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Inspecting sector-specific capital structure determinants: The case of Malaysian Shariah firms

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Abstract

This study is set to inspect sector-specific capital structure determinants for publicly listed Malaysian Shariah-tagged firms. For this purpose, a 17-year data sample set comprising 343 Shariah firms in Bursa Malaysia's main market is constructed. The seven key determinants, namely fixed assets, non-debt tax shield, current assets, growth, return on equity, size, and earnings per share, are measured as capital structure determinants in relation to the debt-equity ratio. Deploying a Dynamic Panel Data Model via an efficient econometric assessor, i.e., Generalized Method of Moments, the investigation exposes that current and fixed assets are observed as the key significant sector-specific capital structure determinants for Malaysian Shariah-tagged firms. Also, the positive and significant lagged dependent variables of each studied sector indicate the presence of a targeted capital structure and Speed of Adjustment (SOA). The occurrence of SOA explains variations in the debt-equity choices of Malaysian Shariah firms at the sector level. The significant tangibility and liquidity in most sectors and the significant lagged dependent variables across all sectors directly suggest the significance of the dynamic theory of Trade-Off. As a whole, it is observed that the sector-level capital structure framing practices of Shariah-tagged firms are not similar. This study aims to investigate the optimal debt-equity mix for listed Malaysian Shariah-complaint enterprises operating in diverse sectors. The observed outcomes are the baseline for policymakers to formulate a better financing model that supports Malaysian Shariah firms to maintain a dynamic or targeted capital structure at all times.

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1. Introduction

According to (Ghani, Rehan, Salahuddin, & Hye, 2023), it is possible to create an ideal capital structure by including a number of institutional setting-related characteristics. Precisely, capital structure is how a firm constructs an optimal mix of debt-retained earnings and equity to meet its funding needs. Thus, the selection of the best blend of debt-retained earnings and equity that enhances the value of a firm and reduces its overall cost of capital is a hard decision (Boshnak, 2023). Undeniably, the phases and choices that are involved in constructing a capital structure are essential, as they play a noteworthy role in achieving a firm's core aim of profitability (Mallisa & Kusuma, 2017). The adoption of fitting determinants to construct an optimum capital

structure can be done by compounding numerous determinants that are linked with institutional settings (Fan, Titman, & Twite, 2012). The capital market is considered a core institution of any nation that brings finance to enhance business development (Mahmud & Qayyum, 2003).

A capital market provides a platform for firms where they attain finance from stockholders by raising equity shares (Abdul Hadi, Yusof, & Yap, 2015). Equity is an essential component of listed firms' capital structure, which helps them fund operations. Specifically, firms that follow Shariah principles focus more on equity finance as they are not allowed to engage in interest-based debt and other interest-related activities, which are strongly prohibited in Islam (Roslan, Khaidzir, Azman, Jizad, & Zainoddin, 2022). Typically, Shariah finance, which is grounded in Islamic principles, is connected with an asset-based model that emphasizes more sharing of risk (Rehan & Abdul Hadi, 2019). Thus, constructing the best mix of capital structure determinants for Shariah firms is a tricky procedure. However, capital structure-related theories provided the hypothetical ground for empirical investigations where numerous potential determinants are tested and identified to construct optimal capital structures (Durand, 1959).

Technically, Shariah-tagged firms are those that are not involved in business or other activities that are forbidden in Islam (Thabet, Shawtari, Ayedh, & Ali, 2017). In several Muslim nations, Shariah and conventional financial categories are operating in parallel, and Malaysia is among them (Hernawati, Hadi, Aspiranti, & Rehan, 2021). Remarkably, the Malaysian capital market's major fragment, i.e., more than 80%, is covered by Shariah-tagged firms (Jaafar, Muhamat, Ahmad, Basri, & Joreme, 2020; Rehan, Abdul Hadi, Hussain, & Adnan Hye, 2023; Securities Commission Malaysia, 2022; Thabet et al., 2017).

Therefore, to avoid debt, which is connected with interest, these Shariah firms' executives' foremost priority is equity finance (Singh & Yusof, 2002). To acquire funds from equity, Malaysian firms offer their shares in the country's major capital market, i.e., Bursa Malaysia (Ramakrishnan, 2012). On the flip side, several investigations specify that Malaysian firm have enough internal funds; thus, as a priority, they focus more on internal funds to maintain their sustainability (Ghasemi & Ab Razak, 2016; Ibrahim & Lau, 2019; Shahara & Shahara, 2015). Remarkably, the prior investigations delivered conflicting inferences about Malaysian Shariah firms capital structure-maintaining practices (Jaafar et al., 2020; Noraidi, Sanil, & Ramakrishnan, 2018; Roslan et al., 2022; Thabet & Hanefah, 2014; Thabet et al., 2017).

In the Malaysian context, the Shariah Advisory Council is a regulatory authority that holds the responsibility to check and ensure that Shariah-listed firms are strictly following Shariah-based rules and principles. Notably, in this regard, SAC consistently checks the fundamentals of Shariah firms periodically (Adam & Bakar, 2014). Thus, SAC Malaysia segregates Shariah and non-Shariah firms every year, and firms that do not follow Islamic principles are removed from the Shariah category (Othman, Thani, & Ghani, 2009). Certainly, this impacts these firms' capital-maintaining practices and deviates from their optimal level. Thus, it is required to identify those capital structure determinants that are identical for Malaysian Shariah-tagged firms. Also, several former inquiries specify that listed firms operating in the Malaysian market possess a dynamic nature (Abdeljawad & Mat Nor, 2017; Rehan & Abdul Hadi, 2019; Zaini, Rosli, Mahadzir, Azam, & Bulot, 2022), thus exhibit the speed of adjustment (SOA). By definition, SOA describes that in certain situations, businesses diverge from their targeted capital structure level; however, in the presence of readjustment speed, they move quickly towards their optimal level (Lukitasari & Gunarsih, 2019). However, the former studies that explore dynamic capital structure determinants for Malaysian Shariah firms are limited.

