

Article

Exploring the level of realm disclosure for Indonesian insurance business using ISO 31000

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CITATION

Kristanti FT, Riyadh HA, Ginting ESB, Beshr BAH. (2024). Exploring the level of realm disclosure for Indonesian insurance business using ISO 31000. *Journal of Infrastructure, Policy and Development*. 8(8): 5865. <https://doi.org/10.24294/jipd.v8i8.5865>

ARTICLE INFO

Received: 17 April 2024

Accepted: 3 June 2024

Available online: 23 August 2024

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Abstract: Risk management disclosure (RMD) is the company's responsibility to stakeholders, and corporate governance (CG) has emerged as a crucial factor in the realm of disclosure. The objective of the study is to examine the influence of corporate governance (CG) on risk management disclosure (RMD) in Indonesian insurance businesses, with control variables such as corporate size, profitability, debt, and liquidity. The parameters examined encompass the risk management committee (RMC), public ownership, institutional ownership, and managerial ownership of the ISO 31000:2018 standard RMD. This study utilized quantitative methods, collecting a total of 133 observations from 2013 to 2022. The regression results for the panel data show that CG has an impact on RMD. Although RMC greatly improves RMD, the positive ownership structure does not have a substantial effect. Increasing the proportion of RMC in the composition results in improved legibility of RMDs. This discovery suggests that the company should give greater importance to the RMC structure because it has been shown to have a substantial effect on RMD, which is a vital component of the company's risk management for investors. The findings of this study present possibilities for firms to implement ISO 31000:2018, thereby enhancing the significance of globally standardized Risk Management Documents (RMD).

Keywords: RMD; corporate governance (CG); ISO 31000:2018; RMC; ownership structure

1. Introduction

The relationship between corporate governance (CG), financial variables, and risk management disclosure is a widely studied research issue in the literature, particularly in organizations operating in the financial services sector (Noja et al., 2021). However, Insurance businesses, being an essential component of a service-oriented economy, have now become incorporated with the financial sector (Worku et al., 2024). Research conducted in multiple nations has demonstrated a keen interest in insurance corporations by uncovering a multitude of failures in insurance firms pertaining to risk management. Indonesian state-owned insurance companies are experiencing financial insolvency as a result of liquidity risk concerns (Trihatmoko and Kuncoro, 2021). In 2018 study, Eling and Jia (2018) investigated instances of insurance firm failures linked to governance in 16 European nations analysis of life insurance businesses. Moreover, study by Kumar and Rao (2023) in India reveals a lack of ability to adjust tactics, resulting in a decrease in performance. According to a study by Islam et al. (2021), the Australian life insurance sector reveals detrimental financial trends that contribute to its decline. The findings of this research can demonstrate the importance of comprehending the factors that impact the disclosure of risk management by insurance companies, which is of utmost significance.

According to Li et al. (2023) and Poorhadi Poshtiri et al. (2024), insurance companies have a significant role in the transfer of risk. Companies employ a systematic strategy to tackle risk concerns, commonly referred to as risk management. In Indonesia the Financial Services Authority Official Letter No. 8/SEOJK.05/2021 emphasizes that the stability and operational sustainability of insurance businesses depend on the effectiveness of their risk management practices.

However, Stakeholders naturally expect that risk information will be shared through reports that are available to the public (Nahar and Azim, 2023). The expansion of insurance firms in Indonesia, as indicated by their risk management disclosure (Table 1), highlights the increasing demand for their presence and openness in the nation. The level of disclosure is insufficient. These results indicate the presence of a residual value, which suggests the existence of a potential undetected risk problem. The insurance company's condition necessitates further attention and enhancement (Azouzi and Bacha, 2023; Li et al., 2023; Worku et al., 2024) to ascertain the factors present in risk management disclosure.

Table 1. Risk management disclosure results of Indonesia insurance companies 2013–2022.

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

Thus, there have been inquiries over the veracity of how corporate governance, particularly in relation to RMC, and ownership structure impact risk management disclosure. There has been a scarcity of prior research on this matter, and additional elucidation of the findings is required. The ownership structure plays a vital role in corporate governance. The corporation will be compelled to provide broader disclosure due to the mounting pressure from both public shareholders and institutional owners, particularly those with extensive investment expertise who possess a larger number of shares and so require more thorough risk information. Based on the research conducted by Makhoul and Al-Ghosheh (2023) and Nasution et al. (2020), the corporation is likely to be more inclined to offer more extensive information due to the growing demands from public shareholders and institutional investors. Conversely, Rahmawati and Prasetyo (2020) argued that ownership structures have a detrimental effect, as managers may be motivated to decrease the disclosure of risks in order to protect the company's reputation and retain authority over risk-related information. The prevalence of a concentrated ownership structure increases the likelihood of management being discerning in their disclosure of information. This is due to the fact that tolerating inadequate disclosure from shareholders might lead to financial losses for the organization (Evana et al., 2023). Prior research has demonstrated the existence of a risk management committee (RMC) (Ayuningtyas and Harymawan 2022; Jia and Li, 2022). From Jordan, Malahim (2023) forecasted that the stringent control barriers implemented by the RMC will have an adverse impact on risk disclosure. Malahim (2023) asserted that the implementation of stringent control measures by the RMC is anticipated to yield negative consequences. It is premature to draw a definitive conclusion at this time. This

suggests that RMC plays a significant role in the corporate governance framework as a crucial measure of the company's transparency. The impact of corporate governance on RMD cannot be definitively determined at this early stage, necessitating further investigation.

Based on Alshirah and Alshira'h (2023), conducted prior study on Risk Management Disclosure (RMD) using content analysis on corporate reports. Evana et al. (2023) conducted a study that utilized a framework called the enterprise risk management (ERM) index, which was released by COSO. The index consists of 108 items that are categorized into 8 categories. Most risk management disclosure is assessed using the COSO Framework's 2004 and 2013 requirements similar with Adam et al. (2016), Farida et al. (2019) and Qulyubi et al. (2023). In research conducted by Elisabeth and Utami (2021), utilize a quantitative approach to measure the frequency of terms associated with different types of risks that firms are now examining. The analysis method of the ERM framework index methodology of ISO 31000:2009 can be used to quantify the level of risk management disclosure. This method identifies 25 specific disclosures. The utilization of measures based on the ISO 31000:2018 Framework, which is the latest standard, has only been produced by Trisnawati et al. (2023). Nevertheless, this most recent standard can uphold the significance of RMD. The 2018 version of ISO 31000 has been streamlined to provide more precise and succinct instructions, making it easier for firms to implement risk management concepts and enhance their planning and decision-making processes (Tranchard, 2018). The National Committee on Governance Policy has officially acknowledged ISO 31000:2018 as a globally accepted risk standard. The Centre for Risk Management Studies (CRMS) use this standard to evaluate the efficiency of risk management. Moreover, it is applicable to a wide range of enterprises (Trisnawati et al., 2023).

Based on the discussion above, two crucial components of good corporate governance (GCG) in a company's operational process are the RMC (Risk Management Committee) and the ownership structure. Consequently, Indonesian enterprises must prioritize risk management as a fundamental aspect of GCG (Ahmad et al., 2021). Therefore, this study seeks to determine whether good corporate governance practices can impact the level of disclosure in risk management. Furthermore, the study aimed to investigate the relationship between the Risk Management Committee (RMC) and the ownership structure, which includes public, institutional, and managerial ownership of risk management disclosure. Furthermore, it underscores the importance of control variables in this specific study. This study will not solely rely on GCG; it will also incorporate control variables such as profitability, leverage, liquidity, and company size, all of which have a notable impact on RMD.

