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Navigating Complexity of Risk Management Disclosure in the Energy Insurance Industry Using ISO 31000 Framework Analysis

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ABSTRACT

Globalization has made the business environment more complex, with many corporations facing increasingly difficult challenges. Furthermore, some corporations place a higher focus on risk management than profit. However, risk management has continued to evolve over the years. Therefore, this study delves into the determinants influencing risk management disclosure (RMD) in energy insurance companies, addressing the complex requirements of risk and transparency. The research presents a new model and examines parameters such as profitability, leverage, liquidity, company size, and ownership structure—including public, institutional, and managerial ownership—within the framework of ISO 31000, moderated by the risk management committee. This study used a quantitative research approach to gather data from 2014 to 2023 for 133 observations through purposive sampling. The findings indicate that company profitability, leverage, liquidity, company size, and ownership structure—including public ownership and managerial ownership—have no positive effect on risk management disclosure (RMD), whereas institutional ownership has a positive impact on RMD. On the other hand, the risk management committee moderates the significant impact of public ownership, institutional ownership, and managerial ownership on RMD. This study underscores the importance of shaping risk management disclosures in the Indonesian insurance sector. This research contributes to a nuanced understanding of the factors driving RMD, offering valuable insights for stakeholders in the energy insurance industry.

1. INTRODUCTION

Insurance plays a vital role in transferring risk [1]. Risk management is the coordinated approach a company takes to address risk issues [2]. External stakeholders require risk management disclosure to comprehend the approach and how the management handles risks [3]. The specific content of risk management disclosures by insurance companies is an important aspect to consider. First, insurance risks include details on underwriting risks, claim risks, and how the company manages these through pricing, policy design, reinsurance, and claims management. Second, market risk refers to information on risks associated with changes in market prices, such as interest rates. Third, credit risk discusses the risk of default by counterparties, including reinsurance partners, policyholders, and investment counterparties. Fourth, operational risk describes hazards arising from inadequate or failed internal processes, systems, people, or external events. Fifth, liquidity risk comprises details about the company's capacity to fulfill its financial commitments on time and the strategies implemented for managing liquidity. Lastly, strategic and emerging risks offer valuable insights into potential hazards that could potentially impact the company's operations. However, The annual report of the company provides in-depth information on the risks it faces, the measures taken by management, and the tactics used to reduce those risks [4]. Stakeholders believe this transparency is crucial for decision-making as it includes company disclosure and progress.

Understanding risk management disclosure factors is crucial in insurance companies, especially in countries with setbacks like the Jiwasraya case and Indonesia's financial insolvency [5]. Several insurance companies in the United States (e.g., Conseco) and Europe have gone bankrupt. Conseco was founded in 1979, but its bankruptcy in 2002 resulted in an estimated 61.4 billion USD. The main reasons were poor risk management, inadequate assessment, and management of risk, leading to higher-than-expected claims.

Moreover, During the 2008 financial crisis, the government bailed out AIG and Yamato Life Insurance went bankrupt. Lack of failure indications to transmit continuous, early warning messages makes the surveillance system ineffective. Nevertheless, these failures highlight the complex and multifaceted nature of risks in the insurance industry. Addressing these issues requires robust risk management, sound regulatory frameworks, innovative product development, and strong corporate governance [6].

In addition, Strategic risk management is crucial in the insurance sector to prevent negative effects on performance. Strategic risk management in the insurance sector is integral to safeguarding the organization's stability, growth, and reputation. Its role encompasses various functions crucial for navigating uncertainties and ensuring long-term success. In summary, the role of strategic risk management in insurance is to identify, assess, mitigate, and monitor risks to ensure the organization's financial stability, regulatory compliance, operational efficiency, and strategic decision-making. These roles play a crucial role in maintaining stakeholder confidence, enhancing performance, and securing the long-term success of the organization. Moreover, these roles foster transparency and accountability in risk management practices, ensuring that stakeholders are well-informed and capable of making decisions based on accurate risk information. The process involves identifying all potential risks, including market, credit, operational, and strategic risks. However, The LifeSecure Insurance case study shows how strategic agility is crucial in the fast-changing life insurance sector. Kumar and Rao [7] showed how failing to react to legislative changes, technological advances, and changing customer expectations can hurt performance. Life insurance companies must evolve strategically, invest in technology, grasp market dynamics, and control risk management to succeed. Moreover, An examination of the Australian life insurance industry in Australia shows negative financial activity impacting losses for insurance companies [8].

Efficient risk management is crucial for insurance firm stability and continuity, as per Financial Services Authority Circular Letter 8/SEOJK.05.2021. The increase in risk management disclosures by Indonesian insurance companies is primarily due to their residual value, which indicates potential undetected risk issues. This highlights the need for thorough attention and support to fully disclose risks (Table 1).

Table 1. Risk management disclosure of insurance companies from 2013-2022

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Company	4	6	9	11	16	16	17	18	18	18
RMD	39%	43%	49%	49%	51%	62%	65%	68%	70%	75%

The stakeholders naturally expect that risk information should be extensively distributed in publicly available reports [9]. RMD is a company's risk management system that allows external parties to access financial and non-financial risk profiles. It enhances transparency and improves company evaluation. We use ISO 31000, an international risk management standard, to evaluate risk management disclosure. We have refined the ISO 31000:2018 standard to enhance the information and implementation of risk management principles. The Centre for Risk Management Studies (CRMS) uses it to assess risk management efficacy [10].

