

FINANCIAL SOUNDNESS OF TAKAFUL VERSUS CONVENTIONAL INSURANCE IN MALAYSIA: A CAMEL-BASED ANALYSIS

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Abstract. The insurance sector plays a critical role in supporting economic stability, financial protection, and risk management in Malaysia. Within its dual financial system, Takaful and conventional insurance operate under fundamentally different principles, creating challenges in evaluating and comparing their financial performance. This study aims to assess and compare the financial performance of Takaful and conventional insurance companies in Malaysia using the CAMEL framework, which includes Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity. A quantitative research design is employed using secondary data collected from annual reports of selected insurance companies for the period 2019–2024. Descriptive and regression analyses are applied to examine the impact of CAMEL components on financial performance, measured by Return on Assets (ROA). The findings indicate that Takaful operators generally demonstrate stronger capital buffer, liquidity and operational efficiency, while conventional insurers exhibit higher profitability and capital strength. The study contributes to the existing literature by providing a comprehensive and standardized comparison framework and offers practical implications for regulators, investors, and policymakers in enhancing financial stability and governance within Malaysia's insurance industry.

Keywords: *takaful, conventional insurance, CAMEL framework, profitability, panel data analysis*

Introduction

The insurance industry in Malaysia has experienced significant growth and development, contributing to financial stability, risk management, and long-term economic sustainability. Despite increasing market expansion, insurance awareness among the public remains mixed, particularly in understanding the fundamental concepts of insurance. In Malaysia, the insurance industry adapts a dual insurance system; consist of Conventional and Islamic Insurance, which is known as Takaful. The concept for both insurances differs fundamentally in their operational principles. Conventional insurance exercises the fundamentals of risk transfer to operate the risk that policy holders might face. In contrast, the Takaful base concept is risk sharing and cooperation among policy holders. This perception also reflects the operational approaches and ethics in foundations, governance structures, operational mechanisms, and financial performance outcomes (Altwijry et al., 2026). Takaful industry in Malaysia has shown consistent growth, supported by regulatory frameworks such as the Islamic Financial Services Act 2013 (IFSA 2013), increasing consumer awareness, and advancements in digital financial inclusion. Meanwhile, conventional insurance remains dominant due to its longer establishment and broader product offerings.

Previous empirical studies present mixed findings regarding performance comparisons. Some studies suggest that Takaful operators outperform conventional insurers in liquidity, solvency, and operational efficiency, while others report that

conventional insurers achieve higher profitability and stronger financial performance (Almoaheem, 2025; Bhatti and Shoaib, 2025). The performance of the companies measured by various technique, and one of the prominent frameworks is CAMEL. The CAMEL framework consists of five main components, which are Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity, which provides a comprehensive tool for assessing financial performance (Nizar et al., 2023; Mahmud and Rahman, 2020; Said and Tumin, 2011). However, its application in insurance studies remains limited and often incomplete. Although CAMEL was originally designed to assess the performance of banks, it has been widely adopted as a reliable tool to measure the financial strength of other financial institutions including insurance companies Yakop, et al. (2012). However, most existing studies only apply selected CAMEL indicators rather than the complete model. This creates a significant research gap, especially in the Malaysian insurance sector where comprehensive comparative studies remain limited. The CAMEL model can be adapted to assess takaful performance because its five dimensions (capital adequacy, asset quality, management efficiency, earnings, and liquidity) also capture the key determinants of financial soundness and operational performance that are equally relevant to takaful operators (Mohd Izanni et al., 2024; Kholis and Rakhmawati, 2022). Understanding these limitations highlights the importance of applying the full CAMEL framework in this research. Moreover, comparing financial performance between Takaful and conventional insurance is challenging due to their different operational models. Conventional insurance uses interest-based mechanisms, whereas Takaful follows Shariah principles.

In addition, some comparative analyses indicate that Takaful firms may face distinct liquidity challenges during periods of economic volatility, often stemming from differences in cash management and operational flexibility (Almoaheem et al., 2025). These structural discrepancies in liquidity and solvency ratios underscore the necessity of applying the CAMEL framework to determine whether such differences reflect inherent operational inefficiencies or merely the restrictive nature of Sharia-compliant investment mandates (Mustofa and Janatin, 2023). By systematically applying these parameters, this research aims to bridge the current empirical gap in understanding how Sharia-compliant investment constraints influence asset allocation strategies and overall capital adequacy relative to conventional risk-mitigation benchmarks (Azizi et al., 2025; Suresh and Bardastani, 2016). Consequently, this study integrates these indicators to assess whether Takaful firms maintain comparable levels of operational efficiency despite the constraints imposed by Sharia principles on asset selection and liability management (Ningrum et al., 2024). This study consists of five sections. The next section explains about the empirical studies on the impact of CAMEL framework on profitability of Takaful and Conventional Insurance companies in Malaysia. Then, it continues to explore about the methodology employed in this study. Moreover, the key findings and analysis are explained in section four of the study. The final part of this article will conclude the contents together with the implications and direction of future research.

