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Determinants of Capital Structure from Malaysian Shariah-Compliant Food and Beverages Firms

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Abstract: This paper addresses the dearth of empirical research on the capital structure of Shariah-compliant food and beverage (F&B) firms in Malaysia. Despite the industry's dynamic growth, specific financing needs, and adherence to Shariah principles, a comprehensive investigation into the determinants of their capital structure choices is lacking. By exploring factors such as profitability, tangibility, growth opportunities, liquidity, and firm size, this paper aims to provide valuable insights into the financial strategies of these specific entities and fill crucial knowledge gaps in empirical evidence. The study employs panel data, a combination of cross-sectional and time-series data, with a sample comprising 24 Shariah-compliant F&B firms listed on Bursa Malaysia, totalling 240 observations. Quantitative methods are applied using secondary data sourced from the Eikon database and financial statements in the annual reports of Bursa Malaysia-listed companies from 2013 to 2022. The findings reveal that profitability, tangibility, liquidity, and firm size significantly impact the capital structure choices of Shariah-compliant F&B firms, while growth opportunities emerge as an insignificant factor. These results support the application of the trade-off theory for profitability and the pecking order theory for tangibility, liquidity, and firm size, shedding light on the nuanced financial decision-making processes within this sector.

Keywords: *Capital Structure, Shariah Compliant, Food and Beverage Companies, Malaysia.*

1. Introduction and Background

Capital structure is defined as the mix of financing sources it utilizes to fund its operations. It can be categorized as debt or equity, where debt encompasses bonds and notes, while equity consists of stocks and retained earnings. By achieving an optimal capital structure, a firm can enhance its valuation while simultaneously minimizing its financing expenses. Therefore, financial managers have to make crucial choices about capital structure, which involves determining how much debt and equity the company should utilize. These decisions have a significant impact on the company's ability to continue operating and making financial decisions. The manager should be able to effectively raise funds from sources either internal or external of the company (Mardan et al., 2023).

Subsequently, the Malaysian food and beverage (F&B) industry is currently undergoing substantial growth, particularly in its export market, and holds significant importance for Malaysia, contributing significantly to the country's GDP, expected to rise by 8% in 2023 (June 2023). The F&B industry, encompassing all companies engaged in manufacturing, packaging, and distributing raw food materials, witnessed remarkable growth in the initial 11 months of 2022, with processed food and consumable item exports totalling RM11.7 billion, reflecting a substantial year-on-year increase of 24%. The beverage sector also exhibited notable figures, with RM2.3 billion in exports and RM2.7 billion in imports. Furthermore, palm oil-derived products significantly contribute to Malaysia's F&B exports, solidifying the country's position as one of the two world's largest exporters (Agency, 2018).

Apart from that, the Malaysian F&B industry's halal exports stand at 41%, surpassing other industries in 2013, as reported by the Organization of Islamic Cooperation (OIC) (BNM, 2014). Presently, Malaysia's halal F&B exports reached an impressive RM27.84 billion in 2022, marking a noteworthy increase of 57.8% from the previous year reported by the Halal Development Centre (HDC). According to Sahudin et al. (2023), Malaysia also has been recognized as a prominent model for benchmarking halal food standards globally recently, setting a leading example for best practices in the industry. The country's halal standards, aligned with the guidelines established by the Codex Alimentarius Commission in Geneva in 1997, are widely adopted both domestically and internationally, reducing ambiguity in the halal food sector. Malaysia's efforts position it as a potential

global hub for the halal market, fostering economic growth and acting as a key gateway for Muslims worldwide. Given the burgeoning growth in the Malaysian halal F&B industry, comprehending the determinants of the capital structure becomes crucial for ensuring the financial resilience and sustainability of shariah-compliant F&B firms in the country.

Capital structure selection impacts risk, stakeholder power dynamics, business sustainability, profitability, and shareholder wealth. As a result, capital structure is a widely researched area of corporate finance. Firms risk financial distress if they make the wrong capital structuring decision, which affects how they allocate cash and raise funds. Without proper planning for fund acquisition, firms may unintentionally misallocate funds by resorting to excessive debt through increased bond issuance, depleting the company's cash reserves without anticipating the potential financial repercussions. (Fatima & Yasmin, 2022). Establishing an optimal level of leverage for the company is crucial in contributing to its financial resilience. This determination ensures that the company strategically manages its capital structure, avoiding pitfalls that could hinder its financial stability. Optimizing the capital structure would indirectly contribute to this halal F&B industry, impacting Malaysia's GDP and overall economic performance. This strategic financial approach enables efficient resource allocation and improves the company's performance so that it can maximize company value and lower the cost of capital.

Thus, this study contemplates delving into the capital structure behavior of Malaysian Shariah-compliant firms in the F&B industry. The exploration of this behavior involves an examination of various factors that influence the capital structure of F&B companies, such as profitability, tangibility, liquidity, growth opportunities, and firm size. Equally important, this study incorporates relevant theories, with the Trade-off theory and Pecking Order theory taking precedence in understanding firms' capital structure dynamics. The significance of these theories is supported by most past empirical studies cited by Mardan et al. (2023), Ali et al. (2022), Ibrahim & Ariba (2021), Akbar et al. (2023) and Khan et al. (2020). These studies indicate the application of theories like the static trade-off and pecking order theories in investigating the financial structure of firms.

