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PERFORMANCE INDICATORS FOR MALAYSIAN FAMILY TAKAFUL OPERATORS

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Abstract:

This study examines the determinants of business performance among Malaysian family takaful operators, focusing on both firm-specific factors (Fee & Commission Income, Zakat Paid, Underwriting Risk, Liquidity, and Firm Size) and macroeconomic indicators (GDP Growth and Inflation Rate). Using an 11-year panel dataset (2013–2022) from nine family takaful operators, this study employs multiple regression models, including Ordinary Least Squares (OLS), Robust OLS, Cluster Robust OLS, and Feasible Generalized Least Squares (FGLS), to ensure the robustness of the findings. The results indicate that Fee & Commission Income (FCI) and Zakat Paid (ZP) positively influence business performance, highlighting their role as key revenue streams and ethical financial indicators in Islamic finance. Conversely, Underwriting Risk (UWR) and Liquidity (LQ) negatively impact performance, suggesting that excessive claims, risk mismanagement, and inefficient liquidity allocation hinder profitability. Interestingly, Firm Size (FS) was found to be insignificant, challenging the assumption that larger operators achieve better financial outcomes. Additionally, Inflation significantly affects business performance, while GDP Growth was found to be insignificant, implying that family takaful participation is more influenced by inflationary pressures than broad economic expansion. This study contributes to theoretical, methodological, and practical advancements in Islamic finance, particularly in understanding the financial sustainability and risk management strategies of takaful operators. The findings provide valuable insights for policymakers, regulators, and industry

practitioners, emphasizing the need for effective pricing strategies, investment diversification, and enhanced risk governance. Future research should explore comparative studies across different jurisdictions and incorporate qualitative insights into takaful consumer behavior and operational challenges.

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Business Performance, Family Takaful Operators, Econometric, Fee & Commission Income, Zakat Paid



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Introduction

The takaful industry in Malaysia was established to provide a Shariah-compliant alternative to conventional insurance, catering to the needs of the Muslim community. Rooted in the principles of mutual cooperation (ta'awun) and shared responsibility (tabarru'), takaful aligns with Islamic financial ethics by offering risk-sharing mechanisms instead of conventional risk-transfer models (Bank Negara Malaysia, 2005). This unique structure ensures that policyholders contribute to a common fund, which is then used to provide financial protection to members facing unexpected losses. Currently, Malaysia hosts 11 family takaful operators and four general takaful operators, all regulated under the purview of the Central Bank of Malaysia (Bank Negara Malaysia, 2023). This regulatory oversight ensures that takaful operations adhere to both financial and Shariah governance, maintaining consumer trust and industry stability.

The Malaysian family takaful sector has demonstrated impressive growth, reinforcing its position as a key player in the broader Islamic finance industry. In 2023, the market penetration rate for family takaful stood at 19.58% (Alam, 2023), reflecting the increasing acceptance and adoption of takaful products among consumers. Additionally, data from the Malaysian Takaful Association (MTA) reported that new business contributions reached RM 10.06 billion in 2022, representing a 15.6% year on-year increase, with 1.31 million new certificates issued. Despite this robust growth, the industry continues to face several challenges that threaten its long-term sustainability. The COVID-19 pandemic significantly impacted the financial sector, including takaful, as economic uncertainties led to reduced consumer spending and policy cancellations. Additionally, recurring natural disasters such as floods and landslides have further stressed the industry by increasing claim payouts, affecting liquidity management and overall market stability (Eldaia et al., 2021; Mahadi & Ismail, 2022). Market competition from conventional insurance providers, regulatory compliance costs, and evolving customer expectations also

pose hurdles that family takaful operators must navigate. Although the Malaysian takaful industry has received considerable academic attention, much of the existing literature focuses on overall takaful performance rather than specifically addressing the family takaful segment. Previous studies have examined the operational efficiency, financial stability, and market growth of takaful operators, but few have provided an in-depth analysis of the factors influencing the performance of family takaful businesses (Abduh & Zein Isma, 2017; Nun & Hakan, 2023).

Furthermore, while traditional financial indicators such as Return on Assets (ROA) and Return on Equity (ROE) have been widely used to assess business performance, they may not fully capture the distinct characteristics of family takaful operations. To address this gap, this study introduces Fee and Commission Income (FCI) and Zakat Paid as novel proxies for measuring performance. Additionally, previous studies have largely examined the broader financial health of Islamic financial institutions, yet limited research has explored how internal and external factors influence the specific operational success of family takaful businesses (Abdellatif & Xie, 2024). Understanding these dynamics is crucial, especially as family takaful continues to expand in response to growing consumer demand and regulatory advancements.

Understanding the key performance drivers enables takaful operators to refine their strategic and financial management practices. By analyzing the impact of fee & commission income (FCI), zakat paid, underwriting risk, liquidity, and firm size, operators can identify strengths and weaknesses in their revenue models and risk exposure. The study also highlights how FCI, a crucial income source under the *wakalah* model, differentiates family takaful from conventional life insurance, reinforcing the need for optimizing management fees and service charges. Additionally, the inclusion of zakat paid as a performance indicator offers insights into how corporate social responsibility in Islamic finance contributes to both financial sustainability and consumer trust. Ultimately, this research plays a pivotal role in shaping the future growth and sustainability of the family takaful industry in Malaysia.