Another important aspect of the Malaysian capital market, i.e., Bursa Malaysia, is that it announced its new sector-level classification in September 2018 (Ismail, Yusof, Halim, & Ahmad, 2019). Thus, the former inquiries that investigate sector-specific capital structures for Shariah firms are considered outdated (Abdul Hadi, Rehan, Zainudin, & Hussain, 2018; Chow, 2019; Rehan & Abdul Hadi, 2019). Notably, the Malaysian market's major fragment, i.e., more than 80%, is covered by Shariah-tagged firms that are functioning in dissimilar sectors of the Bursa Malaysia main market. However, the former investigations that explore sector-specific determinants for Malaysian Shariah firms are not rare, and after market sector-level reclassification, they are considered outdated. Technically, sector-level capital-level determinant identification is decisive as it helps firms understand the current trend of the market. Also, the selection of appropriate capital structure determinants moves business towards its core aim, i.e., profitability. To put it another way, recognizing sector-specific capital structure determinants for Malaysian Shariah-tagged firms is still an unsolved problem (Jaafar et al., 2020; Noraidi et al., 2018; Thabet et al., 2017). Therefore, considering the discussed gaps and the 80% market fragment, it is warranted to identify the sector-level dynamic capital structure determinants and SOA for Malaysian publicly listed Shariah firms.

Considering the above discussion, this study seeks to investigate a fresh frontier of information about sector-specific dynamic capital structure determinants for Shariah-tagged Malaysian firms. As per the researchers' understanding, this empirical investigation is the initial effort to inspect sector-specific capital structure determinants after the recategorization of sectors at Bursa Malaysia's main market. Besides, this study also recognized sectors' levels of speed of adjustment for those Shariah firms that are operating in dissimilar sectors of Bursa Malaysia's main market. For these purposes, 17 years of balanced annual Panel Data from 2005 to 2021 are used. The findings will help policymakers construct a better financing model that

supports Malaysian Shariah firms in maintaining the best mix of available financial resources to develop and maintain an optimal capital structure in all situations.

The remaining study is ordered into five sections. Section 2 explains a detailed review of the literature for this investigation. Then, Section 3 explains the mined data and the adopted methodology to perform analysis. Consequently, Section 4 is for discussion of the empirical outcomes. Finally, Section 5 is the conclusion part, which explains a whole summary of the outcomes as well as recommendations in light of this investigation.

2. Literature Review

The pursuit for the best blend of dissimilar financial resources to construct an optimum capital structure has not ended. Evidently, after several decades, researchers are still not able to come up with an accurate formula for a debt-equity mix that enhances a firm's market value and moves it towards its main aim of profitability. Nevertheless, some fundamental theories of capital structure, such as Modigliani &Miller (MM) propositions, Trade-Off, Pecking Order, and their recent robust dynamic forms, recommend businesses adopt those key determinants that are suitable for generating an ideal debt-equity mix (Rehan et al., 2023). At first, Modigliani and Miller (1958) presented a primary proposition that considered the capital market as a perfect market. Principally, a perfect or ideal capital market is one where the symmetry of knowledge for all users is the same and there are no transactions, taxation, bankruptcy, or agency costs in a market. In proposition, I, MM also postulate that a leveraged business value is equal to an unleveraged business value. Moreover, this proposition I of MM proposes that under certain assumptions, such as the absence of taxes, bankruptcy costs, asymmetry of information, and perfect market, the way a business finances its operations and assets, whether through equity or debt, does not affect its market value. Subsequently, MM offered proposition II considers taxes, bankruptcy costs, and debt risk and explains that information is not asymmetry for all users. Besides, proposition II also elucidates that the dividend disbursement procedure has no effect on a business shareholder's return or share price. After MM, the Trade-Off theory was announced, which focuses on the concept of an optimum capital structure by choosing suitable choices of debt and equity. Later, the Pecking Order came up with three different choices for a business. This theory explains that a business adopts retained earnings as a first choice, then moves towards equity, and in the end selects debt as a last resort (Khan, Rehan, Chhapra, & Sohail, 2021).

Importantly, the discussed theories help firms adopt those determinants that construct a suitable mix of available financial resources. The key determinants of capital structure that have been specified as important by the deliberated theories and in the literature for the Malaysian context are firms' liquidity, firms' tangibility, firms' sales, growth, firms' profitability, and non-debt tax shield. Evidently, the former studies also provide evidence that country and sector-level settings play a key role in firms' capital structure formulation. For instance, Abdul Hadi et al. (2018) examine the core determinants influencing the capital structure-related choices of listed Shariah-tagged and other firms operating in the Malaysian market. This inquiry selects a panel data analysis approach and 12 years of financial data for the listed firms from 2005 to 2016. The findings indicate that only profitability, which is measured by return on equity (ROE), is a significant determinant for Shariah-tagged firms. Meanwhile, for other firms, size, i.e., sales, profitability, i.e., earnings per share, and liquidity, i.e., current assets, are the significant determinants affecting their capital structure-connected decisions. Similarly, Rehan and Abdul Hadi (2019) investigate the capital structure determinants that influence debt-equity selection decisions of Shariah-tagged and other Malaysian firms. The study uses a dynamic panel data approach to examine the data for a period of 12 years. The outcomes propose that the capital structure-connected decisions of Shariah-tagged and other listed Malaysian firms are influenced by different factors. For Shariah companies, only liquidity and lagged dependent variables are significant determinants, while for non-Shariah firms, lagged dependent variables, total assets, and fixed assets have a substantial impact. Also, Chow (2019) investigates the sector-specific factors that impact the capital structure formulation practices of listed Malaysian firms. The outcomes show that the tangibility of assets, growth chances for firms, firms' profitability, and firms' size are the most important factors that influence capital structure-related decisions in the industrial and consumer sectors. The findings obtained from dissimilar studies in the Malaysian context (Abdul Hadi et al., 2018; Chow, 2019; Rehan & Abdul Hadi, 2019) suggest that different factors have their own influence on the capital structure-preserving practices of Shariah-tagged firms. Moreover, the outcomes also confirm (see Chow (2019)) that the capital structure maintaining practices are dissimilar at the sector level.