This research makes significant contributions both in terms of theory and practical application. This study introduces uniqueness by implementing the current international standard ISO 31000:2018 in risk management, in contrast to earlier studies that adhere to outdated standards (Agustina et al., 2021; Ahmad et al., 2021; Lindawati et al., 2021; Rujiin and Sukirman, 2020; Soebyakto et al., 2018). Prior research has recommended the utilization of ISO 31000:2018 criteria for evaluating the disclosure of business risk management (Agustina et al., 2021; Rujiin and

Sukirman, 2020). The study performed RMD measurements following the guidelines of the research, aiming to develop measurement advancements derived from the widely utilized ISO 31000:2009 and COSO 2004 frameworks. This information is applicable to insurance companies in Indonesia that have not yet conducted a study on the implementation of this standard. Furthermore, the utilization of unbalanced panel data analysis, which remains infrequently employed (Karavias et al., 2022), enables more robust efficiency estimates by accounting for unobserved variability. This research will improve our understanding of how corporate governance impacts risk disclosure procedures, providing valuable insights for organizations to effectively manage their operations. This study assists organizations in establishing a solid basis for enhancing transparency, sustainability, and appeal to stakeholders by uncovering the connections between corporate governance and risk management strategies. Furthermore, the paper provides advantages to stakeholders by resolving conflicts inside the firm and safeguarding the interests of shareholders through clear and open disclosure of risk management practices. This transparency is crucial for making informed decisions within commercial organizations. These research contributions can also focus on policies and authorities, providing results that can assist authorities in making risk management-related policy decisions.

2. Literature review and hypotheses development

2.1. Agency theory in risk management disclosure practices

The agency hypothesis posits that the fundamental objectives of principals and agents may not always align due to divergent interests in maximizing investment returns and pay (Pourheidari and Golmohammadi, 2023). Information imbalance, also known as information asymmetry, refers to a situation where agents possess more knowledge than principles. This disparity in information can lead to a conflict of interest (Jensen and Meckling, 1976). Thus, to tackle this imbalance of information, managers must guarantee the accessibility of pertinent and thorough information via effective disclosure procedures and external reporting methods, such as risk management disclosures (RMD), this is of utmost importance (Aritonang and Mahardika, 2022; Malahim, 2023; Soebyakto et al., 2018).

2.2. Risk Management Disclosure (RMD)

It is vital to possess a comprehensive comprehension of the hazards present in the realm of business. The risk may stem from the ambiguity caused by a dearth of information regarding forthcoming events within the company (Farida et al., 2019). Decisions, behavior, and the organizational environment all entail potential dangers. Malahim (2023) argues that completely eliminating risk is not crucial; rather, it emphasizes the need for effective management to minimize its negative consequences. Corporate risk management is a vital aspect of corporate management that focuses on reducing risk to ensure the company's competitiveness and long-term existence. Risk management disclosure is the dissemination of information to stakeholders in order to assess the risks that have been addressed by the organization and the intended strategies for future risk management (Jia and Li, 2022).

However, ISO 31000:2018 Risk Management—Guidelines was released by the International Organization for Standardization on 14 February 2018. This updated version streamlined the previous 2009 standard (Tranchard, 2018). According to a survey conducted by the Center for Risk Management Studies (CRMS), 67.5% of companies in Indonesia have adopted the ISO 31000 risk management framework, whereas only 15% of companies utilize the Committee of Sponsoring Organizations of the Treadway Commissions (COSO) framework (CRMS, 2018). Considering the current circumstances, it is extremely likely that the assessment of RMD in research conducted in Indonesia can be done by analyzing the company's annual reports using the ISO 31000:2018 risk management framework as a metric. Public firms and issuers are required to produce yearly reports as per the directive of Chapter-134/BL/2006 issued by the Head of the Capital Markets Supervisory Authority and the Financial Institutions. According to the standards, the issuer is required to provide a clear explanation of the risks that the company faces and the actions taken to reduce these risks (Rahmawati and Prasetyo, 2020). This information is necessary for doing the RMD analysis, which may be done by examining the annual report.

2.3. Corporate Governance (CG) views on Risk Management Disclosure (RMD)

The agency theory posits that the primary objective of corporate governance (CG) is to guarantee that investors obtain a satisfactory return on their investment. The research by Soebyakto et al. (2018) revealed that corporate governance mechanisms that address ownership structures have a noteworthy impact on the disclosure of risk management practices. Implementing a risk management committee (RMC) as part of a corporate governance mechanism can have an impact on the risk management department (RMD), which is an essential aspect of a company's obligation towards stakeholders. Larasati and Asrori (2020) and Rahmawati and Prasetyo (2020) suggest that when a company implements effective risk management with the involvement of risk management commissions (RCMs), it can enhance stakeholder satisfaction, generate profits, ensure operational viability, and instill confidence in shareholders, and effective implementation of sound corporate governance practices can help mitigate agency conflicts (Ahmad et al., 2021). This research is highly important due to the present requirement for company disclosure in order to establish strong corporate governance. In addition, while being a subject of extensive discussion and attention, RMD is the least studied topic in Indonesia.

Risk Management Committee is an incentive that enables the management of risk in alignment with shareholders' preferences, hence potentially enhancing the company's performance (Malahim, 2023). The current risk monitoring committee demonstrated to stakeholders that corporations effectively adopted risk management and had more robust disclosure oversight compared to those that did not (Rahmawati and Prasetyo, 2020). The findings of the study conducted by Jia and Li (2022) demonstrate the significant impact that risk management committees play in the communication of risk management strategies. It provides support for the agency hypothesis, indicating that organizations with risk management committees exhibit more readability compared to those without such committees. Companies with

sufficient risk management committees are able to effectively supervise management and facilitate the disclosure of business risk management (Qulyubi et al., 2023). Therefore, the use of RMC composition can improve the accuracy of risk assessment and supervision, as well as encourage enterprises to reveal their risks, resulting in a more organized approach to risk monitoring and evaluation. Based on this explanation, the following hypothesis can be developed:

- H1: The presence of RMC has a substantial positive impact on RMD

Ownership structures are often the underlying cause of many agency concerns. These issues involve both controlling and non-controlling interests, as well as contractual agreements between management and owners (Fasoulas et al., 2024). The ownership structure of a corporation is determined by the collective ownership of shares held by a diverse set of owners with varying interests and objectives. It also encompasses the many types of stocks that represent the company's shares (Makhlouf and Al-Ghosheh, 2023). The ownership percentage in each group is calculated by dividing the total number of shares owned by that category by the total number of shares in the company. The study will examine three categories of ownership: public ownership, institutional ownership, and managerial ownership.