Moreover, Prior studies on risk management disclosure have been conducted in several nations like Greece, China, Jordan, Indonesia, and others. A study by Gonidakis et al. [11] in Greece investigated the factors of leverage, liquidity, and company size. Rahman et al. [12] conducted a study in China analyzing the variables of corporate size, leverage, intellectual capital, and company performance. A study conducted in Jordan by Alshirah and Alshira'h [13] examined the fluctuations in institutional ownership, foreign ownership, and family ownership. Previous studies in different nations have shown variability in the outcomes of independent variables in risk management disclosure. The study introduces a novel model that regulates factors influencing risk management disclosure, such as profitability, leverage, liquidity, business size, public ownership, institutional ownership, and managerial ownership. The risk management committee moderates this model based on observed inconsistencies. The study uses unbalanced panel data from 2014 to 2023 and applied ISO 31000 as a risk management disclosure standard, integrating 33 qualitative disclosures to generate a proxy. This approach enhances and refines research outcomes [14].

In addition, the global financial performance crisis has shown that businesses that want to retain clients and shareholders require risk management [15]. So, this study will examine the impact of financial performance involving profitability, leverage, and liquidity on risk management disclosure and moderate risk management committees. In investing, investors consider the size of the company [16]. Research involving firm size provides investors with more accurate insights into the extent to which firm size affects risk-related corporate transparency, allowing investors to make more informed investment decisions. Thus, the ownership structure suggests that large shareholders want companies to be more transparent in disclosing risk information. This research will reveal the impact of ownership structure on corporate risk disclosure and moderate risk management committees, enabling companies and shareholders to design more adaptive and transparent risk management strategies. However, a risk management committee promotes business transparency and risk awareness. This reduces costs, boosts investment productivity, and generates income synergies [17]. Companies must employ integrated risk management because risks can happen at any time and create big losses. Therefore, this is a solution to address inconsistencies and ambiguities, enabling the achievement of company objectives. Moreover, the presence of a Risk Management Committee (RMC) can assist the board in properly managing future hazards and provide additional assurance to shareholders that the company has successfully implemented excellent corporate governance. Researchers the presence of a Risk Management Committee (RMC) can help the board manage potential dangers and provide extra assurance to shareholders that the company has successfully implemented GCG [18]. A risk management committee grants companies' greater authority and efficiency, aiding the board of commissioners in risk and internal control. The Indonesian government mandates the formation of risk management committees in industry and state-owned enterprises to enhance risk management and disclosure [19, 20]. This article investigates the factors influencing ERM disclosure in Indonesia and whether the committee plays a significant role in enhancing these processes. We expect the committee's role to enhance risk management and disclosure in Indonesian enterprises.

Therefore, the objectives of this study sought to determine whether financial parameters such as profitability, leverage, liquidity, and good corporate governance practices such as ownership structure, which includes public, institutional, and managerial ownership, can impact the level of disclosure in risk management in the energy insurance industry. Furthermore, the study aims to emphasize the significance of moderate risk management committee variables in this context which to the best of the authors' knowledge, no previous studies have been used in the energy insurance industry. This research makes substantial theoretical and practical contributions due to the usage of the most recent international standard, ISO 31000, in risk management. This differs from previous studies, which used outdated standards [20-24]. The research guidelines guided the study's use of RMD measurements. The goal is to make measurement improvements based on the widely-used ISO 31000:2009 and COSO 2004 frameworks. This disclosure applies to insurance companies in Indonesia that have not yet conducted a study on the implementation of this standard.

This research is structured into multiple components. The first, overview is the background above. Section 2 involves a literature study. Section 3 discusses research approaches such as variable measurement, data collection processes, and analytical techniques. Section 4 pertains to outcomes and their interpretation. Section 5 ends with conclusions and recommendations which include theoretical and practical Implications, limitations, and future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Theoretical perspective

According to the stakeholder theory, presenting risk information more deeply and broadly demonstrates the company's efforts to meet stakeholder requirements for information [25]. Stakeholders will always request broader disclosure and will always require that the companies disclose information on risk management in detail. When RMD is present, the company can fulfill the wishes of the stakeholders, fostering a symbiotic relationship between them. However, The agency theory assumes that the major goals of the principal and agents may not always align perfectly in their relationships. The disparity arose due to a divergence of interests between the principle, focused on maximizing investment returns, and the management, aiming to maximize pay as per the contract. Agency theory in the organizational environment elucidates the occurrence of information imbalances, also known as information asymmetries, and conflicts of interest [26]. Information asymmetry arises when the principle lacks the same level of information as the agent, with the theory of agency seeking to address the issue of conflicting interests between the owner and the management [27]. Managers, acting as agents, have access to comprehensive and precise information regarding the company's status, including potential future dangers, surpassing that available to other stakeholders. Managers must ensure the availability of pertinent and comprehensive information regarding company risk to address potential information asymmetry. One way to achieve this is through disclosure procedures, which means the managers, acting as agents, have access to detailed and accurate information about the company's status and future risks, more so than other stakeholders. Stakeholders, such as shareholders, insurance holders, creditors, and related parties, need this information to make informed decisions. To address potential information asymmetry, managers must ensure that relevant and comprehensive risk information is available. An efficient external reporting and monitoring device can help minimize information asymmetry between managers and shareholders, fostering trust and transparency in the agent-principal dynamic. This ensures that stakeholders have access to the necessary information to make informed decisions.

2.2 Risk Management Disclosure (RMD)

Understanding risk in the corporate world is essential. Decisions, behaviors, and the corporate environment all have possible risks. Eliminating risks is not essential; instead, we should manage them prudently to limit their adverse effects. This method is a crucial tactic for the endurance and expansion of a corporation [28]. Risk might stem from uncertainty due to insufficient information about future events in the firm [29]. Integrated risk management, sometimes referred to as enterprise risk management (ERM), enhances the application of risk management [10]. Risk management disclosure refers to providing stakeholders with information to evaluate the risks already addressed by the organization and the strategies planned for managing future risks [30]. The disclosure shows that firms comprehend the risks they encounter and are dedicated to transparently managing them, with a focus on sustainability and operational integrity.