Likewise, Sahudin, Ismail, Sulaiman, Rahman, and Jaafar (2019) investigate the factors that influence the capital structure construction choices of Malaysian Shariah-tagged firms. The study uses a panel data static model approach and covers the period from 2002 to 2011. The results suggest that country-specific determinants, i.e., gross domestic products, and sector-specific determinants influence the capital structure-connected decisions of Shariah firms. Also, Hassan, Shafi, and Mohamed (2012) inspect the key capital structure factors for Shariah-tagged and other firms that are functioning in Malaysia. This investigation utilizes annual data from 120 Malaysian firms, consisting of 70 Shariah firms and 50 other firms, over the period of six years, i.e., 2005-2010. The outcomes indicate that firms' profitability, size, and tangibility are the main determinants for Shariah-tagged firms, whereas firms' profitability, non-debt tax ratio, and size are found

to be only significant for non-Shariah firms. Interestingly, the outcomes are consistent with the discoveries of Jaafar et al. (2020), who investigate the key determinants of debt and equity for Shariah firms.

Jaafar et al. (2020) used panel data from 31 Shariah-tagged firms in Malaysia during the period from 2011 to 2018. The study uses firms' profitability, tangibility, firms' size, growth opportunities, and liquidity as explanatory variables. The results suggest that firms' profitability, liquidity, and non-debt-tax shield (NDTS) have a significant and positive influence on the capital structure of Shariah-tagged firms. Remarkably, the outcomes of Jaafar et al. (2020) are consistent with the findings of Yildirim, Masih, and Bacha (2018), who explore the difference between the capital structure determinants of Shariah-tagged and other Malaysian firms. Yildirim et al. (2018) used static panel data analysis from 2004 to 2014 and selected book leverage and market leverage as response variables. Besides, firms' profitability, size, growth, tangibility, risk, and domestic growth product are selected as independent variables. The outcomes indicate that firms' profitability is significant for both dependent variables, whereas firms' size, growth opportunities, and asset tangibility are significant for market leverage. The comparable outcomes for profitability are confirmed by Salim and Yadav (2012), who explain the connection between Malaysian firms' capital structure and their profitability by applying 237 listed firms' Panel Data across six dissimilar sectors of the Malaysian market. The outcome specifies that the studied dependent variables are negatively associated with selected independent variables. Nevertheless, a significant and positive connection is detected between firms' financial performance and firms' growth in all six studied sectors.

Furthermore, Roslan et al. (2022) examine the determinants of capital structure for Shariah firms operating in the industrial products and services sector. The findings advise that the profitability of firms and their size have a significant connection with their capital structure. Similarly, Ramli and Haron (2017) discover the targeted capital structure and speed of adjustment for Malaysian Shariah-tagged firms. The investigation uses a data sample set of 239 publicly listed Shariah-tagged Malaysian firms. Evidently, the results confirm the significant role of targeted capital structure, tangibility, profitability, NDTS, bankruptcy risk, and size as essential determinants of capital structure for Shariah-based firms operating in Malaysia. Nevertheless, the results are not consistent with the findings of Nejad and Wasiuzzaman (2013), who described NDTS, liquidity, firms' age, and industry concentration as insignificant capital structure determinants for Malaysian publicly listed firms.

Considering all of the above-discussed literature, it is evident that few investigations have been done to inspect sector-specific capital structure determinants for Malaysian publicly listed Shariah firms. Nevertheless, the former investigations specify that tangibility, profitability, sale, taxation, growth, and liquidity are more influential determinants that influence Malaysian Shariah firms (see (Abdul Hadi et al., 2018; Chow, 2019; Jaafar et al., 2020; Ramli & Haron, 2017; Rehan & Abdul Hadi, 2019; Roslan et al., 2022; Sahudin et al., 2019; Salim & Yadav, 2012)). Following the lead of previous studies, this study selects fixed assets to measure Shariah firms' tangibility, current assets to measure Shariah firms' liquidity, sales to measure size, return-on-equity (ROE), and earnings-per-share (EPS) financial ratios to analyze the Shariah firms' profitability. To further examine the influence of tax shelters on leverage cost and growth, we employ a non-debt tax shield and focus on the percentage annual growth of Shariah enterprises assets. Importantly, the former investigations also reveal variations in the capital structure of Malaysian firms. Therefore, it is presumed that the capital structure of Shariah-tagged firms functioning in the Malaysian market is not of a static nature but rather a dynamic property (see(Halim, Sukor, & Bacha, 2019; Rehan & Abdul Hadi, 2019; Saif-Alyousfi, Md-Rus, Taufil-Mohd, Taib, & Shahar, 2020)) Thus, the associated hypotheses with this inquiry are:

H_1: There is a positive and significant association between capital structure and fixed assets.
H_2: There is a positive and significant association between capital structure and current assets.
H_3: There is a negative and significant association between capital structure and NDTS.
H_4: There is a positive and significant association between capital structure and size.
H_5: There is a positive and significant association between capital structure and ROE.
H_6: There is a negative and significant association between capital structure and EPS.
H_7: There is a positive and significant association between capital structure and growth.
H_8: There is a dynamic association between capital structure and its nominated determinants.

