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Enterprise financial performance under liquidity, solvency, and risk-based capital constraints

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Abstract

Enterprise financial performance is a critical indicator of organizational sustainability, particularly in highly regulated and risk-sensitive industries such as insurance. Prior studies on insurance financial performance have largely emphasized profitability or macroeconomic determinants, while limited research has integrated liquidity, solvency, and risk-based capital (RBC) into a unified accounting-based framework at the enterprise level. Addressing this gap, this study investigates the financial performance effectiveness of a publicly listed Indonesian insurance company through an integrated assessment of liquidity, solvency, and regulatory capital adequacy. This research employs a quantitative descriptive approach using secondary data derived from audited annual financial statements of an insurance enterprise listed on the Indonesia Stock Exchange over the 2020–2023 period. Financial performance is evaluated using liquidity ratios (current ratio and cash ratio), solvency ratios (debt-to-assets ratio and debt-to-equity ratio), and the Risk-Based Capital ratio as a regulatory solvency benchmark. The findings reveal that the enterprise consistently maintains strong liquidity and capital adequacy above regulatory requirements, indicating effective short-term financial management and strong risk-absorption capacity. However, solvency analysis shows a relatively high reliance on debt financing, suggesting potential structural risks in long-term capital composition. This study contributes to enterprise modelling and accounting literature by proposing an integrated accounting-based framework that positions liquidity, solvency, and RBC as interrelated enterprise control mechanisms for evaluating financial performance effectiveness in regulated insurance institutions. The results provide practical implications for financial governance and regulatory compliance in emerging insurance markets. This study addresses the gap in prior insurance performance studies that examine liquidity, solvency, and capital adequacy separately by proposing an integrated accounting-based enterprise performance framework.

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Introduction

Enterprise financial performance has become a central concern in accounting and governance research as organizations operate in increasingly complex, regulated, and risk-intensive environments (Dumitrescu & Zakriya, 2022; Wang et al., 2023). Financial performance does not merely reflect profitability outcomes but represents the effectiveness of enterprise - level decision-making, resource allocation, and risk management practices. From an accounting perspective, enterprise financial performance effectiveness is achieved when financial resources are utilized efficiently to ensure liquidity, maintain solvency, and support long-term sustainability while complying with regulatory requirements (McLaney & Atrill, 2023; Lee et al., 2022, 2022; Broer & Kero, 2021; Van et al., 2021). This is particularly relevant in insurance enterprises, where financial soundness directly affects policyholder protection, market stability, and public trust (Opoku et al., 2024).

In insurance enterprises, financial performance evaluation extends beyond traditional profitability metrics and requires a comprehensive assessment of liquidity adequacy, capital structure, and risk-bearing capacity. Liquidity ensures the enterprise's ability to meet short-term obligations and claim payments, while solvency reflects the long-term capacity to fulfill financial commitments (Zinyoro & Aziakpono, 2024; AbdulRahman et al., 2022). Risk-Based Capital (RBC) further integrates these dimensions by linking capital adequacy to the level of risk exposure faced by the enterprise. Consequently, RBC functions as a critical enterprise governance instrument that aligns accounting information with regulatory oversight and risk management objectives (Zinyoro & Aziakpono, 2024; Saliba et al., 2022).

In emerging markets, including Indonesia, insurance enterprises are subject to strict solvency regulations that mandate minimum capital adequacy levels to safeguard financial system stability. Regulatory authorities require insurance companies to maintain an RBC ratio of at least 120 percent, emphasizing the importance of enterprise-level financial resilience and capital sufficiency (Opoku et al., 2024; Le et al., 2025). Despite this regulatory emphasis, empirical evidence suggests that many insurance enterprises experience imbalances between liquidity strength, leverage structure, and capital adequacy, particularly during periods of economic uncertainty (Vohra & Patel, 2025; Le et al., 2025). Recent insurance literature emphasizes that liquidity strength, solvency structure, and capital adequacy jointly determine enterprise financial performance and risk resilience under regulatory constraints (Alshatti., 2024; Eling & Schmit, 2023; Opoku et al., 2024)

Prior studies on financial performance in the insurance sector have predominantly focused on profitability determinants or macroeconomic influences, while fewer studies have integrated liquidity, solvency, and RBC into a unified enterprise financial performance framework (Lee et al., 2022; Pemo et al., 2024). Moreover, existing research often treats financial ratios as isolated indicators rather than interrelated enterprise control mechanisms. This fragmented approach creates methodological limitations in explaining how financial ratios collectively reflect enterprise financial performance effectiveness under regulatory constraints. Empirical findings also indicate inconsistencies in the balance between liquidity strength, leverage structure, and capital adequacy across insurance enterprises, suggesting the need for a more integrated accounting-based evaluation framework (Vohra & Patel, 2025; Le et al., 2025). Therefore, a more holistic enterprise-level analysis is required to clarify how these financial dimensions interact in determining financial performance effectiveness.

