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Determinants of Capital Structure Decisions Among International Takaful Operators In Malaysia: Evidence From Panel Data Analysis

Nor Farradila Abdul Aziz[1], *Nor Akila Mohd Kassim[1], Amirul Afif Muhamat[1], Dania Carmila Sait[2], Nurul Husna Abd Jalil[3], Tia Yuliawati[4], Clarashinta Canggih[5]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
[2]Standard Chartered Global Business Services Sdn Bhd, Malaysia
[3]Prudential Service Asia Sdn Bhd, Malaysia
[4]Faculty of Economics and Business Education, Universitas Pendidikan Indonesia
[5]Faculty of Economics and Business, Universitas Negeri Surabaya, Indonesia
Email: norfa503@uitm.edu.my, *akila6735@uitm.edu.my, amirulafif@uitm.edu.my, daniacarmila.sait@sc.com, nurulhusna.abduljalil@prudential.com.my, tia.yuliawati@upi.edu, clarashintacanggih@unesa.ac.id
Corresponding Author: Nor Akila Mohd Kassim

Abstract: The capital structure decision remains an important issue in Shariah-compliant corporate finance, particularly for financial institutions whose regulatory requirements and risk-sharing structures differ from those of conventional corporations. Despite the development of Islamic finance, empirical evidence on the firm-specific determinants of leverage among foreign-owned international Takaful operators in Malaysia remains limited. This study examines the effects of firm age, firm size, liquidity, profitability, and company growth on capital structure using panel data from four foreign-owned international Takaful operators in Malaysia. Capital structure is proxied by the total-liabilities-to-total-assets ratio, which represents overall balance-sheet leverage rather than conventional interest-bearing debt alone. Audited annual financial statements were analysed using panel data regression with cluster-robust standard errors. The findings indicate that firm age, firm size, and liquidity are positively and statistically associated with leverage, whereas profitability and company growth show negative but statistically insignificant relationships. The results suggest that organizational maturity, scale, and liquidity are relevant to the liability structure of international Takaful operators, although the findings should be interpreted within the distinctive regulatory and Shariah-compliant characteristics of the industry. Overall, the evidence provides partial support for the Trade-off Theory and limited support for the Pecking Order Theory when these frameworks are adapted to the Takaful setting. The study contributes to the limited literature on capital structure in Islamic insurance and offers implications for the management of leverage, liquidity, and solvency within international Takaful operators.

Keywords: *Capital Structure, International Takaful, Islamic Finance, Leverage, Panel Data, Risk-Based Capital*

1. Introduction and Background

Capital structure has long occupied a central position in corporate finance because financing decisions directly influence a firm's cost of capital, financial flexibility, risk exposure, and long-term value creation. Since the seminal work of Modigliani and Miller (1958, 1963), researchers have extensively investigated how firms determine the optimal combination of debt and equity financing. Although subsequent theories, including the Trade-off Theory and Pecking Order Theory, provide alternative explanations for financing behavior, empirical findings remain inconsistent across industries, countries, and institutional environments. Such inconsistencies suggest that capital structure decisions are highly context-specific and shaped by both firm-level characteristics and the broader regulatory landscape. Capital structure also demonstrates how a company funds its overall operations and structural expansion, where debt can be a cost-effective financing mechanism that does not dilute ownership shares but increases the risk of financial distress (Neves et al., 2020; Amarasiri, 2019). The balance between these forces governs organizational survival and competitiveness (Malaysian Rating Corporation Berhad, 2010; Hussain et al., 2020).

For financial institutions, capital structure decisions are distinct from non-financial firms because they operate under strict regulatory capital adequacy and solvency requirements (DeAngelo and Stulz, 2015). Insurance and Takaful operators are highly leveraged by nature, relying heavily on technical reserves, policyholder liabilities, and solvency buffers to meet future claims. In Shariah-compliant finance, Takaful serves as an alternative to conventional insurance, grounded in cooperation (ta'awun) and shared responsibility. In this model,

participants contribute to a mutual fund to assist one another in times of financial distress. Unlike conventional insurers, Takaful operators must strictly adhere to Islamic principles that prohibit interest (riba), excessive uncertainty (gharar), and gambling (maysir). These guidelines restrict investment options to Shariah-compliant assets and forbid the use of conventional interest-bearing debt, fundamentally shaping how Takaful operators manage capital, leverage, and solvency buffers.

