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Goal vs. gold? Unveiling the business performance of Malaysian family *takaful* operators

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ABSTRACT

This paper aims to assess the business performance of family takaful operators in Malaysia. The study examines the impacts of the operator's specifics and economic predictors on the relationship with the operator's performance captured by Return on Asset (ROA). The operator's specifics include fee and commission income, zakat payments, underwriting risk, liquidity, and firm size, while the economic predictors include Gross Domestic Products (GDP) and inflation rate. Using four regression estimations, which are the Ordinary Least Squares (OLS) model, the Robust OLS model, the Cluster Robust OLS model and the Feasible Generalised Least Squares (GLS) model, this study employed a balanced panel data approach to nine Malaysian family takaful operators for ten years, 2013-2022. The findings for the four estimation models affirmed that fee and commission income, underwriting risk, and liquidity significantly impact the ROA but not firm size and GDP. The findings also exhibit a significant relationship between zakat payment and the inflation rate on ROA in the different estimation models. Several works of literature are very interested in Malaysian takaful business performance without specifying the scope of family takaful business. Thus, this study aims to unveil the performance of family takaful businesses on Malaysian family takaful operators. This paper brought its novelty by conceptualising the fee and commission income and zakat payment as new proxies for measuring performance. The study's implications admonish the family takaful operators' recommendation to increase the operators' performance.

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1. Introduction

The *Takaful* industry in Malaysia was created to meet the needs of the muslim society for a *shariah*-compliant product. *Takaful* provides an alternative to conventional insurance for muslim consumers. The emergence of the *Takaful* sector in Malaysia supports the operations of Islamic banks, which began in 1983 (Bank Negara Malaysia, 2005). The first Islamic insurance (*takaful*) operator based in Malaysia was Syarikat *Takaful* Malaysia Berhad in 1984. Today, 11 local and four foreign *takaful* companies operate in Malaysia, totalling up to 15. To be more specific, the Central Bank of Malaysia has recorded 11 family *takaful* operators and four general *takaful* operators (Bank Negara Malaysia, 2023).

The Malaysian family *takaful* industry has demonstrated steady growth, with a market penetration rate of 19.58% in 2023 (Hasnizam, 2024). The Malaysian *Takaful* Association (MTA) reported RM 10.06 billion in total new business contributions for 2022, alongside a 15.6% year-on-year increase in new business certificates, totalling 1.31 million. This growth marks seven consecutive years of rising contributions, showcasing the industry's resilience. These statistics underscore the critical role of family *takaful* operators in sustaining the momentum and addressing emerging challenges within the sector.

Despite the significant growth trends, the *takaful* industry in Malaysia has faced challenges that threaten its resilience. The COVID-19 pandemic and natural disasters, such as floods, have disrupted economic stability and posed substantial risks to the industry, particularly in areas such as liquidity management and market volatility (Eldaia et al., 2021; Mahadi & Ismail, 2021). Nonetheless, the industry has demonstrated remarkable adaptability, maintaining consistent growth in market penetration rates and new business contributions. These circumstances highlight the critical need for a focused examination of family *takaful* operators' performance, as existing studies often overlook this specific segment, leaving a notable research gap in understanding its dynamics and resilience.

Several works of literature are very interested in Malaysian *takaful* business performance without specifying the scope of family *takaful* business. Nonetheless, the empirical study on the specific performance of family *takaful* business is still scant, to the best of the researcher's knowledge. Therefore, this study aims to unveil the performance of family *takaful* businesses on Malaysian family *takaful* operators. This paper will also provide new insight into the body of knowledge on the performance of the family *takaful* business segment. This paper brought its novelty by conceptualising the fee and commission income and *zakat* payment as new proxies for measuring performance. The structure of this paper starts with an introduction, followed by a literature review, research methodology, results, discussion, and conclusion.

2. Literature Review

2.1 Business Performance of Family Takaful Operators

Evaluating a company's business performance is crucial. This refers to the ability of business performance to manage finances effectively. Several indicators can be used to measure company performance, with return on the asset being one of the most used (Che Arshad et al., 2020). The study employed the ROA as a performance proxy by calculating income over total assets.