This study tries to close the gap and create a fresh understanding by providing more recent evidence on the determinants of capital structure for shariah-compliant F&B firms in the Malaysian industry by examining five factors of independent variables. Overall, the purpose of this study is to examine whether profitability, tangibility, growth opportunities, liquidity, and firm size influence the capital structure of Malaysian Sharia-compliant F&B firms.

2. Literature Review

Capital Structure: According to Arif and Mai (2020), every business aspires to promote shareholder wealth and implement a capital structure policy as a long-term objective. The choice of capital structure becomes one of the most crucial ones to make to accomplish those objectives. It is one of the financial management duties that each business must carry out correctly. It is related to the mix of equity and debt that a business uses to finance its long-term activities. Additionally, each company has the option to regularly finance its operations or work through debt, equity, or an assortment of these two sources (Mohammad et al., 2019).

The determinants of capital structure refer to the potential factors capable of exerting influence on or impacting a company's choices regarding its capital composition. Extensive past studies have consistently identified key determinants, including but not limited to profitability, tangibility, growth opportunities, liquidity, and the size of the firm, serving as independent variables. This study aligns with the prevailing trend by employing the debt-to-equity ratio as the chosen metric to assess the capital structure, mirroring the methodology adopted in numerous prior investigations.

In 1958, Franco Modigliani and Merton Miller introduced the renowned Modigliani-Miller (M&M) theory, a seminal contribution to the discourse on capital structure (Faizal et al., 2019). According to the M&M theories, in an ideal capital market, certain circumstances render the capital structure inconsequential to a company's performance. This perspective is grounded in the assumption that taxes or issuance fees do not encumber capital-raising endeavors involving debt or equity. However, the landscape is multifaceted, and other theories have been uncovered through in-depth examination in past case studies, offering distinct perspectives on defining the optimal capital structure for firms. Notable among these are the static trade-off and pecking order

theories, as elucidated by Mardan et al. (2023), Ali et al. (2022), Ibrahim & Ariba (2021), Akbar et al. (2023), and Khan et al. (2020).

The trade-off theory, developed in response to Modigliani and Miller's 1958 irrelevance theory, posits that decisions on capital structure do impact a firm's value. While the irrelevance theory proposed that capital structure has no significant effect on a company's value, Modigliani and Miller revised their position in 1963 to accommodate certain market assumptions. Modigliani and Miller's research suggested that debt had a beneficial impact on company value, signifying that higher corporate value is correlated with a larger debt load, which encourages firms to increase their debt holdings (Mardan et al., 2023)

In contrast to the irrelevance theory, the trade-off theory recognizes that the relationship between capital structure and financial distress is quite strong since a company's ability to allocate enough money to meet working capital requirements and business expansion (Santosa et al., 2020). An increased degree of leverage heightens the likelihood of insolvency. The possible benefits of tax savings and possible costs of bankruptcy resulting from the usage of leverage are positively correlated (Gharaibeh & AL-Tahat, 2020).

The trade-off theory of capital structure states that optimal capital structure can be achieved if the benefit of debt financing equals the debt-related costs (Mohammad et al., 2019). There are advantages and disadvantages associated with each source of financing. Companies may issue debt due to the tax benefits, such as the ability to deduct interest payments from taxes and the ability to keep ownership of the debt. Additionally, debt becomes an option to raise funds in the capital markets during periods of low-interest rates because it is readily available and abundant. Nonetheless, using debt excessively raises the risk of financial hardship and lowers the company's credit rating (Mohammad et al., 2019).

Furthermore, the theory asserts that as the debt ratio increases, the value of the company rises due to the tax shelter benefit of debt, but this positive effect is offset by financial distress costs beyond a certain debt ratio. The static trade-off theory posits that a company's cash holdings result from a trade-off between the costs and benefits of holding cash. Unlike the capital structure irrelevance theory, the trade-off theory acknowledges the presence of financial distress costs as companies increase their borrowing.

In essence, the trade-off theory extends and refines the capital structure irrelevance theory by recognizing the impact of financial distress costs. It suggests that the optimal capital structure, where a firm's value is maximized, is reached when the additional benefits of taking on more debt are outweighed by the detrimental effects of financial distress costs. This critical point defines the balance between the advantages and disadvantages of debt, establishing the optimal debt-equity ratio for profit optimization.

When addressing the capital structure of Food and Beverage (F&B) firms, Donaldson first proposed the pecking order theory in 1961. This theory aims to elucidate why firms exhibit a preference for raising capital internally rather than from external sources and why they tend to choose debt issuance over equity. The theoretical model argued that the issue of safe securities generally is better than that of risks. Firms should use bond markets to raise outside money, but if at all feasible, they should increase equity retention. That is, it is better to use external debt finance rather than stock financing (Mardan et al., 2023).

According to this model, businesses adhere to a prioritized funding approach, moving from internal sources to equity based on the principle of least resistance. The Pecking Order theory attempts to quantify the costs associated with asymmetric information, considering transaction expenses and risks linked to the issuance of new securities. Consequently, firms tend to structure their preferred financing methods as follows: first, through internal retained earnings, followed by adjustments to the cash balance or the sale of accessible securities; second, through the utilization of secure external debt, and as the final option, through the issuance of equity.

The basis of the pecking order hypothesis is asymmetric information issues. Companies can choose to fund their investments. Therefore, using external funding implies giving debt precedence over equity (Mardan et al., 2023). These costs, according to the concept of trade-offs, outweigh the associated benefits. Hence, firms adopt an organizational financing structure, giving preference to debt over equity when necessary.

