The Indonesian Capital Market Review

Volume 16
Number 1 *January*

Article 1

1-1-2024

Heterogeneity of capital structure adjustment speed across Industry sector: Evidence from non-financial firms in Malaysia.

Mei-Shan Chua
Universiti Teknologi Mara (Puncak Alam Campus), meishan@uitm.edu.my

Noor Maimun Abdul Wahab
Universiti Putra Malaysia

Siti Nurhidayah Mohd Roslen
Universiti Teknologi Mara (Puncak Alam Campus)

Soo-Cheng Chuah
Universiti Tunku Abdul Rahman

Nurhuda Nizar
Universiti Teknologi Mara (Puncak Alam Campus)

See next page for additional authors

Recommended Citation

Chua, Mei-Shan; Wahab, Noor Maimun Abdul; Roslen, Siti Nurhidayah Mohd; Chuah, Soo-Cheng; Nizar, Nurhuda; and Chin, Hon-Choong (2024) "Heterogeneity of capital structure adjustment speed across Industry sector: Evidence from non-financial firms in Malaysia.," *The Indonesian Capital Market Review*: Vol. 16: No. 1, Article 1.
DOI: 10.21002/icmr.v16i1.1192
Available at: https://scholarhub.ui.ac.id/icmr/vol16/iss1/1

Heterogeneity of capital structure adjustment speed across Industry sector: Evidence from non-financial firms in Malaysia.

Authors

Mei-Shan Chua, Noor Maimun Abdul Wahab, Siti Nurhidayah Mohd Roslen, Soo-Cheng Chuah, Nurhuda Nizar, and Hon-Choong Chin

Indonesian Capital Market Review 16 (2024) 1-16

INDONESIAN
CAPITAL MARKET REVIEW

Heterogeneity of capital structure adjustment speed across Industry sector: Evidence from non-financial firms in Malaysia.

Mei-Shan Chua[1], Noor Maimun Abdul Wahab[2], Siti Nurhidayah Mohd Roslen[1], Soo-Cheng Chuah[1], Nurhuda Nizar[1], and Hon-Choong Chin[3]

[1]Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi Mara (Puncak Alam Campus), Malaysia.

[2]Putra Business School, Universiti Putra Malaysia, Malaysia.

[3]Department of Building and Property Management, Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman, Malaysia.

(Received: November 2023/ Revised: January 2024 / Accepted: February 2024 / Available Online: June 2024)

This study investigates the speed of adjustment (SOA) to target leverage for different industry sectors in Malaysia. Using the two-step system generalized method of moments for 415 non-financial firms from 2010 to 2021, we found that the SOA for the overall sample is 38.6% and 22.0% for total debt and long-term debt, respectively. Our paper reveals the heterogeneity of SOA based on industry sectors. The industrial sector has the slowest adjustment speed (14.1%), whereas the healthcare industry has the quickest adjustment speed (80.4%) to target leverage. Our results are consistent with the dynamic capital structure theory regarding the deviation between target and actual leverage. Furthermore, our study demonstrates the significance of an industry-based perspective when researching SOA, which suggests that the capital structure strategy depends on the industry's business climate.

Keywords: Dynamic Capital Structure; Industry-based View; Industrial Classification Benchmark; Two-steps Generalized Method of Moments

JEL Classification: G32

Introduction

The COVID-19 pandemic caused the downfall of many companies worldwide. In Malaysia, 1,246 companies were forced to wind down during the period from March 2020 to July 2021 (Aziz, 2021). Amid a vulnerable economy, firms must strategize with an efficient and effective capital structure strategy (Claessens, Djankov & Klapper, 2000). According to the dynamic capital structure, one strategy for maximising firm value is adjusting more quickly to the optimal capital structure (Mukherjee & Wang, 2013). Every industry is argued to have different economic conditions that lead to different capital structure decisions (Talberg, Winge, Frydenberg & Westgaard, 2008). Still, awareness of this heterogeneity has yet to be thoroughly examined in the area of dynamic capital structure—the speed of adjustment to target leverage (SOA).

*Corresponding author's email: meishan@uitm.edu.my

The empirical evidence generally shows that every firm has its own adjustment speed and adapts to the leverage over time to achieve the optimal level, whether it is quick or slow. These SOAs are being examined at an aggregate level or as a whole sample. For example, Flannery and Rangan (2006) found that U.S. firms have deviated from the target leverage with a SOA of 34%. Likewise, Nor, Haron, Ibrahim, Ibrahim, and Alias (2011) and Chua, Ab Razak, Nassir, and Yahya (2021), who studied Malaysian firms, found SOA ranges between 49.28% and 57.00% and 29.11% and 42.34%, respectively, while controlling for industry effect. However, as the industry-based view suggests that a firm should be defined by its context, which is the industry (Arend, 2009), controlling the industry effect in the investigation is likely to make SOA findings homogenous within the group of observations. This means that past studies' lack of control over the influence of industry effects has caused empirical evidence to fall behind in capturing the distinct impact of industry on SOA.

In fact, the literature has shown that each industry has different capital structure strategies to finance its operations. Different industries made different funding decisions, as stated in Scott and Martin (1975). Mining businesses tend to use less financial leverage than the aerospace industry. Miao (2005) demonstrates that companies in industries with high rates of bankruptcy, risky technical innovation, and fixed operating costs use less debt. Li and Islam (2019) claim that economically significant industries like mining employ more debt due to government assistance and better credit allocation. Additionally, industries that require a lot of capital, such as those that produce and refine oil, steel, telecommunications, and automobiles, require more property, plant, and equipment to support their production of goods and services, which creates more debt. As past empirical findings support the variation of debt usage for different industries, we suggest that different SOA should be affiliated with different sectors. Because of industry competition, one industry employs different strategies to remove the deviation and achieve optimal leverage to maximise firm value.

To investigate the heterogeneity of SOA based on industry, we studied non-financial Malaysian firms from 2010 to 2021. The two-step Systems Generalised Method of Moments for 415 Malaysian firms shows an average of 38.6% speed of adjustment toward the target total book leverage. When long-term book leverage was the dependent variable, the average SOA was 22.0%. Both values indicate that Malaysian firms have target leverage. These findings imply that Malaysian firms have adjusted total and long-term leverage to halve the target leverage by 1.42 and 3.76 years, respectively. Interestingly, our study confirmed variations in the SOA across industries in Malaysia. We found that the healthcare sector has the quickest SOA (80.4%), whereas the industrial sector has the slowest SOA (14.1%). The heterogeneity of the SOA results could be due to the variation in industry competitiveness that influences firms' incentive to remove the deviation (Cahyono & Chawla, 2019; Do, Huang, & Ouyang, 2022; Schmidt, 1997). Remarkably, not every industry has maintained target leverage. This can be seen in the insignificant lag leverage variables for the telecommunication sector. Our findings stressed the importance of categorizing the firms according to their industry when examining the dynamic capital structure.

