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Effect of investment returns, risk-based capital, and underwriting results on the profit of Islamic life insurance company: A case study of PT. Takaful Keluarga 2017-2024

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ABSTRAK

Introduction

The role of Islamic life insurance in addressing financial risks and promoting sustainable growth is increasingly important, particularly in Muslim-majority countries like Indonesia. Understanding the financial determinants of profitability in this sector provides critical insights into its operations and resilience.

Objectives

This study examines the impact of investment returns, risk-based capital, and underwriting results on the profitability of PT Takaful Keluarga. It aims to evaluate both individual and combined effects of these financial variables and analyze their role during economic disruptions, such as the COVID-19 pandemic.

Method

The study employs a quantitative approach, utilizing multiple linear regression analysis on quarterly financial data from 2017 to 2024. The analysis focuses on the interplay of key financial variables and their influence on net profit, providing a comprehensive view of profitability determinants in Islamic life insurance.

Results

Investment returns were found to significantly and positively affect profitability, highlighting the importance of effective asset management. Risk-based capital and underwriting results showed limited individual impacts but contributed significantly in combination with investment returns. The findings also underscore the company's resilience, with profitability rebounding in the post-pandemic period.

Implications

The results emphasize the need for integrated financial strategies that align investment, solvency, and risk management practices.

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These findings offer actionable insights for practitioners and policymakers aiming to optimize the financial performance of Islamic life insurance providers.

Originality/Novelty
This study contributes to the understanding of financial dynamics in Islamic life insurance by addressing the interdependence of key financial variables and exploring their role in sustaining profitability under economic uncertainty.

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INTRODUCTION

The increasing unpredictability of financial risks and life uncertainties underscores the vital role of insurance in ensuring economic stability and resilience (Alvi et al., 2024; Katnic et al., 2024; Wang, 2024; Zhang et al., 2024). Islamic insurance, or takaful, is a prominent mechanism within this landscape, grounded in Sharia principles that emphasize mutual cooperation (ta'awun) and ethical financial conduct. Unlike conventional insurance, takaful is structured to avoid gharar (excessive uncertainty), maysir (gambling), and riba (usury), focusing instead on social solidarity and collective risk-sharing (Ansari, 2022; Daly & Frikha, 2016; Jaafar & Brightman, 2022). In Indonesia, a Muslim-majority country, takaful has become increasingly significant, with products like family takaful (Islamic life insurance) catering to the growing demand for Sharia-compliant financial services (Alhammadi, 2023; Nugraheni & Muhammad, 2019). PT Takaful Keluarga, a leading provider in this sector, exemplifies the role of Islamic insurance in addressing societal needs for financial security while adhering to religious principles.

The financial performance of Islamic insurance companies is critical to their sustainability and ability to deliver value to stakeholders. PT Takaful Keluarga's profitability, like other Islamic life insurance providers, hinges on several financial determinants, including investment returns, risk-based capital (RBC), and underwriting results (Alamsyah & Wiratno, 2017; Nasution & Nanda, 2020; Supriyono, 2019). Investment activities are essential for generating income that supports operational costs and claims payouts. RBC, a metric for solvency, measures an insurer's capacity to withstand financial shocks and fulfill obligations. Underwriting, the process of assessing and managing risks, directly influences the company’s ability to maintain profitability by ensuring that risks are appropriately priced and managed. Understanding these variables' individual and collective impacts on profitability provides critical insights for optimizing operations and enhancing financial performance.

Despite its relevance, research on the financial determinants of Islamic insurance profitability in Indonesia remains limited. While conventional insurance has been widely studied, takaful requires distinct consideration due to its adherence to Sharia principles and operational uniqueness. Existing studies reveal that investment returns often correlate positively with profitability (Cahya et al., 2023; Ibrohim et al., 2023; Marwansyah & Utami, 2017; Nasution & Nanda, 2020), reflecting effective asset management. However, the impact of RBC and underwriting results remains inconsistent across studies, often influenced by external factors such as market conditions (Arif & Firmansyah, 2021; Banerjee & Savitha, 2021; Ruchiyat, 2020; Siopi & Poufinas, 2023) and regulatory environments (Ben, 2024; McShane et al., 2010; Zhang & Cao, 2023). These findings highlight the complexity of understanding the financial dynamics of takaful and the need for more targeted research.

The primary challenge addressed in this study is the unclear and inconsistent impact of investment returns, RBC, and underwriting results on the profitability of Islamic life insurance companies in Indonesia. Broad solutions proposed in existing literature emphasize the importance of robust investment strategies, prudent risk management, and efficient underwriting practices to ensure financial stability. However, these solutions often fail to account for the nuanced interrelationships among these variables and their collective impact on profitability. This research seeks to address this gap by adopting a comprehensive approach that examines these factors holistically within the context of PT Takaful Keluarga.

Specific solutions derived from prior research include refining investment strategies to align with Sharia principles and market opportunities, as suggested by Mudjiyono (2012). Studies like those by Immanuel Sinaga & Indrawati (2022) advocate for optimizing RBC levels to balance solvency and efficiency. Meanwhile, effective underwriting practices, focus on improving risk assessment and pricing mechanisms to mitigate losses and enhance financial performance. These approaches underscore the need for integrated strategies that address the unique challenges faced by Islamic life insurance providers.

Literature directly relevant to this study highlights the interdependence of investment returns, RBC, and underwriting results in shaping profitability. For instance, Nasution & Nanda (2020) found that while RBC does not directly influence profitability, it plays a critical role in maintaining financial stability, which indirectly supports operational efficiency. Similarly, research by Hissiyah & Meylianingrum (2023) suggests that investment returns are significant drivers of profit, particularly when aligned with efficient underwriting and risk management practices. However, these studies often overlook the collective impact of these variables, leaving a gap in understanding how they interact to influence overall profitability.

This study aims to bridge this gap by examining the combined impact of investment returns, RBC, and underwriting results on the net profit of PT Takaful Keluarga. The research contributes to the literature by offering a nuanced analysis that considers these variables' interrelationships and their implications for financial performance. This study's novelty lies in its focus on a specific Islamic life insurance provider within a dynamic and evolving market context, capturing pre- and post-pandemic trends. The findings are expected to provide actionable insights for practitioners and policymakers, supporting the development of strategies that enhance profitability while adhering to Sharia principles.