Several studies have extensively scrutinised using ROA as a performance metric for Islamic banks. Notable researchers such as Abd Samad et al. (2018), Nugroho et al. (2022), Tetep et al. (2022), and Ur Rehman et al. (2022) have thoroughly explored this topic. Tetep et al. (2022) studied the correlation between Islamic bank performance and the utilized shariah contracts, such as profit-loss sharing (mudarabah), joint venture (musharakah), and lease (ijarah) contracts. Their research conclusively

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demonstrated that only mudarabah and musharakah significantly impacted Islamic bank performance (Tetep et al., 2022).

Surprisingly, only a few studies have delved into using ROA to measure takaful company performance (Che Arshad et al., 2020; Sahudin et al., 2022). Sahudin et al. (2022) conducted a comprehensive study on takaful performance in Malaysia, employing ROA as a metric. Their research findings revealed that GDP had a negative correlation with takaful performance, while the size and liquidity of the firm had a positive correlation.

2.2 Operator's specific factors

2.2.1 Fee and 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 source of primary income for the operators as aligned with the Malaysia *Takaful* Operational Framework (TOF) in Section 16 (16.1) (Bank Negara Malaysia, 2019). *Takaful* operators imposed an agency fee based on using modified wakalah contracts in their products, which formed fee and commission income for the operator's revenue stream. Quoting from the *Takaful* Operational Framework, a licensed *takaful* operator may receive payment for their services, costs, and performance in managing *takaful* funds (Bank Negara Malaysia, 2019). Thus, the current study posits that higher fees and commission incomes will effectively increase the performance of *takaful* operators.

Nevertheless, to the best of researchers' knowledge, the inclusiveness of fee and commission income variables to predict the *takaful* operator's performance is still veiled. The focus has been given to the research related to the performance of the banking industry by the previous empirical works. Exempli gratia, research by Li (2022) has shown that fee and commission income positively impacts the financial performance of Chinese commercial banks (Li, 2022). The finding revealed that the fee and commission income substantially correlated with the return on assets of China's commercial banks. Furthermore, empirical work by Malhotra et al. (2019) assessed the impact of fee-based services on the performance of banks in India. The result suggests increasing the fee income share in India's public banks increases profitability (Malhotra et al., 2019).

In addition, the current study found a huge empirical gap, where many previous studies utilise the FCI as the dependent variable (Damankah et al., 2014; Shahimi et al., 2006; Williams & Prather, 2010). instead of the independent variable. For instance, Williams & Prather (2010) examine the effect of portfolio diversification between traditional margin income and fee-based income on bank risk for Australian banks. The study shows that fee-based income poses a greater risk than margin income but also provides diversification advantages for bank shareholders. Another study was conducted by Muhammad Zuki (2020) on the determinants of non-financing income in Malaysian Islamic banks, capturing the total fee and commission income. The study unveiled that banks' specifics, such as ROA, bank size, total deposits, and loan loss provision, significantly impact non-financing income (Muhammad Zuki, 2020).

Focusing on the impact of fee and commission income as an independent variable on the *takaful* operator's performance is worthless, as the study is still untapped, to the best of found knowledge. The current study will also fill the gap by trotting out new enlightenment on the impact of FCI on *takaful* operators' performance, then adding fresh insight to the body of knowledge. Hence, relying on previous literature works and preceding discussions, the current study postulates the following hypothesis:

H_1: The increase in FCI will substantially increase the business performance of the operator of the family *takaful*.

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2.2.2 Zakat payment

Zakat (Islamic tax) is the third pillar of Islam. In linguistics, zakat means to cleanse or purify oneself from dirt and grow, praise and increase. Theologically, it refers to the act of purifying one's property and spiritual self through the performance of zakat (Abd Samad et al., 2017). According to Al-Qaradawi (2011), zakat refers to a portion of one's wealth prescribed by God to be distributed among certain categories of people. These include the poor, needy, zakat administrators, people inclined toward Islam, slaves, debtors with genuine needs, those serving Allah, and travellers.

Islamic financial institutions (IFIs) operate differently from conventional financial institutions. IFIs rely on Islamisation processes to function with distinct operating mechanisms. One of the distinctive features is that the IFIs are obligated to pay for zakat, in this sense, business zakat (corporate) (Ali et al., 2020). According to the Malaysian Accounting Standards Board (2006), business zakat is imposed on the entity (company) based on the Adjusted Working Capital and Adjusted Growth methods (Malaysian Accounting Standards Board, 2006). Quoting Nomran and Haron (2022), zakat can reflect the profitability of Islamic financial institutions (IFIs) effectively; thus, it becomes the reason for the selection of the zakat ratio as a measurement for the performance of IFIs (Nomran & Haron, 2022). It was suggested that the IFIs with higher total assets need to pay a higher amount of zakat.