Our paper provides several contributions to the dynamic capital structure literature. The integration between dynamic capital structure theory and industry-based views offers us a different perspective when investigating the impact of industry heterogeneity on SOA to target leverage. To a certain extent, the impact of industry on SOA has been assumed to be homogenous or indirectly investigated via the dummy variable of industry or industry median leverage in the past literature. In response to the criticism from Bajaj, Kashiramka, and Singh (2021) that capital structure studies are limited to specific industrial sectors, we expect that each industry is associated with a different capital structure strategy. Our investigation makes distinctive contributions to the theoretical and empirical dynamic capital structure studies in two ways. First, we find a unique SOA based on our analysis, in which the SOA results are distinctively different from past studies such as Chua et al. (2021), Ting (2016), Nejad and Wasiuzzaman (2015), and Nor et al. (2011), who investigate Malaysian firms. This could be due to different time frames (i.e., we included the period from 2010 to 2021, which accounted for the COVID-19 period) and the dependent variables we used in our study.

Second, our study reveals the SOA's heterogeneity based on the industry classifications. Based on the results, it seems that interpreting a single SOA based on an aggregate sample could lead to the wrong understanding of the SOA for a specific industry. In other words, we could not use the total sample SOA result (38.6%) obtained in this study to represent the SOA for each industry, because this might not reflect each industry's SOA. Unlike some previous studies, our study explicitly examined the direct impact of each industry to remove the deviation from actual to optimal leverage. Practically, our study provides a practical contribution to the policymaker in determining the effective debt management strategy for the respective industry in Malaysia. In conjunction with this, the policymaker could use the findings in planning and strategizing the financial policies to maximise the firm's goal.

Literature Review

Dynamic Capital Structure Theory

According to Dynamic Capital Structure Theory (Fischer, Heinkel & Zechner, 1989), a firm restructures its optimal capital structure in response to fluctuations in asset values over time. Adjustment towards target leverage happens when the cost of deviation from the optimal capital structure exceeds the cost of adjustment to optimal leverage. Different costs of deviation and different costs of adjustment are argued to result in different estimations for the SOA (Abdeljawad, Mat Nor, Ibrahim & Abdul Rahim, 2013). Notably, higher adjustment costs result in slower SOA, whereas lower adjustment costs result in faster SOA. This study categorizes the contexts of SOA studies into developed, developing, and emerging countries and provides empirical findings from Malaysia.

The literature reveals that SOA varies across countries. Earlier studies on Western developed countries such as the United States (U.S.), the United Kingdom (U.K.), and Sweden showed that firms require some adjustment periods from the actual leverage. Eventually, the firm achieves optimal leverage, which maximizes the firm value, consistent with the static trade-off theory. Lööf (2004) and Flannery and Rangan (2006) demonstrate that the U.S. firms' actual leverage was similar to the target leverage, and it took less than two years to achieve half of the optimal leverage. Still, Lööf (2004) find that firms in the U.K. and Sweden needed 11-65% and 8-14%, respectively, to adjust to optimal leverage. Using a larger sample, Drobetz, Schilling, and Schröder (2015) find that market- and bank-based countries, like the U.S., Canada, the U.K., Japan, and Italy, were associated with different ranges of SOA. They conclude that, because of more liquid capital markets and lower costs to issue new or retire outstanding securities, market-based countries have faster SOA than bank-based countries. From an economic performance perspective, Drobetz and Wanzenried (2006), Cook and Tang (2010), and Dang, Kim, and Shin (2014) show that firms adjusted more slowly during bad economic conditions and quicker during good economic conditions.

Meanwhile, the investigation of SOA studies grew steadily in developing and Asian countries. By comparing European, U.S., and Asian countries, Getzmann, Lang, and Spremann (2015) prove that Asian countries have a slower SOA (55-70%) than Western countries. Studies on developing countries such as Africa (Etudaiye-Muhtar & Ahmad, 2015), China (Rehman, Wang, & Yu, 2016), India, Sri Lanka (Buvanendra, Sridharan, & Thiyagarajan, 2018), and ASEAN countries (Malaysia, Singapore, Indonesia, and Thailand) (Chua et al., 2021; Nor et al., 2011) have reported a difference between actual and target leverage.

Among the researchers that investigated Malaysian firms, Nor et al. (2011) show that the SOA ranged from 49.48% to 57.00%, depending on the dependent variable used. Meanwhile, Ting (2016) reveals that Malaysian firms adjust their book and market value total leverage by 21% and 26% every year. On top of that, Nejad and Wasiuzzaman (2015) and Chua et al. (2021), who studied on the same market, have reported distinct SOA results using samples from different years. Using samples from 2005 to 2010, Nejad and Wasiuzzaman (2015) posited that the market leverage adjustment speed was 40%. On the other hand, Chua et al. (2021), who conducted a similar study using samples from 2007 to 2017, found SOA of 29.11%, 42.34%, and 54.91%, respectively, for total, long-term, and short-term debt.

As per our observation, every study has discovered a unique SOA that differs from study to study. This suggests that different countries have different SOAs to target leverage due to the different institutional settings; this reflects the importance for researchers to keep investigating SOA based on different institutional settings and time frames. In this study, we assert that each firm makes an effort to remove the deviation from actual leverage to target leverage. Thus, we hypothesize that:

H1: There is a significant and positive lagged leverage that implies a deviation between actual and target leverage.

Industry Effects

Based on the industry-based view (Porter, 1980), the conditions within an industry largely determine firm strategy and performance. Each industry has distinct business environments, regulations, and competition that make firms utilize different amounts of debt and equity to finance their businesses (MacKay & Phillips, 2005). Hall, Hutchinson, and Michaelas (2000) assert that the variation in debt usage depends on the asset risk, asset type, and requirements for external funds and varies from industry to industry. Indeed, Scott and Martin (1975) show that financing decisions differ across industries; the aerospace industry has higher leverage, while the mining industry has the lowest leverage. These findings were supported by Harris and Raviv (1991) and Hall et al. (2000), who concluded that debt ratios and leverage factor distinctions are more pronounced for firms in different industries.

According to MacKay and Phillips (2005), the unpredictability and technological advancements of many firms within a given industry impact the variance in capital structure, highlighting the significance of industry factors in explaining a firm's capital structure. Similarly, Miao (2005) shows that businesses working in sectors with rapid and dangerous technological advancement, high bankruptcy rates, and fixed operating costs use less debt. According to Smith, Chen, and Anderson (2015), the capital structure of enterprises depends on the nature of each industry. According to Li and Islam (2019), economically significant businesses like the mining sector tend to use more debt, since the government supports them and benefits from better credit allocation. Every business reportedly used a distinct capital structure, as previously mentioned. This likely impacts how quickly industries adapt to their target capital structures. Smith et al. (2015) suggest that the nature of each industry determines the firm's capital structure. It is also argued that capital-intensive industries such as automobile manufacturing, oil production and refining, steel production, telecommunications, and transportation sectors require higher amounts of property, plant, and equipment to support the production of goods or services, explaining why this type of business tends to use more leverage. As mentioned above, it is believed that every industry employs a different capital structure, which is likely to influence the speed of adjustment to the target capital structure.