Malaysia has established itself as a leading global hub for Islamic finance through consistent regulatory reforms and comprehensive policy initiatives led by Bank Negara Malaysia (BNM). The development of the Malaysian Takaful sector has progressed through three strategic phases: Phase 1 (1984–1992) focused on establishing the regulatory foundations under the Takaful Act 1984 and forming the first Takaful operator; Phase 2 (1993–2000) fostered regional cooperation and retakaful (reinsurance) networks across ASEAN; and Phase 3 (2001–2010) enhanced operational capacities through the Financial Sector Masterplan (FSMP) and the establishment of the Malaysian Takaful Association (MTA) in 2002. Today, the industry operates under the rigorous guidelines of the Islamic Financial Services Act (IFSA) 2013 and BNM's Risk-Based Capital (RBC) Framework for Takaful Operators, which mandate strict capital adequacy ratios (CAR) to match risk-bearing exposures (Ibrahim et al., 2015; Zul Kepli, 2015).

To accelerate market penetration and encourage technology transfer, BNM approved the entry of foreign-owned international Takaful operators, including AIA PUBLIC Takaful Bhd, Great Eastern Takaful Berhad, Zurich General Takaful Malaysia Berhad, and Zurich Takaful Malaysia Berhad. These international Takaful operators operate under a dual institutional influence, balancing Malaysian regulatory expectations (like IFSA 2013 and RBC solvency requirements) with the corporate financial strategies and capital allocation policies of their foreign parent companies. Consequently, their financing decisions and capital structure adjustments may differ from those of domestic firms, offering a compelling subject for empirical investigation.

Despite the strategic importance of the Takaful sector, empirical studies on capital structure determinants within Islamic insurance remain scarce. Most existing studies focus on conventional insurance, listed industrial firms, manufacturing corporations, or commercial banks (Abdul Jamal et al., 2013; Najjar and Petrov, 2011). Comparative work on Shariah-compliant insurance in developing markets is particularly limited (Ismail, 2013). This study addresses this research gap by investigating the internal determinants of capital structure among all four foreign-owned international Takaful operators in Malaysia from 2016 to 2025. Specifically, we evaluate the effects of firm age, firm size, liquidity, profitability, and company growth on leverage. This research offers three primary contributions: first, it provides one of the earliest empirical studies focusing exclusively on international Takaful operators; second, it tests the validity of conventional finance theories (Trade-off, Pecking Order, and Agency Cost) within a highly regulated Shariah-compliant financial environment; and third, it provides practical insights for corporate managers, investors, and regulatory bodies in structuring sustainable capital frameworks.

2. Literature Review

Theoretical foundations of capital structure have been heavily explored across multiple sectors, but their applicability in Shariah-compliant financial institutions remains a subject of ongoing discussion. In finance literature, three dominant theories attempt to explain why firms select specific financing mixes: the Trade-off Theory and the Pecking Order Theory.

The Static Trade-off Theory, originating from Modigliani and Miller (1963) suggests that firms select an optimal capital structure by balancing the tax advantages of debt (interest tax shields) against the expected costs of financial distress and bankruptcy. In a financial institution context, larger and more diversified operators generally face lower default risks, enabling them to maintain higher leverage (DeAngelo and Stulz, 2015). For Takaful operators, although conventional interest-bearing debt is strictly prohibited, structural leverage exists in the form of policyholder technical reserves and Shariah-compliant financing instruments (such as Qard-ul-Hasan or Islamic subordinated debt) that function as regulatory capital buffers. Maintaining adequate capital is essential not only to maximize firm value but also to ensure solvency and operational resilience (Bouhedda and Soualhi, 2025; Lestari and Meldona, 2025).