Many previous works of literature assessed the relationship between zakat and profitability. For instance, Sulaeman et al. (2022) investigated the relationship between zakat performance, the Covid-19 crisis and Islamic banks' profitability in Indonesia (Sulaeman et al., 2022). The empirical findings suggested that zakat performance is a primary indicator of the profitability of Indonesia's Islamic banks. Moreover, a study by Javaid & Al-Malkawi (2018) on non-financial firms listed in the Saudi Arabian stock market also found that zakat positively affects the firms' profitability (Javaid & Al-Malkawi, 2018). A contradictory finding was found by Abd Samad et al. (2017), where zakat payment was negatively related to Malaysia Islamic Bank's performance (Abd Samad et al., 2017).

On top of that, none of the previous empirical works mentioned above were conducted in the takaful industry. The focus has been channelled to the Islamic banking industry, leaving a huge empirical gap for further research. Thus, the current study attempts to fill the gap by examining the influence of zakat payment on the performance of takaful operators, specifically the family takaful segment. Leaning on the previous empirical works, the current study posits the following hypothesis:

H_2: The higher zakat paid by the operators will substantially increase the operators' performance and thus affect the performance.

2.2.3 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. This suggests that higher underwriting risk will negatively impact the performance of a takaful company. 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).

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

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to higher claim handling and monitoring costs (Ana-Maria & Ghiorghe, 2014). Many previous empirical works indicated that underwriting risk significantly influences the firm's performance.

For instance, Luqman et al. (2022) investigated the determinants of performance across the Malaysia Takaful company. The study used the loss ratio as a proxy to measure the underwriting risk. The study found that the loss ratio was significant and positively related to the return on assets of Malaysian Takaful companies. Moreover, Zainudin et al. (2018) examined the firm-specific internal determinants of the eight selected insurance firms in Asian countries. The findings indicated that the underwriting risk is significantly related to the profitability of Asian life insurance firms (Zainudin et al., 2018). Another study was performed by Akotey et al. (2023) to assess the possible influence on underwriting losses in the Ghanaian insurance industry. The study suggests that underwriting risk significantly influences the underwriting profit of Ghanaian insurance companies (Akotey et al., 2023).

Quoting from the same study by Che Arshad et al. (2020), the findings suggested that underwriting risk is significantly related to the performance of takaful companies in Malaysia (Che Arshad et al., 2020). Therefore, counting on the empirical evidence presented above, the current study theorises as follows:

H_3: Underwriting risk will stupendously increase the performance of Malaysian family takaful operators.

2.2.4 Liquidity

In financial management, liquidity refers to a company's cash reserves, known as the quick ratio. This metric indicates how much of a firm's assets are available to cover its liabilities (Alam et al., 2023). Maintaining proper liquidity is key for takaful companies to balance short-term cash needs with long-term profitability. Adequate liquidity allows for income-generating investments and meeting immediate obligations. Liquidity indicates whether a company's assets can cover its liabilities, measured using cash or the quick ratio. To achieve better financial performance, a company should have lower liquidity to reduce agency costs and incentivise managers to improve their performance (Che Arshad et al., 2020).

Previous empirical works have supported the relationship between liquidity and performance in various background studies. Case in point, Che Arshad et al. (2020) performed empirical work on the 15 takaful operators in Malaysia to assess the relationship between liquidity and the performance of takaful operators. The study shows that liquidity significantly affects the operators' performance (Che Arshad et al., 2020). Another study was performed by Hemrit (2020), suggesting a significant relationship between liquidity and firm performance in takaful companies. Another study by Abdullah et al. (2022) found a similar relationship between return on assets and liquidity in takaful performance.

However, according to Alam et al., (2023), the result shows that liquidity has a negative significant relationship with performance. They suggested that Islamic banks must keep their assets unused to meet liquidity demands. This is due to a lack of quality money market instruments and liquidity constraints, which can hurt their profitability. Considering the previous discussion, the current study postulated that:

H_4: The operator's lower liquidity ratio would increase profitability and, thus, the operator's performance.