Profitability: Profitability, as outlined by Brealey et al. (2020), denotes the net profit resulting from a series of strategies and actions. It stands out as a widely employed factor in literature, often considered a determinant of capital structure. Capital structure theories propose that the association between profitability and capital structure is a point of both theoretical and empirical contention (Saif-Alyousfi et al., 2020).

The trade-off theory predicts a positive correlation between profitability and the debt-equity ratio. Profitable firms tend to be more open to increased tax obligations and reduced risks of bankruptcy. This inclination stems from their robust financial standing, enabling them to comfortably handle higher levels of debt and efficiently manage its timely repayment, unlike less profitable firms (Ali et al., 2022). This hypothesis implies a positive relationship between profitability and capital structure, emphasizing the potential for profitable firms to strategically leverage their capital structure to enhance their financial position. This is corroborated by studies conducted by Ahmeti et al. (2023), Ali et al. (2022), and Faizal et al. (2019), which found a significant positive relationship between the two variables, indicating that profitable companies are more likely to choose debt as their preferred financing option.

Conversely, the pecking-order theory offers a different viewpoint. Successful firms will not depend too much on external funding. They rather rely on their internal funding generated from past profits. In essence, the pecking order hypothesis posits that profitable companies accumulate more retained earnings, leading to lower leverage ratios, while unprofitable firms exhibit higher leverage ratios. Consequently, the pecking-order hypothesis predicts a negative relationship between profitability and leverage, suggesting that profitable companies prefer internal capital for financing (Moradi & Paulet, 2019). This theory's relevance is further substantiated by several past studies, including those by Abdulkarim (2023), Yahya et al. (2019), Setiawan & Yumeng (2021), and Sutomo et al. (2020), which found a significant negative impact of a firm's performance on its capital structure.
H1: There is a positive relationship between profitability and capital structure.

Tangibility: Tangible assets are physical items owned by a company, such as buildings, plants, machinery, and vehicles which usually operate in maximizing the sales revenue. Tangibility refers to the fixed tangible assets that have some degree of debt capacity (Arilyn, 2020). These assets, derived from shareholder equity and fixed liabilities, form part of the capital structure of a firm (Rummana et al., 2021). Tangible assets are crucial in determining how a company chooses to finance its operations. For example, companies with high long-term fixed assets, due to high product demand, are more likely to use long-term debt (Muhammad et al., 2023). On the other hand, companies with assets like receivables and inventory, which depend heavily on stable profitability, are less reliant on short-term financing (Muhammad et al., 2023). A study by Neves et al. (2020) suggests that companies with more tangible assets (physical property like buildings and machinery) are more likely to rely on internal funding for investments. This is because raising external funds (borrowing or issuing new shares) can be expensive due to investors having higher confidence in tangible assets compared to intangible ones. Consequently, companies with significant tangible assets tend to adopt a more conservative capital structure, meaning they rely less on debt financing (Alihodžić & Muratović-Dedić, 2020). However, some theories propose a positive correlation between asset tangibility and capital structure (amount of debt a company has). This is because tangible assets can be used as collateral for loans, potentially reducing borrowing costs and agency issues (Alihodžić & Muratović-Dedić, 2020).

According to Trade-Off theory, it suggests a positive relationship between capital structure and the proportion of tangible assets, as tangible assets act as collateral in financial distress (Orkaido, 2021; Ibrahim & Ariba, 2021). Hence, it can be inferred that the expansion of tangible assets plays a role in influencing the capital structure. Empirical studies conducted by Soekarno et al. (2021), Sutanuka Shaw & Debdas Rakshit (2021), Czerwonka & Jaworski (2022), and Stamenković et al. (2022) have all revealed that tangible assets indeed impact the capital structure. This aligns with the Trade-Off theory's prediction that debt capacity increases with the proportion of tangible assets on the balance sheet, reflecting the collateral value's impact on gearing levels.

Pecking Order theory, however, proposes an opposite relationship between tangibility and capital structure. It argues that companies with more tangible assets have less asymmetric information, making it easier and cheaper to raise equity (Ibrahim & Ariba, 2021). This, in turn, would lead them to rely less on debt and more on internal funds or equity financing. Marimuthu et al. (2023) note this negative relationship, consistent with

findings by Subiakto et al. (2021) and Haron et al. (2021). The Pecking Order theory also anticipates an adverse relationship between tangibility and capital structure, as highly tangibility firms typically borrow less. Hence, firms with high tangibility are inclined to rely more on internal financing or equity issuance rather than debt, with fixed assets playing a diminished role as collateral.
.**H2:** There is a negative relationship between tangibility and capital structure.

Growth Opportunities: Growth refers to the ability of businesses to expand and improve their firm through new investment usage (Basri et al., 2019).

According to the trade-off theory, a study by Yahya et al. (2019) reveals a negative and significant impact of growth on capital structure. Firms with robust growth prospects may seek debt as a backup source of capital when unable to issue new equity, adhering to the trade-off theory. Next, the trade-off theory suggests that organizations with future potential borrow less than those with actual assets. However, Singhal et al. (2022) believe that resource structure has an adverse relationship with manufacturing firm success, whereas growth in possessions and equity has a positive effect, but growth in financings and down payments have an unfavorable effect on manufacturing firm success. The connection between finance structure and productivity is critical and cannot be overemphasized because productivity is required for the firm to survive. Next, in a study by Akbar et al. (2023), the trade-off hypothesis predicts a negative association with growth prospects. This is supported by the findings of Alqahtani & Alnori (2019).