The scope of this study encompasses an eight-year period (2017–2024), allowing for an analysis of financial performance across varying economic conditions, including the disruptions caused by the COVID-19 pandemic. By focusing on PT Takaful Keluarga, this research not only highlights the financial dynamics of a leading Islamic life insurance provider but also offers broader implications for the takaful industry in Indonesia. Through rigorous empirical analysis, this study aims to contribute to the optimization of financial strategies, ensuring the sustainability and growth of Islamic life insurance in Indonesia and beyond.

LITERATURE REVIEW

Islamic Life Insurance and Its Financial Foundations

Islamic life insurance, or takaful, operates based on Sharia principles, distinguishing itself Islamic life insurance, particularly in the form of Takaful, represents a significant development within the Islamic financial system. This system encompasses banking, insurance, and capital markets that follow Shari'ah principles, contrasting conventional methods. Takaful operates on the principles of mutuality and risk-sharing, providing financial protection while adhering to Islamic ethical standards by avoiding riba (interest) and excessive uncertainty (gharar) (Hamzeh & Ghanbarzadeh, 2025; N. A. Rahman et al., 2019; Raza et al., 2019).

The demand for Takaful is increasing globally, driven by factors such as consumer perception of it as a more ethical alternative to conventional insurance products. This growth is particularly evident in regions with large Muslim populations; for instance, Takaful adoption in Malaysia and the Middle East reflects a robust response to the desire for Shari'ah-compliant financial products (Hassan & Abbas, 2019; Qadri et al., 2024; Souiden & Jabeur, 2015). In the context of family Takaful, the focus has been on establishing financial security for families, catering to individuals seeking life coverage aligned with their religious beliefs (Khan et al., 2018). Studies indicate that the familiarity of potential customers with Islamic finance principles heavily influences their intention to opt for Takaful products (Poan et al., 2022; N. A. Rahman et al., 2019; Raza et al., 2019).

Moreover, the regulatory framework plays an essential role in promoting Takaful as part of broader Islamic finance strategies, which are pivotal in achieving national visions like Saudi Arabia's Vision 2030. A comprehensive policy and legal structure encourages innovation and investment within the Takaful industry, aligning it with global financial practices while maintaining Shari'ah integrity (Amuda & Alabdulrahman, 2023; Saoula et al., 2024).

Sustainability is a core aspect of Takaful, as it promotes socio-economic welfare by allowing participants to contribute to a common fund that assists members in times of need. This system symbolizes not just a financial product but embodies Islamic values of community support and altruism (Cahyandari et al., 2023). Additionally, Takaful effectively integrates with contemporary issues such as climate change and economic advocacy through socially responsible investments and risk management strategies that align with Islamic ethical norms (Mukhlisin, 2017; Salman, 2014).

Investment Returns and Profit

Investment returns play a pivotal role in shaping the financial performance of Takaful companies. Recent literature suggests that the profitability of Takaful operators is significantly influenced by their investment income, alongside other determinants like contribution growth, company size, and risk retention (Abduh & Isma, 2017; Hemrit, 2020; Kantakji et al., 2020). For example, Abduh & Isma (2017) highlight that investment income has a direct correlation with the solvency ratios of family Takaful plans in Malaysia, asserting that better investment performance leads to improved profitability metrics such as the equity-to-asset ratio.

Moreover, the emphasis on responsible investment strategies, aligned with Shari'ah principles, indicates that the type and quality of investments directly inform the returns of Takaful companies. Efficiency analyses have shown that Takaful firms implementing high-quality investment strategies yield favorable financial results, reinforcing the relationship between investment returns and profitability. Kholis & Rakhmawati (2022) emphasize the importance of the Mudharabah model within Takaful, which operationalizes profit-sharing among policyholders and shareholders, highlighting that financial performance is tied to how effectively profits are generated from investments.

Market structure also plays a fundamental role in dictating profit margins within the Takaful sector, as examined by Arif & Firmansyah (2021). They reveal that concentrated market structures typically enhance profitability through increased market power, enabling Takaful firms to sustain better investment initiatives and returns. The implications of these findings suggest that Takaful operators maintaining robust investment portfolios can significantly leverage their market positioning to enhance profitability relative to firms with lower investment returns.

Additionally, governance mechanisms, as discussed by Sallemi & Zouari (2024), illustrate how board composition and decision-making affect investment strategies that ultimately influence profitability. A diverse and well-structured governance framework contributes positively to the performance of Takaful operators by promoting sound investment choices that generate higher returns. Furthermore, Bensaid (2023) discusses the role of Shari'ah governance in directing investment decisions and ensuring compliance, which is crucial for safeguarding profitability in Takaful operations.

Risk-Based Capital and Profit

Risk-based capital (RBC) serves as a measure of solvency and financial health, reflecting an insurer’s ability to absorb losses and fulfill obligations. In the takaful sector, RBC plays a dual role in ensuring compliance with regulatory standards and providing a buffer against financial shocks. Research by Sinaga & Indrawati (2022) highlights the critical importance of maintaining adequate RBC levels to sustain operations during economic downturns or crises.

Investigations into the relationship between risk-based capital and profitability for Takaful operators indicate a positive correlation. Lee et al. (2019) emphasize that effective implementation of RBC regulations enhances the operational efficiency of Takaful firms by compelling them to maintain capital levels commensurate with their risk profiles, which protects policyholders and strengthens the firms' financial positions, fostering an environment conducive to profitability (Lee et al., 2019). Higher capital reserves allow for improved investment opportunities, which are essential in the profit-sharing model of Takaful, where returns on investments are shared among policyholders and shareholders (Lee et al., 2019).

Despite its importance, the direct relationship between RBC and profitability is often inconsistent. Some studies, such as those by Hissiyah & Meylianingrum (2023), suggest that while RBC is essential for financial stability, its impact on profitability is indirect, supporting other operational efficiencies. This highlights the need for a balanced approach in managing RBC, ensuring sufficient solvency without overcapitalization that could limit profitability.