Public ownership, characterized by the ownership of corporation shares by the general public, can exert a broader influence on corporate management methods. Companies are increasingly providing additional information to the public in order to address the growing range of shareholder requirements. Rahma and Almilia (2018) found that companies tend to release more information when there is a higher level of public ownership, in order to fulfill the demands and requirements of shareholders. Subsequent to the rise in the quantity of publicly traded shares, there will be an intensified want to divulge the hazards confronting the organization (Adam et al., 2016; Aritonang and Mahardika, 2022). The larger the public-owned corporation, the more significant the risk it encounters. Hence, it is imperative for organizations to furnish comprehensive details regarding risk management in their annual and financial reports. Therefore, the authors formulated the hypothesis in the following manner:

- H2: Public ownership has a substantial positive impact on RMD

Institutional ownership, referring to a corporate entity that has shares in a corporation, has a substantial stake in revealing the dangers that the company encounters. This demonstrates that institutions are highly concerned and desirous of transparency regarding the potential dangers that could impact their investment (Makhlouf and Al-Ghosheh, 2023). This data demonstrates that institutional ownership has a favorable and considerable impact on risk disclosure (Kamaruzaman et al., 2019; Nasution et al., 2020). Moreover, Financial institutions with larger shareholdings will enhance risk disclosure in their financial statements and deter the hiding of risks. Subsequently, a hypothesis was formulated:

- H3: Institutional ownership has a substantial positive impact on RMD

In 1976 study, Jensen and Meckling discovered that management ownership could serve as a means to align the interests of management and other shareholders. Shareholders provide capital to a corporation with the anticipation of receiving financial gains. On the contrary, the company's management endeavors to maximize profitability (Kamaruzaman et al., 2019). In this scenario, the management, in their

role as the company’s manager, consistently excels in mitigating risks. Nevertheless, management curtails risk management disclosures to investors in order to safeguard the company’s reputation. The reason for this is that when there is a high level of managerial ownership, it will result in a decrease in the number of other investors. This is because the management already possesses knowledge about risk management and so does not need to reveal it (Rahmawati and Prasetyo, 2020). Based on the presentation, it is proposed that evaluating managerial ownership reduces the level of risk management disclosure. This leads us to develop the following hypothesis:

- H4: Managerial ownership has a substantial positive impact on RMD

3. Methodology and research data

3.1. Sample and data

The research was undertaken from 2013 to 2022. The tabulation of the data utilized in this investigation is presented in Appendix A. Next, obtain secondary data by doing documentation studies on the Indonesian Stock Exchange (IDX) website and the official insurance business website, specifically evaluating the company’s annual reports. This research employ purposive sampling as our method of selection. The sampling selection criteria include companies that are consistently listed on the IDX and report financial statements in Rupiah. There are 18 insurance companies listed on the IDX until 2022. Nevertheless, there is a lack of uniformity in the publication of annual reports by certain corporations from 2013 to 2022. The limited size of insurance firms’ populations results in an observation gap, which in turn leads to imbalanced panel processes for data collection. **Table 2** displays the final outcome, which consisted of 133 proficient observations.

Table 2. Sample selection criteria.

No	Criteria	Total
1.	Insurance company observations listed on the Indonesia Stock Exchange (IDX) during 2013–2022.	180
2.	Insurance company observations that do not consistently publish annual reports during 2013–2022.	(43)
3.	Insurance company observations that publish financial reports in currencies other than Rupiah during 2013-2022.	(4)
Total Research Data 2013–2022		133

3.2. Research variable

3.2.1. Dependent variable

The variable employed in this study is risk management disclosure (RMD). The process of conducting RMD (Risk Management Disclosure) in annual reporting involves implementing an integrated approach that combines qualitative approaches with the analysis of the information in the annual report, which is then quantified. The evaluation of the information provided in the annual report will receive a score of 1 if there are disclosures, and a score of 0 if there is no disclosure, as shown in Appendix B. The study of the information in the annual report will be utilized to determine the percentage comparison with the total disclosure points, so offering a quantitative picture. The ISO 31000:2018 standard has a total of 33 disclosure elements. These items are categorized as follows: Leadership and Commitment (4 pieces), Integration

(2 items), Design (21 items), Implementation (5 items), Evaluation (2 things), and Improvement (2 items) from (Trisnawati et al., 2023).

3.2.2. Independent variable

The independent variable in this study is Corporate Governance (CG), which encompasses the Risk Management Committee (RMC) and the ownership structure, comprising public ownership, institutional ownership, and managerial ownership. The methods for quantifying these variables are outlined in **Table 3**. RMC is assessed by determining the makeup of the risk monitor in order to evaluate the extent to which the quality of risk reporting relies on the existence of RMC. The ownership structure is determined by comparing the ownership of the company to the total number of shares in circulation.

Table 3. Operationalization of independent variables.

Variabel	Proxy	Source
Risk Management Committee (RMC)	The board is accountable for carrying out risk surveillance functions, establishing risk management, and enhancing the quality of risk monitoring reporting. $RMC = \sum RMC \text{ composition}$	(Agustin and Utama, 2024)
Public Ownership (PO)	Ownership of a company by a group of people who are outside the management of the company and have no special relationship with the company. $PO = \sum \frac{\text{Public ownership}}{\text{The number of shares in circulation}}$	(Evana et al., 2023)
Institutional Ownership (IO)	The ownership of shares in a company owned by another entity or institution. $IO = \sum \frac{\text{Institutional Ownership}}{\text{The number of shares in circulation}}$	(Alshirah and Alshira'h, 2023)
Managerial Ownership (MO)	The ownership of shares by a member of the management who participates in the company's decision-making. $MO = \sum \frac{\text{Managerial Ownership}}{\text{The number of shares in circulation}}$	(Larasati and Asrori, 2020)

3.2.3. Control variable

The study incorporates multiple controlling variables, such as profitability, leverage, liquidity, and company size. The measurement of the control variable is categorized in **Table 4** as indicated:

Table 4. Operationalization of control variables.

Variable	Definition and indicator	Source
Profitability (PROF)	Reflect the efficiency of the company in generating net profit relative to revenue. $\text{Net Profit Margin (NPM)} = \frac{\text{Net Profit}}{\text{Net Revenue}}$	(Kanoujiya et al., 2023)
Leverage (LEV)	Calculates the extent to which a company finances its operations with debt compared to its equity capital. $\text{Debt to Equity Ratio (DER)} = \frac{\text{Total Debt}}{\text{Total Equity}}$	(Rujii and Sukirman, 2020)
Liquidity (LIQ)	This ratio describes a company's ability to pay its short-term liabilities. $\text{Current Ratio (CR)} = \frac{\text{Current Asset}}{\text{Current Liabilities}}$	(Kristanti and Dhaniswara, 2023)
Business Size (SIZE)	The indicators used to categorize companies are based on the consideration that the total assets can reflect the size of the Company. $\text{SIZE} = \text{Ln}(\text{Total Aset})$	(Kristanti and Akhmad, 2023)

The control variables are essential in establishing if financial performance can effectively display the transparency in managing various agency concerns (Jensen and Meckling, 1976). Companies that have low profitability, leverage, and liquidity are more likely to carefully comply with disclosure obligations due to their poor financial performance. The corporation takes this measure to reduce different risks and maintain investor confidence in the manager’s responsibility for the managed funds (Rujjin and Sukirman, 2020). Investors can gain insight into the company’s current condition by reviewing reports and news, as managers are responsible for providing information to stakeholders. Company size affects the extent of disclosure, in accordance with the agency theory of Jensen and Meckling (1976) which explains that in the agency relationship between principals and management, the greater the resources managed by the company, the greater its business activities. Large companies tend to disclose more information as a strategy to reduce agency costs (Elisabeth and Utami, 2021; Makhoulouf and Al-Ghosheh, 2023).

