








“Moderating role of enterprise risk management in the relationship between sustainability performance and a firm’s competitive advantage”

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MODERATING ROLE OF ENTERPRISE RISK MANAGEMENT IN THE RELATIONSHIP BETWEEN SUSTAINABILITY PERFORMANCE AND A FIRM'S COMPETITIVE ADVANTAGE

Abstract

The emergence of sustainable business practices has garnered interest among stakeholders. However, the question of whether sustainability performance provides companies with a competitive advantage is still being debated in the literature. This paper aims to examine the influence of sustainability performance – namely economic sustainability performance and environmental, social, governance (ESG) – on competitive advantage, with the effectiveness of enterprise risk management (ERM) as the moderating variable. This paper used 202 firm-year observations during 2015–2022 from non-financial sector companies listed on the Indonesia Stock Exchange. To test the hypotheses, panel data regression with a one-year time-lag analysis is conducted. The findings show that economic sustainability performance has no relationship with competitive advantage, while ESG has a positive effect. Furthermore, ERM effectiveness strengthens the effect of economic sustainability and ESG on competitive advantage. Further investigation used a two-year time-lag analysis for a long-term perspective. The analysis shows that economic sustainability performance and ESG have a positive impact on competitive advantage. In contrast, ERM effectiveness has no effect on the relationship between economic sustainability performance and competitive advantage. Moreover, additional analysis incorporates the effect of COVID-19 into the main model and shows that the pandemic did not affect competitive advantage; this is consistent with the main results. The findings encourage companies to improve their risk management and sustainability initiatives. The government may also take it into account when developing rules that promote the implementation of sustainable development.

Keywords

sustainability, competitive advantage, enterprise risk management, non-financial sector

JEL Classification

G32, M21, M41, Q56

INTRODUCTION

Dynamic changes in the corporate environment create new challenges for companies in achieving competitive advantage. The existential threat that occurred during the global crisis due to the COVID-19 pandemic made the environment even more uncertain. It gave rise to new forces in the world and increased the urgency of issues of interest to stakeholders. Several pieces of evidence over the last five years indicate the weakening of competitive advantage in Indonesia. The Institute for Management Development reports that Indonesia's competitiveness ranking has declined over the last five years and reached

its worst anking in 20221 (IMD, 2022), meaning that Indonesia failed to surpass Malaysia and Thailand (IMD, 2022). In addition, a report from the Environmental Performance Index reveals that Indonesia's sustainability competitiveness position is worse than economic competitiveness; in 2018, it was ranked 133rd, and in 2022, it dropped to 164th out of 180 countries (Wolf et al., 2022).

The consequence for a country of low competitiveness is that it is detrimental to all industrial sectors. This means that companies have little chance of maintaining sustainable competitive advantage (Porter, 1990). On the other hand, there has been a change in consumer behavior and a preference for sustainable products, as well as increasing investor and creditor interest in non-financial risks – which are predicted to increase in the future – rather than financial risks (IMD, 2022). In Indonesia, the decline in business activity and performance has led many companies to implement income-adjustment policies or lay off employees², thereby causing an increase in social problems (BPS, 2021).

The increasing prominence of sustainability issues motivates this paper to provide evidence regarding the importance of sustainability performance in increasing competitive advantage. Two elements are mentioned in the literature as being equally important for assessing business sustainability (Girón et al., 2021; Ng & Rezaee, 2015, 2020), namely economic and non-economic (ESG) sustainability performance. The relationship between sustainability performance and competitive advantage is also inseparable from the risk factors inherent in each company's activities. When a company identifies and handles risks effectively, it can make efforts to reduce risks and increase positive impacts related to its stakeholders (Elahi, 2013; Florio & Leoni, 2017), and this is an opportunity to gain and maintain a competitive advantage (Anh & Hoa, 2021).

1. LITERATURE REVIEW

Most research discussing competitive advantage focuses on a company's internal factors related to its specific attributes and resources for maintaining a strategy. In its development, the growing accounting literature has begun to internalize sustainability issues as external factors crucial for competitive advantage (Liang et al., 2022; E. Purwanto & A. Purwanto, 2020). In contrast to the traditional resource-based theory, which focuses on company-specific attributes and resources to maintain strategy, the stakeholder theory focuses on threats and opportunities in the creation of performance that is in harmony with stakeholders (Dkhili, 2024; Rabaya & Saleh, 2022). In line with the stakeholder view, the dynamic capabilities approach (Teece et al., 1997; Teece, 2007) emphasizes the company's ability to adapt, integrate, and reconfigure internal and external organizational skills, resources, and functional competencies

appropriately in accordance with the changing environment. The ability of the business to effectively adjust, integrate, and reconfigure organizational skills, resources, and functional competencies – both internal and external – in light of the changing environment is in line with the dynamic capabilities approach (Teece et al., 2009). This, in turn, fosters opportunities and reduces threats, improving sustainability performance (Todorova & Durisin, 2007) and generating a competitive advantage (Liang et al., 2022).