Underwriting Results and Profit

Underwriting results are chiefly assessed through combined ratios, which illustrate the relationship between the costs incurred through claims and the premiums earned. A lower combined ratio indicates efficient underwriting practices, leading to higher profitability. Research indicates that successful underwriting practices not only enhance the operational efficiency of Takaful companies but also improve their competitive positioning in the marketplace. For instance, Kantakji et al. (2020) discuss how effective reinsurance strategies can bolster underwriting results by distributing risk, allowing operators to maintain profitability even during adverse events.

Furthermore, underwriting profitability is augmented by effective risk assessment and pricing strategies. The literature suggests that underwriting adequacy correlates positively with profit margins in Islamic insurance, highlighting the importance of setting premiums that accurately reflect anticipated risks (Razak et al., 2021). This is crucial as Takaful operates under a model of mutual assistance, differentiating it from conventional insurers that primarily focus on profit maximization. Proper underwriting processes that align with Shari'ah principles establish a foundation of trust and mutual benefit among participants, ultimately enhancing the financial stability of Takaful companies (Al-Harbi, 2019).

Another significant aspect of underwriting relates to the governance mechanisms within Takaful companies. As highlighted by Sulaiman et al. (2022), robust internal audit practices and corporate governance structures enhance the integrity of underwriting processes, resulting in improved financial performance. Proper governance ensures that underwriting decisions are based on comprehensive risk assessments, mitigating the potential for losses that can arise from poorly priced or mismanaged policies.

Interdependence of Financial Determinants

The interconnected nature of investment returns, RBC, and underwriting results underscores the complexity of profitability in the takaful sector. These components do not operate in isolation; instead, they interact dynamically to shape financial outcomes. Nasution & Nanda (2020) highlight that investment returns support solvency by enhancing RBC levels, while efficient underwriting reduces claims costs, indirectly boosting profitability.

This interdependence requires a holistic approach to financial management. For instance, an emphasis on maximizing investment returns must be balanced with maintaining adequate RBC and ensuring sound underwriting practices. Mudjiyono (2012) advocates for integrated strategies that address these components collectively, ensuring that operational efficiencies are aligned with financial goals. Such approaches are particularly relevant in the context of PT Takaful Keluarga, where the interplay of these variables significantly influences its financial performance.

Gaps in Existing Literature

While existing research provides valuable insights into the financial determinants of profitability in Islamic life insurance, several gaps remain. Most studies focus on individual variables, such as investment returns or underwriting results, without adequately exploring their combined impact. Additionally, limited attention has been given to the specific challenges faced by takaful providers in Indonesia, including regulatory constraints, market competition, and the unique dynamics of a Muslim-majority economy.

Furthermore, the impact of external shocks, such as the COVID-19 pandemic, on the financial performance of takaful providers remains underexplored. Research by Andrean & Mukhlis (2022) underscores the need for dynamic financial strategies to navigate periods of economic uncertainty, yet few studies have examined how these strategies influence the interrelationships between financial variables in the takaful sector. Addressing these gaps is critical for developing a comprehensive understanding of the financial dynamics of Islamic life insurance.

Relevance to PT Takaful Keluarga

This study focuses on PT Takaful Keluarga as a case study to explore the financial determinants of profitability in Indonesia's Islamic life insurance sector. By examining the interplay of investment returns, RBC, and underwriting results, the research aims to provide actionable insights for enhancing financial performance. The findings are expected to contribute to the broader literature on Islamic finance by addressing gaps in existing research and offering a nuanced perspective on the financial dynamics of takaful providers.

The study's focus on a leading takaful provider ensures that its findings are relevant not only to PT Takaful Keluarga but also to other Islamic life insurance companies operating in similar contexts. By incorporating data from 2017 to 2024, the research captures the impacts of both stable economic periods and disruptions like the COVID-19 pandemic, providing a comprehensive analysis of financial performance trends. These insights are intended to support the development of strategies that enhance profitability, sustainability, and resilience in the takaful sector.

METHOD

Research Design

This study employs a quantitative research design to investigate the influence of investment returns, risk-based capital (RBC), and underwriting results on the profitability of PT Takaful Keluarga. By adopting a structured approach, the study aims to identify both individual and combined impacts of these variables on the company's financial performance. The quantitative method is appropriate for this study as it facilitates the use of numerical data to test hypotheses, assess relationships, and generate empirical insights into the financial dynamics of Islamic life insurance.

Population and Sample

The population for this study consists of financial data from PT Takaful Keluarga spanning the period from 2017 to 2024. A purposive sampling technique was applied to select quarterly financial statements that met the study's criteria for completeness, consistency, and relevance. This approach ensures that the dataset is representative of the company's financial performance across varying economic conditions, including the pre-pandemic and post-pandemic periods.

Data Sources

The study relies exclusively on secondary data obtained from PT Takaful Keluarga's financial reports. These reports include detailed information on the company's investment returns, RBC, underwriting results, and net profit. Data collection was supplemented by insights from official industry reports and regulatory publications to provide a comprehensive understanding of the broader operational context. The reliance on secondary data ensures consistency, reliability, and the ability to analyze trends over time.

Variables and Operational Definitions

The analysis focuses on the following variables:

1. Dependent Variable:
   - Profitability: Measured by net profit, representing the company's financial success after accounting for all revenues and expenses.
2. Independent Variables:
   - Investment Returns: Income generated from Sharia-compliant investment activities, measured in monetary terms.
   - Risk-Based Capital (RBC): A solvency measure reflecting the company's ability to absorb financial shocks, expressed as a percentage of required capital.

- Underwriting Results: The financial outcome of risk assessment and management activities, including premiums earned and claims paid.

These variables were chosen based on their theoretical relevance and prior research indicating their potential impact on financial performance.

Analytical Framework

To examine the relationships between the variables, the study utilizes multiple linear regression analysis. This method is appropriate for understanding the individual and combined effects of the independent variables on profitability. The regression equation is structured as follows:

$$\text{Profitability (Net Profit)} = \beta_0 + \beta_1(\text{Investment Returns}) + \beta_2(\text{RBC}) + \beta_3(\text{Underwriting Results}) + \epsilon$$

Where:

- β_0: Intercept
- $\beta_1, \beta_2, \beta_3$: Coefficients representing the impact of each independent variable
- ϵ: Error term

The analysis was conducted using statistical software to ensure precision and accuracy in estimating the relationships between variables.