3.3. Analysis model

The panel data regression model will be used for hypothesis testing. The analysis commences by choosing a suitable model, which involves utilizing the Chow test to evaluate the appropriateness of the Common Effect (CE) and Fixed Effect (FE) models. The Hausman test evaluates the adequacy of the random effect (RE) and fixed effect (FE) models. Subsequently, the investigation can utilize the LM test to evaluate the adequacy of the common effect (CE) and random effect (RE) models. Once the optimal model has been selected by the aforementioned approach, the subsequent stage involves employing the classical procedure. Empirical analyses conducted on data panels must consider the presence of multicollinearity and heteroskedasticity (Alarussi and Gao, 2021). When the correlation coefficient between independent variables is less than 0.9, a variable is considered to satisfy the criteria of multicollinearity (Sharma, 2023). If a variable’s significance value surpasses 0.05 (Mukhibad et al., 2020) or if residual plots do not exceed the bounds of 500 and –500 (Hendrawan et al., 2024), it is regarded to not display heteroscedasticity. After completing all the calculations, the data can be evaluated using a data panel regression, which yields the subsequent mathematical model:

$$ERMD_{it} = \alpha + \beta_1RMC_{it} + \beta_2PO_{it} + \beta_3IO_{it} + \beta_4MO_{it} + \varepsilon_{it} \quad (1)$$

$$ERMD_{it} = \alpha + \beta_1RMC_{it} + \beta_2PO_{it} + \beta_3IO_{it} + \beta_4MO_{it} + \beta_5PROF_{it} + \beta_6LEV_{it} + \beta_7LIQ_{it} + \beta_8SIZE_{it} + \varepsilon_{it} \quad (2)$$

Dimana:

α = Constanta

$\beta_1 - \beta_7$ = Coefficient;

i = Cross section;

t = Time;

ε = Error term.

The study utilizes two analytical equations to assess the robustness and dependability of the findings when control variables are present. The association established by the hypothesis through empirical investigation is depicted in **Figure 1**.

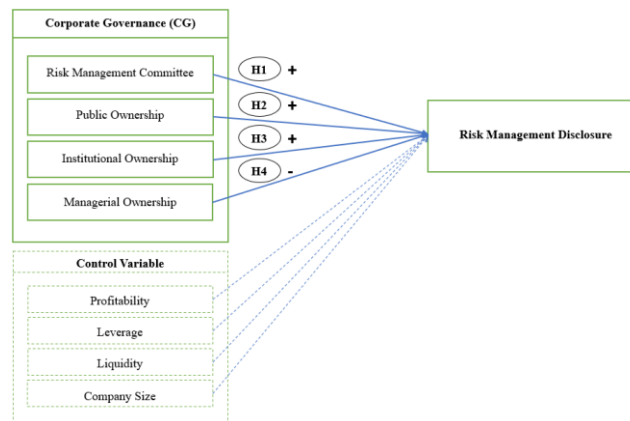


Figure 1. Relationship between research variables.

4. Results and discussion

4.1. Descriptive statistics

Table 5 provides a comprehensive examination of the condition of insurance businesses in Indonesia throughout the past ten years. The RMD has a maximum value of 0.97, or 97%, suggesting that some organizations reveal up to 32 elements that closely align with the ideal standard. The minimum value is 0.24, equivalent to 24%, indicating that the company only reveals a total of 8 things. The average ERMD of 0.62, or 62%, suggests a positive indication since most organizations perform 20–21 items. From the composition of the RMC, it is clear that one corporation has a significantly small presence in the RMC. Insurance firms are primarily owned by institutions rather than individual investors.

The control variable in this study demonstrates a mean profitability of approximately 16%, suggesting a moderate degree of financial well-being. The range of leverage levels, which varies from 0.131 to 5.370, indicates the extent of financial risk diversification among different companies. Some companies have lower leverage rates, while others have greater rates. The company’s ability to satisfy short-term liabilities is indicated by a significant range of liquidity, with a minimum value of 0.180 and a maximum value of 33.403. The company’s highly homogeneous size, with a standard deviation of 1.926, suggests that most enterprises have similar sizes.

Table 5. Descriptive statistics.

	RMD	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE
Mean	0.624	3.218	0.272	0.672	0.056	0.161	1.571	4.066	27.751
Maximum	0.970	7.000	0.776	1.425	0.623	0.963	5.370	33.403	31.206
Minimum	0.240	1.000	0.000	0.100	0.000	-0.477	0.131	0.018	20.785
Std. Dev.	0.146	1.163	0.176	0.219	0.157	0.223	0.137	5.420	1.926
Obs	133	133	133	133	133	133	133	133	133

4.2. Estimate model and representation of results

Prior to doing a regression analysis, the study team performed multiple tests to verify the data quality of the panel. Begin by doing model testing, followed by

multicollinearity and heteroskedasticity testing. Once these tests have been successfully passed, proceed with panel data regression analysis. The test results of the model are displayed in **Table 6**. The Common Effect Model (CE) is determined to be the best appropriate model after conducting tests, as indicated in Equation (1). This is because the probability value of the chow test is 0.1050, which is greater than 0.05, and the LM probability rate is 0.8605, which is less than 0.05. The Hausman test is unnecessary as the chosen Chow test is consistent with the conditional expectation (CE) criterion. However, Hausman is conducted when the chosen model is either random effects (RE) or fixed effects (FE). The Fixed Effect Model (FE) is the best appropriate model for Equation (2) after the test. The reason for this is that the probability value of the Chow test is 0.0005, which is less than 0.05, and the probability of the Hushman test is also 0.0005, which is less than 0.05. The LM test is unnecessary as both the Chow test and the Husman test have generated the same model, specifically the fixed effects (FE) model. Conversely, LM testing is conducted when the selected model is either CE or RE.

Table 6. Results of estimation model test.

ERMD (1)					ERMD (2)				
Test	Sig	Model	Prob	Result	Test	Sig	Model	Prob	Result
Chow Test	Prob > 0.05	CE	0.1050	Common Effect Model	Chow Test	Prob > 0.05	CE	0.0005	Fixed Effect Model
	Prob < 0.05	FE				Prob < 0.05	FE		
LM Test	Prob > 0.05	CE	0.8605	Common Effect Model	Hausman Test	Prob > 0.05	RE	0.0005	Fixed Effect Model
	Prob < 0.05	RE				Prob < 0.05	FE		

⁽¹⁾ Without control variables; ⁽²⁾ Control variable testing.

Table 7 displays a correlation coefficient, which represents the relationships between independent and dependent variables, as well as the ability to observe both positive and negative relationships. **Table 7** indicates that the strongest positive association exists between RMD and RMC, with a correlation coefficient of 0.484. The relationships suggest a significant degree of disclosure in risk management. The most significant negative association exists between public ownership and institutional ownership, with a correlation coefficient of 0.656. The ownership of insurance businesses in Indonesia is predominantly held by the public and institutions, resulting in a significant negative association between these ownership categories. The correlation matrix indicates that none of the independent variables have a value exceeding 0.9. Therefore, the regression model does not exhibit multicollinearity.

Followed by heteroscedasticity testing to determine whether the regression model exhibits inequality of variance and residuals between observations. This study employs residual graphs to assess heteroscedasticity. **Figure 2** illustrates that the graph is positioned at the boundary between 3 and -4, suggesting that it avoids heterogeneity. Therefore, the accuracy of the analysis’s outcomes can be deemed higher due to the utilization of a regression model that aligns with the necessary assumptions.

Table 7. Correlation matrix.