The reason for investigating the link between sustainability performance and competitive advantage is that resources and competitive advantage can be linked through sustainability practices and a company's sustainability performance is the result of its sustainability practices (Porter & Kramer, 2006). Companies with good sustainability performance are considered to have expensive resources and are not easily imitated by competi-

1 The Institute for Management Development reported a decline in Indonesia's competitiveness ranking in terms of economic performance, business efficiency, and government efficiency. Indonesia's economic performance in 2018 ranked 27th, then improved to 25th in 2019 before falling again to 26th in 2020. In 2021, Indonesia's economic performance was ranked 37th and declined again to 44th place in 2022. Other competitiveness indicators, namely business and government efficiency, also exhibited a decline in ranking, namely business efficiency, which was originally in 25th position, fell to 31st, and government efficiency, which was originally 26th, fell to 35th (IMD, 2021, 2022).

2 According to an analysis of the impact of COVID-19, 17.6% of companies laid off employees without pay, 12.83% laid off workers in the short term, and 6.46% laid them off and paid partial wages (BPS, 2021).

tors (Benabou & Tirole, 2010; Spence, 1973) because sustainability practices require companies to incorporate sustainability values into business decisions and activities involving stakeholders. In addition, several studies – especially in developed countries – have found that sustainability performance has a direct impact on operational cost efficiency, higher levels of income (Bacinello et al., 2020; Dey et al., 2020), lower access to capital (Ng & Rezaee, 2015), as well as building public trust and governance legitimacy (Bhandari et al., 2022), thereby increasing the company's competitive advantage.

Previous research showed that economic sustainability performance and ESG are crucial aspects for companies to obtain competitive advantage. However, the growing body of studies tends to ignore economic sustainability performance and focuses on ESG (Chang & Lee, 2022; Jadoon et al., 2021). Girón et al. (2021), Jadoon et al. (2021), and Ng and Rezaee (2015, 2020) concentrated on the quality of economic sustainability information for investor decision-making, failing to take into account the role that stakeholder perspectives have in economic sustainability performance. On the other hand, empirical studies investigating the relationship between ESG and competitive advantage have yielded inconclusive research results (Brooks & Oikonomou, 2018). Moreover, research focusing on the relationship between ESG and competitive advantage in developing countries has not yet been conducted extensively (Atan et al., 2018). This study seeks to provide more comprehensive evidence on the multidimensional aspects of sustainability in increasing competitive advantage in Indonesia.

Girón et al. (2021) and Ng and Rezaee (2015, 2020) demonstrated that better quality information on economic sustainability performance makes investors more confident about future cash flow predictions and reduces the necessary risk premium so as to increase income and reduce the company's cost of equity. Sustainable businesses have a higher chance of entering the market, thereby driving an increase in income. In addition, a business that has an eco-friendly orientation can provide high efficiency by reducing waste, increasing energy efficiency, reusing raw materials, and overcoming life-cycle costs (Shrivastava, 1995). Economic sus-

tainability performance using a stakeholder theory approach focuses on incorporating sustainability values into business processes that create wealth for stakeholders (GRI, 2016).

Research from developed countries has generally found a positive correlation between competitive advantage and aggregate ESG performance (Bhandari et al., 2022; Chang & Lee, 2022; Cheng et al., 2014; Rabaya & Saleh, 2022). A company's contribution to ESG provides an opportunity to offer products that align with societal needs, environmental protection, and a better quality of life (Porter et al., 2019). Conversely, companies that ignore ESG will fail to gain competitive advantage and threaten the company's business resilience (Bhandari et al., 2022).

The stakeholder theory holds that good environmental performance can increase stakeholder trust, reduce compliance risks, and ultimately have a positive impact on competitive advantage. Cost-effective environmental policies, such as green building policies, sustainable packaging, and social and/or green supply chains, are positively related to accounting-based and market-based corporate performance (Xie et al., 2019), which ultimately increases competitive advantage. Companies with good environmental performance exhibit a bigger role in preserving the environment and low compliance risk, which results in low capital costs (Cheng et al., 2014; Ng & Rezaee, 2015).