2.2.5 Firm's size

A firm's size is a size or scale that shows the size of a company (Sudrajat & Mat Daud, 2020). Theoretically, a larger company will have more significant operations and output, translating into higher revenues. Increased sales will increase revenue, and increased revenue equals high profit. High profit equals high income in the end, and the more income or profit after taxes, the greater the return on investments, assets, and equities will be, according to Hashmi et al. (2020).

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According to the finding by Ashraf et al. (2017), large firms will get more attention or be better known to the public. The greater the size of the company, the greater the signal to the public that the greater the firm's size, more positive the indication of the company's financial performance. If a company is large, it is possible to have a better market value and financial performance than smaller firms in terms of a positive relationship between financial companies and their financial performance (Che Arshad et al., 2020). A study suggests that large banks fully equipped with new technology exhibit cost-saving and more efficiency in gains (Hunter & Timme, 1986).

In previous studies, alternative-size proxies have been utilized, including enterprise value (which combines market capitalization and net debt), the number of employees, total profits, or net assets (calculated by subtracting total liabilities from total assets). These proxies are used when the main measures are not applicable or unavailable, such as using the market cap for private firms or total sales for start-up companies (Dang et al., 2018). Nevertheless, many previous studies commonly use the total net asset to capture the firm size from different fields of study (Che Arshad et al., 2020; Muhammad Zuki, 2020; Sahudin et al., 2022).

A study performed by Muhammad Zuki (2020) assessed the determinants of bank size on non-financing income in Islamic banks in Malaysia. The result indicated that bank size significantly affects the non-financing income level of Malaysian Islamic banks from 2018 to 2020. Focusing on the takaful industry, in their study, Che Arshad et al. (2020) verified that firm size has a significant relationship with the performance of 15 takaful operators in Malaysia (Che Arshad et al., 2020). Moreover, Sahudin et al. (2022) also suggested a significant finding of firm size on the relationship with the performance of five takaful companies in Malaysia from 2011 to 2020 (Sahudin et al., 2022). In conclusion, with the significant findings from the previous works of researchers, the current study expects the following hypothesis:

H_5: Firm size will effectively associate with the performance of family takaful operators.

2.3 Economic Predictors

2.3.1 Gross domestic product (GDP)

Gross domestic product (GDP) is the total economic output of a country less the total economic output of the commodities and services consumed during production. The calculation of GDP includes personal consumption expenditures, gross domestic investment, net exports of goods and services, government consumption expenditures, and gross investment (Dynan & Sheiner, 2018). The hypothesis is that there will be a favourable correlation between GDP growth and company performance.

Based on the previous research by Surya et al. (2021), GDP growth boosts the productivity and performance of companies in Indonesia, especially SME industries (Surya et al., 2021). Another research study from Sibindi & Godi (2014) stated that economic growth spurs the development of Africa's long-term and total insurance and takaful sectors (Sibindi & Godi, 2014). In Malaysia, GDP has been an important indicator in determining the need for insurance and takaful. According to Remli et al. (2018) and Gustina and Abdullah (2012), the performance of insurance and takaful is influenced by gross domestic output. Thus, the study postulates the following hypothesis:

H_6: GDP will significantly affect the family takaful operators' business performance.

2.3.2 Inflation rate

Another essential economic predictor of performance is the inflation rate. The inflation rate is defined as a percentage change in a specific price index (Abaidoo & Anyigba, 2020). Inflation conditions can

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impact the value of financial assets and other instruments a financial institution holds. This, in turn, affects the returns on those assets over time. For example, inflation can affect investment returns and overall profitability. Additionally, Abaidoo and Anyigba (2020) proposed that inflation can cause variability in the value of a firm's asset holdings and operational efficiency. This theoretical link suggests that inflation could negatively impact a firm's assets and overall performance.

Many previous studies incorporated the effect of inflation to evaluate financial institutions' profitability. For example, a study by Abaidoo and Anyigba (2020) examined the influence of inflationary-related conditions on performance indicators in the US banking sector. The findings indicated that inflation significantly constrains the impact on performance indicators of the banking sector in the US (Abaidoo & Anyigba, 2020). Besides, a study on the effect of inflation's macroeconomic determinants on the UK's bank profitability also discovered a significant result for 1998-2018 (O'Connell, 2023). Nevertheless, in their work, Asiamah et al. (2019) unveiled that the inflation rate negatively impacts foreign direct investment in Ghana (Asiamah et al., 2019).