On the contrary, the pecking order study by Akbar et al. (2023) implies that growth prospects increase organizations' debt levels since internal finances are insufficient to finance the expansion. As a result, these companies will choose debt funding. Based on the trade-off theory, propose a negative association between growth opportunity and leverage. According to the pecking order hypothesis study by Saif-alyousfi et al. (2020) high-growth enterprises, which often have big financing needs, would end up with high debt ratios since their managements are unwilling to issue shares. There is also a chance that growth prospects have a favorable correlation with leverage. In addition, Basri et al. (2019) explain the pecking order theory, which asserts a positive relationship between anticipated growth and debt. This is because companies with significant growth prospects need more capital for their developments, resorting to external financing, particularly debt, when internal funding falls short based on the order of preference. Growth opportunity refers to corporate-owned intangible assets with no collateral value. The relationship between the possibility of development and the quantity of debt is negative (Basri et al., 2019).
HO3: There is a negative relationship between growth opportunities and capital structure.

Liquidity: Liquidity refers to the capacity of a company to transform short-term assets into cash without affecting the intrinsic worth of its assets (Basri et al., 2019). It is consistent with Haque & Shaiq (2023) defined liquidity as the easiness of a firm to promptly satisfy its immediate liabilities when needed. Once a firm is unable to satisfy its current liabilities, it might experience insolvency and require borrowing money, short-term or long-term, to cover its inventory, prevent stock shortages, and pay suppliers and creditors.

Theoretically, from the trade-off theory approach, companies that possess higher liquidity are capable of leveraging higher debt as a result of their capability to satisfy short-term commitments on time. Arilyn (2020) suggests that companies possessing greater liquid assets may utilize these resources to secure funding for upcoming investment opportunities. In addition, Zulvia & Linda (2019) further support the theory that companies with higher asset liquidity may increase their ability to take on debt since having more liquid assets provides better collateral for obtaining debt financing. Consequently, such companies can manage debt repayments effectively and experience reduced default risks. Hence, this theory expects a positive relationship between liquidity and debt levels (Fatima & Yasmin, 2022; Guizaini, 2021)

Conversely, the pecking order theory argues by Basri et al. (2019) that companies with extremely high levels of liquidity would rather finance their financial investments with internal funds as opposed to external capital, as considerable existing current assets can pay more debts. This is linked to the company's capacity to fulfill its contractual commitments. It is also consistent with the statement of Mardan et al. (2023), that companies with high liquidity possess ample current assets to support their operations, resulting in lower reliance on debt due to the current assets being sufficient to meet the company's financial requirements. In contrast, Kahya et al.

(2020) research findings indicate that companies with higher illiquidity tend to rely more on short-term funding, which might result in increased long-term debt and leverage. Thus, a negative relationship was expected between liquidity and the financial leverage of capital structure decisions (Saif-Alyousfi et al., 2020). Among those opinions, several empirical studies found that pecking order fits their findings that the liquidity of a company has a significantly negative impact on the leverage of capital structure decisions (Arilyn, 2020; Kahya et al., 2020; Mardan et al., 2023). This result proves that firms with a high level of liquid will reduce their level of debt. Lastly, from the research findings of Basri et al. (2019), it has been found that short-term liquidity exhibits a greater level of sensitivity when examining liquidity ratios with debt-to-equity ratios.
HO4: There is a negative relationship between liquidity and capital structure.

Firm Size: A firm's size is determined by the assets it owns. Numerous studies on capital structure, spanning various industries, have consistently identified firm size as a crucial factor influencing capital structure determination. According to several researchers, larger firms often necessitate more debt to sustain their operations. This phenomenon is aligned with the trade-off theory, where large firms can borrow more because they are more diversified and have lower bankruptcy costs, resulting in a positive relationship between firm size and debt level (Panda & Nanda, 2020; Shaik et al., 2022). Next, Khan et al. (2020) state that large firms have more borrowing power and thus higher gearing ratios. Their larger size means they are more diverse and less vulnerable to financial distress. Furthermore, large rims have lower monitoring costs because their cash flow is less volatile, resulting in lower agency costs of debt and easier access to the capital market. According to Kahya et al. (2020), larger firms can reduce risk, information asymmetry, and transaction costs, implying a positive relationship between firm size and debt level that is consistent with trade-off theory. Additionally, various studies, such as Mardan et al. (2023), Susanti et al. (2023), Guizani (2021), and Alabdulkarim (2023) have independently established a positive relationship between firm size and capital structure.

Nevertheless, certain researchers argue that larger firms exhibit a lower capital structure due to their stable cash flow. This aligns with the pecking order theory. Pecking order theory holds that larger firms with adequate internal resources rely primarily on these resources for financing. Consequently, it predicts a negative relationship between firm size and capital structure (Khan et al., 2020). A company of a relatively large size is more likely to use external funds, this is because the funds required to grow in tandem with the company. According to empirical studies by Yahya et al. (2019), large firms face a lower risk of bankruptcy due to their stable cash flow and diversified nature. Large firms tend to prefer equity issuance, resulting in lower leverage. In essence, firms turn to external funding only when their internal reserves prove insufficient. This is consistent with the findings of Puspita et al. (2021), which show a negative relationship between firm size and capital structure. When a company lacks internal funds, it will seek external funds in the form of debt. When the firm size is projected based on its total assets, it will be easy to obtain collateral for external funding. Additionally, Thanh & Trang (2021) and Gharaibeh & Al-Tahat (2020) also uncovered a negative relationship between firm size and capital structure in their respective research.
HO5: There is a negative relationship between firm size and capital structure.