Data Analysis

The data analysis process involved several key steps:

1. Descriptive Statistics: Descriptive statistics were used to summarize the central tendencies, dispersion, and distribution of the variables. This provided an overview of the dataset and identified any anomalies or trends that warranted further investigation.
2. Diagnostic Tests: Before conducting the regression analysis, diagnostic tests were performed to ensure the validity and reliability of the model:

   - Multicollinearity Test: Variance Inflation Factor (VIF) values were calculated to confirm that the independent variables were not highly correlated.
   - Heteroskedasticity Test: The Breusch-Pagan test was applied to assess the constancy of error term variance.
   - Normality Test: The Shapiro-Wilk test was conducted to verify that residuals followed a normal distribution.

3. Regression Analysis: Multiple linear regression analysis was performed to estimate the individual and combined effects of investment returns, RBC, and underwriting results on profitability. The statistical significance of the coefficients was assessed using t-tests, and the overall model fit was evaluated using the F-test and adjusted R-squared values.
4. Interpretation of Results: The regression coefficients were interpreted to understand the magnitude and direction of the relationships between variables. The findings were contextualized within the broader literature to identify consistencies and discrepancies.

Timeframe and Context

The study's timeframe of 2017 to 2024 was strategically chosen to capture financial performance trends across diverse economic conditions, including the disruptions caused by the COVID-19 pandemic. This period allows for a comprehensive analysis of both stable and volatile financial environments, providing valuable insights into the resilience and adaptability of PT Takaful Keluarga.

Ethical Considerations

The study adheres to ethical research practices by ensuring the confidentiality and integrity of the data. All data used in the analysis were publicly available, and no proprietary or sensitive information was accessed. The findings are presented transparently, and the analysis is conducted objectively to maintain academic rigor and credibility.

RESULTS

Descriptive Statistics

Table 1 illustrates the net profit trends of PT Takaful Keluarga from 2017 to the second quarter of 2024, highlighting significant fluctuations in the company's financial performance across different quarters. Notably, net profit saw substantial growth in 2020 and 2021, particularly in the fourth quarter, reaching its highest recorded value of 15,186.23 million in Q4 2021. However, the company experienced a sharp downturn in 2022, with negative net profit in the first three quarters, indicating financial losses. A gradual recovery began in 2023 and continued into 2024, as net profit figures showed signs of improvement. Overall, these trends reflect the financial instability of PT Takaful Keluarga over recent years, characterized by drastic shifts from losses to gains, particularly in the later years.

Table 1

Net Profit of PT Takaful Keluarga 2017 – 2024 (In IDR Million)

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2017	6,063.12	6,063.12	5,119.23	7,007.00
2018	3,743.00	1,959.33	6,981.43	3,743.00
2019	4,085.90	3,030.17	9,270.70	8,569.44
2020	6,122.63	4,616.81	7,304.36	12,884.73
2021	-197.41	4,246.20	6,308.40	15,186.23
2022	-2,194.81	-1,273.41	-390.64	3,573.69
2023	3,027.90	5,698.19	6,914.42	6,829.82
2024	136.11	8,628.49	n.a.	n.a.

Source: Secondary data. Authors' compilation.

Table 2 presents the investment returns of PT Takaful Keluarga from 2017 to the second quarter of 2024, revealing varying fluctuations across different years. The highest peaks were observed in Q4 2019 at 21,089.28 million and in Q4 2023 at 22,252.04 million, highlighting strong investment performance during these periods. The year 2020 also demonstrated consistent growth, with investment returns steadily increasing from Q1 to Q4. However, 2021 saw a decline in Q4 compared to the previous quarter, indicating a temporary downturn. Despite occasional fluctuations, investment returns showed a recovery trend starting in 2023. Overall, the data suggests relatively stable and positive investment performance over the years, with some periods of significant declines, particularly in early 2018 and throughout much of 2021.

Table 2

Investment Returns of PT Takaful Keluarga 2017 – 2024 (In Million)

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2017	12,066.10	12,066.10	15,503.20	8,629.00
2018	1,216.00	3,137.96	10,542.64	15,737.76
2019	5,531.98	12,445.98	19,035.86	21,089.28
2020	3,099.17	11,416.76	18,782.55	23,014.17
2021	2,308.21	6,128.14	17,539.45	11,815.57
2022	4,619.44	7,928.42	10,646.95	16,594.78
2023	6,944.52	14,086.86	17,919.79	22,252.04
2024	4,155.54	10,685.87	n.a.	n.a.

Source: Secondary data. Authors' compilation.

Table 4.3 illustrates the Risk-Based Capital (RBC) trends of PT Takaful Keluarga from 2017 to the second quarter of 2024, serving as an indicator of the company's solvency and ability to meet its financial obligations while accounting for risk exposure. The data reveals significant fluctuations, particularly in 2018, when RBC plummeted to its lowest point at 2.90% in Q2 before rebounding sharply in Q4. In subsequent years, RBC levels demonstrated greater stability, with notable improvements in early 2024, reaching the highest recorded value of 20.67% in Q2. This trend suggests that PT Takaful Keluarga has gradually strengthened its solvency position over time, mitigating previous downturns and maintaining RBC levels within a generally secure range to manage financial risks effectively.

Table 3

Risk-Based Capital (RBC) of PT Takaful Keluarga 2017 – 2024 (In Percentage)

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2017	15.10	15.10	14.39	15.82
2018	5.74	2.90	3.17	11.96
2019	15.74	11.55	12.31	15.53
2020	19.77	12.64	14.48	15.55
2021	15.93	16.13	13.86	12.81
2022	12.27	13.81	15.60	13.57
2023	13.95	13.77	11.78	14.62
2024	18.90	20.67	n.a.	n.a.

Source: Secondary data. Authors' compilation.