In terms of the social aspect, a company with good social performance engages in an activity to create value for its workforce, consumers, suppliers, and society at large. Apart from that, companies also implement human rights policies (GRI, 2016; Boffo & Patalano, 2020). A company's high competitiveness can also be built by maintaining communication during the business process by involving customers and suppliers in every business decision so that the company's reputation and managerial capabilities are better than competitors, and the company gains a competitive advantage (Cantele & Zardini, 2018).

Competitive advantage cannot be separated from the role of governance in encouraging and monitoring the implementation of sustainability. Good

corporate governance performance does not only focus on maximizing profits; it is also committed to preserving the environment for future generations based on sound environmental policies (Bhandari et al., 2022). Companies that implement sustainable governance practices can increase the trust of customers, suppliers, investors, and stakeholders (Cantele & Zardini, 2018). The existence of board meetings and the independence of board members play a significant role in encouraging companies to comply with GRI and have “green building” and management policies, social supply chains, environmental supply chain management, as well as climate change policies (Shrivastava & Addas, 2014). Furthermore, good governance also has higher investment opportunities because investors are increasingly willing to pay a premium for those companies that are well-managed and transparent about the rights of all stakeholders.

Implementing enterprise risk management (ERM) also effectively helps companies to identify and manage risks early to avoid inappropriate decisions, including risks to the company’s sustainability in the future (COSO, 2013) and take opportunities appropriately will be better able to increase returns on assets and reduce fluctuations in operating income and capital costs (Shad et al., 2019). Obtaining solid information about risks allows management to make appropriate economic decisions and facilitates more positive investments (Shad & Lai, 2015). It also increases and prevents the loss of resources that are sources of competitive advantage (Elahi, 2013). Inadequate operational risk management causes companies to experience a decline in financial performance and the loss of licenses to operate in certain markets or product lines, thus having a negative impact on customer and workforce satisfaction and loyalty (Anh & Hoa, 2021). Thus, this study suspects that the interaction between sustainability factors and ERM can provide more synergistic results in creating a competitive advantage in the long-term dimension.

2. AIM AND HYPOTHESES

The goal of this study is to examine the effect of economic sustainability and ESG on the competitive advantage of non-financial companies

in Indonesia with effectiveness of enterprise risk management (ERM) as a moderating variable. Thus, the following hypotheses have been formulated:

H1: Economic sustainability performance has a positive effect on competitive advantage.

H2: ESG performance has a positive effect on competitive advantage.

H2a: Environmental performance has a positive effect on competitive advantage.

H2b: Social performance has a positive effect on competitive advantage.

H2c: Governance performance has a positive effect on competitive advantage.

H3: ERM effectiveness strengthens the influence of economic sustainability performance on competitive advantage.

H4: ERM effectiveness strengthens the influence of ESG performance on competitive advantage.

3. METHODOLOGY

This paper analyzes 719 companies in the non-financial sector listed on the Indonesia Stock Exchange (IDX) between 2015 and 2022. In 2015, the UN agreed on the Sustainable Development Goals (SDGs), which comprise 17 goals to address the basic needs of developing countries, empowerment, and long-term environmental security. Since that time, ESG disclosure has become a leading issue.

Conducting an analysis of the competitive advantage of companies in the non-financial sectors is necessary because those companies dominate Indonesia’s Gross Domestic Product (GDP) by contributing approximately 63.8% (BPS, 2021). The Central Statistics Agency (BPS, 2021) reported that non-financial sectors dominate Indonesia’s GDP. There are five sectors that make a major contribution, namely the industrial sector which, in 2021, contributed 18.3%, trade was 12.71%, agriculture 11.39%, construction 10.48%, and mining

10.43% with positive growth rates (in the industrial sector it was 4.92%, trade 5.56%, agriculture 2.28%, construction 3.91%, and mining 5.15%). While other sectors grew positively, only the financial services sector experienced a contraction of 2.59 percent due to a slowdown in banking intermediation services.

The survey shows that non-financial sectors have a high level of ESG risk because the high expansion seen in the non-financial sectors has environmental and social impacts (Pan, 2021), as well as challenges in terms of governance practices that support companies to operate ethically (Inawati & Rahmawati, 2023). The sample was determined based on the purposive sampling method with the following criteria:

- (1) non-financial sector companies that disclose information on economic sustainability and ESG performance;
- (2) their annual report data and financial reports ending December 31 are presented completely.