3. Research Methodology

This study focuses on quantitative research methods since the answers to the research questions and the testing and examination of the dependent and independent variables depend on numerical data.

The dependent variable in this study is capital structure, while the independent variables are profitability, tangibility, growth, liquidity and firm size. To be specific in quantitative research methods, the researcher uses secondary data sources obtained from the Eikon database and financial statements in annual reports of listed companies on the Bursa Malaysia website from 2013 to 2022. The reason for selecting 2013 as the initial year is that we want to investigate the company's performance because the Organizations of Islamic Corporation (OIC) stated that Malaysia's food & beverage industry of halal exports in Malaysia is the highest at 41% compared to other industries in 2013 to 2018 (BNM, 2014). However, the year 2022 was chosen as this study's endpoint to ensure the inclusion of the most up-to-date financial information, enabling a current and accurate assessment of the companies' financial health.

This study focuses on Shariah-compliant food and Beverage (F&B) firms that include all listed companies in

Bursa Malaysia. There are 33 total listed companies of F&B firms under Shariah Compliant that are listed in Bursa Malaysia represented as population. However, in this study, we selected only 24 Shariah F&B firms to be a sample as well as represent the whole population of the listed companies for our study purpose.

For a company to be included in the sample, it must meet several criteria, which are as follows:
The food and beverage firms are listed under the consumer products and services sectors in the main market from Bursa Malaysia.
The company releases audited financial statements and information about the company is publicly available.

Based on the above criteria, two companies have been excluded from our sample due to insufficient financial statements being available for the study period which are SDS Group Berhad and MR D.I.Y. Group. This study covers the period from 2013 until 2022 which is equivalent to 10 years. This study extracted data from Thomson Reuters Eikon DataStream and financial data from annual reports under financial statements for the calculation of dependent and independent variables.

Table 1: List of 24 Shariah Compliant Food and Beverages (F&B) Firms in Malaysia

No	Firms	No	Firms
1	Impiana Hotels Berhad (IMPIANA)	13	zer Bhd (SPRITZER)
2	MSM Malaysia Holdings Berhad (MSM)	14	CCK Consolidated Holdings Berhad (CCK)
3	Malayan Flour Mills Berhad (MFLOUR)	15	Oriental Food Industries Holdings Berhad (OFI)
4	OCB Berhad (OCB)	16	Nestle Malaysia Berhad (NESTLE)
5	Kawan Food Berhad (KAWAN)	17	Rex Industry Berhad (REX)
6	Guan Chong Berhad (GCB)	18	Freaser & Neave Holdings Bhd (F&N)
7	Power Root Berhad (PWROOT)	19	C.I Holdings Berhad (CIHLDG)
8	Three-A Resources Berhad (3A)	20	Ajinomoto Malaysia Berhad (AJI)
9	Able Global Berhad (ABLEGLOB)	21	Lotus Kfm Berhad (LOTUS)
10	Hup Seng Industries Berhad (HUPSENG)	22	Dutch Lady Milk Industries Berhad (DLADY)
11	PPB Group Berhad (PPB)	23	Saudee Group Berhad (SAUDEE)
12	Hwa Tai Industries Berhad (HWATAI)	24	Apollo Food Holdings Berhad (APOLLO)

The dependent variable in this study is capital structure. Capital structure is measured by debt-to-equity ratio which is calculated by total debt divided by total equity (Faizal et al., 2019; Haque & Shaiq, 2023). The capital structure of a firm is determined by the combination of funding sources it uses to support its activities.

This study's variation in dependent variables will be measured against five independent variables. Profitability, tangibility, growth, liquidity, and firm size are the independent variables used to determine the dependent variable.

Table 2: Measurement of Independent Variables

Variable	Proxies	Notations	Measurements	Sources of Measurement
Capital Structure	Debt-to-equity ratio	DER	$\frac{Total\ Debt}{Total\ Equity}$	Faizal et al. (2019), Haque & Shaiq (2023).
Profitability	Return on Asset, measured by Earnings before interest and taxes to Total assets.	ROA	$\frac{EBIT}{Total\ Asset}$	Rahim et al. (2020), Alabdulkarim (2023).
Tangibility	Net Fixed Assets to Total Assets	TANGB	$\frac{Fixed\ Assets}{Total\ Assets}$	Hossin & Mia (2020), Clarisa & Nila (2022).
Growth Opportunities	Net Income	GROWTH	$\frac{NI\ (y_1) - NI\ (y_0)}{NI\ (y_0)}$	Rachmawati & Sherlita (2021).
Liquidity	Current Ratio	LIQ	$\frac{Current\ Assets}{Current\ Liabilities}$	Haque & Shaiq (2023), Saif-Alyousfi et al. (2020).
Firm size	Logarithm of Total Assets	SIZE	*Ln Total Assets*	Ruhmiyati & Rizkianto (2022).