Banerjee et al. (2000) showed variations of SOA across industries among U.S. and U.K. firms. Elsas and Florysiak (2011) conclude that firms that operated in a shrinking sector had larger deviations from target leverage, while firms that operated in an industry that required large amounts of capital had more frequent capital market transactions that led to a quicker speed of adjustment. Meanwhile, apart from studying the heterogeneity of SOA for the U.S., Europe, and Asian countries, Getzmann et al. (2015) perform additional analysis on the SOA based on industrial code. The results indicate different SOA for the industry, such as oil and gas, basic materials, industrials, consumer goods, health care, consumer services, and technology. Recent studies suggest that the competitiveness of each industry affect the level of SOA of the industry. For example, Cahyono and Chawla (2019) find that firms with higher industry concentrations (i.e., oligopolistic or monopolistic) tend to close the deviation quicker than industries with lower industry concentrations. This could be due to higher competition that increases the severity of agency conflict (Schmidt, 1997) and subsequently slows the SOA. Conversely, Do et al. (2022) reveal that firms that operate in a highly competitive product market adjust quicker to target leverage. Precisely, competition acts as a monitoring tool that forces managers to close the gap quickly. Taken together, we believe that different industries are affiliated with different SOA because the competitiveness among the industries will make one industry employ a different type of capital structure strategy than another sector to finance business operations. Thus, we hypothesized that:

H2: The SOA is significant with different industry sectors having different levels of SOA.

Research Methods

Data and Sample

The data consists of firms listed in Bursa Malaysia from 2010 to 2021. The financial data and industrial code were extracted from the DataStream database. We used the industrial classification benchmark (ICB) to classify the industries, a comprehensive, rules-based, transparent classification methodology based on research and market trends designed to support investment solutions. The ICB coding identifies firms with industry codes of 10 to 65, divided into 11 industries: technology, telecommunications, healthcare, financials, real estate, consumer discretionary, consumer staples, industrials, basic materials, energy, and utilities. We have collected data from 853 firms from DataStream as of December 31, 2021. Based on the ICB coding, these firms were divided into 11 industries. The classification was tabulated in Table 1. Following the capital structure literature, we excluded financials, real estate, energy, and utility firms due to different rules and regulations on financial reporting. Next, firms without complete financial data were excluded from the sample, leaving us with 415 firms.

Estimation Regressions

To achieve our research objective, we adopted the standard partial adjustment model (PAM) to estimate the determinant of target capital structure and SOA towards target capital structure. The model is written as follows:

$$DEBT_{it} - DEBT_{it-1} = \beta(DEBT^{*}_{it} - DEBT_{it-1}) + \varepsilon_{it} \quad (1)$$

Where $DEBT^{*}_{it}$ is the target capital structure attributed to a set of firm characteristics at time t. This is estimated through the equation of $DEBT^{*}_{it} = \alpha \textit{firm characteristics}_{it-1}$ Substituting the $DEBT^{*}_{it}$ in equation 1, we derive the following equation:

$$DEBT_{it} = (1-\beta)DEBT_{it-1} + \sum_{j=1}^{L} \beta_j \textit{Firm Characteristics}_{it-1}) + \varepsilon_{it} \quad (2)$$

$DEBT_{it}$ is measured by total debt as the main dependent variable and long-term debt as the dependent variable for the robustness check. $DEBT_{it-1}$ refers to the lagged variable of *DEBT* that represents the total debt and long-term debt at time t-1. *Firm Characteristics* represents a set of firm characteristics that are commonly used as the explanatory variables for *DEBT*. It includes firm size, profitability, asset tangibility, non-debt tax shield, growth, and dividend payer. $1-\beta$ is the speed of adjustment of the firms in reverting to the target leverage. If β=1, the SOA is zero, indicating a zero adjustment to target leverage. If β=0, the speed of adjustment is infinitely high, indicating that the debt ratio is always at its optimal value. In our study, we

Table 1. Number of firms classifications based on Industrial Classification Benchmark (ICB)

Industry	ICB code	Number of firms
Technology	10	30
Telecommunications	15	8
Healthcare	20	16
Financials	30	87
Real estate	35	142
Consumer discretionary	40	123
Consumer staples	45	96
Industrials	50	235
Basic materials	55	65
Energy	60	28
Utilities	65	23
Total number of firms		853

Notes: Technology includes semiconductors, computer services, software and electronic components.
- Telecommunication includes telecommunications.
- Healthcare includes medical supplies, equipment, healthcare facilities, services and pharmaceuticals.
- Financials include banks, investment services, property and casualty insurance, full line insurance, asset managers and custodians, consumer lending, life insurance, and reinsurance.
- Real estate includes real estate holdings and development, office REITs, retail REITs, healthcare REITs, diversified REITs, and hotel and lodging REITs.
- Consumer discretionary include airlines, automobiles, specialty retailers, clothing and accessories, hotels and motels, diversified retailers, household furnishings, household appliances, auto parts, apparel retailers, household equipment and products, media agencies, travel and tourism, education services, casinos and gambling, consumer electronics, and tires.
- Consumer staples include tobacco, brewers, food products, farming, fishing, ranching and plantations, soft drinks, food retailers and wholesalers, fruit and grain processing, distillers and vintners, personal product, nondurable household products, sugar, radio and TV broadcasters.
- Industrials include construction, transportation services, marine transportation, machinery industrial, diversified industrials, and plastics.
- Electronic equipment includes gauges and meters, building materials, containers and packaging, electrical components, engineering and contracting services, building, roofing, securities services, cement, machinery, agricultural and commercial vehicles and parts, industrial suppliers, and professional business support services.
- Basic materials include specialty chemicals, iron and steel, metal fabricating, forestry, aluminum, general mining, paper, chemicals, diversified and nonferrous metals, textile products, and metal fabricating.
- Energy includes oil equipment and services, oil, crude producers, oil refining and marketing, offshore drilling and other services, coal, conventional electricity, multi-utilities, waste and disposal services, and water.

calculated the number of years a firm to move halfway to its optimal leverage by half-life. It was calculated by ln 0.5/ ln β(Huang & Ritter, 2009). β_j is the coefficient for the *Firm Characteristics*.

Variables

Dependent Variables

Our study used the book value of debt as the dependent variable. The book leverage was chosen as the proxy for the dependent variable, because it is unaffected by external variables like stock price movements (Fama & French, 2002). In addition, Yin and Ritter (2020) empirically show that using market leverage made the SOA estimation fluctuate more than twice its actual value. Therefore, as our study's interest is to investigate how industry types result in different levels of deviation between actual leverage and target leverage, the book value is more appropriate to reflect the firm's strategy.