Table 4 presents the underwriting results of PT Takaful Keluarga from 2017 to the second quarter of 2024, calculated by subtracting underwriting expenses from underwriting revenues. The data reflects the company's ability to manage issued insurance policies effectively. In 2017, underwriting results were stable and positive, followed by a sharp increase in 2018 and 2019, particularly in Q2 and Q3. However, starting in 2020, the company experienced a significant decline, with underwriting results turning negative. The most severe loss occurred in Q4 2021, reaching -63,191.14 million. The negative trend persisted through 2022, 2023, and into 2024, with several quarters showing continued losses. These figures indicate that PT Takaful Keluarga has faced ongoing challenges in maintaining underwriting profitability, especially in recent years.

Table 4

Underwriting Results of PT Takaful Keluarga 2017 – 2024 (In Million)

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2017	8,390.73	8,390.73	9,689.45	7,092.00
2018	19,508.00	27,944.06	10,308.36	12,781.47
2019	19,880.47	27,424.29	24,127.70	23,140.54
2020	5,044.42	5,239.48	3,585.05	-59.86
2021	-14,823.41	-12,140.58	-39,828.56	-63,191.14
2022	-4,749.04	-145.30	-5,500.29	-11,507.56
2023	-3,676.94	5,286.23	-6,760.28	-9,910.34
2024	-3,831.83	-19,996.55	n.a.	n.a.

Source: Secondary data. Authors' compilation.

Table 5 presents the descriptive statistical analysis results for four variables: net profit (Y), investment returns (X1), risk-based capital (X2), and underwriting results (X3). The data reveals a significant range in net profit (Y), with a minimum value of -2,194.81 and a maximum of 15,186.23, a mean of 5,101.91, and a standard deviation of 3,852.38, indicating substantial variation within the sample. Similarly, investment returns (X1) exhibit high variability, with an average of 11,564.67 and a standard deviation of 6,259.79. In contrast, risk-based capital (X2) demonstrates a lower variance, with a mean of 13.65 and a standard deviation of 3.97. Notably, underwriting results (X3) display the widest dispersion, with a minimum value of -63,191.14 and a maximum of 27,944.06, an average of 723.71, and a remarkably high standard deviation of 19,264.75. These statistics provide an initial overview of the distribution and variability of the variables analyzed in this study.

Table 5

Descriptive Statistics of Variables

Variable	**Min**	**Max**	**Mean**	**Std. Deviation**
Net Profit (Y)	-2,194.81	15,186.23	5,101.91	3,852.38
Investment Returns (X1)	1,216	23,014.17	11,564.67	6,259.79
Risk-Based Capital (X2)	2.9	20.67	13.65	3.97
Underwriting Results (X3)	-63,191.14	27,944.06	723.71	19,264.75

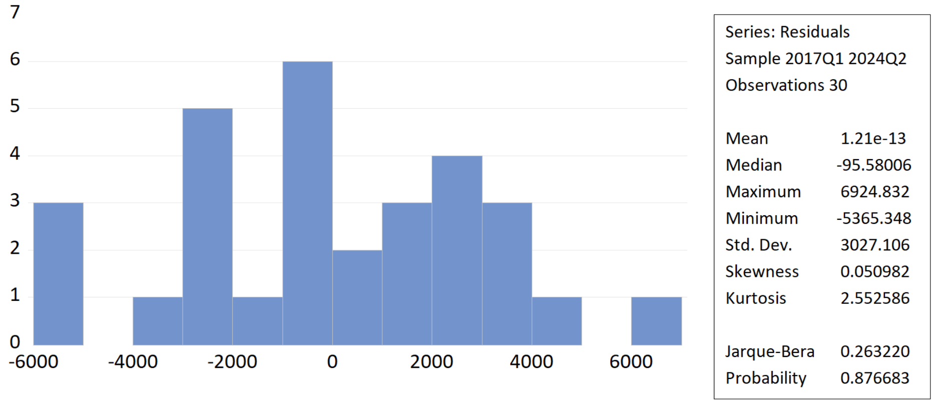
Source: Secondary data. Authors' estimation.

Classical Assumption Tests

Figure 1 presents the normality test results using the Jarque-Bera (J-B) test in Eviews, which evaluates whether the dependent and independent variables follow a normal distribution. The test follows a standard interpretation: if the calculated J-B probability exceeds 0.05, the residuals are considered normally distributed; otherwise, they are not. Based on the results, the Jarque-Bera probability value is 0.263, which is greater than 0.05. This indicates that the residuals conform to a normal distribution, confirming that the data passes the normality test.

Figure 1

Normality Test Results



Source: Secondary data. Authors' estimation.

Table 6 presents the multicollinearity test results, which assess whether there is a correlation among independent variables in the regression model. Multicollinearity can be evaluated using the Variance Inflation Factor (VIF), where a VIF value below 10.00 indicates no multicollinearity, while a VIF value above 10.00 suggests its presence. Based on the Eviews test results, all independent variables—investment returns (X1), risk-based capital (X2), and underwriting results (X3)—have VIF values lower than 10.00. This confirms that multicollinearity is not an issue in the model, ensuring the reliability of the regression analysis.

Table 6

Variance Inflation Factors (VIF)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	5,863,404.00	17.21040	NA
X1	0.009090	4.579007	1.010644
X2	24,992.00	14.77870	1.115963
X3	0.001054	1.111857	1.110236

Source: Secondary data. Authors' estimation.

Table 7 presents the results of the autocorrelation test using the Breusch-Godfrey Serial Correlation LM test, which assesses whether there is autocorrelation in the regression model. According to the test criteria, if the p-value is greater than 0.05, it indicates no autocorrelation, whereas a p-value below 0.05 suggests the presence of autocorrelation. Based on the Eviews test results, the Probability Obs*R-Squared value is 0.3245, which exceeds the 0.05 threshold. Therefore, it can be concluded that the autocorrelation assumption is satisfied, confirming that the model does not suffer from autocorrelation issues.

Table 7

Breusch-Godfrey Serial Correlation LM Test

Statistic	Value	Probability
F-statistic	0.973340	0.3922
Obs*R-squared	2.250786	-
Prob. Chi-Square(2)	-	0.3245

Notes: Null Hypothesis: No serial correlation at up to 2 lags

Source: Secondary data. Authors' estimation.

