Article Type: Research Paper

How is enterprise cope with sudden crisis: Testing the moderation role of COVID-19 crisis towards ERM disclosure and firm value

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DOI: 10.18196/jai.v26i2.26840

CITATION:
Putra, A. Z., & Widiastuti, H. (2025). How is enterprise cope with sudden crisis: Testing the moderation role of COVID-19 crisis towards ERM disclosure and firm value. *Journal of Accounting and Investment, 26*(2), 639-658.

ARTICLE HISTORY
Received:
25 Dec 2024
Revised:
27 Apr 2025
Accepted:
30 May 2025

JAI Website:

Abstract
Research aims: This study investigates the moderating influence of the COVID-19 crisis on the relationship between risk management disclosure and firm value.
Design/Methodology/Approach: 305 non-financial firms listed on the Indonesia Stock Exchange during 2019-2020 were analyzed, utilizing archived data from company annual reports according to purposive sample criteria. The data were further evaluated quantitatively by panel data regression analysis with Eviews12 to evaluate the overarching hypothesis.
Research findings: The results indicate that risk management disclosure benefits firm value; however, the COVID-19 crisis does not influence this connection. It indicates that disclosure functions as a signaling mechanism to preserve investor trust rather than serving as a primary source of information during crises**.**
Theoretical contribution/ Originality: This research highlights the COVID-19 pandemic's role in reinforcing the necessity for risk management disclosure to mitigate information asymmetry and serve as a favorable signal for shareholders and investors while contributing empirical insights into the crisis's influence on corporate risk disclosure practices in sustaining firm value.
Research limitation/Implication: This research highlights the need to develop a risk management framework that is more adaptive to unexpected extraordinary events, such as the pandemic crisis. It is done to increase the relevance of information needed by potential investors and company owners so that the effect of risk management disclosure can be seen during the new crisis.
Keywords: Crisis; COVID-19; Firm Value; Risk Management Disclosure

Introduction

Examining how organizations sustain value and financial stability during a crisis is a compelling topic for investigation (Aljughaiman et al., 2023; Harymawan & Rahayu, 2022). This results from the inherent traits of the crisis, precisely the escalating intensity of the business environment, which adversely affects corporate performance and leads to losses in financial stability and company valuation (Aljughaiman et al., 2023; Calomiris & Nissim, 2014; Harymawan & Rahayu, 2022; Morgeson III et al., 2024; Pedersen & Ritter, 2022; Sanasi & Ghezzi, 2024). Shaluf and Ahmadun (2006) asserted that the crisis transpired rapidly and manifested in several ways, including (1) financial crisis, (2) non-financial crisis, (3) social crisis; (4) internal crisis; (5) foreign crisis; (6) industrial crisis;

(7) natural crisis; and (8) non- industrial crises. Crisis scenarios require management to implement strategic actions quickly, accurately, and carefully (Khodarahmi, 2009; Pedersen & Ritter, 2022; Shaluf & Ahmadun, 2006). This is necessary because inadequate crisis management can cause a company's operational performance and market value to deviate from the expectations of shareholders and investors (Madobi, 2020; Shad et al., 2019) and impact the company's reputation (Khodarahmi, 2009; Madobi, 2020; Shad et al., 2019).

The COVID-19 pandemic crisis triggered by the SARS-CoV-2 virus first emerged in Wuhan, China, and lasted three years from 2020 to 2023 (Ashraf, 2020). This pandemic has been a disaster that has caused serious concern across the global community due to high infection and death rates (Ashraf, 2020). According to data from the World Health Organization (WHO), more than two million people have been infected, with 139,000 deaths reported as of April 17, 2020 (Ashraf, 2020). Furthermore, the widespread transmission of the SARS-CoV-2 virus has significantly impacted global economic activity during the COVID-19 pandemic, causing economic uncertainty and instability (Ashraf, 2020; Nguyen et al., 2023). In Indonesia, COVID-19 first emerged in February 2020, leading to a significant decline in stock prices from the first quarter to the second quarter of 2020 (Ismanu et al., 2021). Furthermore, social distancing policies in Indonesia also led to a decline in investment value from 3.25% to 1.94%, resulting in high layoffs as companies struggled to meet their operational performance targets (Slamet et al., 2023).

This occurrence challenges enterprises to effectively, thoroughly, and openly apply and communicate risk management strategies during the COVID-19 pandemic (Gouiaa et al., 2020; Quon et al., 2012). During the COVID-19 crisis, investors and shareholders want information that guarantees the company's ability to withstand and endure the uncertainties induced by the pandemic (Damayanti & Prayoga, 2020). Moreover, Silva et al. (2013) discovered that firms exhibiting poor disclosure quality during the financial crisis generally had less shareholder value and were more susceptible to losses. Consequently, the execution and transparency of robust risk management techniques throughout the crisis can serve as a conduit for enterprises to convey good indicators of their resilience and preparedness to investors and shareholders amid the COVID-19 crisis.

The risk management system comprises several integrated activities that involve recognizing, analyzing, and managing organizational risks (González et al., 2020). ISO 31000:2018 and COSO Enterprise Risk Management (COSO-ERM), issued by the Committee of Sponsoring Organizations of the Treadway Commission, serve as reference frameworks for implementing an integrated risk management system. Moreover, COSO-ERM is a framework intended for organizations to manage risks cohesively to support the attainment of corporate objectives, including (1) preserving the company's reputation, (2) producing reliable financial reports for stakeholders, and (3) ensuring compliance with legal and regulatory requirements across all company operations (Burnaby & Hass, 2009; Moeller, 2011; Wahyuni & Novita, 2021).

Agency theory posits that risk management disclosure serves as a mechanism established by shareholders as principals to guarantee that management, as agents, remains aligned with their objectives (Jensen & Meckling, 1976; Patelli & Prencipe, 2007). Furthermore, risk management disclosure can mitigate the impacts of information asymmetry, wherein agents may behave opportunistically, jeopardizing the principal's interests (Fama & Jensen, 1983; Gouiaa et al., 2020; Jensen & Meckling, 1976). Signaling theory also posits that risk management disclosure serves as a communication instrument employed by corporations to inform stakeholders (Bae et al., 2018). Robust risk management disclosure may give stakeholders reliable information concerning the company's capacity and preparedness to address uncertainty-related risks (Connelly et al., 2011; Spence, 1973). Moreover, the information derived from risk management disclosures influences a more precise evaluation of the company's worth. This could also reduce the cost of financing, as investors will view the company's investment risks as more well-handled. Consequently, thorough risk management disclosures enhance investor trust, diminish the company's cost of capital, promote financial stability, and bolster the company's long-term worth.