Explanatory Variables

Equation (2) contains six control variables that were used to represent the observed leverage on the firms. The trade-off and pecking-order theories suggest that these factors directly impact the firm's capital structure decisions. Firm size is argued to directly impact the firm's leverage, as its size might influence how it finances its total assets. Larger firms need more financing than small firms due to their larger operations and greater number of projects that cannot be supported by internal sources such as retained earnings. As such, large firms tend to resort to external financing, such as debt. In addition, larger companies are more stable, less likely to file for bankruptcy, and have good reputations; the trade-off hypothesis predicts that size positively correlates with debt (Frank & Goyal, 2009). The empirical evidence for firm size and leverage is mixed. Chua et al. (2021), Hashmi, Gulzar, Ghafoor, and Naz (2020), Buvanendra, Sridharan, and Thiyagarajan (2017), and Nor et al. (2011) conclude that smaller firms use less debt than larger firms. Conversely, Lemmon, Roberts, and Zender (2008) find an inverse relationship between debt and firm size. This could be because smaller firms have limited access to the equity market, causing them to use more debt (Bany-Ariffin, Nor & McGowan, 2010). We expect that firm size has a positive relationship with leverage, because larger firms represent reputable businesses, and the stability of the firms ensures more debt.

According to the trade-off theory, profitable firms have a greater proportion of earnings to be paid in terms of taxes. Thus, to lighten the debt load, they seek greater debt to reduce the proportion of taxable earnings. The pecking order theory, on the other hand, argues for a negative link in which profitable organisations have greater internal resources, reducing the frequency with which they borrow money from creditors. Frank and Goyal (2003) and Matemilola, Bany-Ariffin, Azman-Saini, and Nassir (2018) show that profitable firms employ more debt. In contrast, Chua et al. (2021), Lean, Ting, and Qian (2015), and Nor et al. (2011) conclude that pecking-order financing behaviour is beneficial for less profitable firms. Because profitable businesses tend to have higher earnings that necessitate minimizing tax expenses, we anticipate a positive relationship between debt and profitability.

Fixed assets, serving as collateral, enhance a firm's ability to secure debt, as it boosts the borrower's credibility in settling debt in bankruptcy scenarios. Trade-off theory posits that firms with substantial tangible assets are more likely to issue debt, a notion supported by Matemilola et al. (2018) and Cahyono and Chawla (2019), who find that firms with a higher fixed asset ratio tend to incur more debt. Conversely, Agency Theory argues that firms with fewer tangible assets might incur more debt to mitigate agency costs arising from conflicts between managers and shareholders. This is corroborated by Chua et al. (2021), who identify an inverse relationship between fixed assets and corporate debt in Indonesia and Thailand. Our analysis suggests that the correlation between higher fixed asset ratios and increased debt levels can be attributed to the collateral value of these assets.

According to trade-off theory, non-debt tax shields, such as depreciation, amortization, and tax loss carryforwards, serve as alternatives to interest tax shields, potentially reducing debt usage through their tax-reducing benefits. Based on the findings from Chua et al. (2021) and Matemilola et al. (2018), higher non-debt tax shield amounts correlate with lower debt utilization. However, contrasting views exist. Buvanendra et al. (2017) argue that higher non-debt tax shields, especially from depreciation on assets used for securing loans, can lead to increased debt in a firm's capital structure. This positive correlation is also in sync with the findings obtained by Oino and Ukaegbu (2015) and Buvanendra et al. (2017). Despite these divergent perspectives, our analysis leans towards a negative association due to the substitution effect of non-debt tax shields.

The growth variable indicates a firm's growth opportunities. Pecking-order theory posits that firms with more growth opportunities are likely to issue more debt to mitigate the costs of asymmetric information associated with equity issuance, as Myers and Majluf (1984) describe. Chua et al. (2021) support this, noting a positive link between firm growth and debt. Conversely, agency theory suggests a negative correlation, arguing that high-growth firms typically have lower agency costs due to limited free cash flow, which restricts managerial control. Nejad and Wasiuzzaman (2013, 2015) and Buvanendra et al. (2017) observe that firms with greater growth opportunities frequently choose more leverage as evidence of this. We anticipate a negative relationship between firm growth and debt because growing firms require larger cash flows for expansion, leading to reduced free cash flows and subsequently lower

Table 2. Variables abbreviations and measurements

Abbreviations	Measurements
Book value of Total Debt (TD)	The ratio of total debt to total assets (main dependent variable)
Book value of long-term debt (LTD)	The ratio of long-term debt to total assets (robustness check)
$DEBT_{it-1}$ (i.e., TD_{it-1} & LTD_{it-1})	The lagged variable of total debt and long-term debt ratios
Firm Size (SIZE)	The log of total assets
Firm Profitability (PROF)	The ratio of earnings before interest, taxes, depreciation, and amortization total assets
Asset Tangibility (ATAN)	The ratio of fixed assets (property, plant, and equipment) to total assets
Non-debt Tax Shield (NDTS)	The ratio of depreciation and amortization to total assets
Firm Growth (GRWT)	The ratio of book value to debt plus market value of equity to total assets.
Dividend Payer (DIV)	The dummy variable of 1 if the firm is paying dividends and 0 otherwise.

Source: Authors' own tabulation (2023)

agency costs, thus diminishing the need to issue debt to control opportunistic behaviour.

Regarding dividends, the interplay of the pecking order theory and Lintner's dividend model (1956) suggests that consistent dividend payouts can lead to increased leverage as they diminish the retained earnings needed for future investments, necessitating more debt for capital expenditure. Jensen's agency cost of free cash flow theory (1986) positions dividends as an alternative to debt in curbing managerial opportunism, often resulting in firms with higher dividend payouts having lower debt levels. Baskin (1989), who reveal a favourable connection between previous dividends and current leverage, supports this viewpoint. However, Liao, Mukherjee, and Wang (2015) observe a negative effect of dividends on leverage, while Fama and French (2002) argue that dividends aren't a key factor in leverage decisions. Our study predicts an inverse relationship between dividends and debt, viewing them as interchangeable tools for managing agency conflict.

Table 2 shows the abbreviation and measurements of the dependent and independent variables.

Estimation Model

Our analysis employed the two-step system generalized method of moments to address the limitations in other approaches. While ordinary least squares (OLS) may neglect time-invariant unobserved effects and the endogeneity of lagged leverage, leading to potential upward bias, the fixed-effect model, despite removing individual effects, can yield inconsistent parameters when T is fixed, regardless of N's size. This often results in a downward bias on lagged leverage. The two-step system generalized method of moments, recommended for its robustness in dynamic models (Flannery & Hankins, 2013), overcomes these issues.

The model's validity was confirmed through three critical tests: the Wald test, serial correlation, and the Sargan test. The Wald test, assessing the joint significance of all coefficients, showed p-values below 0.05, confirming the relevance of our independent variables in explaining the target capital structure. Serial correlation tests, particularly the second-order autocorrelations (AR(2)), indicated no residual autocorrelation, as evidenced by p-values above 0.05. Finally, the Sargan test validated the instruments used, with all models displaying p-values over 0.05. Passing these tests reinforces our confidence in the model's ability to produce efficient and consistent estimators.