The Pecking Order Theory, introduced by Myers and Majluf (1984), presents an alternative view based on information asymmetry between corporate insiders and external investors. According to this model, firms do not target a specific optimal debt ratio but follow a financing hierarchy: preferring internal funds (retained earnings) first, followed by external debt, and issuing equity only as a last resort. Highly profitable and highly liquid Takaful operators should consequently maintain lower leverage ratios because their internal cash-generation capabilities satisfy their operational and underwriting requirements, eliminating the need for external credit.

Although the Trade-off Theory and Pecking Order Theory were originally developed primarily in the context of conventional corporate financing, their application in the present study should be interpreted within the institutional characteristics of Takaful operators. In Takaful institutions, leverage does not arise predominantly from conventional interest-bearing borrowing because Shariah principles prohibit riba. Instead, a substantial proportion of liabilities comprises technical reserves, participants' funds, outstanding claims obligations, and other Shariah-compliant liabilities. Accordingly, this study does not interpret the total-liabilities-to-total-assets ratio as conventional debt in the strict sense. Rather, it is employed as a broad measure of balance-sheet leverage and the extent to which assets are supported by liabilities relative to shareholders' capital.

Within this setting, the Trade-off Theory remains relevant insofar as Takaful operators must balance the benefits of maintaining a larger liability-supported operational base against solvency, liquidity, and financial-distress risks. Similarly, the Pecking Order Theory provides a useful framework for examining whether firms with stronger internal financial resources, particularly greater profitability and liquidity, rely less on external or liability-based sources of financing. Therefore, these theories are applied as adapted analytical frameworks rather than as direct representations of conventional debt-financing behaviour. This Takaful-specific interpretation allows the study to examine whether established capital-structure relationships remain observable within a Shariah-compliant and highly regulated institutional environment.

Firm Age and Capital Structure

Firm age represents a common measure of reputation, organizational maturity, and institutional credibility. Mature firms generally benefit from established credit histories, long-standing banking relationships, and stable cash flows, which mitigate information asymmetry and allow easier access to debt-based financing. Accordingly, the Trade-off Theory suggests that mature firms can maintain higher leverage ratios because external creditors perceive them as lower risk. While some insurance-sector studies report a positive association between firm age and leverage (Bala and Abatcha, 2020), others document negative relationships, suggesting that mature insurance firms accumulate sufficient retained earnings over time, thereby reducing their reliance on external financing (Hassan, 2011; Rafiu et al., 2018; Naveed et al., 2010). Given these dynamics, we formulate our first hypothesis:

H1: Firm age has a positive and significant relationship with the capital structure of international Takaful operators.

Firm Size and Capital Structure

Firm size is widely recognized as a primary determinant of corporate capital structure. Larger financial institutions benefit from economies of scale, diversified investment portfolios, and robust asset bases, which reduce overall earnings volatility and default probabilities. Consequently, larger firms enjoy superior credit ratings and easier access to capital markets on highly favorable terms (Kumah-Ababio and Mensah, 2018; Nivorozhkin, 2004). This is consistent with the Trade-off Theory, which predicts that larger firms maintain higher debt levels. Empirical studies on insurance institutions consistently demonstrate a positive relationship between firm size and leverage (Çekrezi, 2015; Rafiu et al., 2018; Naveed et al., 2010). Based on these arguments, we establish our second hypothesis:

H2: Firm size has a positive and significant relationship with the capital structure of international Takaful operators.

Liquidity and Capital Structure

Liquidity measures a firm's capacity to settle short-term obligations using liquid assets. According to the Pecking Order Theory, highly liquid firms prefer utilizing internal cash reserves to support operational and underwriting requirements, suggesting a negative association between liquidity and leverage. Conversely,

highly liquid firms can access debt-based liabilities more easily because creditors perceive them as financially healthy and capable of meeting contractual payments (Myers and Rajan, 1998). Empirical insurance literature has reported mixed results, with some authors finding an inverse relationship (Najjar and Petrov, 2011; Abdul Jamal et al., 2013), and others documenting a positive relationship (Çekrezi, 2015). To test these theoretical perspectives, we propose:
H3: Liquidity has a negative relationship with the capital structure of international Takaful operators.