Several previous studies demonstrate that risk management is an essential mechanism for maintaining shareholder trust in the company's risk management capabilities (Edmonds et al., 2015; Hoyt & Liebenberg, 2011, 2015; Malik et al., 2020; Pangestuti et al., 2023). However, prior studies have shown an inconsistency in the effect of risk management on firm value. Some studies found that risk management can strengthen firm value (Hoyt & Liebenberg, 2011, 2015; Ismanu et al., 2021; Malik et al., 2020; Pangestuti et al., 2023), but some show no effect (González et al., 2020; Rahayu et al., 2022), and even an adverse effect (Slamet et al., 2023). In addition, previous research indicates that the crisis can moderate corporate governance's effect on firm value, which can differ in crises (Enikolopov et al., 2014; Leung & Horwitz, 2010; Liu et al., 2012). For example, Enikolopov et al. (2014) show that corporate governance becomes important in a crisis because there is a decrease in investment opportunities. Furthermore, Leung and Horwitz (2010) show that in the Asian financial crisis, companies in Hong Kong with concentrated management ownership and CEOs who serve on the board of directors have better capital market performance. These findings suggest that the crisis may moderate the relationship between internal governance mechanisms and firm value, so research on the moderating effect of the crisis on the relationship between risk management and firm value needs to be developed.

Even though prior research has investigated the effect of risk management implementation on company value during the COVID-19 crisis, namely in Indonesia (Ismanu et al., 2021; Slamet et al., 2023). Nevertheless, these studies frequently pertain to specific industries. Slamet et al. (2023) performed a cross-industry investigation to evaluate the impact of Enterprise Risk Management (ERM) on company value before and during COVID-19. Nonetheless, their methodology was limited to binary variables, thus reflecting the existence or lack of ERM implementation without offering more insights into its efficacy.

This study uses the Slamet et al. (2023) research model, using sample criteria developed by Huang et al. (2023) and Slamet et al. (2023). This study substitutes the risk management measurement of Slamet et al. (2023) with risk management disclosure. The years 2019 and 2020 were selected as the observation period due to substantial alterations in company operations (Zyznarska-Dworczak & Rudžionienė, 2022) and the influence of the COVID-19 crisis on the financial, health, and social sectors. This study examines the moderating interaction to ascertain if a crisis, as an external shock, might temporarily enhance the disclosure of corporate risk management to uphold shareholder and investor expectations.

This study theoretically enhances agency and signaling theory by examining how crises heighten corporations' need to reveal risk management practices and mitigate information asymmetry to fulfill shareholder and investor expectations. Including the COVID-19 pandemic crisis variable as a moderator can assist companies in recognizing the significance of crisis management through risk management disclosure, thereby preserving the company's value in the perception of investors and primary shareholders during a crisis (Khodarahmi, 2009). Practically, this research also impacts companies in making risk management disclosures as a corporate communication strategy to signal to investors and shareholders the company's readiness and resilience in times of crisis. In addition, this research can also be a reference for regulators to formulate clearer and more contextual risk management disclosure standards.

Literature Review and Hypotheses Development

Signaling Theory

Signaling theory posits that the company as a party with an excess source of information will provide and communicate credible signals to parties with less information (investors and stakeholders) to reduce information asymmetry and attract the attention or trust of these parties (Spence, 1973). To successfully communicate signals to investors and stakeholders, organizations consider signaling costs and the signals' clarity (signaling observability) (Connelly et al., 2011). In the context of risk management disclosure, signaling theory elucidates the process by which investors and stakeholders, as information recipients, respond in alignment with the company's objectives through evaluations of the company's value based on risk management disclosure information provided by the company (Bae et al., 2018; Connelly et al., 2011). Furthermore, Connelly et al. (2011) elucidated that signaling theory elucidates the mitigation of information asymmetry since one party conveys signals through information to the counterpart. Devi et al. (2017) asserted that corporations might convey both affirmative and adverse signals to investors. Companies will endeavor to present favorable indicators in both financial and non-financial reporting. It is undertaken to entice investors to remain or contribute their capital to the firm (Connelly et al., 2011; Spence, 1973).

Risk management disclosure serves as a conduit for organizations to provide favorable indications to stakeholders for the organization's outlook (Connelly et al., 2011; Devi et al., 2017; Spence, 1973). Risk management disclosure is conducted to establish stakeholder confidence in the company's capacity to proactively address risks stemming from uncertainty (Quon et al., 2012). Consequently, extensive risk management disclosure will influence the robustness of the positive signal conveyed to policymakers and affect their trust in the firm, as reflected in its valuation (Rahman & Rahman, 2020).

Agency Theory

Agency theory elucidates the interaction between shareholders and firm management as a contractual association between principal and agent (Jensen & Meckling, 1976; Pangestuti et al., 2023). This contractual connection exists between shareholders, who function as principals owning the firm, and management, who serve as agents authorized to conduct activities that benefit the owners (Jensen & Meckling, 1976; Pangestuti et al., 2023). Nonetheless, a conflict of interest may arise between agents and principals due to information asymmetry (Pangestuti et al., 2023). Information asymmetry occurs when there is a disparity of information between agents and principals (Pangestuti et al., 2023). This disparity arises because agents possess superior information on the firm as they actively engage in its activities (Pangestuti et al., 2023). The onset of this information asymmetry engenders doubts from the principal over the agent's potential opportunistic behavior, which may undermine the principal's interests (Pangestuti et al., 2023; Rahayu et al., 2022).

Risk management disclosure is a control mechanism established by shareholders as principals, which firm management as agents must adhere to (Pangestuti et al., 2023). It serves to notify that management is actively executing risk management strategies to preserve the company's worth and enhance shareholder prosperity (Pangestuti et al., 2023; Rapp et al., 2011). Moreover, risk management disclosure is implemented to avert management from engaging in opportunistic behaviors that might harm its interests (Pangestuti et al., 2023). Opportunistic management activities stem from information asymmetry because management, as an agent, has greater access to knowledge than shareholders, who are the principals (Nasution et al., 2020).

Crisis and Enterprise Risk Management Disclosure

A crisis involves unforeseen events that might yield severe consequences if not adequately managed (Cucino et al., 2024; Pedersen & Ritter, 2022). Crisis-induced adverse effects may manifest as operational disruptions and impaired decision-making, subsequently affecting reputation and achieving objectives (Cucino et al., 2024; Doern et al., 2019). Pedersen and Ritter (2022) categorize crises according to their origin and temporal context. Crisis events can be categorized based on their origins as either manmade or natural (Pedersen & Ritter, 2022). Crisis events may be categorized based on their temporal occurrence into those that arise abruptly and those that develop gradually (Pedersen & Ritter, 2022).

The COVID-19 pandemic is categorized as a crisis that arose abruptly from natural origins and is characterized by significant societal constraints across several nations (Pedersen & Ritter, 2022). While a crisis may adversely affect a firm, it can simultaneously present a chance for growth and advantage (Cucino et al., 2024; Pedersen & Ritter, 2022). Devece et al. (2016) discovered that the knowledge of pursuing possibilities and innovation was a critical success factor for businesses during an economic crisis.