Figure 1. Risk management framework
Source: ISO 31000:2018

Risk management involves systematically identifying, assessing, and mitigating potential risks to minimize their adverse impacts on an organization. This process involves continuous monitoring and effective communication to ensure informed decision-making and organizational resilience. Transparent disclosure of risk-related information is crucial for effective risk management, building trust, ensuring regulatory compliance, and supporting informed decision-making among stakeholders. By providing all relevant information, information disclosure enhances market efficiency, protects investors from fraud, supports excellent corporate governance, and maintains market confidence. It also aids in accurate risk assessment and contributes to a stable investment environment. Thus, to ensure market efficiency, protect investors, enhance corporate governance, and maintain market confidence, transparent disclosure practices are crucial for risk management and information disclosure. However, The RMD can be assessed by examining the company's yearly reports. The study will utilize the risk management framework ISO 31000:2018 as a benchmark for measurement and ISO offers direction on implementing a leadership-based framework for integrity through five aspects: design, execution, evaluation, and improvement, as illustrated in Figure 1. Moreover, Insurance companies are business entities that place risk management at the core of their operations. They manage risk and reduce its impact as part of their strategy. In the insurance world, risk is considered an essential component that drives innovation, premium policies, and business sustainability. As institutions operating in an industry that specifically deals with risk management, insurance companies understand that risk is an integral part of their business.

2.3 Profitability and risk management disclosure

Agency theory dictates that the more profitability an entity generates will make the principal more interested in buying its shares, which in turn will reduce agency costs [31, 32]. Transparent disclosure of risk identification, evaluation, and management by organizations can enhance stakeholder trust in their profitability. Profitability refers to a business's capacity to generate profit [17]. Subsequently, management will gain assurance regarding the company's financial performance and will be more inclined to offer more comprehensive risk disclosure to uphold stakeholder confidence and mitigate information asymmetry in agency theory.

According to the literature, the relationship between profitability and risk management disclosure is not straightforward and can vary widely. Insurance companies generally view the relationship between profitability and risk management disclosure as positive. Here are several reasons why this relationship tends to be positive. First, high-quality risk management disclosures can differentiate an insurance company from its competitors. This can attract more customers who value transparency and risk management, potentially increasing market share and profitability. Second, insurance companies operate in highly regulated environments. Compliance with risk management disclosure requirements helps avoid fines and sanctions, preserving profitability. Additionally, it signals to regulators and stakeholders that the company adheres to high standards. Therefore, for insurance companies, the relationship between profitability and risk management disclosure is predominantly positive. Transparent risk management disclosures enhance investor confidence, improve regulatory compliance, and lead to better risk mitigation practices. While such disclosures have costs and potential competitive risks, the overall benefits to profitability and financial stability generally outweigh these drawbacks. However, This metric can offer insights into a company's risk management and financial performance. The description suggests that the company's profitability, as indicated by its high profitability rate, significantly positively impacts RMD. Mwend and Ibrahim [33] conducted a study that showed a substantial beneficial effect of profitability on ERM. Other studies find profitability has a positive impact on RMD, as follows [24, 32]. However, Agustina et al. [20] found that profitability does not impact RMD. On the other hand, some state that profitability negatively affects [14, 23]. However, the previous studies related to the impact of profitability on ERM disclosure showed inconsistent results. Research on ERM disclosure, particularly in Indonesia, has primarily focused on testing the direct influence relationship model. The researchers believed that the presence of other variables, despite their potential influence, was the cause of the strengthening of this direct relationship. This study suggests a model that incorporates the risk management committee as a moderating variable.

H*₁*:* *Higher profitability significantly and positively enhances the quality of risk management disclosure.

H_2: *Higher profitability significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

2.4 Leverage and risk management disclosure

According to Jensen and Meckling [26], agency theory suggests that companies with higher leverage ratios disclose more information due to increased agency costs, which measure the extent to which a corporation uses debt for funding [23]. High leverage indicates a debt-oriented financial structure, which can increase a company's financial risk and affect risk management disclosures. Companies often aim to boost profitability by increasing appeal and benefits. However, failure to manage profitability can lead to financial risk, necessitating more risk management information. The risk management committee provides a positive signal to shareholders. The agency theory emphasizes the importance of providing stakeholders with comprehensive information about risk management techniques to help them understand how the company manages and minimizes the effects of such risk. The classical hypothesis in most previous research states that leverage positively impacts RMD and this hypothesis is supported by research conducted by Evana et al. [14]. This hypothesis is not by several research results that suggest that leverage does not affect RMD, some of these studies are [4, 11, 34]. However, researchers found that leverage has a significant negative effect. Therefore, the hypothesis in this research formulated [12, 23]:

H_3: *Higher Leverage significantly and positively enhances the quality of risk management disclosure.*

H_4: *Higher Leverage significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