Results and Discussions

Descriptive Statistics

Table 3 presents descriptive statistics for 415 firms across various industries. The average total debt for the entire sample was 0.181, with a range from 0.000 to 0.786. Notably, the telecommunication industry exhibited the highest average total debt, in contrast to the technology industry, which had the lowest. Findings also showed that the technology industry has the highest maximum amount of debt usage (0.786), whereas the healthcare industry has the lowest maximum (0.525). In terms of long-term

Table 3. Descriptive statistics for the whole sample and types of industry

Items	N	TD			LTD		
		Mean	Min	Max	Mean	Min	Max
Whole Sample	4980	0.181	0.000	0.786	0.064	0.000	0.430
Basic Materials	576	0.199	0.000	0.733	0.043	0.000	0.297
Consumer Discretionary	1020	0.168	0.000	0.649	0.062	0.000	0.358
Consumer Staples	924	0.179	0.000	0.771	0.062	0.000	0.424
Healthcare	144	0.179	0.000	0.525	0.074	0.000	0.311
Industrials	2004	0.188	0.000	0.754	0.070	0.000	0.391
Technology	228	0.129	0.000	0.786	0.055	0.000	0.430
Telecommunication	84	0.236	0.000	0.666	0.143	0.000	0.364

Source: Authors' own calculations (2023)
Note: N is the number of observations, TD is the book value total debt, and LTD is the book value long-term debt.

Table 4. Variance Inflation Factor (VIF) results for the independent variables for the whole sample and types of industry

The Mean Value of the Variance Inflation Factor (VIF) Results for the Estimation Model	
Whole Sample	2.00
Basic Materials	1.38
Consumer Discretionary	1.24
Consumer Staples	1.42
Healthcare	1.79
Industrials	2.04
Technology	1.86
Telecommunications	2.77

Source: Authors' own calculations (2023)
Note: The VIF values are the mean value of the VIF for the sample analysed.

debt, telecommunications led with an average of 0.143, whereas basic materials had the lowest average at 0.043. These findings highlight that financing choices vary significantly across industries, aligning with the industry-based view that advocates distinct business strategies, including capital structures, for each industry.

Correlation Analysis

To assess multicollinearity among independent variables, we conducted the variance inflation factor (VIF) test. While there is no universal threshold for VIF values, we adopted a cut-off of VIF < 10 to indicate the absence of multicollinearity (Law, 2018). The results in Table 4 show that all independent variables, except for the telecommunications industry, had VIF values below 10. Specifically, the growth variable in the telecommunications industry had a VIF of 12.30, leading to its removal from the model. This resulted in a reduction of the mean VIF from 5.55 to 2.77 in Model 8, confirming the absence of multicollinearity among the independent variables.

Regression Results

Results for Speed of Adjustments towards Target Leverage (Whole Sample)

Table 5 reports the results of equation 2 based on the system generalized method of moments estimation method. Panel A shows the book value of total debt (main results), whereas Panel B shows the results of long-term debt (robustness results). Based on the results in Panel A (Model 1), the lag variable of the book value of total debt (TD_{t-1}) is significant and positive. The value signifies that the adjustment cost (adjustment speed) was 0.614 (38.6%), and the firm needed 1.42 years to remove the deviation to reach half of the target leverage. The positive coefficient of TD_{t-1} implies that the firms' actual leverage is lower than their target leverage. This indicates that every firm has its target leverage and tends to move toward the target leverage, a finding consistent with the dynamic trade-off theory. The results in Panel B (robustness check) likewise show similar firm financing behaviour regarding SOA to target leverage. Our results are in line with Flannery and Rangan (2006), Nor

Table 5. Equation 2 Results Based on System Generalised Method of Moments Estimation

Panel A
Dependent variable = Total Debt (Main results)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
TD_{t-1}	0.614[a]	0.475[a]	0.444[a]	0.282[a]	0.196[a]	0.859[a]	0.727[a]	3.356
	(7.22)	(20.04)	(5.73)	(54.53)	(3.80)	(7.97)	(8.48)	(1.37)
SIZE	0.029[a]	0.029[a]	0.036[a]	0.047[a]	0.059[b]	-0.009	0.066[b]	-0.345
	(2.77)	(4.06)	(3.02)	(32.66)	(2.33)	(-0.60)	(2.43)	(-0.38)
PROF	-0.317[a]	-0.351[a]	-0.050	-0.005[a]	-0.028	-0.209	0.143	-3.586
	(-3.81)	(-12.30)	(-1.13)	(-7.05)	(-0.46)	(-1.84)	(0.72)	(-1.48)
ATAN	0.126[b]	0.024	0.177[b]	0.037[a]	0.409[b]	0.053	-0.060	-3.112
	(2.27)	(1.01)	(2.05)	(5.41)	(2.03)	(0.40)	(-0.29)	(-0.72)
NDTS	-2.641[a]	-2.694[a]	-0.915	0.708[a]	-0.474	-2.615[b]	-0.625	8.892
	(-3.91)	(-5.37)	(-1.87)	(-12.82)	(-0.53)	(-2.14)	(-0.66)	(0.66)
GRWT	11.528	-55.156[a]	1.184	7.149[a]	-33.854	-33.555	15.640	-
	(1.11)	(-4.19)	(0.46)	(7.57)	(-1.92)	(-1.49)	(1.92)	
DIV	-0.014	0.009[b]	-0.040	-0.003	-0.023	0.050	-0.062	0.105
	(0.22)	(2.21)	(-1.95)	(-1.49)	(-1.20)	(1.21)	(-1.68)	(0.54)
SOA	0.386	0.525	0.556	0.718	0.804	0.141	0.273	NA
Half-life	1.42	0.93	0.85	0.55	0.43	4.56	2.17	NA
Sargan Test	0.0764	0.9928	0.6274	0.3618	1.0000	0.1471	1.0000	1.0000
Second Order Serial Correlation Test	0.1154	0.6536	0.2657	0.1149	0.4752	0.7922	0.3587	0.4652
Wald test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Panel B
Dependent variable = Long-term Debt (Robustness results)