The capacity to transform a crisis into an opportunity for innovation may provide success for a corporation. Pedersen and Ritter (2022) indicated that several sectors, including telecommunications, streaming services, and delivery services, saw favorable effects due to COVID-19. Bappenas (2020) indicates that during the COVID-19 crisis, several businesses saw favorable effects, including agriculture, water supply, information and communication, real estate, and social and health services.

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) published a handbook to assist firms in the effective, efficient, and ethical adoption and implementation of risk management (Pangestuti et al., 2023). It is executed to enhance corporate performance, offering precise information that enables companies to mitigate risks such as losses, bankruptcy, and associated costs through necessary identification, assessment, and management processes (COSO, 2017; Florio & Leoni, 2017). In crisis context, risk management enables firms to use possible possibilities that positively affect the organization by analyzing the consequences of uncertainty (COSO, 2017) by addressing risk into several categories such as (1) credit risk; (2) market risk; (3) liquidity risk; (4) operational risk; (5) compliance risk; (6) legal risk; (7) reputation risk; and (8) strategic risk (Rahayu et al., 2022).

Moreover, risk management disclosure has a role as a mechanism for the firms to communicate how they are able to face the risk of uncertainty coming from the crisis. Failing to communicate in managing risk may harm the achievement of business strategies and objectives (COSO, 2017; Rahayu et al., 2022). Wirahadi and Pasaribu (2022) demonstrate that risk management enhances business model innovation, positively affecting financial performance. Furthermore, corporate communication regulations regarding risk management can assist investors in evaluating the company's capacity and responsiveness to uncertainty (Damayanti & Prayoga, 2020; Wirahadi & Pasaribu, 2022).

Hypotheses Development

The effect of enterprise risk management disclosure towards firm value

Signaling theory posits that risk management disclosure serves as a mechanism for organizations to provide favorable signals to stakeholders about their prospects (Connelly et al., 2011; Devi et al., 2017; Spence, 1973). Risk management disclosure is conducted to establish stakeholder confidence in the company's capacity to proactively address risks stemming from uncertainty (Quon et al., 2012). This occurrence happens because disclosures are not merely informative but function as strategic tools to mitigate the perceived information asymmetry between management and external stakeholders, especially during periods of heightened uncertainty (Sun et al., 2024). By revealing the processes, frameworks, and controls used to identify and manage risks, firms aim to assure investors, regulators, and other stakeholders that they are resilient and capable of navigating volatile environments. Moreover, the effectiveness of these disclosures lies in their ability to reduce uncertainty about managerial actions and future performance.

Furthermore, stakeholders—particularly investors and shareholders—often rely on narrative disclosures as proxies for evaluating a firm's risk exposure and strategic responsiveness (Enslin et al., 2025). Detailed and credible risk management disclosures are signal that a firm is transparent and strategically prepared, enhancing its legitimacy and contributing positively to its valuation (Enslin et al., 2025). In essence, when firms engage in comprehensive risk communication, they reinforce the strength of the signal being sent, enhancing stakeholders' trust in the firm's long-term viability and governance quality (Enslin et al., 2025). Consequently, extensive risk management disclosure will influence the robustness of the positive signal conveyed to policymakers and affect their faith in the firm, as reflected in the company's valuation (Rahman & Rahman, 2020).

Moreover, a primary objective of shareholders is to guarantee that management diligently works to enhance the company's worth to benefit shareholders (Pangestuti et al., 2023; Rapp et al., 2011). Shareholders seek a framework that inhibits management from engaging in opportunistic behaviors that harm their interests (Pangestuti et al., 2023). Opportunistic management activities stem from information asymmetry because management, as an agent, has greater access to knowledge than shareholders, who are the principals (Nasution et al., 2020).

Numerous prior research has validated the beneficial effects of risk management methods on business value (Hoyt & Liebenberg, 2011, 2015; Malik et al., 2020; Pangestuti et al., 2023). Companies implementing risk management have better company values than those not engaging in such practices (Hoyt & Liebenberg, 2011, 2015) and lower stock return volatility (Hoyt & Liebenberg, 2011, 2015). Moreover, (Pangestuti et al., 2023) discovered that risk management positively influences business value within the mining industry in Southeast Asia. Consequently, considering the description and findings of the prior study, the subsequent hypothesis might be articulated:

H_1: *Enterprise risk management disclosure positively influences firm value.*

The moderation role of crisis in enhancing risk management disclosure towards firm value

Florio and Leoni (2017) discovered that environmental uncertainty might affect the relationship between risk management and firm value. The COVID-19 pandemic represents a notable case of environmental unpredictability in recent years that has seriously hindered company activities owing to extensive societal restrictions, including regional lockdowns (Barua, 2020; Klöckner et al., 2023; Sharma et al., 2020). When such risks are not effectively managed, they can have a significant impact on businesses, ranging from operational disruptions (Cucino et al., 2024; Pedersen & Ritter, 2022) to declining investor confidence, as evidenced by increased perceived risk and decreased market valuation following disruptions (Schmidt & Raman, 2022). Moreover, in the context of the COVID-19 crisis, Al-Awadhi et al. (2020) revealed that increasing COVID-19 cases and deaths adversely impacted stock returns in China's capital markets. Consequently, during crises, it is essential for companies to implement risk management systems capable of identifying, responding to, and mitigating possible hazards (Klöckner et al., 2023).

Within this context, agency and signaling theories offer conceptual foundations to understand the role of risk management disclosures during crises. Agency theory suggests heightened uncertainty during crises exacerbates information asymmetry between management and shareholders (Jensen & Meckling, 1976). Under such conditions, the risk of managerial opportunism increases as shareholders face greater difficulty monitoring executive decisions. Risk management disclosures thus serve as a control mechanism, signaling that management is acting in the best interests of the firm's owners.

Signaling theory (Spence, 1973) also posits that corporate disclosures serve as strategic signals intended to convey information about the firm's quality and strategic orientation to external stakeholders. In times of crisis, when information scarcity and uncertainty prevail, disclosing risk management practices becomes an important means for firms to demonstrate awareness of and preparedness for emerging risks (Connelly et al., 2011; Devi et al., 2017). It aligns with the findings of Quon et al. (2012), who emphasized that risk management disclosure plays a key role in mitigating information asymmetry and enhancing stakeholder confidence in the firm's proactive risk-handling capabilities.

A high level of risk management disclosure during crises can strengthen stakeholders' trust in the firm and improve perceptions of the firm's governance quality and long-term viability (Rahman & Rahman, 2020). In this regard, detailed and credible risk disclosures act as strong signals of a firm's resilience to external shocks. For example, Mokdadi and Saadaoui (2023) found that information asymmetry intensified the relationship between geopolitical risk and corporate debt costs and that firms responded by implementing policies that increased transparency and accountability. Moreover, Teja (2024) found that COVID-19 increases the score of environmental and social disclosures. This highlights the growing importance of disclosure during periods of uncertainty.