Variable	RMD	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE
RMD	1.000	-	-	-	-	-	-	-	-
RMC	0.484	1.000	-	-	-	-	-	-	-
PO	0.058	0.052	1.000	-	-	-	-	-	-
IO	0.027	0.148	-0.656	1.000	-	-	-	-	-
MO	-0.077	-0.263	-0.228	-0.550	1.000	-	-	-	-
PROF	-0.009	0.146	0.017	0.077	-0.130	1.000	-	-	-
LEV	-0.095	-0.113	-0.323	-0.049	0.452	-0.328	1.000	-	-
LIQ	-0.096	-0.133	0.012	0.077	-0.125	0.363	-0.380	1.000	-
SIZE	0.096	0.158	0.089	-0.102	0.040	0.325	-0.313	0.246	1.000

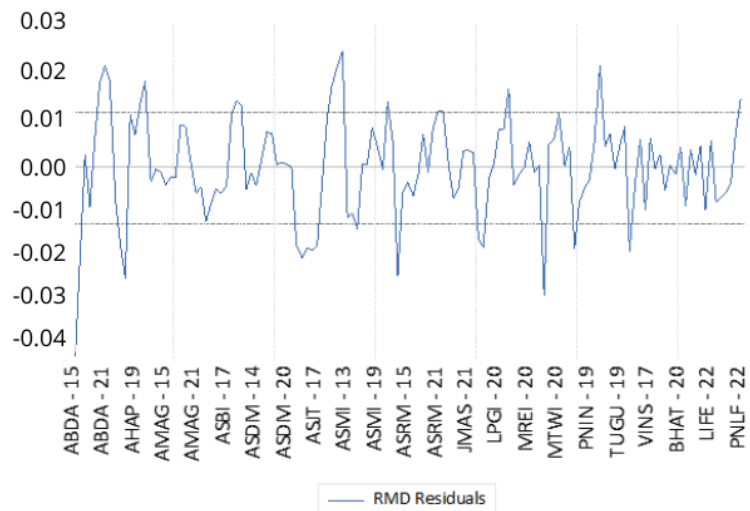


Figure 2. Heteroscedasticity test result.

4.3. Hypothesis testing

The panel data regression analysis revealed that corporate governance (CG) had a significant positive impact on RMD. **Table 8** displays a highly significant probability value (F-statistics) of 0.000, which is less than the threshold of 0.05. This indicates a strong influence of corporate governance (CG) with a magnitude of 24%. Among the four variables evaluated, risk management commitment (RMC) had the highest influence, accounting for 22%. The cumulative impact of public ownership, institutional ownership, and managerial ownership amounts to a mere 2%. Hence, RMC is the sole determinant that significantly influences RMD. The p-value indicates that CG has a substantial impact on RMD, while only RMC has a significant impact at the 1% level. Subsequently, we validate H1 while dismissing H2, H3, and H4.

The use of the control variable effectively assessed the robustness of the study’s findings. **Table 8** shows that when considering factors such as profitability, leverage, liquidity, and firm size, RMC, which is a corporate governance issue, has a considerable impact on RMD. RMC currently holds a 37% level of influence. The control variable exerts a 49% influence on CG, which is an improvement compared to the previous outcome. Therefore, we arrive at the identical outcome: we accept H1 and reject H2, H3, and H4. Although there have been changes in management

ownership influence on RMD, the results still align with the correlation matrix analysis.

Table 8. Results of hypothesis test.

	ERMD (1)				ERMD (2)			
	Coef	t Value	p-Value	Sign	Coef	t Value	p-Value	Sign
(Constant)	0.151	0.660	0.510	-	0.006	0.016	0.986	-
RMC	0.063	6.283	0.000	***	0.065	5.231	0.000	***
PO	0.300	1.262	0.209	-	0.188	0.727	0.468	-
IO	0.254	1.142	0.255	-	0.250	1.146	0.254	-
MO	0.320	1.330	0.186	-	-2.043	-1.488	0.139	-
PROF	-	-	-	-	-0.089	-1.177	0.241	-
LEV	-	-	-	-	-0.035	-1.957	0.053	*
LIQ	-	-	-	-	-0.016	-3.343	0.001	**
SIZE	-	-	-	-	0.016	1.560	0.121	-
R ²	0.246	-	-	-	0.494	-	-	-
Adj _t R ²	0.223	-	-	-	0.376	-	-	-
F	-	10.468	0.000	***	-	4.176	0.000	***

***, **, * = significance level at 1%, 5% and 10%. ⁽¹⁾ Regressions without control variables. ⁽²⁾ Regressions with control variables.

4.4. Discussion

The findings indicate that RMC exerts a substantial and favorable impact on RMD. The presence of RMC, which is subject to ongoing management oversight, displays the company's dedication to implementing effective supervision and management in order to mitigate the risks it faces. Companies can improve the transparency of risk management in their annual reports by including more organized Risk Management Committees (RMC) in their structure, resulting in enhanced results. Intensive monitoring is implemented to evaluate the entirety of the company's internal controls (Agustina et al., 2021; Malahim, 2023; Rahmawati and Prasetyo, 2020). It indicates that the inclusion of Risk Management Committee (RMC) can enhance the disclosure of risk management. The responsibilities of this entity encompass the execution of supervision and monitoring tasks, the formulation of strategic plans to aid the board of directors in evaluating the risk management systems devised by management, and the evaluation of a company's capacity to withstand risks (Farida et al., 2019). This study provides evidence that the RMC has successfully carried out its responsibilities in accordance with established protocols. The results of this study corroborate prior research indicating that the inclusion of Risk Management Committee (RMC) enhances the comprehensibility of risk management disclosure in corporate settings (Ayuningtyas and Harymawan, 2022; Jia and Li, 2022; Rahmawati and Prasetyo, 2020).

The primary objective of the Risk Management Committee (RMC) is to improve the transparency of risk management practices and protect the shareholders' interests. The findings of this study are incongruous with the research conducted by Abbas et al. (2021) and Malahim (2023). The study posited that the oversight of risk management disclosure in the company is inadequate due to the fact that the responsibility for risk

management lies with the board of commissioners and the management. Consequently, the presence of RMC does not affect RMD (Abbas et al., 2021). The strict execution of risk management controls, if excessive or inflexible, might hinder transparency and the efficiency of risk disclosure, which goes against the initial purpose of establishing the RMC (Malahim, 2023).

There is a tendency for a positive relationship between ownership structure and RMD, although it does not reach a statistically substantial level. Within the scope of this study, it is not feasible to accurately quantify the influence of extensive ownership structures on the risk disclosure of insurance businesses. The phenomenon of insurance companies not consistently providing expanded risk disclosure is not consistently influenced by shareholder demand. Disclosure serves the purpose of increasing openness and meeting the needs of shareholders for more detailed risk information (AlHares and Al-Hares, 2020). This motivation arises from the significance of comprehending and evaluating the hazards that could impact their assets. It establishes a dynamic where corporations react by offering more comprehensive risk disclosure in response to shareholder requests and to uphold positive relationships with shareholders (Aritonang and Mahardika, 2022). The research conducted by AlHares and Al-Hares (2020); Aritonang and Mahardika (2022), Gupta and Symss (2023) and Kamaruzaman et al. (2019) supports the findings of a non-significant positive relationship. According to these studies, there is a correlation between the size of the ownership structure of an entity and the extent of risk disclosure made in response to shareholders' demands.