Focusing on the insurance (takaful) industry, empirical work by Shiu (2004) found a significant relationship between inflation and the performance of the UK's general insurance company (Shiu, 2004). Moreover, the same literature work by Che Arshad et al. (2020) also spotted a significant inflation nexus in the performance of Malaysian takaful operators (Che Arshad et al., 2020). However, a contravened finding has been revealed by Sahudin et al. (2022) in evaluating the performance of takaful operators in Malaysia. The results showed that inflation negatively affects performance (Sahudin et al., 2022). Thus, considering the preceding propositions, this study speculates that:

H_7: The inflation rate will positively affect the efficiency of family takaful operators in Malaysia.

2.4 Underlying 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. 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 principals and bonding costs by the agents. Reduced agency costs are associated with increased firm value and enhanced performance (Sahudin et al., 2022).

While originally developed in a conventional financial context, agency theory finds a natural alignment with the principles of Islamic finance. In the context of Islamic finance, 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). The concept of wakalah (agency contract) in Islamic finance exemplifies this alignment by emphasising mutual responsibility, trust, and accountability between parties. Under a wakalah arrangement, takaful operators manage funds on behalf of participants, charging a fee for their services. This approach aligns with shariah principles and ensures participants' contributions are used effectively to provide financial protection. Agency theory is particularly relevant to this study as it helps analyse how firm size, cost management, and operational efficiency impact the performance of family takaful operators in Malaysia.

For example, Syarikat Takaful Malaysia Berhad applies a wakalah model that clearly separates operator fees from the takaful fund, ensuring transparency and enhancing customer trust. This model has been associated with high customer satisfaction and retention levels, as evidenced by its consistent growth in new business contributions and renewal rates (Malaysian Takaful Association, 2022). Such examples demonstrate how the wakalah contract aligns with Shariah principles and positively impacts operational

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performance and customer satisfaction by fostering a sense of shared responsibility and ethical fund management.

3. Methodology

3.1 Data Collection

This study employed quantitative secondary data methods to evaluate the business performance of Malaysian family takaful operators. The data was collected from the audited annual reports of the takaful operators to ensure its validity. A purposive sampling method was utilized to ensure the inclusion of operators most relevant to the research objectives. The specific criterion for this sampling method was limited to takaful operators offering family takaful products, as the study exclusively focuses on this segment of the industry. This approach ensures the findings accurately reflect the dynamics and performance of family takaful operators in Malaysia. All family takaful operators selected for this study are regulated by the Central Bank of Malaysia, making the data reliable.

The current study also dug the economic data from the external resource, Bank World, including GDP and inflation rates. GDP data reflects Malaysia's economic output and productivity trends, while inflation rates represent price stability and purchasing power within the economy. Table 1 lists Malaysia's 9 family takaful operators from 2013 to 2022. This study timeframe was chosen because the data was available from the audited financial statements of the selected operators, leading to a balanced panel data set.

3.2 Measurement and Model Specification

The current study incorporates a conventional financial performance indicator, the ROA, as a proxy for the operators' business performance. As Hagel et al. (2013) recommended, the study has selected the ROA indicator for several reasons, such as that it offers a more balanced view of profitability, considers the risks of financial leverage and measures business operations as a whole (Hagel et al., 2013). This study postulated a model specification as follows:

$$BP_{it} = \alpha_0 + \beta_1 FCI_{it} + \beta_2 ZP_{it} + \beta_3 UWR_{it} + \beta_4 LQ_{it} + \beta_5 FZ_{it} + \beta_6 GDP_{it} + \beta_7 IR_{it} + \varepsilon_{it} \quad (1)$$

BP is the dependent variable for business performance using ROA (Total net profit from operating profit over the total assets) for family takaful operators (i) in the year (t). FCI, ZP and GDP are the independent variables for the total fee and commission income, the total of zakat payment and GDP per capita in Natural logarithm form, respectively. UWR is the independent variable for underwriting risk, calculated by summing up net claims and expenses over net earned contribution. LQ is the independent variable for a firm's liquidity and is calculated by dividing the Total cash & cash balance by Total liability. IR is the independent variable for the inflation rate in percentage. The a represents the constant value; the b connotes the beta value for each variable (i) in (t), and the ε indicates the term error or disturbance term.

3.3 Statistic Technique

A 10-year panel data of 9 family takaful operators in Malaysia was analysed using various models, including OLS, Robust OLS, Cluster robust OLS, and Feasible GLS. Diagnostic tests were conducted for correlation, multicollinearity, and heteroscedasticity to ensure accurate conclusions from the regression model.