Financial reports, annual sustainability reports, and ESG performance scores were the sources of the data. Information pertaining to annual reports, sustainability reports, and financial reports was taken from the Indonesia Stock Exchange database, while ESG performance reports were extracted from the Refinitiv EIKON database accessed from Brawijaya University.

Based on sample selection criteria, this study analyzes 202 firm-years. Following Atan et al. (2018) and Velte (2017), a time lag analysis of at least one year was conducted because the time lag may allow different impact situations that could encourage competitive advantage for a certain period of time (Ma, 2000). The research model is:

$$CA_{it+1} = b_0 + \beta_1 ECO_{it} + \beta_2 ESG_{it} + \beta_3 ENV_{it} + \beta_4 SOC_{it} + \beta_5 GOV_{it} + \beta_6 ERM_{it} + \beta_7 ECON_{it} \cdot ERM_{it} + \beta_8 ESG_{it} \cdot ERM_{it} + \beta_9 SIZE_{it} + \beta_{10} AGE_{it} + \beta_{11} IND_{it} + \varepsilon_{it}, \quad (1)$$

$$CA_{it+1} = b_0 + \beta_1 ECO_{it} + \beta_2 ESG_{it} + \beta_3 ENV_{it} + \beta_4 SOC_{it} + \beta_5 GOV_{it} + \beta_6 ERM_{it} + \beta_7 ECON_{it} \cdot ERM_{it} + \beta_8 ESG_{it} \cdot ERM_{it} + \beta_9 SIZE_{it} + \beta_{10} AGE_{it} + \beta_{11} IND_{it} + \varepsilon_{it}, \quad (2)$$

where CA_{it+1} – Competitive advantage of company i in period $t+1$ – Difference between $ROIC_{it+1}$ and $WACC_{it+1}$, where $ROIC_{it+1}$ is NOPAT divided by invested capital of company i in period $t+1$ and $WACC_{it+1}$ is company i 's cost of equity in period $t+1$, excluding short-term debt costs, ECO_{it} – Economic sustainability performance in period t , measured by Logarithm of total EVG&D, ESG_{it} – ESG performance in period t , reflect the total score of environmental, social, and corporate governance performance, ENV_{it} – Environmental performance of company i in period t , SOC_{it} – Social performance of company i in period t , GOV_{it} – Corporate governance performance i in period t , ERM_{it} – ERM effectiveness index of company i in period t . $SIZE_{it}$ – company size is logarithm of total assets of firm i in period t , AGE_{it} – company age is number of years since the company was founded in period t , IND_{it} – company industry, a value of 1 is given to the most sensitive industry and a value of 4 is given to the least sensitive industry, β_0 – constant, $\beta_1 - \beta_8$ – coefficient (slope), ε – error.

Competitive advantage describes the value a company creates from superior performance, measured by the difference between the ratio of the return on invested capital (ROIC) (Mohammad & Wasiuzzaman, 2021; Tang & Liou, 2010) and the weighted average cost of capital (WACC) of firm in one industry. Economic sustainability performance proxied Economic Value Generated and Distributed (EVG&D) indicators that reflects the economic (monetary) value provided by the company to stakeholders in the form of operational costs, employee salaries and benefits, interest and dividend payments, tax payments, as well as community investment in the form of infrastructure funds and contributions to other social programs. Economic sustainability performance is measured by the logarithm of EVG&D.

ESG performance in this paper is overall ESG (aggregate) and pillar (individual) performance based on ESG Refinitiv database that provides a quantitative assessment of the actions taken by companies to protect the natural and social environment and facilitates comparisons between companies (Cini & Ricci, 2018). ESG (aggregate) and ESG pillar (environmental – ENV, social – SOC, and governance – GOV performance) have a value range of 0-100.

The effectiveness of ERM was evaluated by adopting the measurement developed by Florio and Leoni (2017). It is based on the presence of a risk management division/committee, a head/director of a risk management division/committee, a risk management committee reporting to the board of commissioners, the reporting frequency, the depth of risk analysis, and risk analysis methods. A value of 1 is given when the company's ERM implementation meets each ERM effectiveness criterion, and a value of 0 is given for each ERM implementation that does not meet the ERM effectiveness criteria. Companies that meet each criterion will get a score of 6 with a percentage of 100%.