	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
LTD_{t-1}	0.778[a]	0.396[a]	0.470[a]	0.247[a]	0.336[a]	0.785[a]	0.703[a]	-2.374
	(15.14)	(21.28)	(9.30)	(34.66)	(2.79)	(15.31)	(13.99)	(-0.54)
SIZE	0.011[a]	0.002	0.019[a]	0.023[a]	0.014	-0.004	0.007	0.008
	(2.70)	(0.75)	(4.07)	(22.49)	(1.58)	(-0.81)	(0.39)	(0.02)
PROF	-0.172[a]	-0.065[a]	0.049	-0.006[a]	-0.021	-0.073	0.069	-1.320
	(-2.87)	(-6.74)	(1.58)	(-6.01)	(-1.21)	(-1.63)	(0.73)	(-0.37)
ATAN	-0.023	-0.024[b]	-0.039	-0.029[a]	0.092	-0.086[a]	0.037	0.475
	(-1.15)	(-2.21)	(-0.67)	(-12.74)	(1.37)	(-3.09)	(0.50)	(0.39)
NDTS	-0.371	-0.251	0.217	-0.708[a]	-0.717[a]	-0.161	-0.855[a]	-0.510
	(-1.73)	(-1.34)	(1.00)	(-34.24)	(-3.82)	(-0.80)	(-3.34)	(-0.17)
GRWT	10.943[b]	-22.828[a]	-3.677	-1.492[b]	-20.144	5.751	8.030	-
	(2.33)	(-4.16)	(-0.64)	(-2.15)	(-1.22)	(1.67)	(1.45)	
DIV	-0.010	0.004	-0.044[a]	0.007[a]	-0.029[a]	-0.018[b]	-0.048[b]	-0.007
	(-0.94)	(3.15)	(-8.22)	(6.83)	(-2.97)	(-2.09)	(-2.20)	(-0.33)
SOA	0.220	0.604	0.530	0.753	0.664	0.215	0.297	NA
Half-life	3.76	0.75	0.92	0.50	0.64	2.86	1.97	NA
Sargan Test	0.1618	0.9925	0.9085	0.2794	1.0000	0.1372	1.0000	1.0000
Second Order Serial Correlation Test	0.4108	0.1861	0.4557	0.1587	0.6643	0.0830	0.9961	0.5277
Wald test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Authors' own calculations (2023)
Note: Models 1 & 9 = Whole sample, Models 2 & 10 = Basic Materials, Models 3 & 11 = Consumer Discretionary, Models 4 & 12= Consumer staples, Models 5 & 13 = Healthcare, Models 6 & 14 = Industrials, Models 7 & 15 = Technology and Model 8 & 16 = Telecommunication. [a & b] indicate coefficient is significant at 1% and 5%, respectively.

et al. (2011), and Chua et al. (2021), who find a significant lag leverage that prevents firms from adjusting to target leverage instantaneously. Our study shows slower adjustment compared to Chua et al. (2021) [29.11%] and Ting (2016) [21 to 26%]. This could be attributed to the different study periods of the previous researchers. The slower speed of adjustment (SOA) observed in this study might be attributed to the COVID-19 period encompassed in our analysis. According to earlier research (Cook & Tang, 2010; Dang et al., 2014; Drobetz & Wanzenried, 2006), the pandemic-induced economic downturn likely increased adjustment costs for firms. Despite this, our results indicate a quicker adjustment than the 40% rate found by Nejad and Wasiuzzaman (2015) in their study of Malaysian firms. Vo, Mazur, and Thai (2022) suggest that firms more severely affected by COVID-19 tend to adjust more rapidly. Given the statistical significance of our findings, we confirm Hypothesis 1 and conclude that Malaysian firms generally exhibit a slow adjustment to target leverage.

Results for Speed of Adjustments to Target Leverage (Based on Different Industry Classification)

In Table 5, Models 2, 3, 4, 5, 6, 7, and 8 report the results for Basic Materials, Consumer Discretionary, Consumer Staples, Healthcare, Industrials, Technology, and Telecommunication. Based on the results of three diagnostic tests, all models have consistent and efficient estimators of lag debt variable except Model 8. Among the industries, Healthcare (Model 5) has the lowest (quickest) adjustment costs (speed) (costs = 0.196 and speed = 80.4%), whereas Industrials (Model 6) has the highest (slowest) adjustment costs (speed) (costs = 0.859 and speed 14.1%). The results imply that the healthcare (industrials) industry needs the shortest (longest) duration (0.43 and 4.56 years, respectively) to remove the deviation from the actual leverage to half of the target leverage. Other industries, such as basic materials (52.5%), consumer discretionary (55.6%), consumer staples (71.8%), and technology industries (27.3%), appear to have their own set of SOA range to achieve the target leverage. Nevertheless, the Model 8 result shows insignificant lag leverage for the telecommunication industry. It appears that the telecommunication industry does not have optimal leverage to finance the firms' operation.

Likewise, the results in Panel B (robustness result) indicate similar findings regarding the industry SOA. The heterogeneity of the SOA results could be due to the variation in the competitiveness level of the industry that influences the firms' incentive to remove the deviation (Cahyono & Chawla, 2019; Do et al., 2022; Schmidt, 1997). Our findings are consistent with the studies by Banerjee, Heshmati, and Wihlborg (1999), Cahyono and Chawla (2019), and Getzmann et al. (2015), who find that the level of SOA depends on the type of industries that firms operate. Our results imply the importance of the industry-based view in explaining Malaysian firms' dynamic capital structure decisions. Furthermore, our results are supported by the dynamic trade-off theory for all models (except model 8), in which each industry has different adjustment speeds moving to the target capital structure. Hence, considering the Model 8 results, our study could not fully but partially accept H2 and conclude that different industries tend to have different strategies to remove the gap between target leverage and actual leverage.

Results for Firms' Characteristics (Control Variables)

We observed and estimated the target leverage by using the commonly used firms' characteristics to estimate the SOA. Based on the results in Table 5 (Panel A), firm size positively relates to target total leverage for Model 1 to 5 and Model 7. This could be because larger firms have better reputations, stable operations, and a lower degree of bankruptcy risk to secure more debt than smaller firms. The findings are supported by the trade-off theory and are consistent with our prediction. The robustness results in Panel B demonstrate similar findings as Panel A. Our results are compatible to Chua et al. (2021), Hashmi et al. (2020), Buvanendra et al. (2017), and Nor et al. (2011). However, they do not align with Lemmon et al. (2008), who find a negative relationship.

The results in Table 5 (Panel A – Models 1, 2, and 4) report a significant and negative relationship between profitability and target debt. More profitable firms used lower debt potentially due to the desire of these firms to exhaust their internal sources before seeking external funding. Pecking-order theory supports our results but is inconsistent with our prediction of the relationship between profitability and debt. The findings are in line with several past studies, such as Chua et al. (2021), Lean et al. (2015), and Nor et al. (2011), who also examined the Malaysian context. Nevertheless, it is inconsistent with Frank and Goyal (2003) and Matemilola et al. (2018). Similarly, the results in Panel B show consistency across Models 1, 2, and 4 concerning the significance of the variable.

Table 5 (Panel A) reveals a positive correlation between tangibility and total debt in Models 1, 3, 4 and 5, suggesting that higher fixed assets lead to increased firm debt, likely due to assets serving as collateral. This finding, supported by trade-off theory, aligns with Matemilola et al. (2018) and Cahyono and Chawla (2019), but differs from Chua et al. (2021). Conversely, Models 10 , 12, and 14 indicate an inverse relationship between tangibility and long-term debt, in line with agency theory and the findings by Chua et al., yet they contrast the study by Matemilola et al. (2018).