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4. Results

4.1 Descriptive Statistic Analysis

Table 1 illustrates the descriptive statistical analysis results. According to the table below, firm size recorded the highest mean value at 13.787, while ROA indicated the lowest mean value at 0.017. Moreover, the highest and the lowest standard deviation values were recorded for FCI at 4.022 and ROA at 0.032, respectively. The same table also reports the normality test using skewness and kurtosis values. Unfortunately, most of the variables failed to reject the normal data distribution null hypotheses, with the p-value for chi-squared <0.05, except for FS. Nevertheless, many previous studies supported that panel regression analysis is not required for normal data distribution (Battese & Coelli, 1995; Levin et al., 2002).

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

4.2 Correlation Analysis

Table 2 below indicates the results of the correlation analysis. The findings show that the correlation coefficient values fall between -1 and +1. These results suggest a perfect linear relationship, either positive or negative. This implies that changes in one variable correlate with changes in the second variable. Besides, it means that the dependent variable moves in one direction with the independent variables. The analysis reveals that underwriting risk has the strongest negative correlation with return on assets, implying that higher risk reduces financial performance. Conversely, fee and commission income and zakat payment positively correlate with ROA, suggesting that these factors contribute to better performance. Other variables, such as liquidity and firm size, exhibit weaker correlations, indicating a lesser impact on ROA.

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

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4.3 Multicollinearity Check

The current study proceeds with a multicollinearity check on all independent variables. Multicollinearity occurs in a multiple regression model when two or more independent variables are strongly associated or correlated, as Gujarati and Porter (2009) suggested. We use the Variance Inflation Factor (VIF) test to check for multicollinearity among predictors. If the VIF value exceeds a threshold of 5, it is considered a serious issue in the multiple regression model. Table 3 below asserts the VIF analysis for the multicollinearity check. The results confirmed that there is no multicollinearity issue, as the VIF values lie lower than 5.

Table 3. Variance Inflation Factor (VIF)

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	

4.4 Heteroscedasticity Test

After conducting the multicollinearity check, the basic OLS regression is performed to test the absence of heteroscedasticity. It is important to be knowledgeable about heteroscedasticity, which refers to the variation of residuals changing across measured values. This can signify uneven variance in the population utilised in a regression model, leading to inaccurate analysis outcomes. Thus, the test for heteroscedasticity is performed using the Breusch-Pagan estimator. The null hypothesis states constant variance among the residuals (heteroscedasticity problem). Based on the Breusch-Pagan estimator, the result indicates a chi-square statistic of 6.60 with a p-value of 0.0102, lower than 0.05. Therefore, the null hypothesis of constant variance is rejected. The study concludes that the heteroscedasticity problem is present in the data and cannot be denied.

As such, according to White (1982), Davidson and MacKinnon (1993), and Angrist and Pischke (2009), using robust and clustered robust regression techniques can yield more accurate results and provide better confidence intervals in situations where heteroscedasticity is an issue (Angrist & Pischke, 2009; Davidson & MacKinnon, 1993; White, 1982). Yobero (2016) suggests using a robust or GLS (Yobero, 2016). Therefore, the current study employs four different estimation models for regression, including the basic OLS model, the Robust OLS model, the Cluster robust OLS model and the Feasible Generalised Least Square (FGLS) model.

4.5 Regression Estimation Results

As stated in the preceding discussions, the equation of model specification is tested using the four selected regression estimations model. Model I is connoting the basic OLS Model, Model II for the robust OLS model, Model III for the clustered robust OLS model and Model IV for the Feasible OLS model. Table 4 below illustrates the regression estimation results. Based on the results, Model I and Model II shared the same significant p-value for FCI, ZP, UWR and LQ on the dependent variable, ROA. In the meantime, the other two models, Model II and Model III, indicated that the findings varied among the variables.

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Table 4. Results for Regression Estimations

Model	Model I (Basic OLS)			Model II (Robust OLS)			Model III (Clustered Robust OLS)			Model IV (Feasible GLS)		
Variable	*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		

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

Quoting from the findings, an interesting point is that FCI, UWR and LQ showed the same significant influences at $p<0.01$ on the ROA for the four estimation models. These findings recommended that FCI significantly and positively impacts the ROA. It suggests that the total fee and commission income has significantly impacted the efficiency of family takaful operators in Malaysia. The significant p-value with beta coefficient value at 0.002 for the four models has been recorded at 0.002, 0.000, 0.003 and 0.001, respectively. Furthermore, the underwriting risk also significantly influences the ROA, with a significant p-value at 0.000 in Models I, II and IV.