Literature Review

Performance Indicators for Family Takaful Operators

Evaluating a company's business performance is crucial, as it reflects its ability to manage finances effectively and sustain long-term growth. Business performance measurement is essential for stakeholders to assess financial health, operational efficiency, and strategic direction. Several indicators can be used to measure company performance, with return on assets (ROA) being one of the most widely used, particularly in financial institutions (Che Arshad et al., 2020). Several studies have extensively scrutinized the use of ROA as a performance metric for Islamic banks. Notable researchers such as Kamarulzaman & Mahshar (2018), Nugroho et al. (2022).

Apart from ROA, other financial performance indicators are also widely used to assess business efficiency in takaful and Islamic finance industries. Return on Equity (ROE) is another key profitability ratio that evaluates a company's ability to generate profits from shareholders' equity. ROE is particularly relevant for assessing investor returns, as higher values indicate better profitability and effective capital utilization. Studies such as Nugroho et al. (2022) have employed ROE in Islamic banking and takaful research, highlighting its significance in financial performance evaluation. Overall, while ROA remains a critical financial performance

measure, incorporating additional indicators such as ROE, ROI, UPR, and solvency ratio provides a more comprehensive evaluation of family takaful operators. Given the increasing complexity of the takaful industry, a diversified approach to performance measurement is essential for ensuring long-term stability and growth.

Operator's Specific

Fee & Commission Income

Fee and commission income (FCI), or non-interest income, refers to the charges a bank imposes for its services. In the takaful business industry, FCI is the primary source of income for operators, as outlined in the Malaysia Takaful Operational Framework 16 (TOF) in Section 16 (16.1) (Bank Negara Malaysia, 2019). Unlike conventional insurance, where earnings largely depend on underwriting surplus and investment returns, takaful operators derive a substantial portion of their revenue from management fees collected under *wakalah* contracts.

Furthermore, a significant empirical gap exists, as previous studies have predominantly treated FCI as a dependent variable rather than an independent predictor of business performance (Damankah et al., 2014; Shahimi et al., 2006). For instance, Shahimi et al. (2006) investigated the relationship between portfolio diversification and fee-based income in Australian banks. Their study revealed that while fee-based income presents higher risks than traditional margin income.

Similarly, Muhammad Zuki (2024) explored the determinants of non-financing income in Malaysian Islamic banks, including total fee and commission income. His findings indicated that bank-specific factors such as ROA, bank size, total deposits, and loan loss provisions significantly influence non-financing income, reinforcing the notion that FCI plays a crucial role in financial performance. From the current study postulates the following hypothesis:

H1: The increase in FCI will substantially increase the business performance of the operator of the family takaful.

Zakat Paid

Zakat (Islamic tax) is the third pillar of Islam and holds both spiritual and economic significance in the Islamic faith. Linguistically, zakat means to cleanse or purify oneself from dirt and to grow, praise, and increase. Theologically, it refers to the purification of one's wealth and spiritual self through the fulfillment of zakat obligations (Abd Samad et al., 2017). According to Al-Qaradawi (2011), zakat is as specific portion of one's wealth prescribed by God to be distributed among designated categories of recipients, including the poor, needy, zakat administrators, those whose hearts are inclined toward Islam, slaves seeking freedom, debtors in genuine need, those striving in the path of Allah, and stranded travellers.

One of these distinctions is the obligation to pay zakat, specifically business or corporate zakat, which aligns financial performance with ethical and social responsibility (Ali et al., 2020). In Malaysia, the Malaysian Accounting Standards Board (2006) outlines zakat payment mechanisms based on the Adjusted Working Capital and Adjusted Growth methods, ensuring systematic zakat calculations (Malaysian Accounting Standards Board, 2006).

In financial analysis, zakat is increasingly recognized as a key indicator of profitability and corporate responsibility within Islamic financial institutions. Shiu & Haron (2022) argue that zakat payments effectively reflect the financial health and profitability of IFIs, justifying the selection of zakat ratio as a measurement of performance. The integration of zakat as a performance metric offers a unique perspective, combining financial success with social impact and ethical governance. From the current study postulates the following hypothesis:

H2: The higher zakat paid by the operators will substantially increase the operators' performance and thus affect the performance.

Underwriting Risk

Underwriting risk is the potential loss an insurer may face due to an inaccurate assessment of risk or unforeseeable events, resulting in expenses exceeding premiums earned. When assessing underwriting performance, a signal may indicate that a takaful company is experiencing financial difficulties related to its underwriting cash flow. This suggests the company is struggling to overcome these challenges (Shiu, 2004). Effective underwriting plays a crucial role in ensuring the financial stability of takaful operators.