Table 8 presents the results of the heteroscedasticity test using White's test, which evaluates whether there is a variance difference in residuals across observations. This test is conducted by regressing squared residuals (Ui2U²_i) on the squared independent variables and their interactions. According to Ghozali & Ratmono (2017), the decision rule states that if the Chi-square probability is less than 0.05, heteroscedasticity is present; if the probability exceeds 0.05, heteroscedasticity is not present. Based on the Eviews test results, the Probability Obs*R-Squared value is 0.946, which is greater than 0.05. Therefore, it can be concluded that the assumption of homoscedasticity is satisfied, confirming that the data passes the heteroscedasticity test.

Table 8

White Heteroscedasticity Test

Statistic	Value	Probability
F-statistic	2.183372	0.0700
Obs*R-squared	14.86772	-
Prob. Chi-Square(9)	-	0.0946
Scaled explained SS	8.669108	0.4684

Notes: Null Hypothesis: Homoskedasticity

Source: Secondary data. Authors' estimation.

Regression Analysis

Table 9 summarizes regression analysis results for this study. Multiple linear regression is used to analyze the effect of two or more independent variables (X) on a dependent variable (Y). The regression equation derived from the analysis using Eviews is as follows:

$$Y=1825.430+0.348X_1-52.493X_2-0.047X_3$$

This equation represents the relationship between the dependent variable (Y) and the independent variables (X_1, X_2, and X_3). The coefficients of the regression equation indicate how much the dependent variable will change when the independent variables change by one unit, assuming other variables remain constant.

Table 9

Regression Analysis Results

Variable	Coefficient	Std. Error	t-Statistic	Probability (Prob.)
C	1825.430	2421.447	0.753859	0.4577
X1	0.348229	0.095341	3.652452	0.0011
X2	-52.49330	158.0886	-0.332050	0.7425
X3	-0.047378	0.032470	-1.459126	0.1565
R-squared	0.382558			
Adjusted R-squared	0.311314			
F-statistic	5.369731			
Prob (F-statistic)	0.005176			

Source: Secondary data. Authors' estimation.

The constant value in the regression equation is 1825.430, which suggests that when all independent variables (X_1, X_2, and X_3) are zero, the dependent variable (Y) will be 1825.430. However, since the p-value of the constant is 0.4577, which is greater than 0.05, it is not statistically significant. This means that the constant does not have a meaningful impact on Y. Meanwhile, the coefficient for X_1 (investment returns) is 0.348229, indicating that an increase of one unit in X_1 will increase Y by 0.348229. Because the p-value for X_1 is 0.0011 (less than 0.05), X_1 has a significant and positive effect on Y.

The coefficient for X_2 (risk-based capital) is -52.49330, meaning that an increase of one unit in X_2 will reduce Y by 52.49330. However, since the p-value is 0.7425 (greater than 0.05), this effect is not statistically significant, implying that there is no strong evidence that X_2 affects Y. Similarly, the coefficient for X_3 (underwriting results) is -0.047378, suggesting that an increase in X_3 will decrease Y by 0.047378. However, with a p-value of 0.1565 (greater than 0.05), X_3's impact on Y is also not statistically significant, indicating no conclusive evidence of its effect.

The coefficient of determination (R-squared) measures how much the independent variables explain the variance in the dependent variable. The R-squared value is 0.3825 (38.25%), meaning that investment returns (X_1), risk-based capital (X_2), and underwriting results (X_3) collectively explain 38.25% of the variation in net profit (Y). The remaining 61.75% is influenced by other variables outside this regression model. This suggests that while the model explains a portion of the dependent variable, other factors not included in the study significantly impact Y.

The F-test is used to determine whether all independent variables collectively have a significant impact on the dependent variable. The results show an F-statistic of 5.3697 with a probability (p-value) of 0.0051. Since the p-value is less than 0.05, the null hypothesis (Ho), which states that the independent variables do not collectively affect Y, is rejected. This confirms that investment returns (X_1), risk-based capital (X_2), and underwriting results (X_3) collectively have a significant effect on net profit (Y).

Thus, while some individual variables may not be significant, the model as a whole is statistically meaningful in explaining variations in net profit.

DISCUSSION

Integration of Findings with Literature

This study investigated the impact of investment returns, risk-based capital (RBC), and underwriting results on the profitability of PT Takaful Keluarga, a leading Islamic life insurance provider in Indonesia. The findings offer significant insights into the financial dynamics of takaful operations and their alignment with existing literature. Investment returns emerged as the most critical determinant of profitability, demonstrating a consistent and positive influence. This aligns with previous research by Hidayat et al. (2021), which emphasized the role of strategic asset management in sustaining financial performance.

Conversely, the findings on RBC and underwriting results show limited direct impacts on profitability, previous studies (Msomi, 2023; Mubarok & Rahayu, 2017; Nasution & Nanda, 2020; Tresnawati et al., 2022). These components, while essential for operational stability and risk management, appear to contribute more indirectly to financial outcomes. The combined analysis, however, reveals significant interdependencies among the three variables, underscoring the importance of a holistic approach to financial strategy.

The Role of Investment Returns

The findings of this study align with previous research highlighting the significant influence of investment returns on company profitability. The statistical results indicate that investment returns (X1) positively and significantly impact net profit (Y), as reflected in the regression coefficient of 0.34822 and a p-value of 0.0011, which is below the 0.05 threshold. This suggests that an increase in investment returns is associated with higher net profit, consistent with studies such as those by Nizar & Falikhatun (2021) and Sallemi & Zouari (2024), which emphasize the crucial role of investment income in sustaining the profitability of Takaful operators. Similar findings by Hemrit (2020) further reinforce the argument that efficient investment strategies contribute to financial stability and overall firm performance in the Islamic insurance sector.

