The Moderating Effect of the Pandemic on Capital Structure and Firm Performance in Malaysia

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ABSTRACT

This study aimed to examine the impact of capital structure on firm performance during the COVID-19 pandemic and its moderating effect on the relationship between capital structure and firm performance using a fixed-effect balanced panel data approach. The sample included all Malaysian public firms listed on the Main Market of Bursa Malaysia from 2018 to 2021. The study made a distinction between the prediction of results for long-term debts and total debts, considering the unique situation of the COVID-19 pandemic. The results showed that while total debts negatively affected firm performance, long-term debts, however, affected firm performance positively due to the higher liquidity position offered by them. This study also found evidence that the COVID-19 pandemic significantly reduced the adverse impact of debt on firm performance, most likely due to the societal and monetary aid offered by the Malaysian government throughout the pandemic.

Keywords: COVID-19, Capital Structure, Firm Performance, Moderating Effect, Recession.

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INTRODUCTION

During the COVID-19 pandemic, the Malaysian government continuously provided support for households, businesses, the healthcare system and education to ensure that the well-being of the people was being taken care of. The International Monetary Fund (IMF) (2022) reported that the Malaysian government introduced a few fiscal stimulus packages worth billions of Malaysian Ringgit for various reasons, in particular, for health spending, cash transfers for the households with middle- and low-income categories, incentives for the employers and employees, grants to the businesses and many more. Bank Negara Malaysia (BNM) also responded to the financial crisis faced by people and businesses by lowering the Overnight Policy Rate (OPR), the statutory reserve requirement (SRR) and the temporary facilitation of regulatory and supervisory compliance on banks to help support loan deferment and loan restructuring. BNM first announced an automatic six-month moratorium on all bank loans, except for credit card balances, on March 24, 2020, followed by futher three-month moratorium on July 29, 2020, for the people and businesses affected by the pandemic.

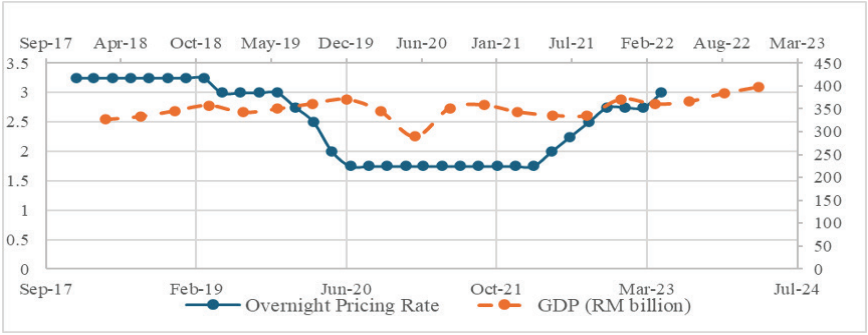

Figure 1: Trend Analysis for GDP and OPR in Malaysia from 2018-2023
Source: Bank Negara Malaysia

Despite the fact that the Movement Control Order (MCO) has completely ended at the end of December 2021, Malaysia is still recovering from the effects of the COVID-19 pandemic. This can be seen in the gradual increment of the overnight pricing rate (OPR) to the rate before the pandemic started (The Star Malaysia, 2023), which was at 3.25% in 2019, as shown in Figure 1. The recovery can also be seen in the gradual increment of Malaysia's GDP, where the growth rates were at 4.4%, or RM1,424 billion,

in 2019, reduced by 5.5% in 2020 (RM1,345.1 billion) at the height of the pandemic, and increased once again by 3.1% (RM1,386.7 billion) in 2021. It was further emphasised when it was announced that the GDP growth rate of 2022 has far exceeded the previous year's rate by recording an 8.7% growth rate in 2022 at RM1,507.3 billion. (The Edge Markets, 2023).

The temporary change in the fiscal and monetary policies during the pandemic (2020-2021) altered the financing decisions of the businesses, which eventually affected business profitability or performance. Thus, the impact of the COVID-19 pandemic on firms' capital structure and performance is a well-researched area (Edberg & Kjellander, 2022; El-Chaarani et al., 2022; Purnamasari & Fauziah, 2022; Turkki, 2021). However, to the best of our knowledge, there is a lack of studies on the moderating effect of the pandemic on capital structure and performance relationships, as well as studies on Malaysian firms' capital structure and performance during the COVID-19 pandemic using the panel data approach. Therefore, this study aimed to 1) study the impact of capital structure on Malaysian firms' performance during the COVID-19 pandemic and 2) study the moderating effect of the COVID-19 pandemic on the relationship between capital structure and performance using a panel data approach.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Capital Structure Theories and Determinants

There are many studies conducted to understand the choice of capital structure made by firms. Modigliani and Miller (1963), who previously postulated that the choice of capital structure does not affect the firms' market value, eventually acknowledged the effect of tax advantage in debt financing in their later research (Modigliani & Miller, 1958). In addition to tax advantage, there are many other determinants of capital structure derived from theories of capital structure. These capital structure theories can be grouped into static theories and dynamic theories (Jaros & Bartosova, 2015). The two main competing theories that have intrigued researchers are the trade-off theory and the pecking order theory. The static trade-off theory states that a company should try to maintain a fixed proportion of

debt and equity as it will result in the highest company value. On the other hand, the pecking order theory (Myers & Majluf, 1984) suggests that the company will always choose the cheapest cost of financing before moving on to the higher cost of financing. In this case, due to the least information asymmetry, financing via retained earnings is the cheapest, and thus, it will be used first before the company moves on to debt financing before resorting to external equity financing.