Ana-Maria and Ghiorghe (2014) suggest that taking on too much underwriting risk can reduce the profitability of an insurance company. This is because the company will have to spend more on managing expenses, such as loss adjustment costs and claims investigation, which can lead to higher insurance losses. As a result, excessive underwriting risk negatively impacts the company's operational performance, leading to higher claim handling and monitoring costs (Ana-Maria & Ghiorghe, 2014).

Many previous empirical works have indicated that underwriting risk significantly influences a firm's performance. For instance, Luqman et al. (2022) investigated the determinants of performance across Malaysian takaful companies. The study used the loss ratio as a proxy to measure underwriting risk and found that the loss ratio was significant and positively related to the return on assets of Malaysian takaful companies. The findings suggest that controlling underwriting risk through better risk selection and claims management can enhance overall profitability. From the current study postulates the following hypothesis:

H3: Underwriting risk will significantly increase the performance of Malaysian family takaful operators.

Liquidity

One of the key measures of liquidity is the quick ratio, which indicates how much of a firm's assets can be quickly converted into cash to cover its liabilities (Alam et al., 2023). Previous empirical works have extensively examined the relationship between liquidity and financial performance across various industries, including the takaful sector. For instance, Che Arshad et al. (2020) conducted an empirical study on takaful operators in Malaysia and found that liquidity significantly affects the financial performance of takaful operators.

Similarly, Hemrit (2020) explored the impact of liquidity on firm performance in takaful companies and found a significant positive relationship, indicating that maintaining adequate liquidity levels is crucial for business sustainability. Another study by Abdullah et al. (2022)

revealed a similar positive relationship between return on assets (ROA) and liquidity in takaful performance. However, some studies suggest that excessive liquidity can have a negative impact on financial performance. According to Alam et al. (2023), liquidity has a negative significant relationship with financial performance in Islamic financial institutions. Their findings indicate that Islamic banks often keep large portions of their assets unused to meet liquidity demands, resulting in lower profitability. From the current study postulates the following hypothesis:

H4: The operator's lower liquidity ratio would increase profitability and, thus, the operator's performance.

Firm's Size

Firm size refers to the scale or magnitude of a company's operations, often measured by assets, revenue, or market capitalization (Che Arshad et al., 2020). Theoretically, larger firms tend to have greater operational capacity, wider market reach, and enhanced financial stability, all of which contribute to better financial performance. A larger firm typically benefits from economies of scale, where increased production lowers per-unit costs, leading to higher profit margins. Moreover, larger firms often enjoy stronger bargaining power with suppliers, easier access to capital markets, and a more diversified portfolio, which reduces financial risk and enhances sustainability.

According to Ashraf et al. (2017), firm size is also an important determinant of market perception and investor confidence. Larger firms tend to attract more public attention and generate greater trust among stakeholders, as their size signals financial strength and stability. Larger takaful operators are likely to have better brand recognition, more extensive distribution networks, and a broader customer base, all of which contribute to their financial performance (Che Arshad et al., 2020). From the current study postulates the following hypothesis:

H5: Firm size will effectively associate with the performance of family takaful operators.

Economic Predictors

Gross Domestic Product

Gross Domestic Product (GDP) is a fundamental indicator of a country's economic health, representing the total economic output within a given period while accounting for the consumption of goods and services used in production. GDP is calculated based on various components, including personal consumption expenditures, gross domestic investment, net exports of goods and services, government consumption expenditures, and gross investment (Dyran et al., 2018). Several empirical studies have established the link between GDP growth and company performance across various industries and regions. For instance, Surya et al. (2021) found that GDP growth boosts the productivity and financial performance of companies in Indonesia, particularly small and medium-sized enterprises (SMEs).

Similarly, Sibindi & Godi (2014) examined the relationship between economic growth and the expansion of Africa's long-term insurance and takaful sectors, concluding that higher GDP levels support the increased penetration of financial protection products, including Islamic insurance. From the current study postulates the following hypothesis:

H6: Gross domestic product will significantly affect the family takaful operators' business performance.

Inflation Rate

Another essential economic predictor of business performance is the inflation rate, which reflects the percentage change in a specific price index over time (Abaidoo & Anyigba, 2020). Inflation influences the purchasing power of consumers, the cost of doing business, and the overall stability of financial markets. Additionally, Abaidoo & Anyigba (2020) suggested that inflation can introduce variability in a firm's asset holdings and operational efficiency, leading to increased costs and financial instability.

Similarly, a study by O'Connell (2023) assessed the impact of inflation on UK bank profitability over two decades (1998–2018) and found a significant relationship between inflation and financial performance. The study demonstrated that higher inflation rates reduce lending margins, increase default risks, and elevate funding costs, ultimately constraining banks' ability to maintain profitability. However, the relationship between inflation and takaful performance is not always straightforward. Sahudin et al. (2022), in their study on Malaysian takaful operators, found that inflation negatively affects business performance, contradicting previous findings. The study suggested that higher inflation reduces consumer affordability, leading to a decline in new policy subscriptions and renewal rates. From the current study postulates the following hypothesis:

H7: The inflation rate will positively affect the efficiency of family takaful operators in Malaysia.