During the COVID-19 pandemic, elevated uncertainty widened the informational gap between firms and their stakeholders, increasing the demand for managerial accountability. Investors and shareholders, in particular, expected greater transparency regarding how firms mitigate risks and protect their value (Mohamed et al., 2019; Silva et al., 2013). From a signaling perspective, disclosing risk management practices during the pandemic signals that a firm is capable of navigating through highly uncertain conditions (Hao & Pham, 2022).

This theoretical and empirical foundation supports the notion that the positive relationship between risk management disclosure and firm value will likely be strengthened during crisis periods such as the COVID-19 pandemic. In other words, crises serve as a contextual factor amplifying risk disclosures' signaling value. Based on this reasoning, the following hypothesis is proposed:

H_2* : *COVID-19 crisis moderates the positive effect of enterprise risk management disclosure towards firm value.

Based on the theoretical framework used and hypotheses development, this research proposed a model as presented in Figure 1.

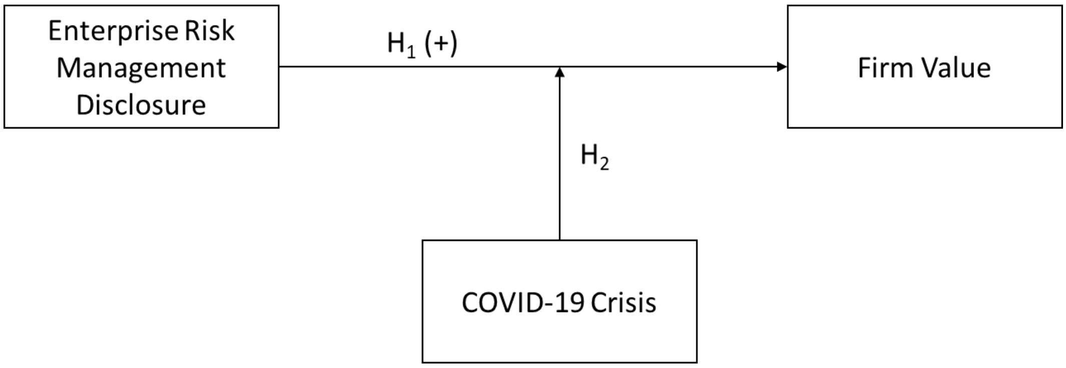

Figure 1 Research Model

Research Method

This study uses panel data regression to analyze 305 non-financial companies listed on the Indonesia Stock Exchange (IDX) in 2019-2020 based on the following sampling criteria: (1) non-financial companies listed on the Indonesia Stock Exchange (IDX) during the study period; (2) Companies present financial statements and annual reports during the study period; and (3) consistently disclose risk management during the study period (See Table 1). The research data was obtained by accessing the company's financial and annual reports, and the grouping of industry types was carried out based on the 2019 fact book.

Table 1 Sampling Size

Description	Total
Non-financial companies listed on Indonesian Stock Exchange	543
Companies that did not publish annual report, financial report, and do not have complete data for the research	(238)
Total sample	305
2 years of observation (305x2)	610

Before the data was analyzed using panel data regression, model testing was carried out to determine whether the regression model was more appropriate to be analyzed using fixed, random, or common effects. Furthermore, the research employs enterprise risk management disclosure (ERMD) as an independent variable, with the COVID-19 crisis as a moderator, firm size (NILP) as a dependent variable, and leverage (LEV) and profitability (PROF) as control variables. Each of the operational variables is represented in Table 2.

This research assesses ERM by the extent of ERMD implemented by the firm. The ERMD measurement is conducted by comparing the company's annual report with the ERMD checklist comprising 108 items derived from the COSO framework established by Desender and Lafuente (2009), which encompasses eight dimensions: (1) internal environment; (2) goal setting; (3) event identification; (4) risk assessment; (5) risk response; (6) control activities; (7) information and communication; and (8) monitoring.

Each point on the ERMD checklist will be assigned a value of "1" if the firm reveals it and a value of "0" if it does not disclose. Subsequently, upon completing the checklist, the ERMD calculation is performed by dividing the number of disclosed items by the total number of checklist items.

Table 2 Operational Definition and Measurement of Variables

Variable	Operartional Definition	Measurement
ERMD	The level of risk management disclosure made by the company (Desender and Lafuente (2009)	ERMD = number disclosures / 108
NILP	Determines how investors view the company's performance in the capital market, which is reflected in optimal returns for the shareholders's welfare (Hoyt & Liebenberg, 2011, 2015).	Tobin's Q = Market value of equity + Book value of liabilities / Book value of assets
Crisis	A crisis is a series of events that occur unexpectedly and have an extremely negative impact if not managed properly (Cucino et al., 2024; Pedersen & Ritter, 2022).	Dummy measurement where "0" for 2019 where COVID-19 has not happened yet, and "1" for COVID-19 crisis occurrence.
Leverage	Proportion of total liabilities to total of firm assets (Shen et al., 2021)	LEV = Book value of total liabilities / Book value of total assets
Profitability	The proportion of the revenue that is retained as profit after all the expenses (Eilon, 1992)	PROF = net profit / net revenue

This study used Tobin's Q to assess the firm's value, as it reflects market expectations and is often utilized in corporate finance literature (Hoyt & Liebenberg, 2011, 2015). Tobin's Q is frequently utilized to assess investors' favorable perceptions of a firm's performance in the capital market, which is manifested in optimal returns for shareholder welfare (Pangestuti et al., 2023). Tobin's Q value is derived by comparing the aggregate market value of outstanding shares and total debt to the total asset value (Hoyt & Liebenberg, 2011, 2015; Pangestuti et al., 2023). In addition, the COVID-19 crisis is assessed by giving a value = "0" in 2019 because the COVID-19 pandemic crisis had not yet occurred and a number = "1" when the COVID-19 pandemic occurred.

This research employs leverage and profitability as control variables. The inclusion of control variables such as profitability and leverage in this study aims to enhance internal validity and ensure that the fundamental financial characteristics of the firm do not confound the relationship between ERMD and NILP. Profitability reflects a firm's financial performance and serves as a crucial signal for investors in evaluating managerial effectiveness and the firm's value potential, as emphasized by signaling and agency theories. The inclusion of leverage as a control variable is supported by Silva et al. (2019), who highlight its relevance in isolating the impact of ERM practices by accounting for financial risk. Therefore, isolating ERM disclosure's effect on firm value by including those two control variables minimizes potential bias arising from the simultaneous influence of financial performance and capital structure.