2.5 Liquidity and risk management disclosure

In 2018, PT Sariwangi company faced a case of risk management failure. The Central Jakarta Commercial Court decided on the company’s bankruptcy because it failed to assess and mitigate risks. The primary cause of this company’s bankruptcy was its lack of investment in product development initiatives. The company should implement risk management as a protective measure to address risks that could potentially compromise its sustainability [35]. Therefore, a lack of liquidity can cause agency problems and lead the company into financial distress. In the context of agency theory, agency dilemmas in companies can be minimized by encouraging management to operate by the interests of stakeholders [36]. Liquidity refers to the degree of ease with which a company's assets or securities can be converted into cash [17]. Gupta and Symss [37] defined liquidity as a company's capacity to fulfill upcoming obligations, which can be assessed through metrics like the quick ratio or current ratio. The current ratio indicates how well liabilities are backed by assets that can be readily converted into cash. Low liquidity forces corporations to disclose more comprehensive information regarding their risk management measures. Companies aim to achieve the required transparency for stakeholders by improving their disclosure rates. High disclosures in the presence of low liquidity may be seen as a company's approach to managing and reducing risk while adhering to the principles of agency theory, which highlight the significance of maintaining a balanced flow of information between management and owners. A liquidity hypothesis can be developed that has a strong negative impact on RMD, consistent with the findings [38, 39]. There is also research that suggests the same thing, which negatively affects but does not have a strong impact [14, 31, 32, 37]. Contrary, some inconsistencies state a positive relationship such as research [11].

H_5: *Higher Liquidity significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

H_6: *Higher Liquidity significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

2.6 Company size and risk management disclosure

The size of a corporation is determined by its assets, equity, and revenues, which in turn define the scale of the business entity. A company's size is indicative of its current financial capability [40]. The company's size is determined by taking the natural logarithm (Ln) of its total assets. Choosing total assets as a metric is based on the idea that the overall quantity of assets might indicate the firm's size [41]. The size of a corporation indicates both the extent of its operations and the degree of complexity and obstacles it encounters in efficiently managing risk. As a corporation grows in size, it will encounter more hazards, leading to increased risk disclosure to align with the principle of agency. It may be inferred that the company's size significantly and positively affects RMD. The idea is backed by the findings of a study carried out by [12, 20, 34, 42, 43]. There is also research that suggests there is no influence between company size and RMD [22, 44]. However, the condition of agency theory dictates that information asymmetry will occur, and the risk management committee is designated as the party responsible for minimizing agency issues. The risk management committee enhances ERM disclosure quality by expanding monitoring and information reporting possibilities and changing the RMC form with company size [44]. Larasati et al. [45] demonstrated that an RMC influences a company's audit costs. The efforts of an RM Committee reduce the risk that the auditor will encounter. Based on the assumptions above this study will test and analyze the following hypotheses.

H_7: *Company Size significantly and positively enhances the quality of risk management disclosure.*

H_8: *Company Size significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

2.7 Ownership structure and risk management disclosure

Ownership structures often give rise to agency concerns involving controller and non-controller interests, along with contractual agreements between managers and owners [46]. The study investigates three ownership categories: public, institutional, and managerial. Public and institutional ownership promotes the adoption of risk management disclosures (RMDs) due to demands from informed shareholders and investment firms. Increased public ownership requires more comprehensive risk information, leading companies to enhance their disclosures. Institutional ownership improves RMD effectiveness by reducing managerial exploitation risks through specialized knowledge. Conversely, significant managerial ownership may lead to reduced risk disclosure, as managers prioritize protecting the company's reputation and controlling risk-related information. Overall, public and institutional ownership positively influences RMD, while managerial ownership has a negative effect. This highlights the complex dynamics between different ownership types and their impact on corporate risk management [31, 43, 44]. Contrary to Rahmawati and Prasetyo's study [31], which asserts a negative relationship between public ownership and a positive relationship with managerial ownership found a negative relationship with institutional ownership, and proposed a negative relationship with public ownership [47-50].

The ownership structure significantly impacts risk management disclosure practices. Concentrated ownership, such as among institutional investors, emphasizes robust risk management, leading to more comprehensive disclosures. Dispersing ownership among small shareholders may result in less direct pressure on management, potentially leading to fewer thorough disclosures. The type of owner also plays a crucial role, with institutional investors demanding higher transparency and stringent risk management practices, while family owners might prioritize control and stability. The presence and effectiveness of a risk management committee (RMC) can moderate the impact of ownership structure on risk management disclosure. A strong RMC enhances oversight, standardizes risk management practices, and ensures accountability, leading to more consistent and high-quality disclosures. An effective RMC can mitigate the negative influence of dominant shareholders, ensuring risk management disclosures meet regulatory standards and stakeholder expectations. A strong RMC enhances the link between management's ownership and the quality of risk disclosures, making sure their goals become real actions and reports (Figure 2).

H_9: *Public Ownership significantly and positively enhances the quality of risk management disclosure.*

H_{10}: *Institutional Ownership significantly and positively enhances the quality of risk management disclosure.*

H_{11}: *Managerial Ownership significantly and positively enhances the quality of risk management disclosure.*

H_{12}: *Public Ownership significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

H_{13}: *Institutional Ownership significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

H_{14}: *Managerial Ownership significantly and positively enhances the quality of risk management disclosure, moderated by the risk management committee.*