Underpinning Theory of Agency

Agency theory, first introduced by Jensen and Meckling (1976), provides a framework for understanding the relationship between principals, such as shareholders or owners, and agents, like managers, who are tasked with acting on behalf of the principals (Jensen & Meckling, 1976). This relationship inherently involves the delegation of authority and decision-making, which can lead to conflicts of interest due to differing goals or information asymmetry (Jensen & Meckling, 1976).

Such conflicts may result in agency costs, including monitoring costs by the principal and bonding costs by the agents. Reduced agency costs are associated with increased firm value and enhanced performance (Sahudin et al., 2022). Agency conflicts are particularly relevant in financial institutions, including takaful operators. In Islamic financial institutions, the role of trust, ethical governance, and mutual responsibility is paramount, making the agency-principal relationship more complex due to the emphasis on Shariah compliance. In this context, agency theory is closely related to the concept of *wakalah* (agency contract), which underpins many takaful operations (Che Arshad et al., 2020; Sahudin et al., 2022).

Overall, agency theory offers valuable insights into the governance challenges and fiduciary responsibilities of takaful operators. By integrating Islamic finance principles with modern governance mechanisms, takaful firms can achieve both financial success and ethical integrity. The *wakalah* contract not only aligns with Shariah principles but also serves as a foundation

for ensuring operational transparency, accountability, and long-term sustainability within the takaful industry. Future research should explore additional agency-related factors, such as managerial incentives, regulatory effectiveness, and participant engagement, to further enhance the operational efficiency of takaful operators in Malaysia and beyond.

Methodology

Research Framework

The research framework for this research is based on an underpinning theory, namely the Agency Theory (Jensen & Meckling, 1976). This study has incorporated five operator's specific constructs as independent variables: fee & commission income, zakat paid, underwriting risk, liquidity and firm's size. Moreover, the study also incorporates another two economic predictors: gross domestic product and inflation rate. In addition, all variables will be analyzed to examine whether there is a significant relationship between performance of family takaful operators and vice versa. Figure 1 presents the proposed framework for this study.

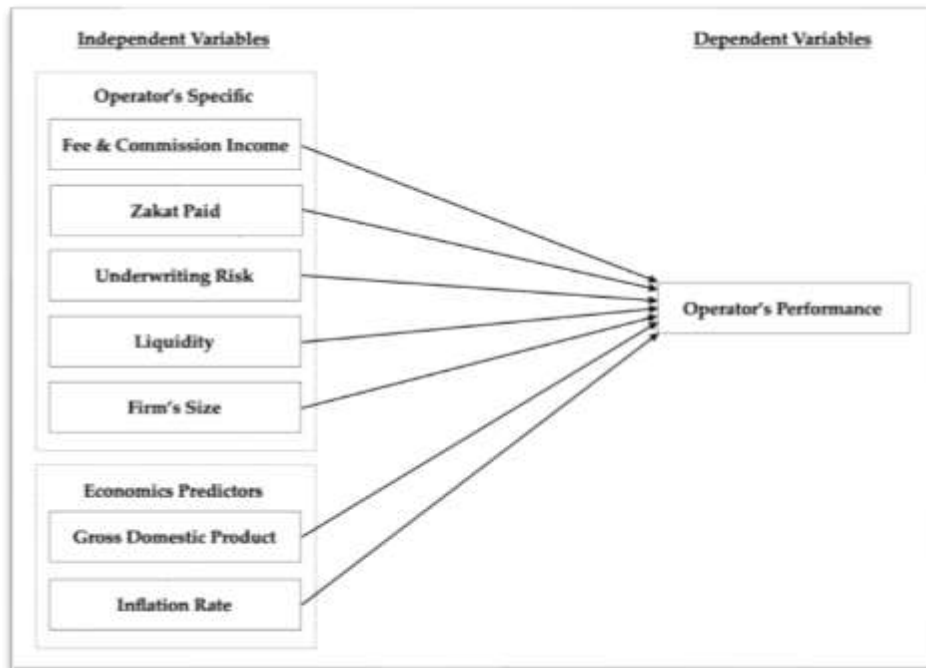


Figure 1: Research Framework

Data Collection Procedures

This study employs secondary data collection to examine the determinants of business performance for Malaysian family takaful operators. Secondary data is widely utilized in financial and economic research due to its credibility, and accessibility (Rubin et al., 2011). Given the quantitative nature of this study, data collection focuses on obtaining panel data covering nine Malaysian family takaful operators over an 10-year period (2013–2022). The data for this study was sourced from two primary databases. Firm-specific variables, including fee & commission income, zakat paid, underwriting risk, liquidity, and firm size, were extracted from the Thomson Reuters database, a globally recognized financial data source widely used in empirical research on Islamic finance and takaful (Ali et al., 2020; Haniff et al.,

2021). Meanwhile, macroeconomic indicators such as gross domestic product (GDP) and the inflation rate were retrieved from the World Bank database, which serves as an authoritative source for economic data in academic and policy research.