Meanwhile, UWR indicates a significant p-value at 0.040 in Model IV. The four models also recorded a beta coefficient value of -0.059. Moving to the next variable, liquidity signals a significant relationship with the ROA. Nevertheless, the significant p-value was jotted down as a different value in the four models. The significant p-values of LQ for the four models were recorded at 0.010, 0.003, 0.094 and 0.006, respectively, with a beta coefficient value of -0.142.

Moreover, referring to the findings, the total zakat payment has a significant relationship with the ROA in Model I, Model II and Model IV but not in Model III. The significant p-values for the three models were recorded at 0.051, 0.023 and 0.038, respectively. The findings suggested that total zakat paid impacts the efficiency of family takaful operators. Nonetheless, Model III shows that ZP failed to influence the relationship with the ROA. The next variable is firm size. Unfortunately, the four models revealed that FS insignificantly influences the dependent variable, ROA. The findings advocated that firm size failed to impact the efficiency of the family takaful operators in Malaysia.

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Another inauspicious finding and the next variable is gross domestic product (GDP). GDP has a large insignificant impact on the relationship with the ROA for the four models. The insignificant p-value was jotted down at 0.912, 0.903, 0.868 and 0.908 in the four models with a negative beta coefficient value of 0.005. The last variable of the study is the inflation rate (IR). IR has recorded significant findings in two models, Model II and Model III, and insignificant findings in another two models, Model I and Model IV. The significant findings have been recorded at a p-value of 0.049, while the insignificant p-values are 0.155 and 0.133. Nevertheless, the current study concludes that the inflation rate can impact the efficiency of family takaful operators in Malaysia.

Another interesting point is that the four models have the same R-squared value at 0.400. These results conveyed that the study's factors explain 40 % of the variability in the efficiency of family takaful operators. The current study suggests that another 60 % may be explained by other excluded factors, which needed further research. Moreover, the F-test values for Models I, II, and III were recorded at 7.810, 10.444, and 70.972, respectively. The current study also considered the Akaike information criterion (AIC) (Akaike, 1974) and Bayesian information criterion (BIC) (Stone, 1979) to find the best-fit model. The four models unveiled the lowest AIC and BIC values at -395.912 and -375.914, respectively. Thus, the findings proposed that all estimations are the best-fit models.

5. Discussions

The current study attempted to unveil the efficiency of family takaful operators in Malaysia through a balanced panel data analysis. As claimed in the previous section, the current study associates its novelty by focusing the scope on the family takaful segment. The study also conceptualised fee and commission income and zakat paid as newly introduced variables in capturing operators' efficiency. To the best of the researcher's knowledge, the previous works have not empirically discovered these two novelty features. This study also employed a different regression estimation to cope with the heteroscedasticity problem and offers a broad discovery to the body of knowledge.

The findings indicate a significant and positive relationship between Fee & Commission Income (FCI) and the business performance of family takaful operators in Malaysia. This result aligns with previous studies in the banking sector (Li, 2022; Malhotra et al., 2019; Williams & Prather, 2010; Muhammad Zuki, 2020), highlighting the importance of non-interest income streams in enhancing financial performance. As the primary income source for takaful operators under the wakalah model, FCI is critical to their profitability. To maximise FCI, operators should focus on strategies such as aggressive marketing campaigns to increase new certificate issuances. This supports the hypothesis that higher FCI significantly boosts takaful business performance.