The hypotheses testing for the first and second hypotheses were conducted based on the regression result equation by considering the significance value of each variable in the equation. Equation (I) is used to determine whether the first hypothesis was supported or not, and equation (II) is used to determine whether COVID-19 moderates the relationship between ERMD and NILP.

$$NILP_{i,t} = \alpha + \beta_1 ERMD_{i,t} + \beta_2 COVID_{i,t} + \beta_3 LEV_{i,t} + \beta_4 PROF_{i,t} + e \ldots (I)$$
$$NILP_{i,t} = \alpha + \beta_1 ERMD_{i,t} + \beta_2 COVID_{ii,t} + \beta_3 ERMD_{i,t}{*}COVID_{i,t} + \beta_4 LEV_{i,t} + \beta_5 PROF_{i,t} + e \ldots (II)$$

Result and Discussion

Statistic Descriptive

Statistic descriptive analysis presents data concerning the sample size, mean, standard deviation, and maximum and minimum values of each independent variable, as illustrated in Table 3. Table 3 indicates that the ERMD level averages 0.618, with a maximum value of 0.840 and a standard deviation of 0.133, suggesting uniformity among enterprises. Meanwhile, the average LEV, NILP, and PROF are 0.524, 1.682, and -0.082, respectively, with standard deviations of 0.412, 1.908, and 0.882, signifying considerable variability across business organizations.

Table 3 Descriptive Statistic Result

Variable	Mean	Median	Maximum	Minimum	Std. Dev
ERMD	0.618	0.648	0.840	0.000	0.133
LEV	0.524	0.476	5.107	0.001	0.412
NILP	1.682	1.075	18.779	0.001	1.908
PROF	-0.082	0.025	3.373	-15.313	0.882

Note: ERMD = Enterprise Risk Management Disclosure; LEV = Leverage; NILP = Firm Value; PROF = Profitability

Model Estimation Evaluation Result

Table 4 shows that the research model is more appropriate to be analyzed using fixed effects based on the Chow and Hausman Test because of the Prob. value is smaller than 0.05. Based on the classical assumption test, all the data are free from normality, multicollinearity, and autocorrelation. However, the classical assumption test shows that the data is affected by heteroscedasticity. Thus, this study uses the Random Effect model by applying general least squares estimation.

Table 4 Model Estimation Evaluation Result

	Statistic	d.f.	Prob.

Chow Testing Result			
Cross-section F	16.635	(304.301)	0.0000
Cross-section Chi-square	1,756.355	304	0.0000
Hausman Testing Result			
Cross-section Random (Chi-Sq.)	18.367	4	0.0000

Hypotheses Testing Result

Table 5 shows the results of the panel data regression of this study by conducting two regressions. The first regression was conducted to test the first hypothesis without presenting the COVID-19 crisis variable. The second regression was conducted to test the second hypothesis where the COVID-19 crisis variable has interacted as a moderating variable between the relationship between ERMD and NILP.

Table 5 Panel Data Regression Result

Variable	Coefficient	Prob.
Estimation I		
α		
ERMD	0.816	0.0063***
COVID	-0.040	0.5521
LEV	0.607	0.0023***
PROF	0.123	0.0055***
Estimation II		
α		
ERMD	0.503	0.2930
COVID	-0.305	0.3596
ERMD*COVID	0.442	0.4046
LEV	0.503	0.2930
PROF	-0.305	0.3596

*Note: ERMD = Enterprise Risk Management Disclosure; LEV = Leverage; NILP = Firm Value; PROF = Profitability; ***p-value < 0.005.*

The regression results in Table 5 show that in the first estimate, ERMD has a positive beta coefficient value of 0.815 and a Prob. value of 0.0063, so it can be concluded that H_1 is supported, namely ERMD has a positive effect on NILP. However, the results of the second equation show that the interaction of COVID with ERMD and NILP is insignificant, which means that H_2 is not supported, indicating that the COVID-19 crisis cannot moderate the relationship between ERMD and NILP.

The effect of enterprise risk management disclosure towards firm value

Risk management guides corporate management in establishing policies to communicate risk management strategies to investors effectively. It is executed to convey signals and information to investors on the company's capability and adaptability in addressing uncertainty (Damayanti & Prayoga, 2020; Wirahadi & Pasaribu, 2022). Hypothesis testing results indicate that ERMD positively influences firm value, suggesting that more risk management disclosure correlates with heightened investor and shareholder expectations of management's capability to navigate uncertainty. These findings align with other studies indicating that ERM procedures positively influence firm value (Hoyt & Liebenberg, 2011, 2015; Ismanu et al., 2021; Malik et al., 2020; Pangestuti et al., 2023).

Agency theory posits that risk management disclosure serves as a control mechanism employed by shareholders to mitigate information asymmetry between management and shareholders. Information asymmetry arises when one party possesses greater knowledge than the other, leading to a situation where one side prioritizes its advantage to the detriment of the other. Risk management disclosure is a strategy to mitigate information asymmetry (Agustina et al., 2021; Machmuddah et al., 2023). Risk management disclosure enhances the control mechanism shareholders exert on management, ensuring that all decisions are grounded in a thorough risk assessment (Agustina et al., 2021; Bravo, 2017). Moreover, the comprehensiveness of risk management disclosures by management correlates positively with shareholder confidence, alleviating concerns of opportunistic behavior and indicating a commitment to enhancing shareholder welfare through the preservation or augmentation of firm value (Agustina et al., 2021; Machmuddah et al., 2023; Pangestuti et al., 2023).

Furthermore, risk management disclosure serves as a management control mechanism and a manifestation of signaling theory, reflecting a company's endeavor to convey a favorable indication of its prospects (Connelly et al., 2011; Devi et al., 2017; Jensen & Meckling, 1976; Spence, 1973). Management's positive signal sent through risk management disclosure is to instill investor confidence in their proactive capability to control uncertainty risk (Bravo, 2017; Panfilo, 2019). Moreover, for institutional investors who prioritize transparency and robust risk management, a significant indicator of thorough and extensive disclosure might serve as a conduit for corporate communication (Bravo, 2017; Malahim, 2023). Consequently, an elevated level of risk management disclosure signifies a robust favorable indication to policymakers, influencing their faith in the firm, which is reflected in the company's valuation (Rahman & Rahman, 2020).

The moderation role of COVID-19 crisis in enhancing enterprise risk management disclosure towards firm value

Signaling theory posits that firms with access to relevant information will transmit signals to the market to attract attention and gain favorable responses, particularly when the information is valuable to both the signal sender (management) and the signal receiver (investors and shareholders) (Connelly et al., 2011). In parallel, agency theory conceptualizes the relationship between shareholders and managers as a principal-agent contract, wherein shareholders (principals) delegate authority to managers (agents) to act on their behalf (Jensen & Meckling, 1976; Pangestuti et al., 2023). Within this framework, risk management disclosure functions as a control mechanism by shareholders and a strategic signal from management to reduce information asymmetry and indicate their commitment to protecting firm value.