In contrast, it is said that the composition of public ownership has no effect on corporate risk disclosure because management will only disclose risks that they think will not cause losses as revealed by Evana et al. (2023). During the risk management disclosure process, institutional ownership does not have the power to directly influence management. However, it can serve as an agent or supervisor in overseeing management activities within a corporation (Larasati and Asrori, 2020). The presence of management ownership as the company's executive and shareholders does not impact risk management disclosure (Nasution et al., 2020). The firm's management functions as an executive, and the shareholders are already aware of the risks the company faces, despite the fact that the annual report does not disclose them. The variability of outcomes can arise from various factors, including variations in the issue under investigation, leading to divergent corporate attributes that inherently possess distinct interests. It is important to note that this study employs distinct measurement standards compared to other studies, resulting in differing causal factor outcomes. Of the control variables, financial performance has a negative effect on RMD. Within the realm of insurance firms, leverage and liquidity are the key factors that greatly influence financial performance. Companies that have intricate operations tend to produce more intricate financial performance, which in turn makes their risk management disclosures less readable (Jia and Li, 2022). The decrease in disclosure is due to the company's interests, especially in maintaining the company's appearance. The size of the company exerts a favorable influence as a control variable. Large firms face higher levels of risk and have access to a wider range of investment alternatives (Jia and Li, 2022). Insurance businesses will encounter increasingly intricate and challenging risk management disclosure matters with diminished influence.

Companies should prioritize public transparency and thorough risk assessment when it comes to risk management and disclosure (Gonidakis et al., 2020; Makhlouf and Al-Ghosheh, 2023).

5. Conclusions and implications

5.1. Conclusions

The utilization of ISO 31000:2018 as a benchmark for assessing Risk Management Disclosure (RMD) leads to differing outcomes in study compared to alternative standards and presents novel empirical findings in the literature. The findings indicate that as the scale of corporate governance (CG) increases, the institution becomes more mature, resulting in a favorable impact on the disclosure of transparency risk management (RMD). The disclosure is a management strategy aimed at mitigating the agency problem by reducing information asymmetry. The substantial beneficial effect of RMC on RMD addresses the inquiry that authentic RMC is a factor that exerts a powerful influence on RMD. Enhancing oversight and openness through the RMC structure offers stakeholders a more thorough understanding of company risk. The ownership structure, although having a favorable impact, is not statistically significant, suggesting that risk management disclosure in insurance businesses does not consistently take into account the presence of shareholders.

This research offers valuable contributions to various stakeholders, including insurance firms, by providing them with data that can be utilized to enhance risk management procedures and inform strategic decision-making. Insurance firms have the ability to augment the RMC composition in order to enhance risk management disclosure. Furthermore, insurance businesses might recognize that a substantial ownership structure can enhance their risk management techniques. Shareholders derive advantages from this research by using it to make investment decisions in favor of companies that have a greater RMC composition, which serves as an indicator of sufficient risk management transparency. Consumers can comprehend the possible risks that may impact their insurance coverage and financial security, thereby aiding in the evaluation of insurance products. These findings can be utilized by regulators to enhance regulations and standards pertaining to risk management in insurance businesses.

5.2. Policy implications

Examining multiple instances of past business collapses, the discoveries have continuously reinforced the regulators' emphasis on the significance of implementing sufficient corporate governance (CG) procedures. These measures aim to improve the transparency of risk management practices and ultimately benefit all stakeholders involved. Regulatory bodies may require corporations to include risk management reports based on ISO 31000:2018 in the annual reports, due to its acknowledged suitability as a standard for all aspects of a company. Especially for Indonesia as a developing country, where there are no regulations that require companies to choose standards for risk management. In hindsight, this could have increased the

transparency and accountability of the company to stakeholders with a generalized view of RMD.

5.3. Limitations and future recommendations

This work recognizes a significant constraint in terms of a small sample size, due to the restricted availability of relevant data to cover extended time periods. This research is limited to insurance companies in Indonesia, thus these findings may not be generalizable. Future research replication should take into account the inherent bias and disparities in data interpretation linked to a qualitative approach in evaluating risk management disclosure (RMD). The number of corporate governance factors utilized is likewise restricted. In order to address the limitations of this study, it is recommended to introduce a control variable for a highly influential factor, as well as incorporate additional factors related to the corporate governance (CG) context. These additional factors may include the frequency of RMC meetings, the educational background of RMC members, and other specifications pertaining to the audit committee. In order to ensure organizational stability, further measures are necessary, even with the implementation of ISO 31000:2018 rules aimed at enhancing risk disclosure. It is also suggested to use two standards in RMD measurement at once such as COSO ERM with ISO to see the accuracy and relevance in risk management studies.

Author contributions: Conceptualization, FTK; methodology, HAR; formal analysis, investigation, resources, data curation, ESBG; writing—original draft preparation, FTK; writing—review and editing, BAHB. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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Appendix A

Table A1. Tabulation of research data.

Cross section	Year	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE	RMD
ABDA	2022	5.000	0.052	0.948	0.000	0.140	0.642	1.626	28.536	0.970
ABDA	2021	5.000	0.377	0.623	0.000	0.239	0.651	1.724	28.546	0.970
ABDA	2020	5.000	0.377	0.623	0.000	0.182	0.786	1.459	28.538	0.940
ABDA	2019	7.000	0.377	0.623	0.000	0.963	1.058	1.271	28.579	0.880
ABDA	2018	7.000	0.377	0.623	0.000	0.654	1.166	1.398	28.692	0.760
ABDA	2017	5.000	0.377	0.623	0.000	0.144	1.157	2.946	28.718	0.760
ABDA	2016	5.000	0.566	0.434	0.000	0.144	1.284	1.753	28.666	0.550
ABDA	2015	5.000	0.411	0.589	0.000	0.241	1.330	2.571	28.677	0.330
AHAP	2022	6.000	0.328	0.672	0.000	-0.011	3.443	1.350	27.562	0.760
AHAP	2021	3.000	0.311	0.689	0.000	0.027	4.460	1.350	27.226	0.730
AHAP	2020	3.000	0.303	0.697	0.000	-0.036	3.369	1.210	27.141	0.730
AHAP	2019	3.000	0.304	0.696	0.000	-0.330	2.910	1.650	27.090	0.700
AHAP	2018	2.000	0.304	0.696	0.000	-0.149	1.436	2.450	27.167	0.700
AHAP	2017	2.000	0.244	0.756	0.000	-0.243	1.093	1.730	26.763	0.390
AHAP	2016	2.000	0.190	0.810	0.000	0.038	1.305	4.111	26.819	0.390
AHAP	2015	2.000	0.322	0.678	0.000	0.033	1.519	10.970	26.873	0.360
AMAG	2022	6.000	0.119	0.878	0.000	0.233	1.768	1.667	29.180	0.760
AMAG	2021	6.000	0.120	0.878	0.000	0.223	1.502	1.583	29.168	0.760
AMAG	2020	5.000	0.122	0.878	0.000	0.158	1.361	1.842	29.186	0.760
AMAG	2019	3.000	0.122	0.878	0.000	0.101	1.371	1.040	29.163	0.730
AMAG	2018	3.000	0.122	0.878	0.000	0.403	1.344	1.291	29.080	0.700
AMAG	2017	3.000	0.122	0.878	0.000	0.188	1.097	1.352	26.686	0.580
AMAG	2016	3.000	0.122	0.878	0.000	0.229	0.948	1.363	26.563	0.580
AMAG	2015	3.000	0.065	0.935	0.000	0.324	0.742	2.165	26.295	0.550
AMAG	2014	3.000	0.442	0.559	0.000	0.309	0.597	2.241	25.830	0.550
AMAG	2013	3.000	0.357	0.643	0.000	0.373	0.715	2.282	25.720	0.550
ASBI	2022	7.000	0.178	0.822	0.008	0.023	1.681	2.365	27.621	0.850
ASBI	2021	7.000	0.178	0.822	0.008	0.080	1.684	1.651	27.585	0.820
ASBI	2020	4.000	0.178	0.822	0.007	0.089	1.778	2.137	27.494	0.790
ASBI	2019	4.000	0.182	0.818	0.007	0.018	1.942	2.791	27.477	0.790
ASBI	2018	4.000	0.183	0.817	0.007	0.053	2.108	2.215	27.497	0.760
ASBI	2017	4.000	0.184	0.626	0.007	0.060	1.759	1.876	27.327	0.580
ASBI	2016	3.000	0.184	0.816	0.000	0.076	2.028	1.644	26.988	0.550
ASBI	2015	3.000	0.184	0.816	0.000	0.160	2.074	1.531	26.926	0.550
ASBI	2014	3.000	0.184	0.816	0.000	0.075	2.195	1.539	26.809	0.520
ASBI	2013	3.000	0.184	0.816	0.000	0.132	2.101	1.521	26.712	0.480
ASDM	2022	6.000	0.154	0.846	0.000	0.110	1.435	1.766	27.513	0.760
ASDM	2021	3.000	0.154	0.846	0.000	0.129	1.275	1.846	27.436	0.730
ASDM	2020	3.000	0.154	0.846	0.000	0.171	1.424	1.647	27.480	0.730