Furthermore, the study indicates that total zakat payment also significantly impacts the efficiency of family takaful operators in Malaysia. The finding is aligned with the previous empirical works by Sulaeman et al. (2022), Javaid & Al-Malkawi (2018) and Abd Samad et al. (2017). The findings suggested that the total zakat payment is strongly correlated to the business performance, as the zakat is imposed on the net of current assets that capture the business performance. The current study also affirmed that the increase in zakat payment will increase the performance of family takaful operators. The next variable, underwriting risk, also significantly influences operators' efficiency. The findings are in line with the previous empirical works where underwriting risk has a significant relationship with the operators' performance, such as Luqman et al. (2022), Zainudin et al. (2018), Akotey et al. (2023) and Che Arshad et al. (2020). This significant finding confirmed the theorised premise in earlier discussions that the underwriting risk stupendously increases the efficiency of Malaysian family takaful operators. Another study's variable, liquidity, also points out a significant nexus with the performance of family takaful operators in Malaysia. This finding, thus, verified the findings from previous studies, where liquidity has a significant relationship

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with a firm's performance (Che Arshad et al., 2020; Alam et al., 2023). This relationship evidenced that the operators must lower their liquidity ratio to reduce agency costs and incentivise managers to improve their performance. Nevertheless, only one of the operators' specifics indicated insignificant relationships toward the operators' performance and firm size. The findings suggested that the size of takaful operators failed to influence the operators' performance. This result is unsupported by the theory that a bigger firm size will have better market value and, thus, higher business performance (Ashraf et al., 2017).

In addition, the study found significant results between one of the economic predictors, which is the inflation rate, on the operators' performance. The findings parallel the previous empirical works where inflation rate substantially affects business performance (Abaidoo & Anyigba, 2020; O'Connell, 2023; Asiamah et al., 2019; Shiu, 2004; Che Arshad et al., 2020). However, another economic predictor, the growth of domestic product, indicates no significant relationship with the performance of family takaful operators. This finding aligns with prior studies (e.g., Zainudin et al., 2018; Hemrit, 2020) that observed a limited impact of macroeconomic factors like GDP on Islamic financial institutions. Family takaful products often cater to a niche market driven by religious and ethical considerations, making their demand less sensitive to general economic growth. Additionally, the resilience of takaful operators stems from their reliance on internal efficiency, such as effective risk management and diversified revenue streams, rather than external economic conditions.

6. Conclusions

This study makes a significant contribution to the existing body of knowledge on family Takaful operators by providing insights into the determinants of their performance and addressing gaps in previous literature. While prior research has primarily focused on Islamic financial institutions in general or the banking sector, the specific performance dynamics of family takaful operators remain underexplored. This study fills the gap in understanding the operational and financial factors influencing their performance by examining key variables such as fee and commission income, zakat payment, and underwriting risk. The findings reveal that FCI positively impacts performance, aligning with studies by Malhotra et al. (2019) and Li (2022), which emphasise the importance of non-interest income for financial institutions. However, this study extends their findings to the niche segment of family takaful, highlighting the role of FCI in sustaining profitability under the wakalah model.

On top of that, the positive and accelerated growth of the takaful industry will eventually boost the country's economic growth. Thus, this study has practical implications for family takaful operators in Malaysia. Giving the best emphasis on the vital role of FCI by the operators will significantly increase overall performance. This feature distinguishes family takaful products from their counterpart, conventional life insurance, by applying a modified wakalah contract in the product. Similarly, the significant role of zakat payment in enhancing performance supports the work of Sulaeman et al. (2022) and Javaid & Al-Malkawi (2018), who linked zakat contributions to increased trust and organisational reputation. This study builds on these findings by demonstrating how zakat enhances both financial outcomes and customer confidence in takaful operations. Furthermore, the negative impact of underwriting risk on performance concurs with the conclusions of Zainudin et al. (2018) and Luqman et al. (2022), reinforcing the critical need for robust risk management strategies in takaful.

In addition to these insights, the study introduces a novel perspective by revealing the limited influence of macroeconomic factors such as GDP and inflation on family takaful performance, contrasting with findings in conventional finance literature. This result underscores the unique resilience of the takaful industry, which relies more on internal efficiency, ethical principles, and diversified income streams than on external economic conditions. The current study extends a new insight into the body of knowledge by unveiling the essential role of two newly introduced variables: fee and commission income and total zakat

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payment. These two variables highlight the novelty of the current study. Focusing on the specific dynamics of family takaful operators, this study provides new evidence on how operational factors, particularly FCI and zakat, contribute to financial performance and social responsibility, thereby addressing critical gaps in the literature and offering actionable insights for practitioners and policymakers.

Nonetheless, this study also has its limitations. The study focused on the family takaful segment without considering its counterpart, life insurance, as a comparison. As a way forward, a further comprehensive analysis of both segments should be conducted to gain a broader perspective of findings for the industry players.

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Conflict of interest statement

All authors declare no conflicts of interest in this paper.

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