3. Data & Methodology

This empirical inquiry contains 343 publicly listed Shariah firms, which are chosen from six dissimilar sectors: construction, plantation, industrial products and services, property, consumer products and services, and technology in Bursa Malaysia's main market. For analysis purposes, 17 years of Balance Panel Data from 2005 to 2021 are mined from the Bloomberg database. Principally, in Balanced Panel Data, identical groups of individuals or entities are observed at multiple points in time. Remarkably, because of data inaccessibility, transportation and logistics, energy, utilities, and healthcare sectors are eliminated from the investigation. Historical data for the energy, utilities, transportation and logistics, and healthcare sectors dates back to 2014 (Bursa Malaysia, 2023). Likewise, the finance sector is removed from the analysis because of its capital-reserving necessities, implemented by central banks, which skew their capital structure-maintaining practices (Ariff, Taufiq, & Shamsher, 2008).

Table 1 above displays the total number of Shariah-tagged firms that are operating in dissimilar sectors of the main market in Bursa Malaysia.

Importantly, the assessment of targeted capital structure and SOA is linked to survivorship bias, as all those selected Shariah firms that are measured as loss-making units are omitted from the data sample set. This is according to the practices of prior investigators (Ibrahim & Lau, 2019; Rehan & Abdul Hadi, 2019). Also, for the formation of 343 shariah firms' dataset, this investigation follows the standard set by former scholars (Hussain, Shamsudin, Anwar, Salem, & Jabarullah, 2018; Yildirim et al., 2018) in capital structure, thus selecting only those firms that are constantly tagged as shariah firms during the three successive periods. Moreover, this study adopts a purposive sampling procedure to develop a data sample set. Technically, in purposive sampling, researchers use their observations and decisions to create a sample set (Galdeano, Ahmed, Fati, Rehan, & Ahmed, 2019; Mubeen, Hye, Shahid, & Rehan, 2022). Besides, the purposive sampling procedure is considered best to analyze those firms that involve debt financing (Hussain & Miras, 2015). Hence, to find the statistical relationships, the secondary data is mined for the below-explained (see Table 2) selected determinants. Table 2 displays the selected dependent and all independent variables with their symbols and measures.

Table 1. Sectorsclassification of Shariah firms at Bursa Malaysia.

S#	Sectors classification	Shariah firms	Total firms	Shariah firms (%)
1	Construction	61	63	97
2	Finance services	5	33	15
3	Transportation & logistics	31	34	91
4	Utilities	11	13	85
6	Plantation	36	43	84
7	Property	90	99	91
8	Technology	85	108	79
9	Consumer products & services	156	205	76
10	Industrial products & services	238	280	85
11	Energy	27	32	84
12	Health care	27	27	100
13	Close-end fund	-	1	-
14	SPAC*	-	1	-
Total		787	969	81 %

Note: *SPAC = Special purpose acquisition company.

Table 2. Variables and their measurements.

S#	Symbols	Variables	Measurements	References
01	D/E (Y)	Debt-to-equity ratio	Total debt / Shareholders' equity	Basit and Hassan (2017);Zabri (2012)and Saad (2010)
02	FA (X_1)	Fixed assets	Total fixed assets of listed Shariah firms	Abdul Hadi et al. (2018)andRehan and Abdul Hadi (2019)
03	CA(X_2)	Current assets	Total current assets of listed Shariah firms	Rehan and Abdul Hadi (2019)andAbdul Hadi et al. (2018)
04	NDTS(X_3)	Non-debt-tax shield	Depreciation / Firms' total assets	Sahudin et al. (2019); Nejad and Wasiuzzaman (2013)andSalim and Yadav (2012)
05	SIZE(X_4)	Sales	Annual sales of the Shariah firms	Ghani, Hye, Rehan, and Salahuddin (2023)Abdul Hadi et al. (2018)andZabri (2012)
06	EPS(X_5)	Earnings per share	Net income / Numbers of shares outstanding	Basit and Hassan (2017);AlAli (2017) and Tan and Hamid (2016)
07	ROE(X_6)	Return-on-equity	Net income/Equity	Ghani, Hye, et al. (2023)andDemirhan (2009)
08	Grow(X_7)	Growth	Changes in total assets (%)	Chow (2019); Nejad and Wasiuzzaman (2013); Saarani and Shahadan (2013)andSalim and Yadav (2012)

Notably, the prior investigations indicate that the Malaysian firms' capital structure holds dynamic properties (Halim et al., 2019). However, few studies investigate dynamic capital structure determinants for Malaysian Shariah-tagged firms and focus more on executing traditional methodology (Abdul Hadi et al., 2015; Kim, Jung, & Kim, 2023; Nejad & Wasiuzzaman, 2013). Therefore, this inquiry selected an efficient econometric estimator, i.e., Generalized Method of Moments(GMM). Typically, GMM is a dynamic

evaluation model that is considered best to investigate the dynamic relationship among the studied determinants (Arellano & Bond, 1991). This study mobilized two-step GMM as it considered targeted capital structure and SOA. Also, GMM reduces the endogeneity issue, which arises due to the significant relationship between the investigated variables and the model error term. The single-liner equation of the two-step GMM dynamic model is explained below in Equation 1:

$$y_{it} = (1 - \lambda)y_{i,t-1} + \beta_1 k_{it} + \beta_2 X_{it} + \mu_{it}(1)$$
$$i = 1 \ldots 43,\ t = 1,2,3,\ldots,14$$