This study involves company size, company age, and industry type as control variables. Large companies tend to have several resource advantages, such as innovative founders supported by a competent CEO, products that are able to dominate the market, are more visible, have greater operational impact, the ability to access wider sources of external funding, and are able to reduce production costs so as to generate greater profits and retained earnings increase (Liang et al., 2022; Nadeem et al., 2019). Company age (AGEit) influences its ability to adopt proactive environmental practices, develop organizational capabilities, and gain competitive advantage compared to younger companies (Mishra & Yadav, 2021). Lastly, industry type (INDit) is divided into types based on the level of sensitivity to social and environmental issues (Raar, 2002). Companies in

sensitive industries face more challenges in achieving a competitive advantage because investors have less confidence in the company's environmental performance (Radhouane et al., 2020).

Table 1 presents the descriptive statistics and the correlation matrix of the predictor and control variables used in this study. The average value of the company's competitive advantage is 0.050, meaning that the average rate of return on investment (ROIC) is 0.050, higher than the cost of equity. The lowest distributed economic sustainability performance was 1.75 billion and the highest was 3 million trillion. On average, the sample of this study has a positive competitive advantage value.

Furthermore, ESG's pillars – namely, the environmental, social, and governance performance – have average values of 0.466, 0.375, 0.533, and 0.472, respectively. This demonstrates that the company maintains a moderately satisfactory track record of environmental and governance practices, together with an adequate level of public reporting transparency. Meanwhile, the company's social performance is relatively good, with a level of reporting transparency above average. ERM effectiveness of 0.226 means that, on average, companies implement ERM less effectively (meeting one of the six ERM effectiveness assessment criteria).

The control variables used in this study are total assets, age, and a dummy for the classification of

Table 1. Descriptive statistics analysis and correlation matrix

Variable	Mean	Std.dev	CA	ECO	ENV	SOC	GOV	ERM	SIZE	AGE	IND
CA	0.050	0.133	1.000								
ECO	1.48e+17	3.72e+17	0.365 0.000***	1.000							
ESG	0.466	0.207									
ENV	0.375	0.242	0.414 0.000***	0.344 0.000***	1.000						
SOC	0.533	0.251	0.429 0.000***	0.326 0.000***	0.752 0.000***	1.000					
GOV	0.472	0.243	0.360 0.000***	0.343 0.000***	0.574 0.000***	0.672 0.000***	1.000				
ERM	0.226	0.342	0.501 0.000***	0.408 0.000***	0.345 0.000***	0.463 0.000***	0.469 0.000***	1.000			
SIZE	34.767	5.626	-0.104 0.138	0.587 0.000***	0.086 0.223	0.097 0.168	0.168 0.017***	0.248 0.0004***	1.000		
AGE	45.079	19.470	0.443 0.000***	0.057 0.423	0.397 0.000***	0.455 0.000***	0.190 0.006***	0.378 0.000***	-0.065 0.358	1.000	
IND	2.054	1.142	-0.039 0.581	-0.029 0.680	-0.342 0.000***	-0.111 0.113	0.083 0.238	0.146 0.037**	-0.082 0.243	-0.126 0.072	1.000

Note: ** and *** represent levels of significance of 5% and 1%, respectively.

industry type. On average, companies have a high asset value and have been operating for a long time. Companies with high asset values and long experiences of operation typically have greater resources or capabilities to adopt proactive environmental practices; as a result, they may be able to obtain a competitive edge over companies with low asset values, recent operations, or young companies. Regarding industry type, the analysis results show that, on average, the companies in the sample are operating in an industry that is sensitive to environmental and social issues.

The variables ECO, ESG, ENV, SOC, GOV, and ERM and the control variables SIZE and AGE are positively correlated at a 1% significance level, while the control variable IND is negatively correlated at a 1% level. The influence of industry type could be the cause of the company's low competitive advantage, considering that the average company is in an industrial sector whose operations are closely related to environmental and social impacts. Overall, the correlation matrix shows that $p\text{-value} < \alpha = 0.05$. This indicates no issue with multicollinearity.

4. RESULTS

This research model was analyzed using the common effect model (CEM) and the presence of heteroscedasticity problems in this analysis is treated

with Huber/White heteroscedasticity robust standard error. The coefficient of determination (adjusted R^2) for the model before interaction (panel A) obtained a value of 0.5582, and after interaction (panel C), it increased to 0.5653 or 56.53%. This means that competitive advantage can be explained by independent variables above 55.82%, while the remaining 44.18% is the contribution of other variables not discussed in this paper.