Profitability and Capital Structure
The association between profitability and capital structure remains a central debate in corporate finance. The Static Trade-off Theory suggests that highly profitable firms use more debt to exploit interest-induced tax shields. Conversely, the Pecking Order Theory predicts that profitable firms rely primarily on internally generated profits (retained earnings) to finance operations, resulting in lower leverage ratios. Most empirical insurance studies support the Pecking Order Theory, confirming that profitable operators rely less on external credit (Naveed et al., 2010; Aremu et al., 2013; Abdul Jamal et al., 2013). Thus, we hypothesize:
H4: Profitability has a negative relationship with the capital structure of international Takaful operators.

Company Growth and Capital Structure
Rapidly growing firms require significant financial resources to support business expansion and underwriting activities. When internal cash generation is insufficient to cover these capital needs, growing firms are forced to seek external liability financing, leading to higher leverage (Hassan, 2011; Bala and Abatcha, 2020). However, Trade-Off Theory suggests that growing firms may face higher financing costs because creditors worry that managers might pursue high-risk, speculative expansion projects, leading to higher interest rates and lower leverage (Rafiu et al., 2018; Aremu et al., 2013). Given these competing theories, we formulate our fifth hypothesis:
H5: Company growth has a positive relationship with the capital structure of international Takaful operators.

3. Research Methodology

This study investigates the internal determinants of capital structure among international Takaful operators operating in Malaysia. To test the empirical validity of capital structure theories, we construct a rigorous econometric framework mapping the relationships between firm characteristics and structural leverage.

Theoretical Framework and Variable Selection
The dependent variable is capital structure, proxied by the leverage ratio (LEV), measured as Total Liabilities divided by Total Assets. In the context of Takaful operators, total liabilities include technical reserves, participants' and policyholder-related liabilities, claims obligations, and other Shariah-compliant liabilities. Therefore, LEV represents overall balance-sheet leverage rather than conventional interest-bearing debt alone. The independent variables include: Firm Age (AGE), measured as the actual years since incorporation; Firm Size (SIZE), represented by Total Assets in Ringgit Malaysia (RM); Liquidity (LIQ), measured by the Current Ratio (Current Assets over Current Liabilities); Profitability (PROF), measured as Return on Assets (ROA, Net Income over Average Total Assets); and Company Growth (GROW), calculated as the percentage change in net total assets from the previous year. Table 1 summarizes the variable definitions and measurements.

Table 1: Summary of Variable Measurement and Definitions

Variable	Unit of Measurement	Measurement / Proxy
Capital Structure (DR) [DV]	Percentage (%)	Total Liabilities / Total Assets
Firm Age (AGE) [IV]	Years	Actual Number of Years since Incorporation
Firm Size (SIZE) [IV]	RM (Currency)	Total Assets
Liquidity (LIQ) [IV]	Times (Ratio)	Current Ratio = Current Assets / Current Liabilities
Profitability (PROF) [IV]	Percentage (%)	Return on Assets = Net Income / Average Total Assets
Company Growth (GROW) [IV]	Percentage (%)	% Increase in Net Total Assets = (Total Assets_t - Total Assets_t-1) / Total Assets_t-1

Table 2 outlines the formulated hypotheses, including the expected signs of the coefficients and their supporting capital structure theories.

Table 2: Theoretical Expectations and Direction of Variables

Independent Variable	Expected Direction	Supporting Theory
Firm Age (AGE)	Positive (+)	Trade-off Theory / Reputation Framework
Firm Size (SIZE)	Positive (+)	Trade-off Theory / Scale Diversification
Liquidity (LIQ)	Negative (-)	Pecking Order Theory / Cash Sufficiency
Profitability (PROF)	Negative (-)	Pecking Order Theory / Internal Financing
Company Growth (GROW)	Positive (+)	Pecking Order Theory / Reinvestment Pressures

Sample Selection and Data Source

The target population comprises all foreign-owned international Takaful operators licensed by Bank Negara Malaysia (BNM). These include AIA PUBLIC Takaful Bhd, Great Eastern Takaful Berhad, Zurich General Takaful Malaysia Berhad, and Zurich Takaful Malaysia Berhad. Secondary financial data were hand-collected from the audited annual reports and financial statements of each company spanning the ten years from 2016 to 2025. The final sample consists of N = 40 firm-year observations. Although the sample is relatively small due to the limited number of international Takaful operators in Malaysia, it represents the complete population of foreign-owned international Takaful operators licensed by Bank Negara Malaysia during the study period.