Here, yit designates a dependent variable, λ symbolizes, SOA which is considered as a convergence rate of y_{it} towards optimal or targeted level of capital structure. Likewise, $y_{i,t-1}$ is a lagged dependent variable of selected dependent variable i.e. D/E ratio. Furthermore, the fixed effects factor is denoted by kit that varies crosswise over each individual in a nominated time period, 'xit' indicates the nominated independent variables. Principally, in above-stated equation 1, if SOA is removed, then the relation among the determinants suffers from misspecification error (Aderajew, Trujillo-Barrera, & Pennings, 2019). Hence, in order to eliminate misspecification error model 1 is revised and presented in below Equation 2:

$$y_{it} = (1 - \lambda)\, y_{it-1} + \lambda \sum_{n=1}^{N} \beta_k X_{kit} + \varepsilon_{it}(2)$$

This inquiry adopts model 2 to examine SOA of targeted debt equity by using a two-step GMM. Importantly, this study has nominated the Panel Data Dynamic model that was previously executed by several researchers (Chakrabarti & Chakrabarti, 2019; Ghani, Hye, et al., 2023; Zandi, Rehan, Hye, Mubeen, & Abbas, 2022)to explore dynamic relationships among the investigated determinants. The constructed econometrics model of this inquiry is displayed in below Equation 3:

$$D/E_{it} = (1 - \lambda)D/E_{i,(t-1)} + \beta_1 FA_{it} + \beta_2 CA_{it} + \beta_3 NDTS + \beta_4 SIZE_{it} + \beta_5 EPS_{it} + \beta_6 ROE + \beta_7\, GROW + \varepsilon_{it} + \mu_{it}(3)$$

Here, a dependent variable, i.e., debt to equity ratio is denoted as D/E. Likewise, $(1 - \lambda)D/E_{i,(t-1)}$ indicates lagged variable of the selected dependent variable affecting on error term. Moreover, TA, CA, FA, EPS, SIZE, NDTS, GROWTH and ROE are selected as explanatory variables which are described in Table 1. ε_{it} explains an error term and μ_{it} is the random variations in each selected variable. Moreover, the first adjustment of difference GMM estimator for this empirical inquiry is given below Equation 4:

$$\Delta D/E_{it} = \Delta D/E_{i,t-1} + \beta_1 \Delta FA_{it} + \beta_2 \Delta CA_{it} + \beta_3 \Delta NDTS_{it} + \beta_4 \Delta SIZE_{it} + \beta_5 \Delta EPS_{it} + +\beta_6 \Delta ROE_{it} + \beta_7 \Delta GROW_{it} + \Delta\varepsilon_{it} + \Delta\mu_{it} \quad (4)$$

To confirm the GMM estimator outcomes validity, two analytical tests that are auto correlation or AR(m) test on the model error term and sargan tests to check exogeneity issue are performed. Interestingly, the GMM estimator is predictable because it not only enhances the assessment model proficiency but it also lessens the model diagnostic issues such as multicollinearity by rising degree of freedom among the designated variables. Also, GMM method alleviates heterogeneity and the deformation in the model which is caused by fixed effects and endogeneity (Rehan & Abdul Hadi, 2019). Hence, this study employed Panel Data Dynamic model methodology to eliminate heterogeneity related unobservable issues and GMM to handle endogeneity problem.

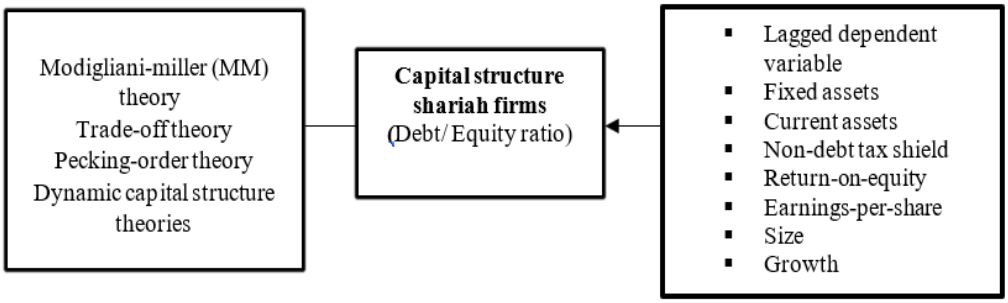

Figure 1. Theoretical framework for Shariah-tagged firms D/E determinants.

Figure 1 illustrates the constructed theoretical model for this empirical inquiry. Notably, three core traditional capital structure theories, i.e., MM, Trade-off, Pecking Order and their latest dynamic versions are set to investigate the capital-structure maintaining practices of firms operating in dissimilar sectors of Bursa Malaysia. The debt-to-equity ratio is selected as a dependent variable, whereas fixed assets, current assets, non-debt tax shield, return on equity, earnings per share, size, and growth are adopted to test their impact on selected firms' capital structures.

4. Findings

For analysis purposes, the extracted data of the entire nominated variable is coded into robust statistical software, i.e., SAS, to perform empirical analysis. At the initial stage, the descriptive analysis is executed, such as maximum (Max), minimum (Min), median (Med), mean, mode, and standard deviation (Std Dev) to understand the statistics of the variables. Thus, the descriptive statistics outcomes of all selected dependent variables and independent variables are explained in the below-provided Table 3.