Model Specification

This study employs an econometric model to examine the determinants of business performance among Malaysian family takaful operators. The model is formulated as follows:

$$BP_{it} = \alpha_0 + \beta_1 FCI_{it} + \beta_2 ZP_{it} + \beta_3 UWR_{it} + \beta_4 LQ_{it} + \beta_5 FZ_{it} + \beta_6 GDP_{it} + \beta_7 IR_{it} + \epsilon_{it}$$

BP represents business performance, measured by Return on Assets (ROA), calculated as total net profit from operating profit divided by total assets. FCI denotes fee & commission income, which serves as a primary revenue source for takaful operators under the *wakalah* (agency) model. ZP represents zakat paid, a financial obligation for Islamic financial institutions. GDP refers to gross domestic product per capita, measured in natural logarithm form to capture the broader economic environment's effect on takaful demand and overall financial stability (Remli et al., 2018). UWR denotes underwriting risk, which is calculated as net claims incurred and expenses divided by net earned contributions. LQ represents liquidity, measured as total cash and cash balance divided by total liabilities. IR stands for the inflation rate, expressed in percentage form. Inflation impacts investment returns, operational costs, and policy affordability, making it a crucial macroeconomic determinant of takaful performance. α is the constant term, representing the expected value of BP when all independent variables are zero. β denotes the beta coefficients for each independent variable, indicating the strength and direction of their influence on business performance. ϵ represents the error term, capturing unobserved factors that may influence business performance but are not included in the model.

Method of Data Analysis

A 10-year panel dataset covering nine family takaful operators in Malaysia was analyzed using multiple regression models, including Ordinary Least Squares (OLS), Robust OLS, Cluster Robust OLS, and Feasible Generalized Least Squares (FGLS). The application of these models enhances the robustness of statistical inferences, particularly in addressing issues related to heteroscedasticity, autocorrelation, and cross-sectional dependence. To ensure the validity and reliability of the regression analysis, diagnostic tests were conducted to check for correlation, multicollinearity, and heteroscedasticity, which are crucial for avoiding biased or misleading results in panel data econometrics.

Results

Descriptive Analysis

Table 1 illustrates the descriptive statistical analysis results. Firm size (FS) has the highest mean value at 13.787, which means that takaful operators have large asset bases. This is in line with research that links firm size to financial stability (Che Arshad et al., 2020; Sahudin et al., 2022). Return on Assets (ROA) has the lowest mean at 0.017, which means that Islamic financial institutions usually have lower ROA because they have to follow Shariah law and the takaful model structure (Abdullah et al., 2022; Nugroho et al., 2022). The highest standard deviation, 4.022, is found in Fee & Commission Income (FCI). This shows that revenue generation is

very variable, probably because of different levels of market penetration and agency effectiveness (Malhotra et al., 2019). On the other hand, ROA has a low standard deviation (0.032), which means that its profitability doesn't change much, possibly because of regulatory oversight and risk-sharing mechanisms (Haniff et al., 2021). Normality tests show that most variables don't follow a normal distribution, which is in line with what has been found before in financial data. The chi-squared test's p-values are all below 0.05, except for firm size. This non-normality, prevalent in panel datasets, is examined in previous studies regarding the use of panel regression models with generalised least squares (GLS) and robust estimators in the absence of strict normality.

A further examination of macroeconomic indicators reveals a low standard deviation (0.069) for GDP per capita, signifying stable economic conditions that facilitate the growth of the takaful industry (Remli et al., 2018). On the other hand, the inflation rate (IR) has a higher standard deviation (1.416), which means that prices are changing, which could affect how many people want to buy takaful products (Sahudin et al., 2022). Table 3 provides additional information about these descriptive results.

Table 1 Descriptive Statistic Analysis

Variable	Mean	Std. Dev.	Pr(skewness)	Pr(kurtosis)	Prob>chi2
ROA	0.017	0.032	0.000	0.043	0.000
FCI	5.975	4.022	0.194	0.000	0.000
ZP	3.460	2.770	0.332	0.000	0.000
UWR	1.055	0.242	0.002	0.000	0.000
LQ	0.068	0.053	0.005	0.693	0.025
FS	13.787	1.172	0.547	0.345	0.525
GDP	9.271	0.069	0.792	0.000	0.002
IR	1.958	1.416	0.004	0.838	0.023

Correlation Analysis

Table 2 shows how Return on Assets (ROA) is related to both firm-specific variables (Fee & Commission Income (LFCI/FCI), Zakat Paid (LZP/ZP), Underwriting Risk (UWR), Liquidity (LQ), Firm Size (FS), and macroeconomic indicators (Gross Domestic Product (GDP) and Inflation Rate (IR)). There is a moderate positive correlation between ROA and Fee & Commission Income (LFCI) ($r = 0.261$), which means that higher fee and commission income may help firms' assets make more money. In the same way, Zakat Paid (LZP) has a moderate positive correlation with ROA ($r = 0.306$), which means that firms that make more money tend to pay more zakat. This could also mean that they are doing better financially and following governance rules. Underwriting Risk (UWR), on the other hand, has a fairly strong negative correlation with ROA ($r = -0.446$), which means that higher underwriting risk is linked to lower profitability. Liquidity (LQ) has a weak negative correlation with ROA ($r = -0.149$), which means that holding too much liquidity may make it less efficient to use assets.