Panel A shows that economic sustainability performance is unable to increase the competitive advantage of non-financial sector companies in Indonesia ($\beta_1 = .003$; $p\text{-value} = 0.060 < 0.05$), so H_1 is rejected. Meanwhile, ESG aggregate and ESG individual performance is able to increase the competitive advantage of non-financial sector companies in Indonesia ($\beta_2 = 0.873$; $\beta_3 = 0.299$; $\beta_4 = 0.284$; $\beta_5 = 0.295$; and $p\text{-value} = 0.002 < 0.05$; $p\text{-value} = 0.000 < 0.05$; $p\text{-value} = 0.000 < 0.05$; $p\text{-value} = 0.000 < 0.05$). Thus, it can be concluded that H_2 , H_{2a} , H_{2b} , and H_{2c} are empirically supported.

An increase in the adjusted R^2 value indicates that the moderating variable in this study, namely ERM effectiveness, influences the relationship between ECO and ESG on competitive advantage. The effectiveness of enterprise risk management (ERM) is able to strengthen the influence of ECON and ESG on competitive advantage (for ECON,

Table 2. Hypothesis testing results with a time lag of one (1) year

Relationship	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
	Panel A		Panel B		Panel C	
H_1 : ECO → CA	0.010	0.000***	0.009	0.000***	0.003	0.060
H_2 : ESG → CA	1.121	0.000***	0.995	0.000***	0.873	0.000***
H_{2a} : ENV → CA	0.404	0.000***	0.363	0.000***	0.299	0.000***
H_{2b} : SOC → CA	0.399	0.000***	0.340	0.002***	0.284	0.000***
H_{2c} : GOV → CA	0.403	0.000***	0.339	0.000***	0.295	0.000***
ERM			0.089	0.000***	0.815	0.002***
H_3 : ECOxERM → CA					0.019	0.000***
H_4 : ESGxERM → CA					0.353	0.016**
Control Variable						
SIZE	-0.007	0.000***	-0.008	0.000***	-0.006	0.000***
AGE	0.002	0.000***	0.001	0.001***	0.001	0.008***
IND	0.018	0.013**	0.0107	0.098	0.003	0.601
Uji Chow (p-value)	0.067		0.051		0.166	
LM test	0.066		0.074		0.142	
Adjusted R^2	0.5582		0.5874		0.5653	
Prob > F	30.49 (0.000)		30.37(0.000)		37.33 (0.000)	
Total observation	202		202		202	

Note: **and *** represent levels of significance of 5 and 1%, respectively.

$\beta_7 = 0.019$, p -value $0.000 < 0.05$, and for ESG, $\beta_8 = 0.353$, p -value $= 0.016 < 0.05$). This means that the increasingly effective implementation of ERM is able to strengthen the influence of economic sustainability and ESG performance on the competitive advantage of non-financial sector companies in Indonesia, or, in other words, H_3 and H_4 are empirically supported.

This study involves three control variables. The results of the analysis show that company size (LnSIZE), which is proxied by the logarithm of total assets, has a negative effect (coefficient = -0.006 ; p -value $0.000 < 0.05$). Companies with large assets tend to have more resources to innovate in sustainability activities and adopt ERM as a strategic asset. The increase in company costs for investing in sustainability strategies and ERM, which is not yet proportional to the increase in the rate of return, causes a negative relationship between company size and competitive advantages (Saeidi et al., 2019). In relation to company age (AGE), results are in line with Mishra and Yadav (2021), who revealed that AGE has a positive effect (coefficient = 0.010 ; p -value $= 0.008 < 0.05$).

Companies that have been established for a long time have adequate capabilities in adopting proactive environmental practices, developing organizational capabilities, and have high trust from stakeholders. In this study, the type of industry has no relationship (coefficient = 0.0034 ; p -value $= 0.601 > 0.05$) with competitive advantage. Most of the samples that disclosed ESG came from a group of companies in non-sensitive industries. High business competition caused by various conditions – for example, the global crisis, increasing social and environmental problems, as well as the urging of both stakeholders and the government in Indonesia to realize the SDGs – has encouraged all companies from various types of industry, including the sensitive ones, to innovate in their efforts to be sustainable to increase competitive advantage.

This study conducted robustness tests in two ways. First, additional testing was conducted using a two-year time lag to analyze competitive advantage in a longer time dimension. Second, more experiments were carried out to examine how the pandemic affected competitive advantage. Table 3 provides the results of additional tests carried out in this study.