Table 3. Descriptive statistics (343 Shariah firms).

Variables	Max.	Min.	Med	Mean	Mode	Std. dev.
D/E	39.752	0.004	0.506	0.572	0.703	0.931
FA	121,585.300	0.001	134.870	752.043	131.052	4241.780
CA	82,349.710	2.455	164.129	516.232	43.421	2150.121
NDTS	39.263	0.002	0.008	0.143	0.313	0.691
SIZE	43,144.601	3.406	222.075	913.312	482.012	3210.110
ROE	139.496	0.000	0.664	0.146	0.006	2.662
EPS	35.164	0.000	0.008	0.152	0.301	0.762
GROW	155.681	0.000	0.583	0.158	0.005	2.783

Subsequently, the observed verdicts of this empirical analysis are summarized in the below-given Table 4, which demonstrates the values of parameter estimates and their significance level for the first three selected sectors, which are construction, industrial products & services and plantation.

Table 4. GMM inquiry across construction, industrial products & services and plantation sectors.

Sectors	Construction		Industrial products & services		Plantation	
Variables	Estimates	P-values	Estimates	P-values	Estimates	P-values
Intercept	-0.043	0.003	-0.055	0.0004	-0.035	0.0001
D/E(i,t-1)	0.347	0.0001***	0.189	0.0156**	0.558	0.0001***
FA	0.134	0.0059**	0.106	0.0001***	0.321	0.0201**
CA	0.312	0.0004	0.318	0.339	0.078	0.0001***
NDTS	0.397	0.691	0.326	0.125	0.031	0.202
SIZE	-0.231	0.001	0.220	0.109	0.048	0.473
ROE	0.011	0.829	0.350	0.009	0.042	0.504
EPS	-0.013	0.857	-0.310	0.0318**	-0.121	0.046
GROW	1.822	0.0002***	0.932	0.0186**	0.036	0.096

Note: *** Significant at 1% and ** significant at 5% level.

The findings in Table 4 demonstrate the presence of dynamic form of capital structure and SOA for each sector Shariah firms at sector level. Evidently, all three lagged dependent variables of D/E ratio possess significant and positive relationship. The presence of adjustment speed (SOA) explains that in case of any divergence from equilibrium position Shariah firms rapidly move towards its targeted capital structure with the speed that ranges between 0.55 and 0.34. Also, asset tangibility, i.e., measured by fixed assets (FA) shows a steadily significant and positive association across all three investigated sectors. Similarly, the statistical outcomes also confirm that current assets i.e. CA is a significant determinant for plantation sector, whereas, EPS is a significant determinant for industrial products and services sector. Also, growth, i.e., GROW which explain yearly changes in Shariah firms total assets is observed as significant in construction and industrial products &services sectors. The prevalence of the dynamic theory of Trade-off is evidence in these three sectors of Shariah enterprises, as indicated by the considerable and positive connections observed between lagged dependent variables, asset tangibility, growth, and capital structure. Next, the outcomes obtained for property, consumer products & services and technology sectors are presented in the below displayed Table 5.

Table 5. GMM inquiry across property, consumer products & services and technology sectors.

Sectors	Property		Consumer products & services		Technology	
Variables	Estimates	P-values	Estimates	P-values	Estimates	P-values
Intercept	0.003	0.994	-0.072	0.0001	-0.221	0.008
D/E(i,t-1)	0.349	0.0001***	0.211	0.004**	0.376	0.039**
FA	0.344	0.0001***	0.512	0.0001***	0.246	0.345
CA	0.219	0.554	1.231	0.0001***	1.204	0.0014**
NDTS	0.283	0.777	0.132	0.894	0.173	0.862
SIZE	-0.364	0.0001***	0.362	0.0001***	-0.021	0.949
ROE	0.240	0.0084*	0.123	0.472	-0.030	0.922
EPS	-0.061	0.645	0.619	0.0001***	0.121	0.701
GROW	0.405	0.350	-0.218	0.557	1.396	0.184

Note: *** Significant at 1% and ** significant at 5% level.

In the same way as the results in Table 3, the outcomes displayed in Table 4 for the remaining three sectors also show that Malaysian Shariah-tagged firms have a dynamic capital structure and SOA at the sector level. Remarkably, all three lagged dependent variables hold positive and significant associations with Shariah-tagged firms' capital structure. The presence of SOA describes that in the event of any deviation, these sectors Shariah firms speedily return to their optimum sector-level capital structure with an adjustment speed that ranges between 0.37 and 0.21. Moreover, the studied determinants, FA, that direct asset tangibility, are also found significant for the Shariah firms that are functioning in the property and consumer products & services sectors. Similarly, CA, which explains liquidity, is also found to be a positive and significant determinant for consumer products and services and technology sectors' Shariah firms. Technically, the significant part of asset tangibility, liquidity, and lagged dependent variables specify that dynamic theory of Trade-off theory is more dominant amongst other theories of capital structure for these three sectors of Shariah firms.

Table 6. Shariahfirms' SOA across sectors at Bursa Malaysia.