Literature review

CAMEL framework and insurance performance

The CAMEL framework remains a cornerstone for evaluating the financial health of both conventional and Takaful insurance operators (Shihab et al., 2025). In

contemporary research, ROA is consistently utilized as the primary proxy for operational efficiency, measuring how effectively a company's total assets generate profit (Kufo and Shtëmbari, 2023; Alnajjar and Othman, 2021).

Capital Adequacy Ratio (CAR) and profitability

Capital adequacy measures the insurer's ability to absorb losses and maintain solvency. A higher ratio indicates stronger financial stability. Recent empirical evidence strongly supports a positive and significant relationship between the CAR and the profitability of financial institutions (Dubey et al., 2025; Alnajjar and Othman, 2021). According to Shihab et al. (2025), insurance companies with higher capital levels tend to be more resilient and capable of growth, as capital buffers provide protection against financial shocks and unexpected underwriting losses. The contribution of capital buffers to performance is particularly significant during periods of economic instability. The finding is consistent with previous study by Banu (2025) which found that Takaful operators with robust capital sizes are better positioned to produce positive returns through optimized capital expenditure, which show a better efficiency performance.

(H1): There is a significant relationship between Capital Adequacy Ratio (CAR) and Profitability.

Asset quality and profitability

This ratio evaluates the quality and risk level of the insurer's assets, including investments and receivables. Asset quality is identified as a critical risk factor that inversely affects long-term sustainability, particularly in relation with risk exposure and ROA. Firms with better asset quality are expected to achieve higher efficiency, which reflect prudent investment and risk management practices. However, a decline in asset quality may signal the presence of non-performing or high risk assets, which can adversely affect long-term profitability. It has been highlighted by Shihab et al. (2025) as this relationship underscores the importance of continuous monitoring and optimisation of asset quality to mitigate the potential risks and sustain the financial performance. In addition, Zmeškal et al. (2025) added that while asset quality can increase the overall risk profile of the insurance sector, it must be balanced with earnings ratios to maintain stable Return on Equity.

(H2): There is a significant relationship between Asset Quality and Profitability.

Management efficiency and profitability

This captures how effectively the management utilizes resources to generate income. Ratios like cost-to-income ratio will be employed as a proxy for the management efficiency. More efficient management is expected to improve financial performance. Management efficiency reflects how effectively the management utilizes resources to generate income. Ratios like operating expenses to net premiums or cost-to-income ratio will be employed. More efficient management is expected to improve financial performance. Empirical evidence from the Jordanian insurance sector highlights that effective management practices, including continuous workforce training and strong operational control, are essential to prevent "management gaps" that may lead to declining profitability (Shihab et al., 2025). Furthermore, comparative studies in

emerging markets identify managerial efficiency as a key driver of Return on Assets (ROA), alongside factors such as firm size and liquidity (Worku et al., 2024). This suggests that strong managerial capabilities not only enhance internal efficiency but also play a pivotal role in sustaining overall financial performance.

(H3): There is a significant relationship between Management Efficiency and Profitability.

Liquidity and profitability

Liquidity plays a dual role in influencing profitability, as it is essential for ensuring financial stability while potentially constraining returns if not managed efficiently. Adequate liquidity enables firms to meet short-term obligations and sustain operations, thereby supporting overall financial resilience. Empirical evidence on CAMEL analysis towards financial institutions indicates that liquidity levels have a statistically significant impact on Return on Assets (ROA) (Nguyen et al., 2020). At the same time, maintaining sufficient liquidity is crucial for risk mitigation, as it reduces the likelihood of insolvency and operational disruptions, ultimately stabilising returns for shareholders (Zmeškal et al., 2025). These findings highlight the importance of achieving an optimal balance in liquidity management to enhance both stability and profitability. Ratios such as financing to deposit will be considered in this study.

(H4): There is a significant relationship between liquidity and Profitability.