This study positions liquidity, solvency, and RBC as interrelated enterprise control mechanisms rather than isolated financial indicators. Unlike prior research that primarily examines profitability drivers or macroeconomic determinants (Lee et al., 2022; Pemo et al., 2024), this study develops an integrated accounting-based framework to evaluate enterprise financial performance effectiveness under regulatory constraints. The originality of this research lies in combining

regulatory solvency indicators (RBC) with traditional financial ratios to provide a holistic enterprise modelling perspective for assessing financial governance in insurance institutions.

Employing a single-enterprise case study enables an in-depth and context-specific evaluation of financial performance effectiveness within a regulated environment. This approach provides detailed empirical insights into financial governance practices, ratio interrelationships, and regulatory compliance dynamics that may be obscured in multi-firm aggregate analyses. Therefore, the single-enterprise longitudinal analysis over a multi-year period offers both theoretical and practical significance for understanding enterprise-level financial resilience in emerging insurance markets.

Therefore, this study aims to evaluate enterprise financial performance effectiveness by integrating liquidity ratios, solvency ratios, and risk-based capital within an accounting-oriented enterprise modelling framework. By employing a single-enterprise case analysis over a multi-year period, this research provides empirical insights into how financial performance effectiveness can be assessed at the enterprise level. The findings are expected to contribute to accounting literature, enterprise modelling research, and practical financial governance in insurance enterprises.

Unlike prior studies that focus primarily on profitability or isolated financial ratios, this study explicitly integrates liquidity, solvency, and risk-based capital as interrelated enterprise control mechanisms. This integrated perspective represents the novelty of the study and strengthens its contribution to enterprise modelling and accounting governance literature.

Methods

This study employs a quantitative descriptive research design to evaluate enterprise financial performance effectiveness, consistent with accounting-based financial performance assessment methodologies (Lee et al., 2022a). The research focuses on an insurance enterprise listed on the Indonesia Stock Exchange, with financial performance assessed using financial ratios and regulatory solvency indicators. The selected enterprise was chosen based on data availability, regulatory compliance, and continuous publication of audited financial statements. Industry benchmarks were adopted from commonly accepted financial ratio standards and regulatory requirements to ensure comparability. The 2020–2023 period captures post-pandemic recovery dynamics and regulatory adjustments in the insurance sector. The selected enterprise meets several criteria: (1) it is publicly listed and subject to capital market disclosure requirements, (2) it publishes complete audited annual financial statements consistently during the observation period, (3) it operates under Indonesian insurance solvency regulations, and (4) it represents a regulated insurance institution with publicly accessible financial information. These criteria ensure data reliability, transparency, and the suitability of the enterprise as a representative case for evaluating financial performance effectiveness in a regulated insurance environment.

Secondary data are used in this study, obtained from publicly available audited annual financial statements published by the enterprise and the Indonesia Stock Exchange. The observation period spans four consecutive years from 2020 to 2023, allowing for an assessment of performance trends and fluctuations over time (Tirumalsety & Gurtoo, 2021; Hussain et al., 2023). The selected period captures post-pandemic financial recovery dynamics and regulatory compliance adjustments, thereby providing a meaningful timeframe for evaluating financial resilience and capital adequacy in the insurance sector.

Enterprise financial performance effectiveness is measured using three analytical dimensions. First, liquidity performance is evaluated through the current ratio and cash ratio, which reflect the enterprise's ability to meet short-term obligations (McLaney & Atrill, 2023; Mehrotra, 2022). The ratios are calculated using the following formulas:

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities} \quad (1)$$

Cash Ratio = Cash and Cash Equivalents / Current Liabilities

Second, solvency performance is assessed using the debt-to-assets ratio and debt-to-equity ratio to analyze capital structure and long-term financial risk (Refakar & Ravaonorohanta, 2020). The formulas applied are:

Debt-to-Assets Ratio = Total Liabilities / Total Assets
Debt-to-Equity Ratio = Total Liabilities / Shareholders' Equity (2)

Third, risk-based capital is used as a regulatory solvency indicator to measure capital adequacy relative to risk exposure, particularly in insurance enterprises (Zinyoro & Aziakpono, 2024). The Risk-Based Capital ratio is calculated based on regulatory solvency standards as:

Risk-Based Capital Ratio = Available Capital / Required Risk-Based Capital

Data analysis is conducted using descriptive financial ratio analysis. The calculated ratios are compared with general industry benchmarks and regulatory standards to evaluate the effectiveness of enterprise financial performance (AbdulRahman et al., 2022). Liquidity ratios are assessed against commonly accepted benchmarks indicating adequate short-term solvency, while solvency ratios are evaluated based on conventional leverage standards in financial institutions. The Risk-Based Capital ratio is compared with the regulatory minimum requirement of 120 percent for insurance companies.

Trend analysis is used to observe ratio movements and performance consistency from year to year, while comparative analysis evaluates the alignment of empirical results with industry benchmarks and regulatory thresholds. This approach enables an objective and systematic assessment of financial condition without manipulating variables, ensuring consistency with accounting research principles. This method is appropriate for single-enterprise financial performance evaluation under regulatory environments and supports the replication of the study in future research.

Results and Discussion

Before presenting the detailed results, this section provides a structured explanation of enterprise financial performance outcomes based on liquidity, solvency, and risk-based capital indicators. The tables presented summarize the accounting-based financial ratios calculated from audited financial statements over the 2020–2023 period. These indicators are used to evaluate enterprise financial performance effectiveness by comparing empirical results with commonly accepted industry benchmarks and regulatory standards and by examining the interaction between short-term liquidity, long-term solvency, and capital adequacy.

Liquidity Performance

Liquidity reflects the enterprise's ability to meet short-term obligations and operational cash requirements without experiencing financial distress. In insurance enterprises, adequate liquidity is essential to ensure timely claim payments and maintain policyholder confidence. From an enterprise modelling perspective, liquidity ratios function as short-term financial control indicators that support operational continuity.

Table 1. Liquidity Ratio Results (2020–2023).

Year	Current Ratio (%)	Cash Ratio (%)
2020	192.00	62.00
2021	217.00	61.00
2022	190.00	75.00
2023	212.00	84.00
Average	202.75	70.50

Source: Author's calculation based on audited financial statements (2020–2023)

The liquidity ratio results show that the enterprise maintained a consistently strong liquidity position during the 2020–2023 period, with an average current ratio of 202.75% and an average cash ratio of 70.50%. Compared with commonly accepted financial benchmarks indicating that a current ratio above 100–150% reflects adequate short-term solvency, the enterprise's liquidity performance can be categorized as highly robust. The upward trend in the cash ratio from 62% in 2020 to 84% in 2023 further indicates improved cash management and increasing short-term financial resilience.

From a trend perspective, liquidity remained stable despite economic uncertainty during the post-pandemic recovery period. This finding reinforces prior studies highlighting liquidity as a key determinant of short-term enterprise financial stability and operational continuity (AbdulRahman et al., 2022; Vohra & Patel, 2025; Fikri & Yolanda, 2023; Sudiyatno et al., 2021). However, excessively high liquidity may also signal conservative asset allocation and potential opportunity costs, suggesting the need to evaluate liquidity in relation to capital structure and risk-bearing capacity.

The cash ratio further supports these findings by demonstrating adequate cash and cash equivalent holdings to meet immediate liabilities. Although fluctuations are observed across years, the overall cash ratio remains above the minimum standard, suggesting prudent liquidity management. From an enterprise modelling perspective, strong liquidity performance enhances operational resilience and reinforces stakeholder confidence (Wang et al., 2023; Omrany et al., 2023; Yang et al., 2024).

Solvency Performance

Before presenting the solvency ratio results, it is necessary to explain the importance of solvency in assessing enterprise financial sustainability. Solvency indicators reflect the extent to which enterprise assets are financed through debt and equity, providing insight into long-term financial risk exposure. In the insurance sector, solvency plays a critical role in ensuring the enterprise's ability to meet future obligations and absorb potential financial shocks. From an accounting and governance perspective, a balanced capital structure enhances financial resilience and regulatory compliance. Consequently, solvency analysis complements liquidity assessment by focusing on long-term enterprise financial effectiveness.

