and implement ERM for public companies. Another contribution is providing input to company management and stakeholders to make decisions regarding company assessment.

2. Literature Review and Hypotheses Development

Sustainability reporting is the practice of measuring, disclosing and being accountable to internal and external stakeholders regarding an organization's performance in achieving the Sustainable Development Goals (SDGs). Organizational performance presented in sustainability reports includes economic performance (profit), social performance (people), and environmental performance (planet), therefore sustainability reports are often called the triple bottom line. Two major theories that form the basis for the importance of public companies submitting sustainability reports are shareholder theory and legitimacy theory [19].

Based on stakeholder theory, Hörisch [19], states that companies as business organizations have responsibilities towards all stakeholders, not only investors or owners. Meanwhile, legitimacy theory emphasizes that companies try to ensure that their operations do not conflict with the ethics that apply in society and obtain legitimate recognition from society. One strategy to maintain relationships with stakeholders and gain legitimacy from the community is to submit sustainability reports.

Research related to sustainability reporting in Indonesia is still limited. Several studies regarding sustainability reports in Indonesia are descriptive qualitative in nature. Existing research focuses on measuring the conformity of sustainability reporting with adopted standards. Research conducted by Teguh and Rudyanto [20,21], found that the information disclosed in the sustainability report was in accordance with GRI standards. Another research conducted by Adhariani [22], tested the ease of understanding of sustainability reporting in Indonesia and found that the readability level was still at a low level.

At the global level, many studies have been conducted examining the influence of sustainability reports on company value and the results are consistent that quality sustainability reports can increase company value. Research conducted by Sreepriya [4], using a sample of manufacturing sector companies in India found that sustainability reports had a significant positive effect on company value. Similar results were also found in China [23], in Singapore [24], and in Turkey [25]. Similar research conducted in Indonesia is still limited and has not obtained conclusive results because some studies have been able to prove that sustainability reports have a positive effect on company value [6,7]. Some other research in Indonesia conducted by Habibi and Mendra [8,9], could not prove the influence of sustainability reports on company value.

Based on the perspective of stakeholder theory and legitimacy theory, companies can convey information transparently to all stakeholders regarding economic, social and environmental performance related to company operations by publishing sustainability reports. With this report, the company will obtain a direct assessment from stakeholders and legitimacy from the community, thus encouraging the company to build sustainable performance. Referring to shareholder theory and legitimacy theory as well as existing research results, the first hypothesis is H1: the quality of sustainability reports has an impact on increasing company value.

Risk cannot be avoided by an organization or individual. Shiho [11], states that every business activity at any level in a company poses a risk, therefore it is important for companies to implement ERM to build and protect company value. According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), ERM is a process that involves management, directors and other parties to determine overall organizational strategy, built to identify events that have the potential to cause organizational losses and manage them [26].

The level of risk is a consideration for investors when assessing a company. The absence of information regarding risk management carried out by the company will mislead investors in making investment decisions. Resources base theory put forward by Penrose (1959) as quoted by Gordon [15], states that resource capabilities in risk management can make a positive contribution to increasing firm value. Companies will use the best resources in the form of ERM implementation to create and protect company value [13].

Previous research on the impact of risk management on company value conducted in developed countries obtained conclusive results. Baxter [27], using a sample of the banking and insurance industry in the US obtained results that ERM was positively related to firm value, using other sectors as a sample Bohnert [28], obtained similar results. Research outside the US also obtained similar results, such as in Europe by Hoyt [18], in China by Chen [29] and in Brazil by Silva [30]. In contrast to developed countries, research related to ERM and company value in Indonesia is still very limited, this could be because ERM is not yet an obligation for public companies. Regulations in Indonesia for companies that are required to submit risk management reports are limited to the financial and banking industry as well as state-owned companies.

The results of a literature search found a research result conducted by Faisal [16], using a sample of manufacturing companies, it was found that ERM had an impact on increasing company value. Based on the resource base theory perspective and the results of previous research, this research proposes the second hypothesis, H2: ERM has an effect on increasing company value.

Investment decisions cannot be directly observed by outside parties. Faisal [16], uses the concept of Investment Opportunities Set (IOS) as a measure of investment decisions. IOS is a value determined based on the amount of expenditure determined by management in the future, and the investments made are investment choices that are expected to produce high returns. Based on the signaling theory perspective, investment expenditure gives a positive signal that the company will grow, thereby increasing share prices which reflect an increase in company value.

The level of risk will influence investment decisions, because the higher the risk the lower the level of return obtained [16]. Referring to resource base theory, it can be concluded that the quality of the resources owned by a company is a crucial factor in making investment decisions. The higher the quality of the resources a company has, the better it will be in carrying out its business processes, including risk management. The existence of risk will encourage managers to be more careful in making investment decisions. Research conducted by Jankensgård [31], proves that the more effective ERM is, the higher the accuracy of the investment decisions made. Accurate investment decisions will create a competitive advantage for the company. It can be concluded that it is possible that effective ERM implementation can increase company value mediated by investment decisions.