In times of crisis, such as the COVID-19 pandemic, these theories suggest that risk management disclosure should play a heightened role. It assures that management is taking steps to mitigate emerging risks and signals managerial competence in navigating uncertainty. Previous studies, such as Florio and Leoni (2017), have emphasized that environmental uncertainty can influence the relationship between risk management practices and firm value. The COVID-19 pandemic, marked by heightened uncertainty and operational disruption (Barua, 2020; Klöckner et al., 2023; Sharma et al., 2020), was expected to amplify the value of such disclosures.

However, the results of this study reveal that the COVID-19 crisis did not moderate the relationship between risk management disclosure and firm value. This finding indicates that, despite an increased need for transparency during crises, such disclosures alone may be insufficient to bolster investor confidence. Several factors may explain this phenomenon. First, the pandemic induced sharp financial distress across firms, which may have led investors to prioritize concrete accounting information from financial metrics such as liquidity and solvency over narrative disclosures (Slamet et al., 2023; Fathmaningrum & Utami, 2022). Second, in extreme and systemic crises, risk disclosures' credibility and perceived utility may diminish as investors focus on short-term survival strategies and tangible responses (Hao & Pham, 2022; Bai et al., 2024; Garsaa, 2024).

This result suggests a limitation in the signaling power of risk management disclosures in contexts of high uncertainty and market panic. As such, signaling theory may need to be expanded or contextualized to account for situations in which traditional signals are devalued or overlooked. Similarly, from the agency perspective, the effectiveness of disclosure as a monitoring tool may weaken if shareholders perceive that external shocks beyond their control constrain management actions.

The findings of this study contribute to the development of signaling and agency theories by revealing that the effectiveness of risk management disclosure as a signal and control mechanism is context-dependent. While such disclosures are generally perceived as indicators of managerial competence and alignment with shareholder interests, their influence diminishes during extreme external shocks like the COVID-19 crisis. In such situations, investors may prioritize tangible indicators of firm resilience over narrative disclosures, indicating that the signaling value of risk disclosure is conditional upon perceived relevance and credibility. Practically, this underscores the need for firms to complement risk disclosures with concrete financial and strategic responses during crises. Companies must enhance their disclosures' quantity, quality, and clarity while demonstrating financial stability and adaptive capacity to maintain investor trust and sustain firm value.

Conclusion

This research examines whether enterprise risk management disclosure (ERMD) can enhance firm value and whether the COVID-19 crisis requires management to disclose more. The result shows that ERMD positively influences firm value, but the COVID-19 crisis does not moderate this relationship. It indicates that although firms are expected to disclose their risk management practices, investors and shareholders may prioritize other information, such as operational continuity and financial resilience, over risk disclosures during a crisis.

Theoretically, the findings contribute to the development of signaling theory by affirming that risk management disclosure is a credible signal to reduce information asymmetry and increase firm value under normal conditions. However, the absence of a moderating effect from the COVID-19 crisis suggests that in times of severe external shocks, such signals may lose relative salience as stakeholders shift their focus to more immediate indicators of survival. It also adds nuance to agency theory, indicating that although disclosure helps align management and shareholder interests, crisis conditions may alter what is perceived as managerial accountability and responsiveness.

The results highlight the importance of continuously maintaining transparent risk disclosures as part of long-term value-creation strategies. However, companies should complement ERM disclosure with more comprehensive communication strategies that emphasize business continuity plans and financial safeguards during crises. For regulators, the findings suggest that disclosure frameworks may need to be more adaptive and contextual—especially during crisis periods—to ensure that mandated disclosures align with the evolving informational needs of investors.

This research has limitations because it only depicts one crisis occurrence, COVID-19, in 2019 and 2020, making the crisis moderation role seem limited. It suggests that future research can compare how the moderating role of each crisis, such as 1998, the 2008 crisis, and the COVID-19 crisis, into one model. In addition, future research can analyze more deeply by providing analysis based on risk management disclosure clusters to provide clearer insight into which parts need to be considered by management and other stakeholders related to risk management disclosure. Measurement of risk management disclosure also can be developed not only in the form of a dummy but also in a more focused way on exploring whether certain information content in each part of the disclosure influences the value of the company.

References

Agustina, L., Jati, K. W., Baroroh, N., Widiarto, A., & Manurung, P. N. (2021). Can the risk management committee improve risk management disclosure practices in Indonesian companies? *Investment Management & Financial Innovations, 18*(3), 204. https://doi.org/10.21511/imfi.18(3).2021.19

Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal*

of behavioral and experimental finance, 27, 100326. https://doi.org/10.1016/j.jbef.2020.100326
Aljughaiman, A. A., Nguyen, T. H., Trinh, V. Q., & Du, A. (2023). The Covid-19 outbreak, corporate financial distress and earnings management. *International Review of Financial Analysis, 88*, 102675. https://doi.org/10.1016/j.irfa.2023.102675
Ashraf, B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? *Research in international business and finance, 54*, 101249. https://doi.org/10.1016/j.ribaf.2020.101249
Bae, S. M., Masud, M. A. K., & Kim, J. D. (2018). A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability, 10*(8), 2611. https://doi.org/10.3390/su10082611
Bai, G. V., Frank, D., & Prabhu, K. S. (2024). Does ESG disclosure enhance firm performance during COVID-19? Evidence from Nifty 500 firms. *Investment Management & Financial Innovations, 21*(3), 74. https://doi.org/10.21511/imfi.21(3).2024.07
Bappenas. (2020). *Laporan Perkembangan Ekonomi Indonesia dan Dunia Triwulan III Tahun 2020*.
Barua, S. (2020). Understanding Coronanomics: The economic implications of the coronavirus (COVID-19) pandemic. *Available at SSRN 3566477*. https://doi.org/10.2139/ssrn.3566477
Bravo, F. (2017). Are risk disclosures an effective tool to increase firm value? *Managerial and Decision Economics, 38*(8), 1116-1124. https://doi.org/10.1002/mde.2850
Burnaby, P., & Hass, S. (2009). Ten steps to enterprise ‐ wide risk management. *Corporate Governance: The international journal of business in society, 9*(5), 539-550. https://doi.org/10.1108/14720700910998111
Calomiris, C. W., & Nissim, D. (2014). Crisis-related shifts in the market valuation of banking activities. *Journal of Financial Intermediation, 23*(3), 400-435. https://doi.org/10.1016/j.jfi.2014.05.002
Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of management, 37*(1), 39-67. https://doi.org/10.1177/0149206310388419
COSO. (2017). *Enterprise Risk Management Integrating with Strategy and Performance.*
Cucino, V., Ferrigno, G., Crick, J., & Piccaluga, A. (2024). Identifying entrepreneurial opportunities during crises: a qualitative study of Italian firms. *Journal of Small Business and Enterprise Development, 31*(8), 47-76. https://doi.org/10.1108/JSBED-04-2023-0159
Damayanti, C. R., & Prayoga, A. (2020). Investors' Perspectives on the Financial and Non Financial Reports. *3rd Annual International Conference on Public and Business Administration (AICoBPA 2020)*. https://doi.org/10.2991/aebmr.k.210928.001
Desender, K., & Lafuente, E. (2009). The influence of board composition, audit fees and ownership concentration on enterprise risk management. *SSRN Electronic Journal, 12*. https://doi.org/10.2139/ssrn.1495856
Devece, C., Peris-Ortiz, M., & Rueda-Armengot, C. (2016). Entrepreneurship during economic crisis: Success factors and paths to failure. *Journal of business research, 69*(11), 5366-5370. https://doi.org/10.1016/j.jbusres.2016.04.139
Devi, S., Budiasih, I., & Badera, I. (2017). Pengaruh pengungkapan enterprise risk management dan pengungkapan intellectual capital terhadap nilai perusahaan. *Jurnal akuntansi dan keuangan Indonesia, 14*(1), 2. https://doi.org/10.21002/jaki.2017.02
Doern, R., Williams, N., & Vorley, T. (2019). Special issue on entrepreneurship and crises: business as usual? An introduction and review of the literature. *Entrepreneurship &*