Table A1. (Continued).

Cross section	Year	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE	RMD
ASDM	2019	3.000	0.267	0.733	0.000	0.155	2.466	1.389	27.778	0.700
ASDM	2018	3.000	0.210	0.790	0.000	0.208	2.286	1.487	27.691	0.700
ASDM	2017	3.000	0.187	0.813	0.000	0.290	2.655	3.009	20.797	0.610
ASDM	2016	3.000	0.187	0.813	0.000	0.279	2.908	2.780	20.785	0.610
ASDM	2015	3.000	0.187	0.813	0.000	0.277	4.932	3.596	21.105	0.480
ASDM	2014	3.000	0.187	0.813	0.000	0.243	5.289	2.902	21.027	0.420
ASJT	2022	3.000	0.226	0.774	0.000	0.013	0.570	2.216	26.936	0.790
ASJT	2021	3.000	0.226	0.774	0.000	0.008	0.711	2.023	26.992	0.760
ASJT	2020	3.000	0.226	0.774	0.000	-0.164	0.746	1.727	26.625	0.730
ASJT	2019	3.000	0.226	0.774	0.000	0.020	1.138	1.215	26.827	0.640
ASJT	2018	3.000	0.226	0.774	0.000	0.300	1.178	1.324	26.894	0.480
ASJT	2017	3.000	0.226	0.774	0.000	0.130	1.110	1.898	26.824	0.360
ASJT	2016	3.000	0.124	0.876	0.000	0.121	1.327	1.285	26.780	0.360
ASJT	2015	3.000	0.036	0.964	0.000	0.084	1.347	1.898	26.690	0.360
ASJT	2014	3.000	0.036	0.964	0.000	0.087	1.064	1.026	26.477	0.360
ASMI	2022	4.000	0.699	0.301	0.000	-0.255	1.821	1.596	27.693	0.820
ASMI	2021	3.000	0.699	0.301	0.000	0.096	1.120	2.199	27.612	0.820
ASMI	2020	3.000	0.699	0.301	0.000	-0.477	1.235	1.930	27.622	0.730
ASMI	2019	3.000	0.699	0.301	0.000	0.054	0.840	2.480	27.606	0.730
ASMI	2018	3.000	0.777	0.223	0.000	0.515	0.867	2.368	27.600	0.730
ASMI	2017	3.000	0.635	0.365	0.000	0.424	0.887	2.117	27.478	0.670
ASMI	2016	3.000	0.632	0.368	0.000	0.283	1.291	1.813	27.149	0.670
ASMI	2015	3.000	0.526	0.474	0.000	0.050	1.482	2.022	27.050	0.550
ASMI	2014	1.000	0.393	0.607	0.000	0.120	1.553	2.097	26.968	0.450
ASMI	2013	1.000	0.290	0.710	0.000	0.057	1.845	1.406	26.684	0.450
ASRM	2022	3.000	0.171	0.206	0.623	0.043	1.650	1.880	28.118	0.730
ASRM	2021	3.000	0.171	0.200	0.623	0.041	1.570	1.880	27.975	0.730
ASRM	2020	3.000	0.179	0.206	0.616	0.050	2.010	1.680	28.047	0.700
ASRM	2019	3.000	0.179	0.239	0.583	0.053	2.490	1.620	28.068	0.670
ASRM	2018	2.000	0.179	0.100	0.583	0.085	2.640	1.580	28.022	0.640
ASRM	2017	2.000	0.179	0.239	0.583	0.076	2.980	1.440	27.981	0.580
ASRM	2016	2.000	0.179	0.239	0.580	0.083	3.620	1.520	27.992	0.520
ASRM	2015	2.000	0.179	0.239	0.583	0.097	4.180	1.480	27.983	0.520
ASRM	2014	1.000	0.186	0.239	0.575	0.108	5.050	1.380	27.959	0.420
ASRM	2013	1.000	0.188	0.239	0.573	0.090	5.370	1.340	27.787	0.240
JMAS	2022	3.000	0.372	0.580	0.009	0.031	1.464	2.005	26.404	0.790
JMAS	2021	3.000	0.342	0.580	0.039	0.024	1.170	2.329	26.241	0.730
JMAS	2020	3.000	0.400	0.531	0.039	0.001	1.165	2.329	26.201	0.730
JMAS	2019	3.000	0.400	0.531	0.039	0.040	0.860	3.225	26.012	0.640
JMAS	2018	3.000	0.400	0.531	0.039	0.037	0.570	2.498	25.911	0.640
JMAS	2017	3.000	0.400	0.531	0.069	-0.237	0.451	10.336	25.837	0.550

Table A1. (Continued).