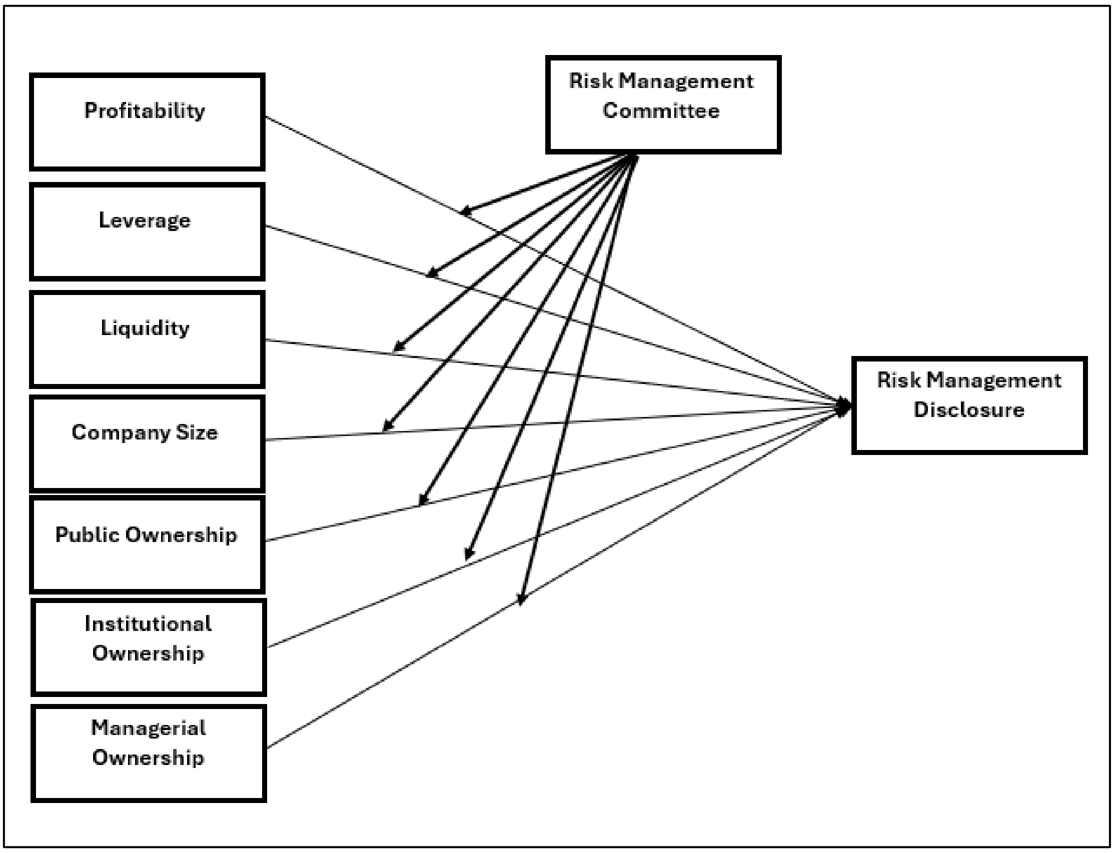

Figure 2. Research model

3. METHODOLOGY

The study uses a quantitative research approach with deductive reasoning to examine factors such as a company's size, profitability, leverage, liquidity, and ownership structure within the ISO 31000 framework. The risk management committee acts as a go-between, fostering openness toward potential risks and improving transparency in business management. Theories such as stakeholder theory and agency theory suggest that a risk management committee fosters a moderate relationship between the independent and dependent variables. However, The study was carried out from 2014 to 2023 using the population of insurance businesses registered on the Indonesian Stock Exchange. The data utilized is secondary data based on the research variables. The data was collected by analyzing the firm's annual reports through documentation studies on the (IDX) website and the official energy insurance company website using purposive sampling methods. The sample approach criteria involve selecting companies that produce yearly reports with financial accounts in Rupiah currency. By 2023, 18 insurance companies are listed on the Indonesian Securities Exchange (IDX). However, not all companies have consistently released annual reports from 2014 to 2023. Some companies have published financial reports in certain years using currencies other than Rupiah. 133 observations were obtained with the sampling procedure.

3.1 Research measurement

This study utilizes risk management disclosure (RMD) as the variable. We conduct the annual report's RMD findings through an integrated strategy that combines qualitative and quantitative methods. Disclosures discovered in the annual report will receive a score of 1, while the absence of disclosure will result in a score of 0. The RMD ISO 31000:2018 contained Leadership and Commitment 4 items, Integration, Design, Implementation, Evaluation, and Improvement items. Therefore, we should use profitability, leverage, liquidity, company size, and ownership structure, which includes public, institutional, and managerial ownership, as determinants. Simultaneously, the moderate variable should be taken into consideration. The company measures the management committee by counting the number of risk management committees [20]. We use quantitative approaches to measure variables, using proxies for each. Table 2 details and illustrates the operationalization of these variables.

3.2 Data analysis techniques

The regression analysis uses a panel data model, which can be standard/pooled, fixed-effect, or random-effect. Model selection tests are conducted to determine the model that defines the association among variables, as shown in Table 3.

After selecting the most suitable model, we conduct the test of assumptions to verify its ability to observe the impact between variables and determine the value of the dependent variable when the value of the independent variable is known [51]. Table 4 displays the results of the test of classical assumptions.

The model's goodness test, as shown in Table 5, confirms that it meets the classical assumptions and meets the test criteria, enabling the interpretation of the formed regression equation.

Table 2. Variable operationalization

Variables	Proxy	Sources
(RMD)	$\text{RMD} = \frac{\text{Total ERM item score revealed}}{\text{33 ERM items that should be disclosed}}$	[10]
(PROF)	$\text{Net Profit Margin (NPM)} = \frac{\text{Net Profit}}{\text{Net Revenue}}$	[47]
(LEV)	$\text{Debt to Equity Ratio (DER)} = \frac{\text{Total Debt}}{\text{Total Equity}}$	[23]
(LIQ)	$\text{Current Ratio (CR)} = \frac{\text{Current Asset}}{\text{Current Liabilities}}$	[48]
(SIZE)	$\text{Size} = \text{Ln(Total Aset)}$	[49]
(PO)	$\text{Public Ownership} = \sum \frac{\text{The share owned by Public}}{\text{Shares Outstanding}}$	[14]
(IO)	$\text{Institutional Ownership} = \sum \frac{\text{The shares owned by Manager}}{\text{Shares Outstanding}}$	[13]
(MO)	$\text{Manajerial Ownership} = \sum \frac{\text{The shares owned by Manager}}{\text{Shares Outstanding}}$	[41]
(RMC)	The number of risk management committees in the company	[20]