Firm Size (FS) has a weak positive correlation with ROA ($r = 0.233$), which means that bigger companies might be able to take advantage of economies of scale, but the link isn't very strong. When it comes to macroeconomic factors, GDP and ROA are almost completely unrelated ($r = 0.005$), and the Inflation Rate (IR) has a very weak negative relationship ($r = -0.011$). This indicates that the profitability of firms in the sample is more significantly affected by internal, firm-specific factors than by overarching macroeconomic conditions.

Table 2 Correlation Analysis Matrix

Variables	ROA	FCI	ZP	UWR	LQ	FS	GDP	IR
ROA	1							
LFCI	0.261	1						
LZP	0.306	-0.042	1					
UWR	-0.446	-0.121	-0.126	1				
LQ	-0.149	0.14	-0.13	-0.191	1			
FS	0.233	-0.245	0.379	-0.13	-0.109	1		
GDP	0.005	-0.015	0.074	-0.046	0.107	0.198	1	
IR	-0.011	0.064	0.05	-0.226	-0.019	-0.093	0.131	1

Multicollinearity Check

Multicollinearity, an issue in multiple regression models due to high correlations among independent variables, can lead to unreliable regression coefficient estimates. This study utilized the Variance Inflation Factor (VIF) test to detect multicollinearity, with a VIF value above 5 indicating a significant problem. The results showed that all VIF values were below 5, with a mean VIF of 1.163, suggesting low correlation among predictors. Individual VIF values ranged from 1.090 to 1.358, confirming that each independent variable contributes uniquely to business performance.

These findings align with previous research in Islamic finance, highlighting the necessity of assessing multicollinearity before regression analysis. A low VIF score is crucial for stable and interpretable regression coefficients, thus avoiding statistical distortions from overlapping independent variables. Prior studies indicate that multicollinearity frequently occurs with multiple financial ratios due to structural industry relationships. The lack of multicollinearity in this study supports the model's robustness, confirming that each predictor independently affects takaful performance. Moreover, it is significant for financial research to address multicollinearity when analyzing both firm-specific and macroeconomic factors, as their interactions can obscure accurate estimations of business performance impacts. Low VIF values in this study indicate minimal correlations, enhancing the precision of variable impact assessments.

Table 3 Variance Inflation Factor (VIF) For Multicollinearity Check

Variables	VIF	Tolerance
FCI	1.358	0.736
ZP	1.200	0.833
UWR	1.166	0.857
LQ	1.113	0.898
FS	1.111	0.900
GDP	1.104	0.906
IR	1.090	0.918
Mean VIF	1.163	

Heteroscedasticity Test

The study conducted Ordinary Least Squares (OLS) regression to assess heteroscedasticity, indicating variable residuals across observations and contravening the homoscedasticity assumption, following a check for multicollinearity. This results in ineffective standard errors and skewed statistical inference. The Breusch-Pagan test yielded a chi-square statistic of 6.60 and a p-value of 0.0102, signifying the rejection of the null hypothesis of constant variance and affirming heteroscedasticity. This confirmation raises concerns about unreliable standard errors and inconsistent coefficient estimates, particularly in financial contexts where firms exhibit varying performance and risk.

Regression Estimation Results

Result in table 4, fee and commission income (FCI) positively correlates with return on assets (ROA) at the 1% significance level, with beta coefficients consistently between 0.002 and 0.003, indicating that wakalah-based fee structures enhance the financial viability of family takaful operators. Underwriting risk (UWR) negatively impacts ROA significantly across several models, with a beta coefficient of -0.059, highlighting the importance of effective risk management practices. Liquidity (LQ) presents a strong inverse relationship with ROA, revealed by beta coefficients indicating that excessive liquidity may hinder profitability. The analysis shows a beneficial impact of zakat paid (ZP) on ROA, affirming the role of financially stable takaful operators in Islamic corporate social responsibility, although its significance varies across models. Firm size (FS) does not significantly influence ROA, suggesting instead that management efficiency is more critical than size.

In contrast, GDP per capita demonstrates no significant relationship with ROA, challenging the notion that economic growth directly benefits takaful profitability. The inflation rate (IR) shows inconsistent significance, indicating it may affect takaful performance variably depending on the methodologies used. The overall model explains 40% of ROA variability, with various unmeasured factors accounting for the remainder. Model fit indicators, AIC and BIC, emphasize optimized performance in explaining variations while avoiding overfitting. These findings necessitate further exploration into the effects of inflation and additional factors influencing takaful operations.