Sustainability performance information will be an important consideration for investors. Kuzey [25], stated that sustainability reports have become relevant information for investors to be able to measure company value rationally. A study conducted by Ernst [1], found a shift in indicators for society's assessment of companies, which no longer relies on financial performance alone but shifts to the greater importance of non-financial performance. This phenomenon will encourage management to carry out investment decisions that favor sustainable performance.

Referring to resource base theory, this research proposes a third hypothesis, H3: Investment decisions mediate the impact of the quality of sustainability reports and ERM on increasing company value.

3. Research Methodology

This research was conducted on public companies listed on the Indonesian Stock Exchange (known as BEI) and the year of analysis was 2019 – 2022. This research period is the period when sustainability reporting has become mandatory for public companies in Indonesia. Financial report data is obtained from IDX data. Sustainability reports and ERM data are obtained by downloading from the company website. Based on all issuers registered on the IDX, we determined the following selection criteria: 1) Non-regulated industry, 2) have the required financial data, 3) have ERM data available in the annual report, 4) have the required sustainability report. The final sample of 162 companies represents 20.2% of all observations.

This research uses a multiple regression path analysis model with the following steps:

Testing the direct influence of sustainability reports and ERM on company value using model (1), and testing the direct influence of sustainability reports and ERM on investment decisions using model (2)

Firm Value = a0 + a1(Sustainability) + a2(ERM) + a3(Size) + e (1)

Investment Decision = b0 + b1(Sustainability) + b2(ERM) + b3(Size) + e (2)

Testing the mediating role of investment decisions on the impact of the sustainability reporting quality and ERM in increasing firm value using the following multivariate regression model:

Investment Decision = a0 + p3(Sustainability) + e (3)

Investment Decision = a0 + p4(ERM) + e (4)

Firm Value = a0 + p1(Sustainability) + p2(ERM) + p5(InvestmentDecision) + e (5)

Definition of operational variables:

Firm value = Company value is measured using the share market price to book value (PBV) ratio. Investment Decision = Investment decisions made by management are measured using the ratio of Capital Expenditures to Net Plant Property and Equipment. Sustainability = The sustainability reporting quality is measured using the disclosure score referring to the Global Reporting Initiative (GRI) which is obtained by content analysis (check list) of the number of components disclosed in the sustainability report. ERM = measured using scoring indicators disclosed in the ERM report obtained from content analysis (check list). Size = is the size of the company referring to the natural logarithm value of the company's total assets. p = Path analysis coefficient of each variable against the others

To reduce the influence of outlier observations we performed data winzorization. The data for each variable excluding dummy variables is sorted. The data distribution of the top 2% and bottom 2% is replaced to the closest value.

4. Results and Discussion

The research results that will be discussed in this research include: the results of descriptive analysis and the results of hypothesis testing. Descriptive statistical analysis of the variables used in this research is presented in table 1 below:

From a total of 648 firm years of observations. It was found that the highest firm value was 86,106 which shows that the highest market price was 86,106 multiples of the book value. The average value of the firm value variable is 8.003, indicating that the sample average has a market price that is 8 times its book value. The Investment Decision variable obtained the mean value of 0.204, indicating that on average the sample made capital expenditure of 20.4% of Net Plant Property and Equipment. The

Table 1: Descriptive statistical analysis.

Variable name	Max.value	Min. value	Mean value	St.dev
Firm Value	86.106	0.098	8.003	13.061
Investment Decision	0.884	0.000	0.204	0.235
Sustainability	1.000	0.000	0.612	0.203
ERM	1.000	0.000	0.790	0.315
Size	31.319	12.721	20.560	5.097
N = number of observations		648 firm year		

quality of sustainability reports is measured by the disclosure score referring to GRI, where the mean value is 0.612, it can be said that the level of suitability of sustainability reports reaches 61.2% of the GRI standard. For the ERM variable, the sample mean value was found to be 0.790, indicating that the sample company had disclosed 79% of the 8 risk items that are ERM standards. The company size variable is only used as a control variable, measured using the natural logarithm of total assets and it is found that the average is 20.560 with a standard deviation value of 5.097, indicating that there is no very large gap in company size.

Multivariate regression models (1) and model (2) which have been explained in the research methodology subsection are used to test the direct relationship between independent variables and the dependent variable. Model (1) is to test the effect of sustainability reports and ERM on company value. Model (2) is to test the effect of sustainability reports and ERM on company value. The test results of the two models are summarized in table 2 below.

Table 2: Test results of model (1) and model (2).