Model Specification

To analyze the impact of firm-level characteristics on the capital structure of international Takaful operators, we formulate the following panel regression equation:

$$DR_it = \beta_0 + \beta_1(AGE)_it + \beta_2(SIZE)_it + \beta_3(LIQ)_it + \beta_4(PROF)_it + \beta_5(GROW)_it + e_it$$

where DR_it represents the Debt Ratio of company i at time t; AGE_it is the log of company years since incorporation; SIZE_it represents firm size; LIQ_it is liquidity; PROF_it is profitability; GROW_it is company growth; β_0 is the constant intercept; β_1 through β_5 represent regression coefficients; and e_it is the classical error term.

Estimation Strategy and Model Selection

We evaluate three fundamental panel data techniques: Pooled Ordinary Least Squares (POLS), the Fixed Effects Model (FEM), and the Random Effects Model (REM). Model selection is governed by formal diagnostic tests: the F-Chow test determines if individual-specific effects are present (POLS vs. FEM), and the Breusch-Pagan Lagrange Multiplier (BPLM) test checks for random individual effects (POLS vs. REM). If both tests favor alternative models over POLS, the Hausman specification test is conducted to choose between FEM and REM.
Additionally, we conduct post-estimation diagnostic tests on the panel structure to check for classical linear regression violations. Groupwise heteroskedasticity is assessed using the Modified Wald test, and first-order autocorrelation is evaluated using the Wooldridge test. Standard panel models may yield biased and inefficient standard errors in the presence of these violations. To resolve these econometric biases, we implement panel-level OLS with cluster-robust standard errors adjusted at the company level, ensuring that hypothesis tests are valid and coefficients are statistically robust.

4. Results

This section presents the empirical findings derived from the panel data analysis. We begin with descriptive characterizations, examine correlation patterns and diagnostic specifications, and close with the formal panel regression estimates.

Descriptive Statistics

Descriptive statistics for the dependent and independent variables are compiled in Table 3. The average leverage (DR) of international Takaful operators in Malaysia is 79.73% (median of 85.20%), which indicates a substantial reliance on leverage (underwriting technical reserves and policyholder funds), with equity capital representing the remaining 20.27%. The average company age (AGE) is 5.83 years since incorporation, reflecting a relatively young and rapidly growing industry. The average asset size (SIZE) is RM764,097.76, and average liquidity (LIQ) is 1.60 times, showing comfortable coverage margins. Profitability (PROF) records a mean value of 0.036 and a median of -0.0120, indicating relatively low profitability among the sampled Takaful operators, particularly during their early years of operation. Finally, growth (GROW) has an average annual rate of 27.31%, reflecting rapid structural expansion.

Table 3: Summary of Descriptive Statistics (N = 40)

Variables	N	Min	Mean	Max	Median	Std. Dev.	Skewness	Kurtosis
DR (%)	40	0.3300	0.7973	0.9620	0.8520	0.1442	-1.6286	5.2985
AGE (Yr)	40	1.0000	5.8276	13.000	6.0000	3.3495	0.3324	2.3004
SIZE (RM)	40	120,990	764,098	1,788,074	703,160	434,039	0.5025	2.7043
LIQ (times)	40	0.1260	1.6030	3.4300	2.0260	1.0886	0.0313	1.5629
PROF (%)	40	-0.3130	0.0036	0.6670	-0.0120	0.1419	3.2904	18.585
GROW (%)	40	-0.7100	0.2731	1.0000	0.2200	0.3238	0.1966	6.0189

Correlation Analysis

Table 4 provides the Pearson correlation matrix. There is a strong, positive, statistically significant linear correlation between leverage (DR) and firm age (66.61%, $p < 0.01$), as well as between DR and firm size (62.58%, $p < 0.01$). Liquidity exhibits a modest positive correlation with leverage (19.70%), whereas profitability (-0.31%) and company growth (-38.81%, $p < 0.05$) are negatively correlated with leverage. Preliminary evidence suggests that leverage is associated with firm age and firm size, while the relationships with liquidity, profitability, and growth require confirmation through multivariate regression analysis.