Table 3. Competitive advantage model test results with a time lag of two (2) years

Hypothesis	Model 1: Time lag (2 years) analysis		Model 2: Pandemic effect	
	Without Moderating Variable	With Moderating Variable	Without Moderating Variable	With Moderating Variable
H_{1c} ECO \rightarrow CA	0.006 (0.011)**	0.059 (0.022)**	0.010 (0.000)***	0.003 (0.043)**
H_2 ESG \rightarrow CA	1.597 (0.002)***	1.669 (0.002)***	1.118 (0.000)***	0.873 (0.000)***
H_{2a} ENV \rightarrow CA	0.308 (0.042)**	0.292 (0.055)**	0.405 (0.000)***	0.299 (0.000)***
H_{2b} SOC \rightarrow CA	0.694 (0.001)***	0.722 (0.001)***	0.398 (0.000)***	0.284 (0.002)***
H_{2c} GOV \rightarrow CA	0.471 (0.003)***	0.476 (0.003)***	0.403 (0.000)***	0.295 (0.000)***
Pandemic effect (dummy)			0.0055 (0.070)	0.0157 (0.089)
H_3 ECOxERM \rightarrow CA		0.002 (0.593)		0.019 (0.000)***
H_4 ESGxERM \rightarrow CA		0.321 (0.017)**		0.353 (0.017)**
SIZE	-0.006 (0.007)***	-0.007 (0.007)***	-0.007 (0.000)***	-0.005 (0.000)***
AGE	0.003 (0.000)***	0.003 (0.000)***	0.002 (0.000)***	0.0010 (0.005)***
IND	0.0009 (0.910)	0.0005 (0.946)	0.0108 (0.013)**	0.0034 (0.555)
Adjusted R-squared	0.363	0.390	0.5586	0.5836
Total observations	153		202	

Note: *, **, and *** represent levels of significance of 5%, 10%, and 5%, respectively. Pandemic effect = a value of 1 is given for the period during or after the pandemic, and 0 is given for the period before the pandemic.

Overall, the results of hypothesis testing are consistent with the main test, except for H_1 and H_3 . In this model, economic sustainability performance has a positive effect on competitive advantage (coefficient = 0.059; p -value = 0.022 < 0.05), and the interaction of ECO and ERM with competitive advantage shows that the effectiveness of ERM has no effect on the relationship between economic sustainability performance and competitive advantage in the longer period ($\beta_7 = 0.002$; p -value = 0.593 > 0.05, adjusted $R^2 = 0.390$). Conversely, effective implementation of ERM can strengthen the influence of ESG performance and competitive advantage in the long term ($\beta_8 = 0.321$; p -value = 0.017 < 0.05). These findings indicate that over a longer period of time, economic sustainability performance is able to increase the competitive advantage of non-financial sector companies in Indonesia.

5. DISCUSSION

The results of this study support the stakeholder theory, which asserts that initiatives focused on generating value for all stakeholders will yield a competitive advantage. In line with Atan et al. (2018), economic sustainability performance increases the competitive advantage of non-financial sector companies in Indonesia in the long term, and has no effect on short-term competitive advantage. Sustainability performance has high initial investment costs, reduces company performance, has limited sustainability solutions (Alareeni & Hamdan, 2020), and causes companies to fail to gain a competitive advantage. Conversely, previous research stated that company's contribution to stakeholders will result in a higher rate of return from the costs incurred by the company in the future (Cantele & Zardini, 2018; Ng & Rezaee, 2015; Shrivastava, 1995).

Companies that distribute high economic value to customers and suppliers will improve the quality of communication during business processes with every business decision, and increase company reputation and customer satisfaction (Cantele & Zardini, 2018). A sustainable business can also drive a reduction in operational costs by reducing waste, increasing energy efficiency, reusing raw materials, and overcoming life-cycle costs so that companies can obtain higher profits (Shrivastava, 1995). Therefore,

companies that allocate capital to increase benefits for customers and suppliers will get support from those suppliers in creating sustainable products, meaning that the company obtains high income and returns, and as a result will have a competitive advantage in the long-term dimension.

Testing the second hypothesis reveals that ESG and the ESG pillars (environment, social, and governance aspects) are able to increase competitive advantage and maintain competitive advantage in the long term. According to stakeholder theory (Freeman et al., 2021; Rabaya & Saleh, 2022), companies cannot achieve competitive advantage if they ignore demands from stakeholders to improve sustainability (ESG) performance. Improving ESG performance is a manifestation of the company's ability to support the achievement of the sustainability agenda, which is the hope of every stakeholder (Teece et al., 2009). Companies with high ESG performance will optimize efforts to create sustainable solutions, while, at the same time, have the opportunity to offer products that are in line with society's needs in terms of environmental protection and a better quality of life (Porter et al., 2019). In this context, high ESG performance is a resource that is not easily imitated by competitors (Benabou & Tirole, 2010).