Table 3. Panel model selection tests

Test Panel Model	Null Hypothesis	Alternative Hypotheses
LM BP Test	Pooled/common models are better than Fixed	Fixed models are better than Pooled/common models
Chow Test	Pooled/common models are better than Random	Random Model is better than Pooled/common Model
Hausman Test	Random models are better than Fixed	Fixed models are better than Random

Table 4. Classical assumption test

Test Assumptions	Null Hypothesis	Alternative Hypotheses
Skewness Kurtosis	Normally distributed data	Data is not normally distributed
Breusch Pagan	Homoscedastic data variants	Heteroscedastic data variants
Woolridge Test	Non-autocorrelation models	Autocorrelation Model

Table 5. Model goodness of fit test

The Goodness of Fit Test	Null Hypothesis	Alternative Hypotheses	Reject Ho
Test Coefficient of Determination / adjusted R square		R square > 0.3	
Simultaneous Test / F Test	Model Not fit/ All variables have no effect	Model fit/minimum one variable has a significant effect	Prob. Value < 0.05
Partial Test / T Test	Certain independent variables have no effect	Independent variables have an effect	Prob. Value < 0.05

4. RESULTS AND DISCUSSIONS

The descriptive analysis determines the features of each variable in the study over the research period in Table 6.

The authors utilized the methodology section's tests, specifically the three tests in Table 7, to analyse the relationship between research variables.

Table 6. Descriptive analysis

Variable	Obs.	Mean	Std. dev.	Min.	Max.
RMD	133	.623609	.1462218	0.24	0.97
PO	133	.272203	.1758714	0	0.777
IO	133	.6722632	.2195116	0.1	1.425
MO	133	.0564812	.1580306	0	0.623
PROF	133	.1606917	.2232899	-0.477	0.963
LEV	133	1.571316	1.136616	0.131	5.37
LIQ	133	4.066173	5.420995	0.018	33.404
SIZE	133	27.75138	1.926357	20.785	31.206
RMC	133	3.218045	1.163448	1	7

We analyse the panel model selection using the classical assumptions of normality, heteroskedasticity, and autocorrelation. Table 8 meets the normality assumption. However, this also compromises the assumptions of heteroskedasticity and autocorrelation. The p-value of each test is lower than 0.05.

Due to violations of autocorrelation assumptions, fixed models were transformed using lag, gee, and robust [52, 53]. Table 9 displays the alternative mode in use.

The modelling is suitable, as evidenced by partial tests with a t-test probability value of 0.000 < alpha 0.05, indicating all significant variables had an effect.

Table 7. Test panel model

Test	Test Value	Prob. Value	Conclusion
LM BP Test	0.00	1.00	Model Common/Pooled is better than the Random Model
Chow Test	2.96	0.00	Fixed model is better than Common/Pooled models
Hausman Test	37.87	0.00	Fixed model is better than a Random Model

Table 8. Classical assumption test

Test	Test Value	Prob. Value	Conclusion
Normality Test	5.92	0.518	Normality
Heteroscedastic	0.00	0.999	Homoscedastic
Autocorrelation	100.384	0.000	Autocorrelation

Table 9. Alternative model

Variable	Fixed	Fixed_Lag	Fixed_Robust	Fixed_Dx	Gee
PO	25292527	0.19653282	0.25292527	0.32610263*	0.33063277
IO	2167552	-0.01577114	0.2167552*	0.16758383	0.29441076
MO	2.4942222	1.2281636	-2.4942222	-2.2417883*	0.56227343*
PROF	0.08235643	-0.02662202	-0.08235643	0.00758486	0.05903653
LEV	0.01343857	0.00196905	-0.01343857	-0.03487226	-0.00733134
LIQ	0.0188363***	0.00012953	-0.0188363***	-0.00275122	-0.00373589
SIZE	0.01174586	0.00805659	0.01174586	0.00756631	0.00011526
RMC	0.0752262***	0.02003765	0.0752262***	0.00475716	0.07171353***
PO_RMC	0.09947882	0.04154831	0.09947882	0.07043868	0.09617748
IO_RMC	14694331	0.06995686	14694331	0.09037177	0.15701938
MO_RMC	0.18498748	0.04401994	0.18498748**	0.07942471	0.1723468
PROF_RMC	0.00324866	0.00417732	-0.00324866	-0.00779109	0.00296521
LEV_RMC	0.03766044	0.00245778	-0.03766044	-0.02321023	-0.03234717
LIQ_RMC	0.04594672	0.04277454	-0.04594672	-0.02747556	-0.04049378
SIZE_RMC	0.04580223	-0.02574632	-0.04580223	-0.00412227	-0.05749774**
RMD L1	-	0.6204633***	-	-	-
_cons	11183318	-0.1174523	0.11183318	0.56516603***	0.12316027
Statistic	**Value**	-	-	-	-
N	133	115	133	115	133
R2	47397447	0.75958672	0.47397447	-	-
R2_3	3056463	0.66164056	0.4065353	-0.15609659	-
R2_0	04026039	0.10202398	0.04026039	0.00796681	-
F	6.0069894	15.994989	1451.3753	1.1071785	-
P	9.566e-09	8.902e-19	2.238e-23	-	1.414e-09
Chi2	-	-	-	-	72.792836