Construction		Industrial products & services		Plantation	
Estimate	**SOA**	**Estimate**	**SOA**	**Estimate**	**SOA**
0.347	65%	0.1898	81%	0.5583	44%
Property		Consumer products & services		Technology	
Estimate	SOA	Estimate	SOA	Estimate	SOA
0.34911	65%	0.211067	78%	0.3764	62%

Table 6 above displays the lagged dependent variable D/E(i,t-1) coefficients, i.e., estimates (see Table 4 and Table 5) across the selected six sectors of Shariah firms that are found to be significant. Statistically, the existence of significant lagged variables and SOA support the occurrence of targeted capital structure, as claimed by Marsh (1982), who elucidates the impact of dynamic powers behind the core theories of capital structure. Evidently, the SOA travels with rapid speed across the Shariah firms at sector level, i.e., minimum of 44% to a maximum of 81%. Thus, in cases of deviation from the optimum level, an average Shariah-tagged firm across these six investigated sectors steadily moves in the direction of its optimum by 66% per year. Needless to say, the existence of SOA across the investigated sectors for Shariah firms confirms that a dynamic capital structure does exist for the listed shariah firms at the sector level in Bursa Malaysia.

Typically, the assessed dynamic models (see Table 4 and Table 5) of this empirical analysis are entirely free from any sort of diagnostic problem. From the below-displayed Table 5, it is clear that the null hypotheses, which clarify the precise specification of the used model and the non-existence of serial correlation by using Sargan test (H_0: The used instruments of the GMM model are valid) and the AR (m) test (H_0: Absence of autocorrelation in the model) are accepted for all nominated sectors' models (see p-value in Table 7). Evidently, the diagnostic test outcomes explain that all dynamic models are appropriately specified, and thus all parameter estimates are accurate and valid.

Table 7. Diagnostic test for GMM estimation.

Diagnostic tests	Construction	Industrial products & services	Plantation	Property	Consumer products & services	Technology
AR(m) test	0.835	0.874	0.519	0.736	0.841	0.211
Sargantest	0.621	0.779	0.692	0.643	0.512	0.899
Total cross sections numbers	24	128	32	44	93	22

5. Discussion

The pursuit of sector-specific capital structure determinants for Malaysian Shariah-tagged firms is still an unsettled problem. The former studies that have been performed to investigate sector-specific capital structure determinants for Malaysian Shariah-tagged firms are minor and do not deliver conclusive and holistic findings. Notably, more than 80% of the Malaysian capital market fragment is covered by Shariah-tagged firms (see Table 1). To fill this identified gap, this investigation is set to discover sector-specific capital structure determinants for publicly listed Shariah firms that are operating in the core six sectors of Bursa Malaysia. The key traditional theories of capital structure that are MM, Pecking-Order, Trade-Off, and modern Dynamic Capital Structure theories are put to test in this empirical inquiry. To perform the analysis, a total of 17 years of balanced annual Panel Data from 2005 to 2021 for 343 Shariah firms is used. The outcomes deliver the strong evidence that the Malaysian market is mainly held by asset tangibility. Visibly, the investigated determinant FA, i.e., asset tangibility is found to be positive and significant sector-specific determinant for construction, industrial products & services, consumer products and services, and property sectors Shariah firms. Typically, Shariah firms are not allowed to be involved in interest-based debt-related

activities by various regulatory bodies. Hence, the debt services awarded to Shariah firms are asset-backed, and lenders offer debt facilities after observing their asset tangibility (Sahudin et al., 2019). Needless to say, positive and significant associations of fixed assets (FA) with Shariah firms' capital structure deliver a signal of efficiently preserved asset tangibility at numerous sector levels, which is definitely sustained to avail short-term outsource financing. The outcomes are in line with the former investigations of Jaafar et al. (2020),Hussain and Miras (2015), and Abdul Jamal et al. (2013), who reported asset tangibility as a key determinant of capital structure for Malaysian firms.

Also, liquidity, i.e., CA, is found to be significant for the plantation and technology sectors. The plantation sector is one of the largest contributors to the Malaysian economy, having a maximum number of abundant assets (Ismail, Talib, & Ali, 2017). Therefore, this sector has enough surplus cash to maintain liquidity and reduce dependence on external debt (Ghasemi & Ab Razak, 2016). Likewise, the technology sector receives significant financial support from the Government of Malaysia that covers its dissimilar operational activities (Gomez, 2009). Thus, this sector is also considered financially stable and able to maintain liquidity (Yunus, Yusuf, & Supaat, 2013). The positive and significant CA confirms the reliability of this determinant for the investigated sectors of Malaysian Shariah firms at the sector level. Undoubtedly, CA indicates liquidity is found to be significant because of the Malaysian market structure, whose major fragment, i.e., 80%, is covered by Shariah-tagged firms (Jaafar et al., 2020). Typically, Shariah-tagged firms give priority to internally created funds and avoid long-term interest, i.e., riba rooted financing (Thabet et al., 2017). Thus, due to limited options for availing external long-term financing, Shariah firms focused more on maintaining liquidity to easily acquire short term finances. The supposition is in line with the outcomes of Saleh, Priyawan, and Ratnawati (2015), who explained that firms that focus more on maintaining their current assets always give priority to short-term leverage. The same goes for Thabet and Hanefah (2014), who reported a significant relationship between liquidity and capital structure determinants for Malaysian Shariah-tagged firms. However, the findings contradict the outcomes of Jaafar, Muhamat, Ahmad, and Syed Alwi (2017), who reported an insignificant relationship between liquidity and plantation sector of Malaysian Shariah firm.