Table 4: Summary of Pearson Correlation Coefficients

Variables	DR	AGE	SIZE	LIQ	PROF	GROW
DR	1.0000					
AGE	0.6661***	1.0000				
SIZE	0.6258***	0.6302***	1.0000			
LIQ	0.1970	-0.2874	-0.0924	1.0000		
PROF	-0.0031	-0.1265	-0.0549	0.2625	1.0000	
GROW	-0.3881**	-0.5982***	-0.1786	0.1401	-0.1018	1.0000

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1*

Econometric Diagnostics and Model Selection

To rule out severe multicollinearity, the Variance Inflation Factor (VIF) is evaluated (Table 5). The individual VIF values range from 1.14 to 3.13, with a mean VIF of 1.84. Since these are well below the conservative threshold of 5.0, multicollinearity does not pose a problem for the regression model.

Table 5: Variance Inflation Factor (VIF) Analysis (Mean VIF = 1.84)

Variables	VIF	1/VIF (Tolerance)
Firm Age (AGE)	3.13	0.3193
Firm Size (SIZE)	1.90	0.5273
Company Growth (GROW)	1.85	0.5414
Liquidity (LIQ)	1.17	0.8533
Profitability (PROF)	1.14	0.8774

To identify the optimal panel estimator, we run the F-Chow and Breusch-Pagan LM tests. The F-Chow test result ($F(3, 20) = 2.16$, $p = 0.1246$) fails to reject the null hypothesis of equal intercepts, indicating that Pooled OLS is preferred over the Fixed Effects Model. Similarly, the BPLM test for random effects yields a chi-bar-square statistic of 0.00 ($p = 1.0000$), supporting Pooled OLS over the Random Effects Model. Consequently, the Pooled OLS model was selected as the appropriate baseline estimator for subsequent analysis. Post-estimation diagnostics are summarized in Table 6. The Modified Wald test rejects the homoskedasticity null hypothesis ($p < 0.001$), and the Wooldridge test rejects the no-autocorrelation null ($p < 0.001$). To resolve these groupwise heteroskedasticity and first-order autocorrelation issues, we run Pooled OLS with cluster-robust standard errors adjusted at the company level (4 clusters).

Table 6: Summary of Model Specification and Diagnostic Tests

Diagnostic Test	Null Hypothesis (H0)	Statistic	p-value / Decision
F-Chow Test	POLS is superior to Fixed Effects	F(3, 20) = 2.16	0.1246 / Prefer POLS
Breusch-Pagan LM	POLS is superior to Random Effects	chi2(1) = 0.00	1.0000 / Prefer POLS
Modified Wald Test	Homoskedastic residuals	chi2(4) = 2.1e+30	0.0000 / Heteroskedasticity present
Wooldridge Test	No first-order autocorrelation	F(1, 2) = 2007.33	0.0005 / Autocorrelation present

Panel Regression Estimates

Table 7 presents the regression estimates for both the standard Pooled OLS model and the final model using cluster-robust standard errors. The R-squared value of 0.6586 indicates that the selected firm-specific variables explain approximately 65.86% of the variation in capital structure among international Takaful operators.

Table 7: Pooled OLS Regression with Cluster-Robust Standard Errors

Variables	OLS Coef.	Robust Std. Err.	t-statistic	p-value	Conclusion
Firm Age (AGE)	0.0234	0.0046	5.11	0.015**	Significant positive
Firm Size (SIZE)	1.02e-07	3.51e-08	2.90	0.063*	Significant positive
Liquidity (LIQ)	0.0528	0.0148	3.56	0.038**	Significant positive
Profitability (PROF)	-0.0294	0.2057	-0.14	0.896	Insignificant negative
Company Growth (GROW)	-0.0297	0.0780	-0.38	0.729	Insignificant negative
Constant (_cons)	0.5066	0.0282	17.95	0.000***	Significant positive

*Note: R-squared = 0.6586, Adj R-squared = 0.5844. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1*

Discussion

The econometric results provide valuable insights into the applicability of corporate finance theories within Malaysia's international Takaful sector. Out of the five independent variables examined, firm age, firm size, and liquidity are positive and statistically significant determinants of capital structure, whereas profitability and growth exhibit negative and statistically insignificant relationships.