Regional Development, 31(5-6), 400-412. https://doi.org/10.1080/08985626.2018.1541590

Edmonds, C. T., Edmonds, J. E., Leece, R. D., & Vermeer, T. E. (2015). Do risk management activities impact earnings volatility? *Research in Accounting Regulation, 27*(1), 66-72. https://doi.org/10.1016/j.racreg.2015.03.008

Enikolopov, R., Petrova, M., & Stepanov, S. (2014). Firm value in crisis: Effects of firm-level transparency and country-level institutions. *Journal of Banking & Finance, 46*, 72-84. https://doi.org/10.1016/j.jbankfin.2014.04.028

Enslin, Z., du Toit, E., & Puane, M. F. (2025). The readability and narrative tone of risk and risk management disclosures for South African listed companies. *Journal of Accounting in Emerging Economies, 15*(1), 224-241. https://doi.org/10.1108/JAEE-09-2022-0276

Eilon, S. (1992). Key ratios for corporate performance. *Omega, 20*(3), 337-343. https://doi.org/10.1016/0305-0483(92)90038-9

Fama, E. F., & Jensen, M. C. (1983). Agency problems and residual claims. *The journal of law and Economics, 26*(2), 327-349. https://doi.org/10.1086/467038

Fathmaningrum, E. S., & Utami, T. P. (2022). Determinants of investment decisions in the capital market during the COVID-19 pandemic. *Journal of Accounting and Investment, 23*(1), 147-169. https://doi.org/10.18196/jai.v23i1.13408

Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review, 49*(1), 56-74. https://doi.org/10.1016/j.bar.2016.08.003

Garsaa, A. (2024). How Has the COVID‐19 Crisis Affected the Link Between ESG Disclosure and Firm Value? A Two‐Level Analysis of European Listed Companies. *Business Ethics, the Environment & Responsibility*. https://doi.org/10.1111/beer.12771

González, L. O., Santomil, P. D., & Herrera, A. T. (2020). The effect of Enterprise Risk Management on the risk and the performance of Spanish listed companies. *European Research on Management and Business Economics, 26*(3), 111-120. https://doi.org/10.1016/j.iedeen.2020.08.002

Gouiaa, R., Zéghal, D., & El Aoun, M. (2020). An analysis of the relation between enterprise risk management (ERM) information disclosure and traditional risk measures in the US banking sector. *Risk Governance and Control: Financial Markets & Institutions, 10*(1), 61-74. https://doi.org/10.22495/rgcv10i1p5

Hao, J., & Pham, V. T. (2022). COVID‐19 disclosures and market uncertainty: Evidence from 10‐Q filings. *Australian Accounting Review, 32*(2), 238-266. https://doi.org/10.1111/auar.12369

Harymawan, I., & Rahayu, N. K. (2022). A review of COVID-19 related research in accounting. *Cogent Business & Management, 9*(1), 2116798. https://doi.org/10.1080/23311975.2022.2116798

Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of risk and insurance, 78*(4), 795-822. https://doi.org/10.1111/j.1539-6975.2011.01413.x

Hoyt, R. E., & Liebenberg, A. P. (2015). Evidence of the value of enterprise risk management. *Journal of Applied Corporate Finance, 27*(1), 41-47. https://doi.org/10.1111/jacf.12103

Huang, J., Kombate, B., Li, Y., Kouadio, K. R., & Xie, P. (2023). Effective risk management in the shadow of COVID-19 pandemic: The evidence of Indonesian listed corporations. *Heliyon, 9*(5). https://doi.org/10.1016/j.heliyon.2023.e15744

Ismanu, S., Kusmintarti, A., & Winarto, E. (2021). The role of enterprise risk management in enhancing firm value before and during the covid-19 pandemic in Indonesia. *2nd*

Annual Management, Business and Economic Conference (AMBEC 2020), https://doi.org/10.2991/aebmr.k.210717.040

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Khodarahmi, E. (2009). Crisis management. *Disaster Prevention and Management: An International Journal, 18*(5), 523-528. https://doi.org/10.1108/09653560911003714

Klöckner, M., Schmidt, C. G., Wagner, S. M., & Swink, M. (2023). Firms' responses to the COVID-19 pandemic. *Journal of Business Research, 158*, 113664. https://doi.org/10.1016/j.jbusres.2023.113664

Leung, S., & Horwitz, B. (2010). Corporate governance and firm value during a financial crisis. *Review of Quantitative Finance and Accounting, 34*, 459-481. https://doi.org/10.1007/s11156-009-0141-z

Liu, C., Uchida, K., & Yang, Y. (2012). Corporate governance and firm value during the global financial crisis: Evidence from China. *International Review of Financial Analysis, 21*, 70-80. https://doi.org/10.1016/j.irfa.2011.11.002

Machmuddah, Z., Rohman, A., Juliarto, A., & Handayani, S. (2023). Do board characteristics moderate the relationship between integrated reporting disclosure and company value? *Contaduría y administración, 68*(4), 69-87. https://doi.org/10.22201/fca.24488410e.2023.4604

Madobi, S. M. S., Sani; Abdulkarim, Garba. (2020). Enterprise Risk Management (ERM) Practices and Value of Commercial Banks in Nigeria: A Moderating Effect of Enviromental Uncertainty. *Journal of Management Sciences, 2*(2), 276-290.