Besides, the EPS indicates profitability is found to be significant for the consumer products and services and industrial products and services sectors, whereas the SIZE indicates sales are found to be significant for the property and consumer products and services sectors of Shariah firms. Similarly, the ROA, which measures the profitability of shareholders' equity, was also observed to be statistically significant for the Shariah-compliant enterprises in the property sector. According to (Choe, 2022), the consumer products and services has had substantial financial growth over the course of three consecutive years, particularly, 2019, 2020, and 2021. As a result, this sector demonstrates considerable size and EPS. However, SIZE possesses a significant negative relationship between property sector Shariah firms and capital structure. The negative relationship between SIZE and the property sector specifies that sales are a major problem for this sector. In addition, the negative and significant SIZE also indicates that an increase in sales is also attributed to external funding. Likewise, significant ROE and EPS indicate Shariah firms in these sectors are generating sufficient profit for their shareholders. The findings are consistent with the results of Sahudin et al. (2019), who explain size, liquidity, and tangibility as significant determinants for Malaysian Shariah firms. Likewise, the findings also confirmed the outcomes of Jaafar et al. (2017), and Thabet et al. (2017), who report a positive and significant relationship of profitability with Malaysian Shariah firms' capital structure. Moreover, growth, i.e., GROW, which specifies the percent change in these firms' total assets also observed as positive and significant sector-specific determinant for industrial products and services and construction sectors of Shariah firms. The outcomes are consistent with the outcomes of Salim and Yadav (2012), and Nejad and Wasiuzzaman (2013), who reported a significant relationship of growth as a capital structure determinants for Malaysian firms. Remarkably, the NDTS that indicates non-debt taxation is found to be insignificant in all studied sectors at Bursa Malaysia. The significant liquidity across various studied sectors indicates that Shariah firms focused more on maintaining liquidity; therefore, they delay their tax-related payments. Technically, tax payments reduce cash; thus, firms that give first preference to maintaining liquidity delay these payments (Hennessy & Whited, 2005). The outcomes are in line with the reported conclusion of Nejad and Wasiuzzaman (2013), who indicated an insignificant association of NDTS with Malaysian firms' capital structure. However, the findings presented here contradict the findings of Sahudin et al. (2019), who reported a statistically significant association between NDTS and Malaysian property industry companies.

It is noteworthy that the examined sectors exhibit significant and positive lagged-dependant variables, suggesting the existence of a sector-specific targeted capital structure for Malaysian Shariah enterprises. Technically, the presence of a targeted capital structure specifies the existence of SOAs for publicly listed Malaysian Shariah firms at the sector level. This empirical inquiry discovers that the SOA travels at a speedy pace across the investigated sectors, from at least 18.9% up to the extreme of 55.8%. Under this inquiry, it is observed that any firm across these six studied sectors moves back to its targeted capital structure with an average rapid speed of 33.86% per year. In the beginning, this inquiry lays stress on four key capital structure theories; however, the presence of dynamic capital structure and SOA confirms that the dynamic trade-off theory is the most dominant among all other theories at the main market in Bursa Malaysia. The findings are

consistent with the results of Rehan et al. (2023);Sukor, Halim, and Bacha (2018); Abdeljawad, Nor, Ibrahim, and Abdul (2013); and Haron and Ibrahim (2012), who confirm the presence of dynamic capital structure and SOA for publicly listed Malaysian firms. As a whole, this empirical inquiry recognized that capital structure determinants choices are not similar at the sector level because of each sector's internal settings. The outcome is in line with the results of Sahudin et al. (2019), Rehan et al. (2023) and Li and Islam (2019), who conclude that sector-level settings impact firms' capital structure formulation choices.

6. Conclusion

Despite several years of research, capital structure determinants are still considered an unsolved issue. Evidently, in the Malaysian context where Shariah and non-Shariah categories are operating in parallel, sector-specific capital structure determinants for Shariah-tagged firms are still required to be identified. Thus, this empirical investigation is set to examine sector-specific capital structure determinants for Shariah firms that are functioning in six different sectors of Bursa Malaysia's main market: construction, industrial products and services, plantation, property, consumer products and services, and technology. For this purpose, this investigation uses 343 Shariah firms' 17-year Panel Data from 2005 to 2021. To execute the Dynamic Panel Data model, the robust estimator, i.e., GMM, is executed. Moreover, the key fundamental capital structure theories are Modigliani & Miller, Trade-Off, Pecking-Order, and modern Dynamic Capital Structure theories are put to the test in this inquiry. The results explain that asset tangibility is a main determinant for Malaysian Shariah firms that hold the market at the sector level. Nevertheless, liquidity is also found to be significant for dissimilar sectors, thus providing explanatory power for Malaysian Shariah firms. Also, profitability and sales are found to be significant for consumer products and services, property, and industrial products and services sectors. Similarly, growth that indicates a yearly change in Shariah firms' total assets is an important capital structure determinant for construction and industrial products and services firms at the sector level. Interestingly, the results specify the presence of dynamic capital structure and SOA at each sector level. The significant tangibility, liquidity, growth, and existence of dynamic capital structure indicate that Dynamic Trade Off theory, is more dominant among other theories for Shariah firms at sector level. Nevertheless, it is important to remember that this investigation is subject to survivorship bias, as all those Shariah firms that are measured as loss-generating have been completely omitted from the analysis. The results are baseline and beneficial for policymakers and financial managers in formulating a better financing model that supports Malaysian Shariah firms to maintain targeted sector-specific capital structures at all times.

The core limitation of capital structure inquiries is the approachability of firms' financial data, which is the key limitation for detecting definite capital structure determinants (Pandey, 2003). Likewise, due to the inaccessibility of data, this investigation eliminates numerous sectors from the initially created sample set. Another substantial limitation is that this investigation only tested seven main determinants of capital structure. Typically, only those determinants are included in the framework whose 17-year nominated time frame financial data is easily accessible. Therefore, future investigators should add other sectors of the Bursa Malaysia main market to test selected capital structure determinants for Malaysian public-listed Shariah firms. Likewise, some other main determinants of capital structure, for instance, debt-to-asset ratio as a dependent variable and the z-score, can be included in the model.

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