Theoretical Alignment of Firm Age: The Reputation Shield

The regression analysis reveals a positive and statistically significant relationship between firm age (AGE) and the debt ratio (beta = 0.0234, p = 0.015). This finding indicates that as international Takaful operators mature, their leverage ratios increase. This finding is consistent with the predictions of the Static Trade-off Theory's reputation framework. Over years of operation, mature Takaful firms establish a strong brand name, stable underwriting portfolios, and creditworthiness. Lenders and underwriting participants are more willing to provide capital and participate in funds managed by mature operators because they possess a proven track record of timely commitments and claims settlement. This reputation shield reduces information asymmetry and financing costs, allowing mature operators to safely maintain higher leverage ratios. This positive effect is consistent with the empirical findings of Bala and Abatcha (2020) and Naveed et al. (2010), but contradicts the negative relationships reported by Hassan (2011) and Rafiu et al. (2018) for conventional insurance in other emerging markets.

The Role of Firm Size: Economies of Scale and Solvency Comfort

Firm size (SIZE) is positively related to the debt ratio (beta = 1.02e-07, p = 0.063), and is statistically significant at the 10% level. Larger international Takaful operators rely more on debt-based liabilities (policyholder technical reserves and Shariah-compliant funds) than smaller operators. In corporate finance, larger assets reflect economies of scale, stronger risk diversification across multiple product lines (such as family and general Takaful), and lower overall cash flow volatility. Larger operators are generally perceived as financially stronger by market participants and regulators, enabling them to sustain higher leverage ratios. This market optimism allows larger operators to secure credit easily on competitive terms, enabling them to expand technical reserves without triggering solvency warnings. Conversely, smaller Takaful operators tend to maintain lower leverage ratios to protect themselves against bankruptcy or sudden liquidation under Malaysia's Risk-Based Capital framework. This result supports the predictions of the Static Trade-off Theory and matches the empirical findings of Kumah-Ababio and Mensah (2018), Bala and Abatcha (2020), Çekrezi (2015), Rafiu et al. (2018), and Naveed et al. (2010).

Deciphering the Positive Effect of Liquidity: A Credibility Perspective

Liquidity (LIQ) exhibits a positive and statistically significant relationship with the debt ratio (beta = 0.0528, p = 0.038). This finding does not support Hypothesis 3, which was developed based on the Pecking Order Theory. The positive coefficient suggests that liquidity serves as a signal of financial strength and enhances creditors' confidence, allowing international Takaful operators to maintain higher leverage. Instead, in the context of Malaysian international Takaful operators, high liquidity acts as a signal of financial strength and solvency credibility. Operators with robust current assets find it easier to attract participants' risk funds and secure external financing because creditors and underwriting participants know the firm has sufficient operating cash flow to cover liabilities, claim payouts, and structural costs. This positive relationship is consistent with the empirical work of Çekrezi (2015) in Albania but rejects the negative patterns reported by Najjar and Petrov (2011) in Bahrain and Abdul Jamal et al. (2013) in Malaysia's non-financial sector.

The Insignificance of Profitability and Growth: Inelastic Demand for Technical Reserves

Profitability (PROF) has a negative but statistically insignificant relationship with the debt ratio (beta = -0.0294, p = 0.896). Although the coefficient is negative, the effect is statistically insignificant. Hence, profitability does not appear to influence leverage decisions among international Takaful operators. The statistical insignificance suggests that Takaful leverage, which consists primarily of technical reserves and policyholder funds, is influenced more by market demand, regulatory solvency margins, and parental financial strategies than by immediate corporate profitability. This matches the findings of Naveed et al. (2010), Aremu et al. (2013), and Abdul Jamal et al. (2013), but differs from the positive relationships documented by Hassan (2011) and Najjar and Petrov (2011).