Table 2. Solvency Ratio Results (2020–2023).

Year	Debt to Assets Ratio (%)	Debt to Equity Ratio (%)
2020	55.00	123.00
2021	52.00	111.00
2022	71.00	182.00
2023	54.00	149.00
Average	58.00	141.25

Source: Author's calculation based on audited financial statements (2020–2023)

Solvency indicators provide insight into long-term financial sustainability and risk exposure. The solvency ratio results show an average debt-to-assets ratio of 58% and an average debt-to-equity ratio of 141.25%, both of which exceed commonly referenced leverage benchmarks for financial institutions. The spike in leverage during 2022 (DAR 71% and DER 182%) indicates a temporary increase in reliance on liabilities, suggesting higher exposure to long-term financial risk.

Solvency analysis reveals a relatively high reliance on debt financing within the enterprise's capital structure. The debt-to-assets ratio indicates that a significant proportion of assets is financed through liabilities, reflecting moderate to high leverage. Similarly, the debt-to-equity ratio exceeds conventional benchmarks, suggesting increased financial risk associated with debt dependence.

When examined from a trend perspective, solvency performance appears more volatile than liquidity. This divergence indicates an imbalance between short-term financial strength and long-term capital structure. While higher leverage is common in insurance enterprises due to liability-driven operations, persistent reliance on debt may reduce financial flexibility and increase vulnerability to macroeconomic shocks. These findings align with prior research indicating that excessive leverage may constrain long-term financial sustainability despite short-term performance advantages (Lee et al., 2022; Refakar & Ravaonorohanta, 2020; Hao & Xiong, 2021; Msomi et al., 2025).

Importantly, the coexistence of strong liquidity and high leverage suggests that the enterprise relies heavily on liabilities while maintaining sufficient liquid assets to support operational obligations. This interaction indicates a risk management strategy that prioritizes short-term solvency but may expose the enterprise to structural capital risks in the long term.

While higher leverage is common in financial enterprises, excessive reliance on debt may limit financial flexibility and increase vulnerability to economic shocks. From an accounting and enterprise governance perspective, this highlights the need for balanced capital structure management to ensure sustainable enterprise financial performance effectiveness (Dumitrescu & Zakriya, 2022).

Risk-Based Capital Performance

Before presenting the risk-based capital results, it is essential to highlight the role of capital adequacy in enterprise financial governance. Risk-Based Capital (RBC) measures the sufficiency of enterprise capital relative to its overall risk exposure, particularly in insurance operations. RBC serves as a regulatory mechanism that integrates underwriting, investment, and operational risks into a single solvency indicator. Maintaining an RBC ratio above the regulatory minimum demonstrates effective enterprise risk management and financial resilience. Therefore, RBC analysis provides a comprehensive evaluation of enterprise financial soundness beyond traditional liquidity and solvency measures.

Risk-Based Capital (RBC) analysis provides a regulatory perspective on capital adequacy and enterprise risk governance. The RBC ratio remained consistently above the regulatory minimum of 120%, with an average value of 180.50%. This indicates strong compliance with solvency regulations and adequate capital buffers to absorb underwriting, investment, and operational risks.

Table 3. Risk-Based Capital Ratio Results (2020–2023).

Year	RBC Ratio (%)
2020	217.00
2021	180.89
2022	161.98
2023	164.68
Average	180.50

Source: Author's calculation based on audited financial statements and OJK solvency regulation

The risk-based capital results presented in Table 3 demonstrate that the enterprise consistently maintained capital adequacy well above the minimum regulatory requirement during the 2020–2023 period. This indicates that the enterprise possessed sufficient capital buffers to absorb potential losses arising from underwriting, investment, and operational risks. Although the RBC ratio showed a declining trend in certain years, it remained within a safe range, reflecting effective risk management and compliance with solvency regulations. A stable and adequate RBC position is particularly critical in the insurance industry, as it safeguards policyholder interests and supports financial system stability. From an enterprise modelling perspective, strong risk-based capital performance complements liquidity and solvency management, reinforcing the enterprise's overall financial resilience and governance effectiveness.

However, a critical trend emerges when examining the year-to-year movement of RBC. The ratio declined from 217% in 2020 to 161.98% in 2022 before stabilizing slightly in 2023. Although still above regulatory requirements, this downward trend suggests increasing risk exposure or rising capital pressure over time. When interpreted alongside rising leverage, the declining RBC trend indicates a gradual tightening of the enterprise's capital buffer.