4. Results

This study uses descriptive statistics to analyze 240 observations on 24 food and beverage companies listed on Bursa Malaysia that were Shariah-compliant between 2013 and 2022. This study will examine six variables, beginning with the dependent variable, capital structure, and moving on to the independent variables, profitability, tangibility, growth opportunities, liquidity, and firm size.

Table 3: Descriptive Statistics Analysis

Variable	Mean	Standard Deviation	Maximum	Minimum
DER (%)	85.91258	144.5302	1731.720	-221.2700
ROA (%)	5.719583	14.14975	41.82000	-104.4300
TANGB (%)	40.60121	42.62133	620.8200	4.570000
GROWTH (5)	-24.39721	471.2843	864.5500	-6861.170
LIQ (RATIO)	2.944333	3.163091	18.07000	0.060000
SIZE (LOG)	1.74E+09	4.63E+10	2.89E+10	1075969

According to the descriptive analysis results, the highest data for standard deviation is *GROWTH*, which was recorded as 471.2843. The dataset also has a mean of -24.39721, which indicates a central tendency around this value. The standard deviation of 471.2843 indicates a significant spread of values from the mean. However, liquidity had the lowest standard deviation at 3.163091, with a mean of 2.944333. This represents the deviation of the minimum values from their mean.

The dependent variable, capital structure, had an average value of 85.91258 percent and a maximum value of 1731.720 percent. This maximum comes from Lotus KFM Berhad. According to the annual report financial statement for 2015, total debt was higher than total equity. This is because the company spent more on payables that year, totalling nearly RM21,585,626. Next, Lotus KFM Berhad recorded a minimum of -221.2700 percent. According to the annual report financial statement for the year 2019. There is a negative total equity of -RM29,930,728 which indirectly indicates a negative capital structure for the company. This occurs because the company's accumulated losses have reduced its shareholder equity.

Regarding the independent variables, the mean value for profitability is 5.719583 percent, with a maximum of 41.82000 percent. This maximum comes from the Dutch Lady Milk industry. According to the annual report financial statement, the Dutch Lady Milk company's Return on Assets in 2021 is expected to be around 41.82% based on the information provided. This means that for every RM1 in assets, the company earns approximately RM0.4182 in operating profit. ROA of 41.82% is generally regarded as a strong performance, indicating efficient asset utilization to generate profits. However, the minimum is -104.4300 from Lotus KFM Berhad. According to the annual report financial statements for 2017, earnings before interest tax (EBIT) are negative, resulting in a larger loss. This was primarily due to the maintenance costs required to restart the operation, professional fees associated with the proposed regularization plan, and interest costs.

Furthermore, the average tangibility value is 40.60121 percent, with a maximum of 620.8200 percent. This maximum value comes from Lotus KFM Berhad. According to the annual report financial statement, the company's fixed assets in 2016 totalled RM6,679,857, which was more than the total assets of RM1,075,969. This indicates that a significant portion of the company's assets are related to physical assets, such as property, plant, and equipment. However, the lowest recorded figure was 4.570000 percent from PPB Group Berhad. According to the 2022 annual report financial statement, it indicates that a small percentage of the company's total assets consists of tangible assets (fixed assets). The majority of the assets are likely to be intangible or other non-physical assets, as this company primarily relies on inventories, trade receivables, and cash equivalents.

Additionally, for growth, the mean value was -24.39721 percent, with a maximum value of 864.5500 percent. This maximum is from Malayan Flour Mills Berhad, as stated in the annual report financial statement for the year 2021. It shows an increase in profit in the year 2021 of RM198,542,000 with a percentage of 864% compared to the previous year's profit of RM20,584,000. Higher flour and by-product selling prices and stronger demand compensated for higher wheat costs and operating expenses, resulting in increased margins. However, the minimum recorded was 6861.170 from Saudee Group Berhad. According to the 2020 annual report financial statement, the company's profit decreased to -RM30,047,923 from the previous year's RM452,748 in 2019. The significant decrease was due to there being inventories written off of RM25 million.

As for liquidity, it has a mean value of 2.944333 and a maximum value of 18.07000. This maximum value is from Apollo Food Holdings Berhad. According to the annual report for 2022, the current assets are RM143,404,064 and the current liabilities are RM7,934,125. This demonstrates that the company is well-positioned to meet its short-term obligations, such as debt repayment and operating expenses. Next, the minimum was 0.060000 from Lotus KFM Berhad. According to the annual report financial statement for 2016, current assets were RM1,075,969 and current liabilities were RM19,035,581. This suggests that the company may have difficulty meeting its short-term obligations with current assets. A ratio significantly lower than one may indicate potential liquidity issues.

Moreover, the average firm size is 1.74E+09, with a maximum value of RM28,932,677,000. This value comes from PPB Group Berhad. According to the annual report financial statement for the year 2022, the group's total assets increased by 5.6% to RM28.9 billion as of 31 December. This was primarily due to an increase in Wilmar's net asset share. However, the minimum value of RM1,075,969 comes from Lotus KFM Berhad. According to the annual report financial statement, in 2016, the company had a severe cash flow situation and a prolonged loss position, so the company decided to temporarily cease its flour milling operations at the end of September.