Cross section	Year	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE	RMD
LPGI	2022	3.000	0.144	0.856	0.000	0.036	3.014	1.544	28.706	0.700
LPGI	2021	3.000	0.144	0.856	0.000	0.020	2.406	1.573	28.694	0.640
LPGI	2020	3.000	0.144	0.856	0.000	0.073	2.273	1.399	28.666	0.640
LPGI	2019	3.000	0.144	0.856	0.000	0.073	1.856	1.486	28.517	0.580
LPGI	2018	3.000	0.144	0.856	0.000	0.064	1.825	1.510	28.541	0.550
LPGI	2017	3.000	0.144	0.856	0.000	0.091	1.205	1.852	28.491	0.420
LPGI	2016	3.000	0.589	0.411	0.000	0.093	0.940	1.899	28.464	0.420
MREI	2022	4.000	0.646	0.354	0.000	0.014	2.068	1.409	29.086	0.580
MREI	2021	4.000	0.646	0.354	0.000	-0.114	1.879	1.448	29.013	0.580
MREI	2020	3.000	0.646	0.353	0.000	0.040	1.394	1.631	29.067	0.580
MREI	2019	3.000	0.646	0.348	0.000	0.066	1.455	1.597	28.996	0.520
MREI	2018	3.000	0.646	0.412	0.000	0.064	1.429	1.593	28.863	0.520
MREI	2017	3.000	0.588	0.413	0.000	0.089	1.122	0.018	28.689	0.520
MTWI	2022	3.000	0.043	0.916	0.041	-0.087	3.120	0.540	27.621	0.790
MTWI	2021	3.000	0.031	1.425	0.072	0.042	2.890	1.190	27.005	0.790
MTWI	2020	3.000	0.031	0.897	0.072	0.024	3.120	1.180	27.035	0.760
MTWI	2019	3.000	0.066	0.862	0.072	0.008	2.251	1.445	26.772	0.730
MTWI	2018	2.000	0.120	0.809	0.072	-0.010	1.483	1.690	26.495	0.670
MTWI	2017	2.000	0.115	0.758	0.127	-0.072	1.292	1.578	26.407	0.240
PNIN	2022	3.000	0.301	0.699	0.000	0.766	0.131	14.119	31.206	0.760
PNIN	2021	3.000	0.285	0.715	0.000	0.521	0.144	27.930	31.194	0.730
PNIN	2020	3.000	0.280	0.720	0.000	0.648	0.151	19.036	31.164	0.700
PNIN	2019	3.000	0.280	0.720	0.000	0.491	0.156	16.779	31.104	0.670
PNIN	2018	3.000	0.280	0.720	0.000	0.469	0.172	19.554	31.039	0.610
PNIN	2017	3.000	0.280	0.720	0.000	0.454	0.183	19.600	30.995	0.580
PNIN	2016	3.000	0.281	0.719	0.000	0.679	0.203	33.404	30.934	0.240
TUGU	2022	5.000	0.203	0.797	0.000	0.128	1.353	4.910	30.149	0.610
TUGU	2021	6.000	0.203	0.797	0.000	0.116	1.297	5.376	30.064	0.520
TUGU	2020	2.000	0.138	0.862	0.000	0.111	1.301	6.240	30.599	0.520
TUGU	2019	2.000	0.048	0.952	0.000	0.175	1.505	5.820	30.663	0.480
TUGU	2018	2.000	0.048	0.952	0.000	0.081	1.348	4.890	29.935	0.450
TUGU	2017	2.000	0.178	0.826	0.000	0.243	1.348	3.585	23.417	0.420
VINS	2022	3.000	0.263	0.730	0.007	0.203	0.592	6.955	26.417	0.700
VINS	2021	3.000	0.261	0.732	0.007	0.274	0.482	8.056	26.600	0.700
VINS	2020	3.000	0.261	0.732	0.007	0.167	0.750	4.763	26.499	0.700
VINS	2019	3.000	0.261	0.732	0.007	0.448	0.525	10.099	26.373	0.670
VINS	2018	3.000	0.260	0.733	0.007	0.106	0.458	12.030	26.292	0.640
VINS	2017	3.000	0.259	0.734	0.007	0.014	0.336	18.757	26.259	0.610
VINS	2016	3.000	0.259	0.734	0.007	0.210	0.398	9.854	26.178	0.580
VINS	2015	2.000	0.259	0.734	0.007	0.496	0.280	15.554	26.073	0.550
BHAT	2022	3.000	0.400	0.600	0.000	0.020	0.919	12.362	27.669	0.790

Table A1. (Continued).

Cross section	Year	RMC	PO	IO	MO	PROF	LEV	LIQ	SIZE	RMD
BHAT	2021	2.000	0.400	0.600	0.000	0.088	0.364	10.702	27.325	0.640
BHAT	2020	2.000	0.400	0.600	0.000	0.138	0.255	18.229	27.203	0.640
LIFE	2022	4.000	0.000	0.800	0.200	0.250	3.383	4.832	29.169	0.790
LIFE	2021	4.000	0.000	0.800	0.200	0.283	3.638	6.306	29.258	0.610
LIFE	2020	2.000	0.000	0.800	0.200	0.136	4.085	6.480	29.277	0.610
LIFE	2019	2.000	0.000	0.800	0.200	0.217	2.650	4.957	28.877	0.610
PNLF	2022	3.000	0.321	0.679	0.000	0.872	0.151	2.101	31.154	0.700
PNLF	2021	3.000	0.375	0.625	0.000	0.614	0.166	2.547	31.133	0.640
PNLF	2020	3.000	0.375	0.625	0.000	0.789	0.177	2.501	31.109	0.520
PNLF	2019	3.000	0.375	0.625	0.000	0.523	0.184	2.745	31.042	0.520
PNLF	2018	3.000	0.390	0.610	0.000	0.480	0.206	2.074	30.972	0.520
PNLF	2017	3.000	0.458	0.543	0.000	0.355	0.226	1.823	30.907	0.520

Appendix B

Table B1. ERMD ISO 31000:2018 items.

No	Risk management framework	Score
Leadership and Commitment		
1.	There includes information about the customization and implementation of each framework component.	1
2.	A strategy, plan, or course of action for risk management is defined in a statement or policy.	1
3.	There is information that the necessary resources for risk management are allocated.	1
4.	There is information at the required organizational level regarding the assignment of authority, responsibility, and accountability.	1
Integration		
1.	There is information that risk is managed in all parts of the organizational structure.	1
2.	There is information that every organization member is responsible for risk management.	1
Design		
1A.	There is an understanding of the organization and its external context.	-
1.	There are numerous social, cultural, political, legal, regulatory, monetary, technological, economic, and environmental issues to consider on a global, national, and even regional scale.	1
2.	There are key drivers and trends affecting organizational goals.	1
3.	There are external stakeholder relationships, perceptions, values, requirements, and expectations.	1
4.	There is a contractual relationship and commitment.	1
5.	There are dependencies and network complexity.	1
1B.	There is an understanding of the organization and its internal context.	-
1.	There is a vision, mission and values.	1
2.	There is governance, organizational structure, roles and accountability.	1
3.	There are strategies, objectives and policies.	1
4.	There is an organizational culture.	1
5.	The organization has adopted standards, guidelines, and models.	1
6.	Some abilities can be comprehended in terms of material assets and data (e.g. capital, time, people, intellectual property, processes, systems, and technology).	1
7.	There are data, information systems and information flow.	1
8.	There is a relationship with internal stakeholders that considers their perspectives and beliefs.	1
9.	There is a contractual relationship and commitment.	1
10.	There is interdependence and interconnection.	1
2.	There is an articulation of risk management commitment.	1
3.	There is a determination of organizational roles, authorities, responsibilities & accountability.	1
4.	There is an allocation of resources.	1
5.	There is a link between communication and consultation.	1
Implementation		
1.	There is the development of an appropriate plan, including time and resources.	1
2.	It is specified where, when, how, and by whom different organizational choices are made.	1
3.	There is an appropriate modification of the decision-making process (if necessary).	1
4.	There is assurance that organizational arrangements for risk management are well-understood and implemented.	1

Table B1. (Continued).

No	Risk management framework	Score
Evaluation		
1.	The performance of the risk management framework is regularly measured against the objectives.	1
2.	There is a provision that addresses whether the risk management framework is still suitable for facilitating the achievement of organizational objectives.	1
Improvement		
1.	There is an organization continuously monitoring and adapting the framework.	1
2.	There is an organization that continuously enhances the risk management framework's suitability, adequacy, and efficacy.	1
Total items disclosed		33