Despite solvency challenges, the enterprise demonstrates strong risk-based capital performance throughout the study period. The RBC ratio consistently exceeds the regulatory minimum requirement, indicating sufficient capital buffers to absorb potential losses arising from underwriting, investment, and operational risks.

This interaction between increasing leverage and declining RBC is particularly important. While liquidity remains strong, rising debt levels may gradually erode capital adequacy if not managed carefully. This finding supports prior evidence that robust capital adequacy enhances enterprise resilience and regulatory compliance in insurance firms (Opoku et al., 2024; Zinyoro & Aziakpono, 2024; Jin et al., 2023). This finding is consistent with prior studies emphasizing that capital adequacy functions as a core enterprise risk governance mechanism in insurance institutions (Broer & Kero, 2021; Li et al., 2025; Wen et al., 2025).

The stability of the RBC ratio reflects effective enterprise risk governance and compliance with solvency regulations. Overall, the integration of liquidity, solvency, and RBC analysis provides a comprehensive assessment of enterprise financial performance effectiveness, consistent with enterprise modelling approaches that emphasize holistic financial governance (Pemo et al., 2024).

Integrated Analysis of Liquidity, Solvency, and RBC

The integration of liquidity, solvency, and RBC provides a more comprehensive understanding of enterprise financial performance effectiveness. The findings reveal a distinctive financial pattern: strong and improving liquidity, high and fluctuating leverage and strong but gradually declining capital adequacy.

This combination indicates that the enterprise demonstrates strong short-term financial resilience and regulatory compliance but faces emerging long-term structural risks related to capital structure. From an enterprise modelling perspective, these findings confirm that financial ratios function as interrelated control mechanisms rather than isolated indicators (Pemo et al., 2024).

The results also help explain inconsistencies in previous studies regarding the relationship between liquidity, leverage, and financial performance. High liquidity does not necessarily imply low risk when accompanied by increasing leverage and declining capital buffers. Therefore, a holistic accounting-based framework is necessary to evaluate financial performance effectiveness in regulated industries.

Theoretical and Practical Implications

From a theoretical perspective, this study strengthens accounting and enterprise modelling literature by demonstrating that liquidity, solvency, and RBC should be analysed as an integrated financial governance system rather than independent indicators. The findings support the argument that enterprise financial performance effectiveness emerges from the balance between short-term operational liquidity, long-term capital structure, and regulatory capital adequacy.

From a practical perspective, the results provide important implications for insurance managers and regulators. Managers should maintain liquidity strength while optimizing capital structure to prevent excessive reliance on debt. Regulators may also benefit from integrated financial ratio monitoring to detect early warning signals of structural financial risk

Overall, the integrated analysis confirms that enterprise financial performance effectiveness in regulated insurance institutions depends on the dynamic interaction between liquidity management, leverage strategy, and capital adequacy under regulatory constraints.

Conclusion

This study evaluates enterprise financial performance using an accounting-based framework that integrates liquidity, solvency, and risk-based capital indicators within a regulated insurance environment. The findings indicate that the enterprise maintains strong liquidity and capital adequacy above regulatory requirements, reflecting effective short-term financial management and risk resilience. However, the results also reveal a relatively high reliance on debt financing and a gradual decline in the Risk-Based Capital ratio, suggesting emerging long-term structural risks in capital composition despite continued regulatory compliance. Theoretically, this study contributes to enterprise modelling and accounting literature by demonstrating that liquidity, solvency, and RBC function as an integrated financial governance system rather than independent indicators. The study confirms that enterprise financial performance effectiveness in regulated industries is shaped by the balance between short-term liquidity strength, long-term leverage structure, and regulatory capital adequacy. Practically, the findings provide concrete implications for insurance company management and regulators. Insurance enterprises are encouraged to optimize capital structure by gradually reducing excessive reliance on debt financing, strengthening equity-based funding, and implementing more balanced leverage policies to maintain long-term financial flexibility. Maintaining high liquidity should be complemented with proactive capital planning to prevent gradual erosion of capital buffers. Regulators may also benefit from integrated monitoring of liquidity, leverage, and RBC trends as early warning indicators of structural financial risk. The main theoretical contribution of this study lies in positioning liquidity, solvency, and risk-based capital as an integrated enterprise financial governance system. This study is limited by its single-enterprise design and descriptive approach, which may restrict generalizability across the insurance industry.

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