Table 4: Results of Correlation Coefficient Analysis (Capital Structure)

	DER	ROA	TANGB	GROWTH	LIQ	SIZE TA
DER	1	0.030	0.007	0.017	-0.270	-0.071
ROA		1	-0.451	0.177	0.116	0.046
TANGB			1	-0.010	-0.114	-0.147
GROWTH				1	0.036	0.033
LIQ					1	-0.064
SIZE TA						1

According to Table 4, it is observed that all the variables have low correlation with one another, with reported correlation coefficients below the specified cut-off point of 0.8. This study adheres to the cut-off points outlined by Fawzi & Sunarti (2021) for correlation analysis. The highest correlation is 0.177 is a positively very weak uphill relationship found between growth opportunities and profitability while the lowest correlation is -0.451 is a negatively moderate downhill relationship found between tangibility and profitability.

The observed low correlation values suggest the absence of significant multicollinearity issues among the independent variables, aligning with the understanding that multicollinearity issues arise when variables are highly correlated. However, to further confirm the multicollinearity presence in this study, it is essential to conduct the Variation Inflation Factor (VIF) test. This step will provide a more comprehensive assessment of the independence of variables by examination of multicollinearity issues, contributing to the robustness and reliability of the result.

Table 5: Result of Variation Inflation Factor (VIF) test

Variables	Cantered VIF
ROA	1.117235
TANGB	2.307776
GROWTH	1.054626
LIQ	1.041204
SIZE	2.394961
C	NA

The findings reveal that all independent variables such as profitability, tangibility, growth opportunities, liquidity, and firm size exhibit VIF values below 5 in the analysis, signifying the absence of multicollinearity issues. The firm size exhibits the highest VIF value at 2.394961, but it remains below the specified threshold of 5 (Singh & Kumar, 2021). This outcome is crucial as it indicates that the variables do not share excessive interdependence, reinforcing the robustness of this study's analytical framework.

Consequently, this study confidently concludes that there is no noteworthy multicollinearity issue. This implies that the variables under investigation provide unique, distinct information, and different characteristics, contributing to the reliability of the analysis. In essence, the absence of redundant information enhances this study's validity, ensuring that each variable contributes independently to the overall understanding of the research context. To summarize, the variables can be considered independent of each other, underscoring the soundness of this study's statistical approach.

Table 6: Summary of the Static Panel Data Result

Dependent Variable: Capital Structure (DER)

Independent Variables:	**POLS**	**FEM**	**REM**
Profitability (ROA)	0.011561***	0.012066***	0.011561***
Tangibility (TANGB)	-0.015214***	-0.015398***	-0.015214***
Growth Opportunities (GROWTH)	-8.05E-05	-9.57E-05	-8.05E-05
Liquidity (LIQ)	-0.063683***	-0.065637***	-0.063683***
Firm Size (SIZE)	-0.887912***	-0.921647***	-0.887912***
Adjusted R-Squared	0.643519	0.658039	0.643519
F-statistic	69.95847***	11.20225***	69.95847***
Redundant fixed effect	1.000		
Hausman test		0.7961	

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

Before estimating the regression model in this study, the Redundant Fixed Effects Tests were initially conducted to evaluate the suitability of employing Pooled Ordinary Least Squares (POLS) and Fixed Effect Model (FEM). The Redundant Fixed Effects Tests yielded a p-value of 1.00, surpassing the 0.05 threshold, suggesting a preference for utilizing the estimates in the POLS model. However, before reaching a definitive conclusion, the Hausman test was also applied to both the Random Effect Model (REM) and Fixed Effect Model (FEM). The resulting p-value in the Hausman test was also statistically insignificant, registering at 0.7961. This outcome implies that the utilization of Pooled Ordinary Least Squares (POLS) in this study is more favorable than employing the Fixed Effect Model (FEM) and Random Effect Model (REM)

Table 7: Results of Pooled Ordinary Least Square (POLS)

Independent Variables	Coefficient	Std. Error	t-Statistic	Prob
ROA	0.011561	0.003422	3.378084	0.0009
TANGB	-0.015214	0.001001	-15.19984	0.0000
GROWTH	-8.05E-05	6.96E-05	-1.156353	0.2490
LIQ	-0.063683	0.019169	-3.322173	0.0011
SIZE	-0.887912	0.183439	-4.840369	0.0000
R-squared	0.652851			
Adjusted R-squared	0.643519			
F-statistic	69.95847			
Prob (F-statistic)	0.00000			

As shown in Table 7 the reported R-square is 0.652851, which indicates that the model explains 65.3% of the variation in capital structure of Shariah F&B firms. This is considered a relatively strong fit for a financial model with several independent variables. The reported adjusted R-squared stands at 64.35%, signifying that the independent variables—profitability, tangibility, growth opportunities, liquidity, and firm size—account for the variation in the Shariah F&B firm's capital structure. Consequently, the remaining 35.65% of the variation in the capital structure of firms within the model is attributed to other variables. The F-statistic of 69.96 with a very low p-value of 0.0000 indicates that the overall model is statistically significant. This means that at least one independent variable has a significant influence on the dependent variable (capital structure).

Based on the results presented in Table 4.3.2, shows a significant positive relationship between profitability (*ROA*) and capital structure with a 99% confidence level. The coefficient value of *ROA* underscores the profound impact of changes in profitability on the firms' capital structure levels, where a 1% increment of profitability will increase capital structure by 0.012%. This result is similar to Ahmeti et al. (2023), Ali et al. (2022), and Faizal et al. (2019). Consequently, the findings underscore the practical relevance of the Trade-Off Theory in the financial decisions of Malaysian Shariah F&B firms, emphasizing the strategic deployment of capital structure by profitable entities to shape their financial position.