Further analysis shows that good environmental performance also indicates a company's strong role in preserving the environment and reflects low compliance risks, such as a gradual transition program from expensive coal energy to renewable energy sources (Porter et al., 2019). Poor management of environmental performance in a company can result in difficulties in seeking funding because creditors are now becoming increasingly careful in assessing company risks – whether they be financial, operational, or reputational risks – and the risk of being responsible for environmental obligations (Apergis et al., 2022).

This study provides support for the argument that high social performance is related to competitive advantage (Cantele & Zardini, 2018). The closer social problems are linked to the company's business, the greater the opportunity to utilize company resources and provide benefits to society (Porter, 1980). In the governance context, this study supports García-Sánchez et al. (2019) and Shrivastava and Addas (2014), who posited that sustainability-oriented gov-

ernance performance can improve communication with stakeholders. García-Sánchez et al. (2019) revealed that governance that facilitates and encourages the adoption of sustainable management policies and systems and prioritizes stakeholder transparency can improve a company's positive image and strengthen its competitive position (Shrivastava & Addas, 2014). Therefore, the results support the conclusion that ESG performance is able to increase and maintain competitive advantage.

The findings found evidence that the relationship between economic sustainability performance and competitive advantage in the longer term was not moderated by the effectiveness of ERM. The implementation of a risk management system that has just entered the initiation stage in Indonesia is not sufficient to monitor sustainability risks, especially in the aspect of economic sustainability (Xiong & Yang, 2021). Risks or opportunities that have implications for economic sustainability performance have a broad scope because they relate to various stakeholder activities, such as improving product quality, supplier competency, improving employee quality, increasing social funds for the community, and payment of tax to the government.

On the contrary, ERM effectiveness is able to strengthen the relationship between economic

sustainability performance and competitive advantage. In line with Anillah et al. (2023), Lu et al. (2022), and Shad et al. (2019), integrating ERM and ESG in a dynamic business environment provides more synergistic results in creating competitive advantages. ERM's ability to obtain good information about risks allows companies to seize opportunities earlier than competitors, avoid the costs of losses due to risks (Malik et al., 2020), and prevent the loss of resources that are sources of competitive advantage (Elahi, 2013).

This paper also conducted additional tests to obtain evidence of the influence of the COVID-19 crisis on competitive advantage. Model B in Table 3 shows that the COVID-19 crisis generated evidence that a company's competitive advantage during the pandemic was higher than before the pandemic, but the difference in competitive advantage in these two periods had no effect on competitive advantage (coefficient = 0.0157 and p -value 0.089 > 0.05). This finding contradicts Aydoğmuş et al. (2022), who found that the pandemic conditions prevented companies from contributing to sustainability issues. By contrast, the results are in line with Xu et al. (2023), who revealed that sustainability activities can reduce sustainability risks by differentiating sustainable products, thereby increasing competitive advantage.

CONCLUSION

This study contributes to the literature by providing comprehensive evidence from the perspective of stakeholder and dynamic capabilities theories through the examination of the relationship between economic sustainability and ESG performance on competitive advantage, with the effectiveness of ERM as a moderating variable. Using time-lag analysis, this study concludes that economic sustainability and ESG performance are crucial aspects to increase firm's long-term competitive advantage. This study revealed that high ERM effectiveness can strengthen the role of economic sustainability and ESG performance in increasing competitive advantage. However, in the long term, the relationship between economic sustainability performance and competitive advantage is not related to management effectiveness in implementing ERM. Further analysis showed that the weakening economic conditions that occurred during the pandemic did not affect the company's ability to achieve competitive advantage.

The study has several limitations. First, this paper faced obstacles in increasing the number of observations because the availability of information about economic sustainability performance and ESG is still limited in Indonesia due to the voluntary disclosure regulation. Second, the absence of a disclosure framework for ERM practices in Indonesia makes it difficult to identify information from each criterion. Given the existing limitations, future research could explore other types of sustainability disclosures, such as those about climate change or human rights, which are at the center of academic attention nowadays, as well as observe other global crisis events that may have a different impact on research results.

AUTHOR CONTRIBUTIONS

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Visualization: Ayu Aryista Dewi.

Writing – original draft: Ayu Aryista Dewi.

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