Earnings and Profitability

Earnings indicate profitability and the firm's capacity to generate sustainable returns. Measurement such as return on equity (ROE) will be used in this study. Higher earnings demonstrate stronger performance and operational success. Return on Equity (ROE) is widely recognised as a key financial indicator reflecting management's effectiveness in utilising shareholders' capital to generate profits. Although often treated as a dependent variable, ROE also serves as an important performance signal within financial analysis (Kufo and Shtëmbari, 2023). Many studies adopt both ROA and ROE as complementary measures to provide a more comprehensive assessment of firm performance (Altwijry et al., 2026). Furthermore, a higher ROE is generally associated with more efficient asset management and stronger business performance, as it captures the firm's ability to generate returns relative to equity investment. This underscores the relevance of ROE as a critical metric in evaluating overall financial efficiency and value creation.

(H5): There is a significant relationship between Return on Equity (ROE) and Profitability.

Materials and Methods

This study adopts a quantitative research design to examine the financial performance of 10 takaful and 10 conventional insurance companies in Malaysia. This study employed only audited and publicly available data to enhance the reliability, consistency, and comparability of the analysis. In order to capture the outliers from

affecting the results, the data were winsorized while retaining all observations. In addition, a quantitative approach is deemed appropriate as the study utilises numerical financial data derived from audited annual reports, enabling objective measurement and statistical comparison across firms and over time. The analysis is based on the CAMEL framework, which is widely recognised for evaluating the financial soundness and operational efficiency of financial institutions. The data for this study is obtained from the audited annual reports of selected takaful and conventional insurance companies in Malaysia. The use of secondary data enhances objectivity, facilitates quantitative comparison, and is consistent with prior empirical studies such as Chong et al. (2024).

The regression model employed in this study is specified as follows:

$$\text{PROFITABILITY}_{it} = \alpha + \beta_1 \text{CAR}_{it} + \beta_2 \text{AQ}_{it} + \beta_3 \text{ME}_{it} + \beta_4 \text{ER}_{it} + \beta_5 \text{LIQ}_{it} + \varepsilon_{it} \quad \text{Eq. (1)}$$

Multicollinearity test

Multicollinearity arises when independent variables are highly correlated, potentially distorting coefficient estimates and reducing the explanatory power of the model. In this study, such an issue may occur as CAMEL components (e.g., capital adequacy and liquidity) are conceptually related. The Variance Inflation Factor (VIF) is employed to detect multicollinearity, where a VIF value below 10 indicates that the problem is not severe.

Unit Root Test (Stationarity Test)

The unit root test is conducted to determine whether the variables are stationary over time. A stationary series has a constant mean and variance, and its statistical properties remain stable across periods. Testing for stationarity is crucial in panel data analysis, as non-stationary variables may lead to spurious regression results and misleading conclusions.

Panel data analysis

This study employs panel data analysis, which combines both cross-sectional (different firms) and time-series (multiple years) dimensions. The use of panel data offers several advantages, including increased variability, reduced multicollinearity, and improved efficiency of estimation. It also allows the study to control for unobserved heterogeneity across firms that may influence financial performance but are not directly measurable. This study only utilised the Pooled Ordinary Least Squares (POLS) due to the scarcity of the data. By incorporating panel data techniques, this study is able to produce more robust and reliable findings regarding the determinants of financial performance in both takaful and conventional insurance companies.

Results and Discussion

This section will discuss the results and data analysis of the study that evaluates the financial performance of Islamic which is Takaful and conventional insurance companies in Malaysia.

Unit root test

This section presents the results of the unit root tests conducted to assess the stationarity properties of the variables used in the Takaful model.

Takaful companies

Table 1 and Table 2 indicates the findings of unit root test for Islamic and Conventional Insurance companies. The test used are Levin Lin & Chu (LLC), ADF Fisher Chi-Square (ADF) and PP Fisher Chi-Square (PP). Referring to the table, it indicates that all variables are stationary either at the level or at the first difference lag.

Table 1. Unit root of takaful companies.

Test	ROA	CAR	AQ	ME	ER	LIQ
LLC	-276.710***	-7.9652***	-22.5698***	-49.2608***	-8.1275***	-15.2178***
ADF	49.7327***	52.6731***	45.5895***	78.3469***	38.6878***	38.8294***
PP	59.9177***	71.0087***	44.8955***	87.3821***	47.0610***	42.4128***

Table 2. Unit root of conventional insurance companies.