The results of Models 1, 2, and 6 in Table 5 (Panel A) show the negative impact of a non-debt tax shield to target debt. The results are supported by trade-off theory, in which non-debt tax shields items such as depreciation, amortization, and tax loss carryforwards have the substitution effect to debt tax shield that led the firms to use less total debt. Our results are consistent with our prediction and the result is supported by the robustness result in Panel B in terms of its significance to the firm debt. The findings are similar to those of Chua et al. (2021) and Matemilola et al. (2018) but are inconsistent with Oino and Ukaegbu (2015) and Buvanendra et al. (2017).

Model 4 (main) in Table 5 (Panel A) shows that the firm's growth positively correlates with debt. This signifies that the higher the firm's growth, the greater the debt usage. It seems that firms tend to prevent the rising of asymmetric information costs from issuing shares, therefore issuing debt. The result of Model 9 (Panel B) also indicates a similar relationship. The pecking-order theory supports our results but is inconsistent with our prediction. The findings are similar to those of Chua et al. (2021) based on the ASEAN context. Meanwhile, we find a negative and significant relationship between firm growth and debt in Models 2 (Panel A), 10, and 12 (Panel B). A plausible reason is that firms with high growth opportunities might have lower free cash flow to be exploited that does not warrant debt issuance in controlling agency conflict. Our findings are supported by the agency theory and are consistent with our prediction. The results are in line with Nejad and Wasiuzzaman (2013) and Nejad and Wasiuzzaman (2015) and Buvanendra et al. (2017).

The result in Models 2 (Panel A) shows a positive relationship between dividends and firm debt. The positive results imply pecking-order behaviour of the firms in using debt. Firms that pays dividends will have lower retained earnings available for future investment. As a result, they need to issue debt securities to finance future projects. The result in Model 12 also indicates a similar finding. Pecking-order theory and the Lintner dividend model support the results. Our findings are consistent with Baskin (1989). Conversely, Models 11, 13, 14, and 15 (Panel B) show a negative relationship between dividends and firm growth. Agency Theory can be used to explain the exhibited negative relationship, in which dividends acts as the substitution mechanism for debt to control the agency conflict between the manager and shareholder. The results are consistent with the findings by Liao et al. (2015).

All in all, we found mixed results for the firms' characteristics, and they varied from the whole sample of all industries. This is possibly explained by the two different dependent variables used in the estimation.

Conclusions

This study investigates the variation in capital structure adjustments across Malaysian industry sectors, focusing on 415 non-financial firms listed on the Bursa Malaysia from 2010 to 2021. Utilizing a two-step system generalized method of moments for analysis, the research explores how different industries adjust to optimal leverage, contributing to the understanding of capital structure dynamics. Our findings support the dynamic capital structure theory, suggesting that firms actively strive for optimal capital structures. Furthermore, the results align with the industry-based view, highlighting that each industry adopts unique strategies for financial management, particularly in adjusting to target leverage. This is particularly evident in sectors like basic materials, consumer goods, healthcare, industrials, and technology, which show a tendency to revert to optimal leverage to enhance firm value. However, not all industries, such as telecommunications, follow this pattern, indicating varied financing strategies. Additionally, our analysis of target leverage determinants shows mixed results across different industries and firm characteristics. As one of the few studies examining the dynamic aspects of capital structure across various industries, this research offers valuable insights and sets the stage for future explorations in this field.

Acknowledgement

We express our sincere gratitude to the Faculty of Business and Management, Universiti Teknologi Mara for the research grant funding. This research was supported by the Faculty of Business and Management, Universiti Teknologi Mara (Grant No: 600-TNCPI 5/3/DDF (FPP) (005/2021)).

References

Abdeljawad, I., Mat-Nor, F., Ibrahim, I., & Abdul-Rahim, R. (2013). Dynamic capital structure trade-off theory: Evidence from Malaysia. *International Review of Business Research Papers*, *9*(6), 102-110.

Arend, R. J. (2009). Industry effects and firm effects: No effect is an island. *Journal of Business Research*, *62*(6), 651-659.

Bajaj, Y., Kashiramka, S., & Singh, S. (2021). Application of capital structure theories: a systematic review. *Journal of Advances in Management Research*, *18*(2), 173-199.

Banerjee, S., Heshmati, A., & Wihlborg, C. (1999). *The dynamics of capital structure*. New York University-Salomon Center-Leonard N. Stern School of Business.

Bany-Ariffin, A. N., Nor, F. M., & McGowan Jr, C. B. (2010). Pyramidal structure, firm capital structure exploitation and ultimate owners' dominance. *International Review of Financial Analysis*, *19*(3), 151-164.

Buvanendra, S., Sridharan, P., & Thiyagarajan, S. (2017). Firm characteristics, corporate governance and capital structure adjustments: A comparative study of listed firms in Sri Lanka and India. *IIMB management review*, *29*(4), 245-258. https://doi.org/10.1016/j.iimb.2017.10.002

Buvanendra, S., Sridharan, P., & Thiyagarajan, S. (2018). Determinants of speed of adjustment (SOA) toward optimum capital structure: Evidence from listed firms in Sri Lanka. *Journal of Asia-Pacific Business*, *19*(2), 46-71.https://doi.org/10.1080/10599231.2018.1453742

Cahyono, S. B., & Chawla, A. S. (2019). Dynamic capital structure in Indonesian case: Do industry-specific variables affect adjustment speeds?. *Investment Management & Financial Innovations*, *16*(2), 218. https://doi.org/10.21511/imfi.16(2).2019.19

Chua, M., Ab Razak, N. H., Nassir, A. M., & Yahya, M. H. (2021). Speed of adjustment towards target leverage in the ASEAN Countries. *International Journal of Business and Society*, *22*(1), 313-331.

Claessens, S., Djankov, S., & Klapper, L. (2000). The role and functioning of business groups in East Asia and Chile. *Revista Abante*, *3*(1), 97-107.

Cook, D. O., & Tang, T. (2010). Macroeconomic conditions and capital structure adjustment speed. *Journal of corporate finance*, *16*(1), 73-87. https://doi.org/10.1016/j.jcorpfin.2009.02.003

Dang, V. A., Kim, M., & Shin, Y. (2014). Asymmetric adjustment toward optimal capital structure: Evidence from a crisis. *International Review of Financial Analysis*, *33*, 226-242.https://doi.org/10.1016/j.irfa.2014.02.013

Do, T. K., Huang, H. H., & Ouyang, P. (2022).