Independent Variables	prediction	Firm Value as dependent variable (model 1)		Investment Decision as dependent variable (model 2)	
		t-value	sign	t-value	sign
Constant		1.985	0.095	3.121	0.002
Sustainability	+	2.418	0.000	0.485	0.628
ERM	+	3.632	0.000	4.059	0.000
Size	+	-0.136	0.892	0.644	0.521
Number of observations = 648		Adj R^2 = 0.144		Adj R^2 = 0.128	

As shown in table 2 above, it shows that the results of proving the direct influence of the quality of sustainability reports on firm value are in line with predictions. The t-test value is positive with a significance level of 1%. it can be interpreted that the sustainability report has the impact of increasing company value. In this research, the variable quality of sustainability reporting presented by companies is measured by the level of conformity of the report format to GRI standards. Based on this conformity, it can be interpreted that the higher the conformity with GRI standards, the higher the quality of sustainability reporting and this will have an impact on increasing company value. These findings support shareholder theory as well as legitimacy theory. The findings of this study support the results of previous similar studies in various countries conducted by Sreepriya [4], Rongjiang [23], Loh [24] and Kuzey [25].

Model (1) is also used to test the direct influence between ERM and company value. As shown by the t-value and its significance level, it is proven that ERM has a positive influence on company value with a significance level of 1%. The results of this research are able to prove the research hypothesis. The ERM variable is measured using the number of types of risks that are components of risk management. It can be interpreted that the more types of risk managed by the company will have an impact on reducing the possibility of failure, thereby encouraging the creation of company value. The results of this research support the resource base theory perspective and support the results of previous similar research in several developed countries such as those conducted by Hoyt [18], Baxter [27], Bohnert [28], Chen [29], and Silva [30].

Before testing the mediating role of investment decision variables, we must first test the direct influence of the quality of sustainability reporting and ERM partially on investment decisions which are predicted as mediating variables using model 3 and model 4. The significance test on the t-value in model (2) found that only the ERM variable had a positive effect on investment decisions, while the sustainability report variable was not significant.

Table 3: Test results of model (3), model (4), and model (5).

Independent Variables	**prediction**	**Investment Decision as dependent variable (model 3)**		**Investment Decision as dependent variable (model 4)**		**Firm Value as dependent variable (model 5)**	
		t-value	Sign	t-value	sign	t-value	sign
Constant		2.242	0.027	7.053	0.000	0.885	0.378
Sustainability	+	0.681	0.497	-	-	0.408	0.684
ERM	+	-	-	4.107	0.000	2.689	0.062
Investment Decision	+	-	-	-	-	2.317	0.075
N = 648		Adj R^2 = 0.109		Adj R^2 = 0.124			Adj R^2= 0.112

The next stage is to test whether there is a mediating role for the investment decision variable using a multiple regression path analysis model. In this research, the path analysis models used are model (3), model (4) and model (5). Table 3 above summarizes the test results of model (3), model (4), and model (5). Model (3) and model (4) are each used to prove the partial direct influence of each independent variable on the mediating variable.

The results of the partial direct influence test found that only the ERM variable had a partial direct influence on investment decisions. This is indicated by the significance level of the t value for the ERM variable in model (4) of 1%. The results of this research support the findings of previous research by [16] which has proven that companies that are able to make accurate investment decisions are companies that have implemented effective ERM. Meanwhile, the test results on model (3) found that the sustainability report variable was not significant, as indicated by the significance level of the t value of 0.497, exceeding 10%, which is the limit of the allowable significance level.

After testing the direct influence, both simultaneously and partially, the next test is carried out to prove whether investment decisions are a mediating variable on the impact of the quality of sustainability reports and ERM on company price. The results of testing the mediating influence of investment decisions are presented in table 3 in the last 2 columns. Model (5) is used to test the role of mediating variables. The decision criteria are: a), if the independent variables in model (3) and model (4) are significant, then become insignificant in model (5) and only the mediating variable is significant, then the decision is that the mediating variable is perfect mediation. b). If the independent variables in models (3) and (4) are significant, and are still significant in model (5) where the mediating variable is also significant, then the decision is that the mediating variable is partially mediating.

Based on the results of testing model (4), the findings of this study are that only the ERM variable has a significant effect on investment decisions and when using model (5) ERM remains significant when tested simultaneously with the investment decision variable, so it can be concluded that investment decisions partially mediate the impact of implementation Effective ERM in increasing company value. This finding can be interpreted that better risk management will encourage management to make more accurate investment decisions and have an impact on creating company value.

5. Conclusion

This research is able to prove that there is a direct influence on the quality of sustainability reporting and the implementation of ERM on company value. According to predictions, companies that present comprehensive sustainability reporting referring to GRI standards will have an impact on increasing company value. Another finding is that companies that implement effective risk management also have an impact on increasing company value. The results of testing the mediating role of investment decisions found that only ERM had a direct influence on investment decisions, and investment decisions were proven to have a partial mediating role on the influence of ERM in increasing company value.

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