Table 10. The summary results

<table>
<tr><th rowspan="2">RMD</th><th rowspan="2">Coef</th><th rowspan="2">Std Robust'</th><th rowspan="2">T</th><th colspan="2">P>|T|</th><th rowspan="2">Conclusion</th></tr>
<tr><th>2 tails</th><th>1 tail</th></tr>
<tr><td>PO</td><td>0.2529</td><td>0.2570</td><td>0.9800</td><td>0.3390</td><td>0.170</td><td>H1 rejected</td></tr>
<tr><td>IO</td><td>0.2168</td><td>0.0812</td><td>2.6700</td><td>0.0160</td><td>0.008</td><td>H1 accepted</td></tr>
<tr><td>MO</td><td>-2.494222</td><td>1.4214</td><td>-1.75</td><td>0.0970</td><td>0.049</td><td>H1 rejected</td></tr>
<tr><td>PROF</td><td>-.0823564</td><td>0.0879</td><td>-0.94</td><td>0.3620</td><td>0.181</td><td>H1 rejected</td></tr>
<tr><td>LEV</td><td>-.0134386</td><td>0.0297</td><td>-0.45</td><td>0.6570</td><td>0.329</td><td>H1 rejected</td></tr>
<tr><td>LIQ</td><td>-.0188363</td><td>0.0042</td><td>-4.53</td><td>0.0000</td><td>0.000</td><td>H1 rejected</td></tr>
<tr><td>SIZE</td><td>0.0117</td><td>0.0104</td><td>1.1300</td><td>0.2750</td><td>0.138</td><td>H1 rejected</td></tr>
<tr><td>RMC</td><td>0.0752</td><td>0.0150</td><td>5.0100</td><td>0.0000</td><td>0.000</td><td>H1 accepted</td></tr>
<tr><td>PO_RMC</td><td>0.0995</td><td>0.0602</td><td>1.6500</td><td>0.1170</td><td>0.059</td><td>H_1 accepted</td></tr>
<tr><td>IO_RMC</td><td>0.1469</td><td>0.0706</td><td>2.0800</td><td>0.0530</td><td>0.027</td><td>H_1 accepted</td></tr>
<tr><td>MO_RMC</td><td>0.1850</td><td>0.0510</td><td>3.6300</td><td>0.0020</td><td>0.001</td><td>H_1 accepted</td></tr>
<tr><td>PROF_RMC</td><td>-.0032487</td><td>0.0084</td><td>-0.39</td><td>0.7020</td><td>0.351</td><td>H_1 rejected</td></tr>
<tr><td>LEV_RMC</td><td>-.0376604</td><td>0.0265</td><td>-1.42</td><td>0.1730</td><td>0.087</td><td>H_1 rejected</td></tr>
<tr><td>LIQ_RMC</td><td>-.0459467</td><td>0.0244</td><td>-1.88</td><td>0.0770</td><td>0.039</td><td>H_1 rejected</td></tr>
<tr><td>SIZE_RMC</td><td>-.0458022</td><td>0.0239</td><td>-1.91</td><td>0.0730</td><td>0.037</td><td>H_1 rejected</td></tr>
<tr><td>_cons</td><td>0.1118</td><td>0.3614</td><td>0.3100</td><td>0.7610</td><td>0.381</td><td></td></tr>
</table>

Based on Table 10, all significant and non-significant influential variables were included in the summary derived from the partial test identified by the t-test, for which the p-value. However, the main results and explanation in this research indicated the findings. The test of hypotheses (H_1) and (H_2) show that profitability has no effect on ERM disclosure, and the risk management committee was not moderate in this relationship. The results of this study contradict the agency theory. Moreover, For Indonesian energy insurance companies, profitability does not have a positive effect on RMD. This discovery contradicts the agency theory, which posits that organizations with high-profit margins typically provide more extensive risk disclosure to mitigate information asymmetry. However, this could be because insurance, as a complex industry, can exhibit several characteristics. In this profession, a high-profit rate does not guarantee minimal risk, which leads to confidence in disclosing risk information. Insurance requires a profound comprehension of risk and the importance of maintaining confidentiality. Therefore, High earnings for insurance firms do not necessarily indicate that the company will offer thorough risk disclosure. This discovery aligns with a study by Evana et al. [14]. This implies that profitability alone, regardless of the committee's influence, is not a determinant of disclosure quality.

Moreover, the results of hypotheses (H3) and (H4) indicate that leverage does not improve the quality of risk management disclosure, and the risk management committee does not moderate this relationship. Its unexpected implementation of enterprise risk management (ERM) becomes more challenging as financial leverage increases. Conversely, the negative impact of leverage is also not considerable. Therefore, a high leverage rate motivates managers to mitigate the risk associated with leverage to attract capital from investors. Retrograde information asymmetry would ensue, undermining the intent of agency theory, which aims to address agency-related concerns. The institution implements this measure to ensure it can secure the necessary equity for its commercial operations and debt settlement. The data indicate that leverage has a significant negative impact on insurance companies' risk management disclosures. Moreover, the risk management committee does not moderate this relationship due to a variety of factors, such as bureaucratic inefficiencies, conflicts of interest, or a lack of transparency. When a risk management committee is overly focused on internal processes or protecting the company's image, it may limit the extent and detail of disclosures to avoid revealing potential vulnerabilities. Additionally, inadequate expertise or a lack of independence among committee members can compromise their ability to accurately assess and report risks, resulting in incomplete or biased disclosures. Consequently, instead of enhancing transparency, the committee's presence may inadvertently result in less comprehensive risk management disclosures. The results are consistent with the findings from previous studies [24, 31].