Product market threats and leverage adjustments. *Journal of Banking & Finance*, *135*, 106365. https://doi.org/10.1016/J.JBANKFIN.2021.106365

Drobetz, W., & Wanzenried, G. (2006). What determines the speed of adjustment to the target capital structure?. *Applied Financial Economics*, *16*(13), 941-958. https://doi.org/10.1080/09603100500426358

Drobetz, W., Schilling, D. C., & Schröder, H. (2015). Heterogeneity in the speed of capital structure adjustment across countries and over the business cycle. *European Financial Management*, *21*(5), 936-973. https://doi.org/10.1111/eufm.12048

Elsas, R., & Florysiak, D. (2011). Heterogeneity in the speed of adjustment toward target leverage. *International Review of Finance*, *11*(2), 181-211.https://doi.org/10.1111/j.1468-2443.2011.01130.x

Etudaiye-Muhtar, O. F., & Ahmad, R. (2015). Empirical evidence of target leverage, adjustment costs and adjustment speed of non-financial firms in selected African countries. *International Journal of Economics and Financial Issues*, *5*(2), 482-488.https://ideas.repec.org/a/eco/journ1/2015-02-20.html

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 1-33. https://doi.org/https://doi.org/10.1093/rfs/15.1.1

Fischer, E. O., Heinkel, R., & Zechner, J. (1989). Dynamic capital structure choice: Theory and tests. *The Journal of Finance*, *44*(1), 19-40. https://doi.org/10.2307/2328273

Flannery, M. J., & Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, *19*, 1-19. https://doi.org/10.1016/j.jcorpfin.2012.09.004

Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. *Journal of Financial Economics*, *79*(3), 469-506. https://doi.org/10.1016/j.jfineco.2005.03.004

Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, *67*(2), 217-248. https://doi.org/10.1016/S0304-405X(02)00252-0

Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: which factors are reliably important?. *Financial Management*, *38*(1), 1-37. https://doi.org/10.1111/j.1755-053X.2009.01026.x

Nor, F. M., Haron, R., Ibrahim, K., Ibrahim, I., & Alias, N. (2011). Determinants of target capital structure: Evidence on South East Asia countries. *Journal of Business and Policy Research*, *6*(3), 39-61.

Getzmann, A., Lang, S., & Spremann, K. (2015). Target capital structure determinants and speed of adjustment analysis to address the Keynes-Hayek debate. *Journal of Reviews on Global Economics*, *4*, 225-241. https://doi.org/10.6000/1929-7092.2015.04.23

Hall, G., Hutchinson, P., & Michaelas, N. (2000). Industry effects of the determinants of unquoted SMEs' capital structure. *International Journal of the Economics of Business*, *7*(3), 297. https://doi.org/10.1080/13571510050197203

Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, *46*(1), 297-355.

Hashmi, S. D., Gulzar, S., Ghafoor, Z., & Naz, I. (2020). Sensitivity of firm size measures to practices of corporate finance: evidence from BRICS. *Future Business Journal*, *6*, 1-19. https://doi.org/10.1186/s43093-020-00015-y

Huang, R., & Ritter, J. R. (2009). Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis*, *44*(2), 237-271. https://doi.org/10.1017/S0022109009090152

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, *76*(2), 323-329. https://doi.org/10.2307/1818789

Law, S. H. (2018). Applied panel data analysis: Short panels. *University Putra Malaysia Press, Serdang*.

Lean, H. H., Ting, I. W. K., & Qian, K. L. (2015). Ownership concentration, family ownership and leverage: Evidence from Malaysia. *Malaysian Journal of Economic Studies*, *52*(2), 117-133.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the beginning: persistence and the cross-section of corporate capital structure. *The Journal of Finance*, *63*(4), 1575-1608. https://doi.org/10.1111/j.1540-6261.2008.01369.x

Liao, L. K., Mukherjee, T., & Wang, W. (2015). Corporate governance and capital structure dynamics: An empirical study. *Journal of Financial Research*, *38*(2), 169-192.

Lööf, H. (2004). Dynamic optimal capital structure and technical change. *Structural Change and Economic Dynamics*, *15*(4), 449-468. https://doi.org/10.1016/j.strueco.2003.05.001

MacKay, P., & Phillips, G. M. (2005). How does industry affect firm financial structure?. *The Review of Financial Studies*, *18*(4), 1433-1466. https://doi.org/10.1093/rfs/hhi032

Matemilola, B. T., Bany-Ariffin, A. N., Azman-Saini, W. N. W., & Nassir, A. M. (2017). Does top managers' experience affect firms' capital structure?. *Research in International Business and Finance*, *45*, 488-498. https://doi.org/10.1016/j.ribaf.2017.07.184

Mukherjee, T., & Wang, W. (2013). Capital structure deviation and speed of adjustment. *Financial Review*, *48*(4), 597-615. https://doi.org/10.1111/fire.12017

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187-221. https://doi.org/10.1016/0304-405X(84)90023-0

Nejad, N. R., & Wasiuzzaman, S. (2013). The empirical analysis of capital structure determinants–Evidence from Malaysia. *Engineering and Technology*, *74*, 466-474.

Nejad, N. R., & Wasiuzzaman, S. (2015). Multilevel determinants of capital structure: Evidence from Malaysia. *Global Business Review*, *16*(2), 199-212. https://doi.org/10.1177/0972150914564274

Nor, F. M., Haron, R., Ibrahim, K., Ibrahim, I., & Alias, N. (2011). Determinants of target capital structure: Evidence on South East Asia countries. *Journal of Business and Policy Research*, *6*(3), 39-61.

Oino, I., & Ukaegbu, B. (2015). The impact of profitability on capital structure and speed of adjustment: An empirical examination of selected firms in Nigerian Stock Exchange. *Research in International Business and Finance*, *35*, 111-121. https://doi.org/10.1016/j.ribaf.2015.03.004

Porter, M. E., & Strategy, C. (1980). Techniques for analyzing industries and competitors. *Competitive Strategy. New York: Free*.

Rehman, A.U., Wang, M., & Yu, H. (2016). Dynamics of financial leverage across firm life cycle in Chinese firms: an empirical investigation using dynamic panel data model. *China Finance and Economic Review*, *4*, 1-22. https://doi.org/10.1186/s40589-016-0041-z

Schmidt, K. M. (1997). Managerial incentives and product market competition. *The Review of Economic Studies*, *64*(2), 191-213.

Scott Jr, D. F., & Martin, J. D. (1975). Industry influence on financial structure. *Financial Management*, 67-73. https://doi.org/10.1111/j.1540-6288.1983.tb01885.x

Smith, D. J., Chen, J., & Anderson, H. D. (2015). The influence of firm financial position and industry characteristics on capital structure adjustment. *Accounting & Finance*, *55*(4), 1135-1169. https://doi.org/10.1111/acfi.12083

Talberg, M., Winge, C., Frydenberg, S., & Westgaard, S. (2008). Capital structure across industries. *International Journal of the Economics of Business*, *15*(2), 181-200. https://doi.org/10.1080/13571510802134304

Ting, I. W. K. (2016). Estimating dynamic panel model of leverage decision: Evidence from Malaysia. *Procedia Economics and Finance*, *35*, 267-273. https://doi.org/10.1016/S2212-5671(16)00033-2

Vo, T. A., Mazur, M., & Thai, A. (2022). The impact of COVID-19 economic crisis on the speed of adjustment toward target leverage ratio: An international analysis. *Finance Research Letters*, *45*, 102157. https://doi.org/10.1016/j.frl.2021.102157

Yin, Q. E., & Ritter, J. R. (2020). The speed of adjustment to the target market value leverage is slower than you think. *Journal of Financial and Quantitative Analysis*, *55*(6), 1946-1977. https://doi.org/10.1017/S0022109019000516