Test	ROA	CAR	AQ	ME	ER	LIQ
LLC	-31.1927***	-13.7899***	-38.2552***	-836.2670***	-34.3325***	-19.6944***
ADF	59.4552***	44.9068***	60.3919***	43.5703***	51.8247***	43.1559***
PP	60.3486***	44.9068***	59.1850***	57.0938***	52.6241***	44.3297***

Multicollinearity using VIF test

Table 3 presents the results of the multicollinearity diagnostic test using the Variance Inflation Factor (VIF) for both Takaful (Takaful) and Conventional insurance models. Overall, these findings confirm that all variables in the Takaful model satisfy the stationarity requirement either at level or after appropriate differencing, thereby validating the suitability of panel regression techniques.

Table 3. VIF result to check multicollinearity.

Variables	Takaful	Conventional Insurance
CAR	2.034140	1.356373
AQ	3.658950	1.300517
ME	1.279047	1.001259
ER	3.930192	1.597593
LIQ	1.846612	1.417507
MEAN VIF	2.549788	1.334650

Pooled Ordinary Least Square (POLS)

Table 4 reveals regression results for both Takaful and Conventional Insurance companies in Malaysia. The findings indicate a positive and significant relationship between capital adequacy (CAR) and ROA for both entities, indicating that the insurance companies with stronger capital positions tend to achieve better financial performance. This finding is consistent with Karki et al. (2025), capital adequacy significantly influences the financial performance of non-life insurers in Nepal. This suggests that maintaining sufficient capital reserves is crucial for an insurer's profitability and stability. Furthermore, Sufyan and Othman (2025) emphasized that capital strength is a critical factor distinguishing takaful from conventional insurance due to its role in ensuring long-term sustainability, in which conventional insurance places more emphasis on the financial performance. From a Shariah perspective, adequate capital reflects amanah (trustworthiness) and supports hifz al-mal (protection

of wealth) under Maqasid Shariah. Similarly, ROE shows a positive and significant relationship with profitability for both entities, suggesting that efficient utilization of shareholders' funds enhances company performance. In contrast, LIQ and ME exhibit negative and significant relationships with ROA for only Takaful companies, implying that excessive financing activities and higher claims expenses reduce profitability. This finding is contradict who highlighted that takaful operators should maintain balanced financial practices to avoid excessive risk exposure which obviously give impact to the performance. Furthermore, the scarcity of Sharia-compliant investment opportunities often leads to market liquidity constraints that may adversely affect the annual profitability of Takaful operators compared to their conventional peers (Kader et al., 2010). Additionally, empirical evidence indicates that inadequate liquidity management exerts a more pronounced negative impact on the profitability of Takaful firms during periods of economic volatility, highlighting a significant divergence in liquidity-related risk management compared to conventional insurers (Almoaheem et al., 2025). Meanwhile, AQ is found to have no significant relationship with ROA during the study period.

Table 4. Pooled Ordinary Least Squares (POLS) regression results for Islamic and conventional insurance companies.

Independent variables:	Takaful	Conventional Insurance
CAR	0.1069***	0.3093***
AQ	-0.0906	0.2268
ME	-0.0005*	-0.0001
ER	0.2219***	0.2415***
LIQ	-0.0404**	-0.0829
R-squared	0.847241	0.887739
F-statistic	39.93295***	63.26229***
Observations	42	46

*Note: The sign ***, **, * indicate the result is statistical significance at the 1%, 5% and 10% level respectively.*

Conclusion

The findings show that the financial performance of Islamic (Takaful) and conventional insurance companies in Malaysia differs across the CAMEL components, with Shariah compliance playing an important role in shaping Islamic insurers' performance. Islamic insurers generally maintain stable capital adequacy, reflecting a cautious and prudent risk management approach. They also demonstrate consistent earnings due to disciplined investment strategies and risk-sharing principles. Moreover, takaful operators that maintain excessive liquid assets may forgo higher investment returns from long-term Shariah-compliant investments, thereby reducing their overall financial performance. On the other hand, conventional insurance successfully focus in adequate capital and earnings to support their performance. Overall, Takaful does not hinder performance; instead, it supports stability, ethical practices, and long-term sustainability, allowing Islamic insurers to remain competitive with conventional counterparts. This study contributes to finance and insurance literature by providing updated evidence and a useful framework for comparing Takaful and conventional insurers, helping future researchers build on similar models and variables. Takaful operators should strengthen in terms of their capital adequacy, maintain prudent liquidity management to ensure long-term solvency and the ability to meet claim obligations. Besides that, improving asset quality also could support the sustainable

growth in a competitive Islamic insurance market. For future research, improvements can be made by using longer and more recent data, incorporating macroeconomic and regulatory factors, and applying advanced econometric methods such as FEM, REM, GMM, or SEM. Expanding the analysis to other countries would also enhance the generalizability of the findings and provide broader insights into insurance performance across different environments.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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