Conversely, this study's results contrast with research suggesting that investment returns may not always have a strong or direct effect on profitability. For instance, Rahman et al. (2019) argue that external economic conditions, regulatory constraints, and Shari'ah compliance requirements can limit the profitability impact of investment income. Moreover, Lee et al. (2019) highlight that while investment strategies are crucial, governance structures, market efficiency, and risk-based capital adequacy may play a more significant role in determining financial performance. These perspectives suggest that while investment returns are important, their impact on profitability can be moderated by broader financial and regulatory dynamics, necessitating a more nuanced understanding of Takaful operators' financial sustainability.

The implications of these findings are substantial for stakeholders in the Takaful industry, including policymakers, investors, and company executives. Given the significant role of investment returns in profitability, Takaful operators should prioritize strategic investment management that aligns with Shari'ah principles while optimizing financial performance. Diversifying investment portfolios, incorporating FinTech solutions, and enhancing governance frameworks could strengthen investment income and overall profitability. Furthermore, regulatory bodies should consider policies that promote transparency, market stability, and ethical investment practices to support sustainable growth in the Takaful industry. Ultimately, a balanced approach that integrates sound investment strategies with robust operational efficiencies is essential for maintaining financial resilience in this dynamic sector.

Risk-Based Capital and Financial Stability

The findings of this study align with previous research that highlights the significant role of Risk-Based Capital (RBC) in ensuring the financial stability and profitability of Takaful operators. The adoption of RBC frameworks has been widely recognized as a critical regulatory tool that enhances financial resilience and mitigates insolvency risks within Islamic insurance markets (Lee et al., 2019; Salami et al., 2024). Empirical studies indicate that higher RBC levels correlate with improved profitability metrics, such as Return on Assets (ROA) and Return on Equity (ROE), by fostering investor confidence and strengthening governance structures (Abu-mounes, 2020; Eldaia et al., 2023). Furthermore, effective RBC implementation allows Takaful firms to better manage underwriting and investment risks, contributing to sustained financial performance even in fluctuating market conditions (Maali & Atmeh, 2015). These findings underscore the necessity of RBC frameworks in promoting financial stability and competitive advantage for Takaful operators.

While RBC has been shown to enhance profitability, some studies suggest that its impact may be contingent on external regulatory and macroeconomic conditions. Benyoussef & Hemrit (2019) argue that the effectiveness of RBC regulations varies across jurisdictions, as market conditions and economic stability influence the degree to which capital requirements translate into financial performance. Similarly, Puspita et al. (2020) highlight that RBC implementation in less stable economies may not yield the same positive results observed in more developed financial markets. Additionally, Medhioub & Chaffai (2019) emphasize the role of corporate governance, arguing that strong governance structures are equally, if not more, important than RBC in ensuring Takaful profitability. These perspectives suggest that while RBC is a valuable regulatory mechanism, its effectiveness is influenced by broader financial, operational, and governance factors that must be carefully considered.

The implications of these findings are particularly relevant for regulators, policymakers, and industry stakeholders seeking to enhance the competitiveness and sustainability of the Takaful sector. Given the demonstrated link between RBC and profitability, regulatory bodies should focus on refining capital adequacy requirements to align with market conditions and operational risks. Moreover, Takaful operators should integrate RBC frameworks with strategic investment planning and corporate governance enhancements to maximize financial performance. The adoption of digital financial solutions and ethical investment strategies can further strengthen RBC's effectiveness in fostering sustainable growth. Ultimately, a holistic approach that combines sound regulatory oversight, strong governance, and adaptive investment strategies will be essential in optimizing the long-term profitability and resilience of Takaful firms in an evolving financial landscape.

Underwriting Results and Risk Management

The findings of this study reaffirm the significance of underwriting results in shaping the profitability of Takaful operators. Previous research has consistently demonstrated that efficient underwriting processes contribute to financial stability and sustainability in the Islamic insurance sector (Kantakji et al., 2020; Kholis & Rakhmawati, 2022). Underwriting performance influences key financial metrics by ensuring a balanced ratio between premium income and claims incurred, ultimately fostering operational resilience. Studies further suggest that well-structured underwriting strategies, supported by risk management tools and data-driven pricing models, enhance insurers' ability to optimize profitability while maintaining compliance with Shari'ah principles (Cahyandari et al., 2023). The integration of advanced actuarial techniques in underwriting has also been linked to improved financial outcomes, reinforcing the argument that underwriting effectiveness plays a pivotal role in the competitive positioning of Takaful operators.

While underwriting efficiency is widely regarded as a key determinant of financial success in Takaful, some studies suggest that external market factors and regulatory environments can moderate its impact. For instance, Rahman et al. (2024) highlight the role of cross-subsidization in underwriting surplus distribution, arguing that such mechanisms can lead to varied financial performance across different operators. Similarly, Benyoussef & Hemrit (2019) emphasize the importance of regulatory oversight in ensuring standardized underwriting practices that align with market dynamics. Other research suggests that in markets with higher volatility, underwriting profitability can be more susceptible to macroeconomic shocks, affecting its long-term contribution to financial stability (Puspita et al., 2020). These perspectives indicate that while underwriting practices are crucial, their effectiveness is contingent on broader economic and regulatory conditions, necessitating a holistic approach to financial management within the Takaful industry.

The implications of these findings are significant for policymakers, Takaful operators, and industry stakeholders. Given the integral role of underwriting results in sustaining profitability, it is imperative for Takaful firms to enhance their risk assessment methodologies, refine their pricing models, and adopt predictive analytics to improve underwriting accuracy. Regulators must also establish comprehensive legal frameworks that promote transparency and standardization in underwriting practices to safeguard financial stability. Additionally, Takaful providers should consider leveraging digital solutions to streamline underwriting operations and enhance customer confidence through greater transparency in policy pricing and claims management. By aligning strategic underwriting approaches with regulatory compliance and technological advancements, Takaful operators can reinforce their market position and ensure long-term financial sustainability in an increasingly competitive insurance landscape..

Interdependence of Financial Determinants

The combined analysis of investment returns, RBC, and underwriting results reveals significant interdependencies among these variables. While individual effects may vary, their collective impact underscores the need for an integrated approach to financial management. For instance, investment returns indirectly support RBC by enhancing the company's solvency position, while efficient underwriting reduces claims, indirectly bolstering net profit.