Malahim, S. S. (2023). The relationship between the risk disclosure and risk management committee on banks value: empirical evidence from Jordan. *International Journal of Professional Business Review, 8*(3), 23. https://doi.org/10.26668/businessreview/2023.v8i3.572

Malik, M. F., Zaman, M., & Buckby, S. (2020). Enterprise risk management and firm performance: Role of the risk committee. J*ournal of Contemporary Accounting & Economics, 16*(1), 100178. https://doi.org/10.1016/j.jcae.2019.100178

Moeller, R. R. (2011). *COSO enterprise risk management: establishing effective governance, risk, and compliance processes*. John Wiley & Sons. https://doi.org/10.1002/9781118269145

Mohamed, M. K., Allini, A., Ferri, L., & Zampella, A. (2019). Investors' perception on the usefulness of management report disclosures: Evidence from an emerging market. *Meditari Accountancy Research, 27*(6), 893-920. https://doi.org/10.1108/MEDAR-11-2018-0393

Mokdadi, S., & Saadaoui, Z. (2023). Geopolitical uncertainty and the cost of debt financing: the moderating role of information asymmetry. *The Journal of Risk Finance, 24*(5), 684-720. https://doi.org/10.1108/JRF-12-2022-0308

Morgeson III, F. V., Sharma, U., Schultz, X. W., Pansari, A., Ruvio, A., & Hult, G. T. M. (2024). Weathering the crash: Do customer-company relationships pay off during economic crises? *Journal of the Academy of Marketing Science, 52*(2), 489-511. https://doi.org/10.1007/s11747-023-00947-1

Nasution, N., Putri, D. H., & Faruqi, F. (2020). The effect of asymmetry information and corporate governance mechanism on earning management in companies listed in the Islamic index period of Jakarta 2015-2018. *Annual International Conference on Accounting Research (AICAR 2019)*. https://doi.org/10.2991/aebmr.k.200309.018

Nguyen, H. T., Pham, M. H., & Truong, C. (2023). Leadership in a pandemic: Do more able managers keep firms out of trouble? *Journal of Behavioral and Experimental Finance, 37*, 100781. https://doi.org/10.1016/j.jbef.2022.100781

Panfilo, S. (2019). (In) consistency between private and public disclosure on enterprise risk management and its determinants. *Multiple perspectives in risk and risk management: ERRN 8th European risk conference 2018, Katowice, Poland, September 20-21*. https://doi.org/10.1007/978-3-030-16045-6_4

Pangestuti, D. C., Muktiyanto, A., & Geraldina, I., & Darmawan, D. (2023). Modified of ERM Index for Southeast Asia. *Cogent Business & Management, 10*(2), 2199906. https://doi.org/10.1080/23311975.2023.2199906

Patelli, L., & Prencipe, A. (2007). The relationship between voluntary disclosure and independent directors in the presence of a dominant shareholder. *European Accounting Review, 16*(1), 5-33. https://doi.org/10.1080/09638180701265820

Pedersen, C. L., & Ritter, T. (2022). The market-shaping potential of a crisis. I*ndustrial Marketing Management, 103*, 146-153. https://doi.org/10.1016/j.indmarman.2022.03.008

Quon, T. K., Zeghal, D., & Maingot, M. (2012). Enterprise risk management and firm performance. *Procedia-Social and Behavioral Sciences, 62*, 263-267. https://doi.org/10.1016/j.sbspro.2012.09.042

Rahayu, I., Ardi, D. S., & Hamdani, R. (2022). Risk management disclosure and their effect on banking firms value in Indonesia. *Humanities and Social Sciences Letters, 10*(2), 139-148. https://doi.org/10.18488/73.v10i2.2959

Rahman, J. A., & Rahman, A. (2020). The Effect of Company Characteristics on Voluntary Disclosure with Corporate Governance as a Moderated Variables. *International Journal of Managerial Studies and Research, 8(*10), 24-33. https://doi.org/10.20431/2349-0349.0810004

Rapp, M. S., Schellong, D., Schmidt, M., & Wolff, M. (2011). Considering the shareholder perspective: value-based management systems and stock market performance. *Review of Managerial Science, 5*, 171-194. https://doi.org/10.1007/s11846-010-0056-z

Sanasi, S., & Ghezzi, A. (2024). Pivots as strategic responses to crises: Evidence from Italian companies navigating Covid-19. *Strategic Organization, 22*(3), 495-529. https://doi.org/10.1177/14761270221122933

Shad, M. K., Lai, F.-W., Fatt, C. L., Klemeš, J. J., & Bokhari, A. (2019). Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner production, 208*, 415-425. https://doi.org/10.1016/j.jclepro.2018.10.120

Shaluf, I. M., & Ahmadun, F.R. (2006). Disaster types in Malaysia: an overview. *Disaster Prevention and Management: An International Journal, 15*(2), 286-298. https://doi.org/10.1108/09653560610659838

Sharma, P., Leung, T. Y., Kingshott, R. P., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective. *Journal of business research, 116*, 188-192. https://doi.org/10.1016/j.jbusres.2020.05.026

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2021). The impact of the COVID-19 pandemic on firm performance. *Research on Pandemics*, 81-98. Routledge. https://doi.org/10.4324/9781003214687-7

Schmidt, W., & Raman, A. (2022). Operational disruptions, firm risk, and control systems. *Manufacturing & Service Operations Management, 24*(1), 411-429. https://doi.org/10.1287/msom.2020.0943

Silva, J. R., Silva, A. F. D., & Chan, B. L. (2019). Enterprise risk management and firm value: Evidence from Brazil. *Emerging Markets Finance and Trade, 55*(3), 687-703. https://doi.org/10.1080/1540496X.2018.1460723

Silva, A. C., Chavez, G. A., & Lopez ‐ Lubian, F. J. (2013). Transparency, value creation, and financial crises. *Journal of Applied Corporate Finance, 25*(1), 81-88. https://doi.org/10.1111/j.1745-6622.2013.12009.x

Slamet, A. C., Christiana, A., & Kurniawati, H. (2023). Enterprise Risk Management and Firm value: Evidence of Indonesia before and during Covid-19. *E3s web of conferences*. https://doi.org/10.1051/e3sconf/202342602051

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics, 87*(3), 355- 374. https://doi.org/10.2307/1882010

Sun, X., Zheng, T., Wang, Z., & Li, P. (2024). Risk factors disclosure and corporate philanthropy. *International Review of Financial Analysis, 93*, 103116. https://doi.org/10.1016/j.irfa.2024.103116

Teja, A. (2024). The effect of COVID-19 and CEO tenure on environmental and social disclosure scores. *Journal of Accounting and Investment, 25*(1), 289-310. https://doi.org/10.18196/jai.v25i1.20376

Wahyuni, R. S., & Novita, N. (2021). COSO ERM Framework as the basis of Strategic Planning in Islamic Banking. *Jurnal Keuangan dan Perbankan, 25*(1), 21-35. https://doi.org/10.26905/jkdp.v25i1.5123

Wirahadi, A., & Pasaribu, M. (2022). Business model innovation: The role of enterprise risk management and strategic agility. *7th Sriwijaya Economics, Accounting, and Business Conference (SEABC 2021)*. https://doi.org/10.2991/aebmr.k.220304.037

Zyznarska-Dworczak, B., & Rudžionienė, K. (2022). Corporate COVID-19-related risk disclosure in the electricity sector: evidence of public companies from Central and Eastern Europe. *Energies, 15*(16), 5810. https://doi.org/10.3390/en15165810

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.