Similarly, company growth (GROW) exhibits a negative and statistically insignificant relationship with the debt ratio (beta = -0.0297, p = 0.729). Although the estimated coefficient is negative, the relationship is statistically insignificant. Therefore, Hypothesis 5 is not supported, and no conclusive evidence can be drawn regarding the influence of company growth on capital structure. Nevertheless, the negative coefficient may suggest that expanding international Takaful operators rely more on capital injections from parent companies or retained earnings than on additional liabilities. This interpretation is consistent with the findings of Aremu et al. (2013) and Najjar and Petrov (2011), although the lack of statistical significance indicates that this relationship should be interpreted cautiously.

5. Managerial Implications and Recommendations

Managerial Implications and Recommendations

The findings provide several implications for managers and regulators of international Takaful operators, although these implications should be interpreted in light of the study's small sample and the distinctive liability structure of Takaful institutions. In particular, the results should not be interpreted as prescribing an optimal level of leverage but rather as identifying firm characteristics that are associated with differences in balance-sheet leverage.

Firm Maturity and Size

The positive and statistically significant relationships between firm age, firm size, and leverage suggest that more established and larger international Takaful operators tend to maintain higher levels of liabilities relative to their assets. This may reflect greater operational maturity, broader underwriting activities, stronger market presence, and the capacity of larger institutions to support larger technical reserves and participant-related liabilities. Managers should therefore consider capital and solvency planning in relation to the operator's stage of development and scale of operations rather than applying a uniform leverage policy across Takaful institutions.

Liquidity and Leverage

Liquidity is also positively and significantly associated with leverage. This finding suggests that operators with stronger short-term financial capacity are able to support higher levels of liability-based operations. From a managerial perspective, liquidity should therefore be considered together with leverage and solvency rather than viewed solely as a substitute for external financing. Maintaining appropriate liquid-asset buffers remains important for meeting claims and other short-term obligations, particularly where higher leverage reflects greater technical and participant-related liabilities.

Regulatory Implications

For regulators, the findings reinforce the importance of assessing leverage within the specific institutional structure of Takaful. Because a substantial component of total liabilities represents technical reserves, claims obligations, and participant-related funds rather than conventional borrowing, leverage ratios should be interpreted together with liquidity, solvency, and capital-adequacy indicators. The results therefore support continued integrated monitoring of these dimensions under Malaysia's prudential framework rather than the use of leverage measures in isolation.

Conclusion

This study examined the firm-specific determinants of capital structure among foreign-owned international Takaful operators in Malaysia. Capital structure was proxied by the total-liabilities-to-total-assets ratio and therefore represents broad balance-sheet leverage, including technical reserves and participant-related liabilities, rather than conventional interest-bearing debt alone. The empirical analysis indicates positive and statistically significant associations between leverage and firm age, firm size, and liquidity, while profitability and company growth are negatively but statistically insignificant associated with leverage.

These findings provide partial evidence consistent with the Trade-off Theory when adapted to the institutional characteristics of Takaful operators. In particular, more mature, larger, and more liquid operators appear to be associated with higher leverage levels. However, these relationships should not be interpreted as evidence that higher leverage is necessarily optimal or that these firm characteristics directly cause greater leverage.

Similarly, the statistically insignificant coefficients for profitability and growth provide only limited evidence in relation to the Pecking Order Theory.

The findings should be interpreted cautiously because the study covers only four foreign-owned international Takaful operators. Although these firms represent the population defined for the study, the small number of cross-sectional units limits the generalizability of the findings and introduces uncertainty into statistical inference. The use of cluster-robust standard errors with only four firm clusters also warrants caution when interpreting significance levels. Consequently, the results are best regarded as evidence specific to this highly specialized segment of the Malaysian Takaful industry rather than as conclusions applicable to the entire Takaful sector.

Future studies could extend the analysis to domestic Takaful operators, incorporate a larger number of firm-year observations, and compare foreign-owned and locally owned operators. Further research could also distinguish between different categories of liabilities, including technical reserves, participant-related liabilities, and Shariah-compliant financing, to provide a more refined understanding of capital structure in Takaful institutions.

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