Table 4 Results for Regression Estimations

Model	Model I (Basic OLS)			Model II (Robust OLS)			Model III (Clustered Robust OLS)			Model IV (Feasible GLS)		
	Coef.	St.Err.	p-value	Coef.	St.Err.	p-value	Coef.	St.Err.	p-value	Coef.	St.Err.	p-value
FCI	0.002	0.001	0.002***	0.002	0.000	0.000***	0.002	0.001	0.003***	0.002	0.001	0.001***
ZP	0.002	0.001	0.051*	0.002	0.001	0.023**	0.002	0.001	0.105	0.002	0.001	0.038**
UWR	-0.059	0.012	0.000***	-0.059	0.014	0.000***	-0.059	0.024	0.040**	-0.059	0.012	0.000***
LQ	-0.142	0.054	0.010**	-0.142	0.046	0.003***	-0.142	0.075	0.094*	-0.142	0.051	0.006***
FS	0.004	0.003	0.163	0.004	0.003	0.236	0.004	0.006	0.565	0.004	0.003	0.140
GDP	-0.005	0.041	0.912	-0.005	0.037	0.903	-0.005	0.027	0.868	-0.005	0.039	0.908
IR	-0.003	0.002	0.155	-0.003	0.001	0.049**	-0.003	0.001	0.049**	-0.003	0.002	0.133
Constant	0.063	0.374	0.867	0.063	0.323	0.846	0.063	0.258	0.814	0.063	0.357	0.860
R-squared	0.400			0.400			0.400			Not Applicable in GLS		
F-test	7.810			10.444			70.972			Not Applicable in GLS		
AIC	-395.912			-395.912			-395.912			-395.912		
BIC	-375.914			-375.914			-375.914			Not Applicable in GLS		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Discussions

Fee & Commission Income and Performance of Family Takaful Operator

The study confirms that fee & commission income (FCI) significantly and positively influences the business performance of Malaysian family takaful operators. This finding reinforces the importance of fee-based revenue streams in sustaining takaful firms' profitability, particularly given the wakalah (agency) model, which serves as the primary revenue mechanism in takaful operations. Unlike conventional insurance firms that generate income through investment returns and risk underwriting, takaful operators rely heavily on management fees and commissions from policyholders, making FCI a crucial determinant of financial success (Malhotra et al., 2019; Li, 2022). Past studies in Islamic finance and conventional banking have demonstrated the significance of non-interest-based income in improving financial performance. Li (2022) found that FCI is a major contributor to the profitability of Chinese commercial banks, as it diversifies income sources and reduces dependence on volatile investment returns. Similarly, Malhotra et al. (2019) concluded that Indian banks with a higher proportion of fee-based income experienced improved financial stability, as such revenue streams are less sensitive to interest rate fluctuations and credit risks. In the takaful sector, Muhammad Zuki (2024) have highlighted that fee & commission income serves as a risk-free source of revenue, ensuring that takaful operators remain financially sustainable even during economic downturns. The positive and significant relationship between fee & commission income and business performance highlights the critical role of management fees in the profitability of Malaysian family takaful operators. Given the wakalah-based revenue model, it is imperative for takaful firms to strengthen their fee-based income strategies through product innovation, market expansion, and digital transformation. These findings align with past research demonstrating that financial institutions with diversified income streams, particularly those reliant on fee-based revenues, experience greater financial resilience and stability (Li, 2022; Malhotra et al., 2019).

Zakat Paid and Performance of Family Takaful Operator

The study's findings confirm that zakat paid (ZP) positively influences business performance, reinforcing the argument that Islamic financial institutions that actively contribute to zakat demonstrate stronger financial health and ethical governance. This result is consistent with previous studies that highlight the role of zakat as both a religious obligation and a financial performance indicator (Sulaeman et al., 2022; Javaid & Al-Malkawi, 2018; Abd Samad et al., 2017). Since zakat is calculated based on net assets, higher zakat payments suggest that a firm is financially stable and profitable, which in turn reflects its ability to contribute to social and economic welfare in line with Islamic financial principles.

Empirical evidence supports the positive association between zakat contributions and business performance. Javaid & Al-Malkawi (2018) found that firms in Saudi Arabia that regularly fulfill their zakat obligations experience higher levels of investor confidence and corporate transparency, which indirectly enhances financial performance. Similarly, Sulaeman et al. (2022) examined the impact of zakat payments on Indonesian Islamic banks' profitability and discovered that higher zakat contributions correlate with increased financial stability and customer retention. This suggests that zakat compliance does not merely serve as a religious duty but also functions as an ethical business practice that fosters greater public trust and institutional credibility. The findings confirm that zakat paid positively contributes to the business performance of Malaysian family takaful operators, reinforcing the dual role of zakat as both a financial and ethical obligation. Firms that actively fulfill their zakat responsibilities tend to experience greater public trust, corporate transparency, and financial resilience, aligning with previous research that highlights zakat's impact on firm profitability and stakeholder confidence (Javaid & Al-Malkawi, 2018; Abd Samad et al., 2017).