Hypotheses (H5) and (H6) reveal that liquidity does not enhance the quality of risk management disclosures, nor does the risk management committee moderate this relationship. A high liquidity level encourages companies to expand risk disclosure, demonstrating credibility [54]. Conversely, previous literature suggests that liquidity does not affect risk disclosure [14, 31, 32, 37]. Moreover, In the context of low liquidity, high disclosure rates may reflect a company's attempt to maintain transparency and reassure stakeholders, such as policyholders and investors, about its risk management and operational sustainability. This aligns with the previous findings [38, 39], which highlight the importance of comprehensive risk disclosures in uncertain financial conditions. Moreover, the results of hypotheses (H7) and (H8) showed company size doesn't significantly influence risk management disclosures, contradicting the conventional belief that larger firms should disclose more detailed information. The risk management committee doesn't moderate this relationship, indicating that larger companies don't necessarily provide more detailed information. This conclusion aligns with the findings of Kumalasari et al. [54], who reported that company size does not affect risk management disclosure. However, it contradicts the study by Fayola and Nurbaiti [55], which suggested that larger firms tend to disclose more information due to their complex and extensive activities. Furthermore, the hypothesis (H_9) examines the impact of public ownership on risk management disclosures. The results of the data analysis indicate that public ownership does not significantly affect the level of risk management disclosures. This outcome can be attributed to the concentration of equity ownership within specific groups, which may prioritize management improvements over enhancing disclosure quality. These findings are consistent with the study by Fayola and Nurbaiti [55], which also concluded that public ownership does not influence risk management disclosure practices. Moreover, the lack of support for the research hypothesis suggests that the ownership structure is not directly related to corporate risk management disclosure levels. One plausible explanation is that risk management disclosures entail costs, and management is likely to disclose information only if the perceived benefits outweigh these costs. This study corroborates the findings of previous study [56], who also found no significant effect of public ownership on risk management disclosures. However, it contradicts the previous research [57], which reported that public ownership positively affects risk management disclosures. Accordingly, hypothesis (H_{10}) explores the impact of institutional ownership on risk management disclosures. The presence of significant institutional ownership is thus expected to promote greater transparency in the disclosure of operational risks. This enhanced transparency aligns with the broader role of institutional ownership in encouraging companies to provide comprehensive and accurate information to stakeholders. Moreover, Hypothesis (H_{11}) examines the impact of managerial ownership on risk management disclosures. Managers with substantial ownership stakes may exert significant influence over the board of directors and other governance structures, potentially leading to weaker oversight and less pressure to provide comprehensive risk management disclosures. High levels of managerial ownership can create a scenario where managers are less incentivized to offer thorough and transparent risk management disclosures. This may be due to potential conflicts of interest, reduced accountability, and a focus on personal financial benefits.

Finally, based on the results of hypotheses (H_{12}), (H_{13}), and (H_{14}), the risk management committee, formed by the board of commissioners, plays a critical role in supervising and monitoring the implementation of risk management within a company [58]. A dedicated risk management committee is considered more effective in supporting the board of commissioners in fulfilling their responsibilities related to risk control tasks [59]. As noted by Jannah et al. [60], the risk management committee is directly responsible for assisting the board in managing risk. The formation of this committee ensures the smooth implementation of risk management practices [41]. However, the functions of a risk management committee include monitoring, managing, and providing strategies for potential risks [61]. According to Sihab and Diyanti [62], these three lines include management control (first line), risk control and compliance oversight functions (second line), and independent assurance (third line). Effective risk management in a company requires these three lines to work collaboratively. Moreover, Signal theory suggests that forming a risk management committee demonstrates a company's commitment to good risk management disclosure practices, thereby potentially improving its reputation. Consequently, companies with risk management committees are likely to have broader risk management disclosures [63-65].

5. CONCLUSION

This study concluded the risk management committee plays an important role in controlling a company's risk management disclosures. Meanwhile, in large companies, the risk management committee limits risk disclosure to urgent matters in order to maintain stakeholder trust.

The theoretical contribution of this study focuses on the relationship between RMD, corporate governance, and company performance in the Indonesian energy insurance industry. Moreover, the study establishes a precedent for the significance of RMD and its impact on company performance. Additionally, it presents a new model for measuring risk disclosure. This study makes a practical contribution by focusing on a specific sector within the insurance industry and providing comprehensive information rich enough to guide the growth of other industries in Indonesia. Moreover, the study considers company managerial strategy as a measure of RDM.

Therefore, companies could strengthen their strategy by using the results of this study, particularly since Indonesia is at an early stage in the development of risk management and the companies' business environment is becoming increasingly complex. Finally, this study can assist in conducting similar studies in other industries, as it offers fundamental insights and points for future consideration, thereby facilitating more comprehensive RMD research.

The practical implications of the research outcome emphasize that Indonesian authorities should implement legislation mandating risk management disclosure following the ISO 31000:2018 standard, particularly within the insurance business. This implementation will lead to stricter laws that can help risk management disclosure grow by requiring insurance companies to follow the best risk management practices. This legislation can build a strong base for RMD to continue growing in the Indonesian energy insurance business as a strategic move to improve corporate governance.

Limitations and Future Research: This study chose only one specific industry among Indonesian insurance companies to analyze the relationship between RMD and company performance. In this study, the researchers focused solely on listed Indonesian insurance and energy companies to collect comprehensive data. This may limit the results' applicability to other regions or types of listed companies, especially considering Indonesia's unique socio-economic, regulatory, and cultural context, which may not be directly comparable to other countries or environments. For a more comprehensive analysis, both the RMD factor model and the company performance factor model can incorporate additional variables. However, in future research, the researchers could explore additional variables or contextual factors to further refine our understanding of optimal risk disclosure practices in dynamic business environments. Moreover, the authors could conduct effect-sizing analyses and sensitivity analyses. One other suggestion for future research directions is that since archival data served as the basis for measuring all this study's variables. This will aid researchers in providing answers to several pivotal inquiries about RMD.

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