This interplay aligns with the findings of Mudjiyono (2012), who emphasized the importance of synergy among financial components in optimizing performance. For PT Takaful Keluarga, adopting a holistic strategy that leverages these interdependencies can enhance profitability while ensuring compliance with Sharia principles and regulatory standards.

Temporal and Contextual Insights

The study's timeframe, spanning 2017 to 2024, provides valuable insights into the financial dynamics of PT Takaful Keluarga across varying economic conditions. The COVID-19 pandemic, a significant external shock, disrupted financial operations globally, including the takaful sector. The temporary decline in profitability observed during the pandemic reflects the challenges faced by insurers in managing increased claims and market volatility.

However, the post-pandemic recovery highlights the resilience of PT Takaful Keluarga's financial strategies. Investment returns rebounded as market conditions stabilized, and underwriting activities normalized, contributing to the restoration of profitability. These trends underscore the importance of adaptive and forward-looking financial practices in navigating external shocks and ensuring long-term sustainability.

Implications for Practice

The findings of this study have significant implications for PT Takaful Keluarga and the broader takaful industry:

1. Optimizing Investment Strategies: The strong influence of investment returns on profitability highlights the need for strategic asset management. Diversifying investment portfolios and enhancing market analysis capabilities can maximize returns while adhering to Sharia principles.
2. Enhancing Solvency Measures: While RBC does not directly impact profitability, maintaining adequate solvency levels is critical for financial stability. PT Takaful

Keluarga should continue to prioritize compliance with solvency regulations and develop contingency plans for economic disruptions.

3. Integrating Risk Management Practices: Aligning underwriting outcomes with investment and solvency strategies can enhance their collective impact on profitability. Advanced analytics and technological tools can improve underwriting accuracy and efficiency.
4. Building Resilience: The COVID-19 pandemic highlights the importance of resilience in financial operations. Developing adaptive strategies that anticipate and respond to external shocks can safeguard profitability and sustain growth.

Contributions to the Literature

This study contributes to the growing body of literature on Islamic finance by providing empirical insights into the financial determinants of profitability in takaful operations. By focusing on PT Takaful Keluarga, the research addresses gaps in understanding the interrelationships among investment returns, RBC, and underwriting results in an Indonesian context. The findings also extend the discourse on resilience and adaptability in the face of economic disruptions, offering valuable lessons for both academics and practitioners.

CONCLUSION

This study investigated the effects of investment returns, risk-based capital (RBC), and underwriting results on the profitability of PT Takaful Keluarga from 2017 to 2024. The findings reveal that investment returns are the most significant driver of profitability, highlighting the importance of effective asset management in sustaining financial performance. While RBC and underwriting results do not show significant direct impacts on profitability individually, their collective influence underscores the interdependence of these financial determinants. The study also demonstrates the resilience of PT Takaful Keluarga's financial strategies during economic disruptions, such as the COVID-19 pandemic.

These results emphasize the need for an integrated approach to financial management, where investment, solvency, and risk assessment practices align to optimize outcomes. By addressing gaps in existing research, this study contributes to the broader literature on Islamic finance and takaful operations. It provides actionable insights for enhancing profitability while maintaining compliance with Sharia principles, offering value to practitioners and policymakers. Further exploration into external factors and comparative studies across regions could deepen understanding of profitability drivers in the Islamic life insurance sector.

Limitations of the Study

While this research provides valuable insights, it has certain limitations. The reliance on secondary data restricts the ability to capture qualitative dimensions of financial performance, such as managerial strategies and consumer behavior. The focus on PT

Takaful Keluarga, a single takaful provider, limits the generalizability of findings to other companies within the Islamic life insurance industry, particularly those operating in diverse regulatory or market environments.

Additionally, this study does not account for broader macroeconomic factors, such as inflation, interest rates, or government fiscal policies, which could significantly influence financial performance. The impact of technological advancements and innovations in underwriting and investment practices also falls outside the study's scope, presenting opportunities for further exploration. Finally, while the study considers the COVID-19 pandemic, its long-term effects on the takaful industry require extended analysis beyond the current timeframe.

Addressing these limitations in future research could enrich the understanding of financial dynamics in Islamic life insurance, providing a more comprehensive view of factors driving profitability across different contexts and periods.

Recommendations for Future Research

Future research should build on this study by addressing its limitations and exploring new dimensions of profitability in the takaful sector. Incorporating qualitative methods, such as interviews with industry stakeholders or case studies, could provide deeper insights into managerial practices and operational challenges. Expanding the scope to include multiple takaful providers across different regions would enhance the generalizability of findings and facilitate comparative analyses of financial performance.

Further exploration of macroeconomic variables, such as regulatory changes, technological advancements, and economic conditions, would offer a more holistic perspective on the determinants of profitability. Longitudinal studies that extend beyond 2024 could provide insights into the long-term impacts of the COVID-19 pandemic and other external shocks on the takaful industry.

Finally, investigating the interplay between customer satisfaction, Sharia compliance, and financial performance could uncover critical drivers of growth and sustainability in Islamic life insurance. By integrating these dimensions, future research can contribute to the development of strategies that optimize profitability while adhering to the ethical principles of takaful, fostering a more resilient and inclusive Islamic financial system.

Author Contributions

Conceptualization	S.A.H. & N.K.	Resources	S.A.H. & N.K.
Data curation	S.A.H. & N.K.	Software	S.A.H. & N.K.
Formal analysis	S.A.H. & N.K.	Supervision	S.A.H. & N.K.
Funding acquisition	S.A.H. & N.K.	Validation	S.A.H. & N.K.
Investigation	S.A.H. & N.K.	Visualization	S.A.H. & N.K.
Methodology	S.A.H. & N.K.	Writing – original draft	S.A.H. & N.K.
Project administration	S.A.H. & N.K.	Writing – review & editing	S.A.H. & N.K.

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Informed Consent Statement

Informed consent was not required for this study.

Data Availability Statement

The data presented in this study are available from the corresponding author upon reasonable request.

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Conflicts of Interest

The authors declare no conflicts of interest.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used ChatGPT, DeepL, Grammarly, and PaperPal in order to translate from Bahasa Indonesia into American English, and to improve clarity of the language and readability of the article. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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