Tangibility emerges as a robustly significant factor in elucidating capital structure, underscored by its remarkably low p-value of 0.0000. The results reveal a negative relationship between tangibility and the capital structure as the coefficient value of *TANGB* suggests that a 1% increase in the level of tangibility, represented by physical assets, corresponds to a decrease of 0.015% in the firms' reliance on debt financing. The result is supported by Subiakto et al. (2021) and Haron et al. (2021), and also aligns seamlessly with the Pecking Order Theory, asserting that companies with higher tangible assets tend to prioritize equity funding due to increased exposure to asymmetric information, leading to a reduced reliance on debt financing.

Furthermore, this study identifies Liquidity as significant at a 1% level and negatively influences the capital structure of Shariah-compliant F&B firms in Malaysia.

Liquidity (*LIQ*)'s coefficient implies that as liquidity levels rise by 1%, there is a corresponding decrease of 0.064% in the firms' reliance on external financing. This finding aligns with the Pecking Order Theory and is consistent with the result of past studies conducted by Arilyn (2020), Kahya (2020) and Mardan et al. (2023), suggesting that firms endowed with notably high liquidity tend to prioritize internal funds for financial investments, opting for internal resources over seeking external capital.

A firm's size is also reported to have a significant negative relationship with capital structure. As depicted in

Table 3, the remarkably low p-value (0.0000) associated with firm size (*SIZE*) establishes it as a potent factor in elucidating capital structure. The coefficient outcomes further elucidate that a 1% increment in firm size corresponds to a 0.89% reduction in capital structure. This implies that larger firms, often characterized by diminished information asymmetries, exhibit a preference for equity issuance over debt, ultimately leading to lower leverage. This observation is in line with the Pecking Order Theory and is corroborated by prior research by Puspita et al. (2021), Thanh et al. (2021), and Gharaibeh & AL-Tahat (2020).

As for growth opportunities (*GROWTH*), while the result is leaning towards the trade-off theory (negative relationship), growth opportunities are statistically insignificant to capital structure decisions for Shariah F&B firms in Malaysia. The result is consistent with Basri et al. (2019) which found an insignificant but positive relationship with the capital structure. However, our findings contradict the findings of Alqahtani & Alnori (2019), which found a significant negative relationship between growth opportunities and capital structure (Akbar et al.,2019).

5. Managerial Implications and Recommendations

Future studies are recommended to address several limitations identified in this study. Firstly, to grasp the limitations of the companies excluded in our study, future studies should conduct in-depth quantitative research by including companies in the ACE and LEAP markets that are not included in our study as we focus on the main market companies under the food and beverages industry only. The ACE and LEAP markets often house smaller, newer, and potentially more inventive firms compared to the Main Markets. These markets often exhibit distinct financial structures, business models, and risk profiles when compared to their main market counterparts. This approach allows for a more nuanced understanding of how variations in characteristics among these companies might influence the study outcomes, providing insights into the diversity within the sector. For example, LEAP markets can be at the forefront of innovation and disruption in the food and beverage industry. Studying them can reveal emerging trends, new business models and unique challenges not yet fully understood in the context of the sector.

To enhance data accessibility, future studies are encouraged to recognize the potential costs associated with accessing certain databases or journals, the research team can seek research funding that specifically supports data access. Funding proposals highlight the importance of comprehensive data for the study's success and allocate resources for accessing subscription-based sources. It can contribute to a more comprehensive literature review.

Lastly, due to limited generalizability, future research should consider conducting a cross-industry comparative analysis within the Sharia-compliant sector in Malaysia. This approach would help determine whether the identified capital structure determinants in the F&B industry are unique or prevalent across various sectors, providing valuable insights into industry-specific dynamics. Additionally, expanding the scope of the study to include global comparisons with Shariah-compliant firms in the food and beverages industry in other countries is another recommendation. This cross-country analysis can illuminate the generalizability of findings and highlight the impact of regional variations on capital structure determinants.

Conclusion

This study aims to scrutinize the determinants of capital structure within Malaysian Shariah-compliant food and beverage firms, focusing on six key variables: Profitability, Tangibility, Growth Opportunities, Liquidity, and Firm Size. The investigation encompasses 24 companies listed on Bursa Malaysia, adhering to Shariah principles from 2013 to 2022.

The empirical results unveil a robust model explaining 65.3% of the variation in the capital structure of Malaysian Shariah-compliant Food and Beverage (F&B) firms. The adjusted R-squared of 64.35% highlights the substantial contribution of independent variables-Profitability, Tangibility, Growth Opportunities, Liquidity, and Firm Size—while acknowledging that 35.65% of the variation remains influenced by other factors. The highly significant F-statistic of 69.96 (p-value 0.0000) affirms the overall model's statistical significance, indicating that at least one independent variable significantly impacts capital structure. Specifically, Profitability exhibits a substantial positive relationship, aligning with the Trade-Off Theory, while Tangibility,

Liquidity, and Firm Size showcase significant negative influences, consistent with the Pecking Order Theory. In contrast, Growth Opportunities, leaning towards the Trade-Off Theory, are statistically insignificant.

Future research avenues could explore additional variables, enhancing the comprehensive understanding of the intricate determinants shaping the capital structure of Sharia-compliant F&B firms in Malaysia, thereby contributing valuable insights to academia and industry alike.

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