Underwriting Risk and Performance of Family Takaful Operator

The study confirms that underwriting risk (UWR) has a significant negative impact on the business performance of Malaysian family takaful operators, reinforcing the findings of past research (Luqman et al., 2022; Akotey et al., 2023; Che Arshad et al., 2020). Underwriting risk refers to the possibility of financial losses due to inaccurate risk assessment, mispriced policies, or an excessive claims ratio, which can severely affect a takaful operator's financial stability if not effectively managed. Since takaful is based on mutual cooperation and shared responsibility, underwriting inefficiencies can lead to financial distress, increased claim liabilities, and depletion of participants' funds, ultimately weakening overall business performance.

Furthermore, Akotey et al. (2023) investigated the impact of underwriting losses on the Ghanaian insurance industry, reporting that companies with excessive underwriting risks experience significant financial distress due to poor claims management and inefficient risk pricing. These findings highlight the critical importance of effective risk management in maintaining financial health and sustainability in the takaful sector. Unlike conventional insurers that operate based on fixed premium models, takaful operators rely on *tabarru'* (donation) contributions, where mispricing of risks can quickly deplete the risk fund, leading to deficits and financial instability.

Liquidity and Performance of Family Takaful Operator

Liquidity plays a critical role in ensuring the financial stability of takaful operators, as it reflects the firm's ability to meet short-term obligations and maintain solvency. However, the findings of this study reveal a negative and significant relationship between liquidity (LQ) and business performance (ROA), indicating that excess liquidity may reduce profitability rather than enhance financial sustainability. While maintaining sufficient cash reserves is essential for covering claims, operational costs, and regulatory requirements, holding too much liquidity can lead to inefficient capital allocation, reduced investment opportunities, and lower financial returns (Che Arshad et al., 2020; Alam et al., 2023). The negative impact of liquidity on profitability has been widely documented in both Islamic and conventional financial institutions. Hemrit (2020) found that Islamic banks with high liquidity ratios tend to face declining profitability, primarily due to limited investment instruments that comply with Shariah principles. Unlike conventional banks, Islamic financial institutions, including takaful operators, cannot engage in interest-based investments, restricting their ability to earn significant returns from excess cash reserves. Sahudin et al. (2022) similarly reported that excessive liquidity negatively affects takaful firms' performance, as unused cash results in opportunity costs and lost potential earnings.

Firm's Size and Performance of Family Takaful Operator

Firm size (FS) has traditionally been regarded as a key determinant of business performance, with larger firms expected to benefit from economies of scale, stronger brand recognition, and market dominance. However, the findings of this study indicate that firm size has an insignificant impact on the financial performance of Malaysian family takaful operators, suggesting that scale alone does not guarantee superior profitability. These results challenge conventional assumptions and emphasize the importance of internal operational efficiency over mere expansion. Several studies have found a positive relationship between firm size and business performance, arguing that larger firms enjoy cost efficiencies, better risk diversification, and greater market influence. Ashraf et al. (2017) highlighted that larger financial institutions tend to attract more customers, access better investment opportunities, and leverage superior risk management frameworks, leading to enhanced profitability. Similarly, Hunter & Timme (1986) suggested that banks and insurance firms with substantial asset bases experience higher efficiency and improved financial stability. The findings suggest that in the takaful industry, financial performance is driven more by operational efficiency, risk management, and revenue diversification rather than sheer size.

Gross Domestic Product, Inflation Rate and Performance of Family Takaful Operator

This study found that inflation significantly influences the business performance of Malaysian family takaful operators, whereas gross domestic product (GDP) growth was found to be insignificant. These findings suggest that inflation-related cost pressures directly impact takaful firms, while overall economic growth does not necessarily translate into improved business performance. Inflation is a key economic indicator that affects the purchasing power of consumers, cost structures of financial institutions, and investment returns. The significant negative relationship between inflation and takaful performance in this study aligns with previous research (Abaidoo & Anyigba, 2020; O'Connell, 2023; Asiamah et al., 2019; Shiu, 2004; Che Arshad et al., 2020). These studies have demonstrated that higher inflation rates lead

to increased operational costs, reduced disposable income for consumers, and challenges in maintaining profitability in financial institutions.

Conclusion

This study investigates the factors affecting business performance among Malaysian family takaful operators, identifying notable influences from both firm-specific characteristics and macroeconomic factors. It finds that Fee & Commission Income (FCI) and Zakat Paid (ZP) positively contribute to performance, while Underwriting Risk (UWR) and Liquidity (LQ) have negative impacts. Interestingly, Firm Size (FS) does not significantly determine performance, contradicting conventional wisdom. Among macroeconomic factors, inflation affects business performance, whereas GDP growth does not. The study highlights the importance of internal efficiencies and inflation management over macroeconomic growth, and it contributes to Islamic finance literature by introducing new variables and methodologies. However, it acknowledges limitations including a small sample size and lack of qualitative data, suggesting future research directions. Overall, the study emphasizes revenue diversification, risk management, and governance for the sustainability of family takaful operators in Malaysia.

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study. Mohd Faizuddin Muhammad Zuki handled data collection, analysis, and interpretation of results. Muhammad Arif Fadilah Ishak contributed to the literature review, drafting, and critical revision of the manuscript. All authors read and approved the final version of the manuscript prior to submission.

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