Aside from tax factors and information asymmetry, the other determinants found to be affecting capital structure decisions can be categorised into firm-specific factors and institutional factors. Firm-specific factors are, for example, profitability, firm size, asset tangibility, growth opportunities, and non-debt tax shields. Different capital structure theories give different predictions. For example, a significant negative relationship between profitability and debts is predicted by the pecking order theory (Booth et al., 2001; Deesomsak et al., 2004; Fama & French, 2002b; Fraser et al., 2006), while the static trade-off theory predicts a positive relationship. In addition to that, firm size and debt, which are positively related as found by most studies (Booth et al., 2001; Deesomsak et al., 2004; Frank & Goyal, 2003; Fraser et al., 2006), conform to the prediction of the trade-off theory. It indicates that the larger firms tend to diversify and fail less often, thus having a bigger capacity to use more debt. However, some studies found a negative relationship between firm size and leverage, which means small firms tend to rely heavily on bank loans due to their limited access to the equity capital market (Chen, 2004). Under the pecking order theory, asset tangibility has a positive relationship with capital structure due to the ease of collateralizing the assets to obtain debts (Deesomsak et al., 2004; Frank & Goyal, 2003; Hirota, 1999), whereas the static trade-off theory predicts a negative relationship between growth opportunities and debt (Booth et al., 2001; Fama & French, 2002b; Frank & Goyal, 2003; Pandey, 2001) because firms with many growth opportunities tend to be riskier due to large costs of financial distress (Hirota, 1999) and the difficulty of borrowing against intangible growth opportunities (Booth et al., 2001). For the relationship between the debt tax shield and debts, the static trade-off theory forecasts a positive relationship due to the tax advantage obtained from obtaining more debt. If the tax shield comes from sources other than debt, for example, depreciation and research and development costs, the relationship is inverse and becomes negative (Deesomsak et al., 2004; Fama & French, 2002b; Wiwattanakantang, 1999; Zou & Xiao, 2006).

Determinants of capital structure that arise from institutional factors are unique to the market in which the firms operate. One of the institutional factors that are common is firm ownership. The pecking order theory states that high information asymmetry creates a hierarchy as to which source of financing should be prioritised. As such, debts can be used to mitigate the high information asymmetry that arises between the shareholders and the management of the firms. Hence, it is expected that highly concentrated ownership firms have lower debts than low concentrated ownership firms. De Miguel and Pindado (2001) and Suto (2003) confirmed this expectation in their study. Furthermore, Suto (2003) also found that foreign ownership helps monitor the actions of corporate management. Aside from firm ownership, in Malaysia, the debt of firms with political connections is higher than that of firms without political connections (Ebrahim et al., 2014; Fraser et al., 2006), especially before a period of financial crisis. Interestingly, Ebrahim et al. (2014) found no significant difference after the crisis between political and non-political patronage firms. However, these politically connected firms suffered the most during the crisis, which could possibly be due to the loss of valuable subsidiaries (Johnson & Mitton, 2003). A similar finding was discovered for Malaysia's government-linked companies (GLCs), which also had a higher debt compared to non-GLCs (Nik Kamarudin & Pok, 2009). This could be due to critical differences between GLCs and non-GLCs; for instance, GLCs are infused with public funds, and GLCs have no real fear of bankruptcy, as well as inequality in terms of market competition (Tselichtchev, 2007). Other unique characteristics of studying the determinants of capital structure are the close relationships firms have with the main banks, as happens in Japan. Being a member of Keiretsu is important, as the main banks would help monitor and rescue the firms during financial distress. Hirota's (1999) study showed that main bank relationships and keiretsu membership are significantly positively related to leverage, which confirmed Hirota's (1999) expectations. While in Korea, Lee et al. (2000) studied the capital structure of chaebol and non-chaebol firms and found that chaebol firms had higher leverage compared to non-chaebol firms, which was a consequence of the government's development strategy in the past. These firms were also blamed as a cause of the financial crisis.

The development of the stock or bond market, creditor or investor protection, GDP and interest rate were also found to be significantly related to debt. The developed bond market was found to be positively related to

debt, which could be due to the many choices of debt instruments offered, whereas the developed stock market had a negative relationship with debt (de Jong et al., 2008). The role of the legal system to protect creditors and investors is also crucial in determining the firm's capital structure. Better creditor rights protection is expected to be positively related to debt, and this is confirmed in a study by Cheng and Shiu (2007). However, a negative relationship was found in a study by de Jong et al. (2008) in which they believed that a tightened creditor protection signals risky debt. GDP was positively related to debt (de Jong et al., 2008) which suggested that firms are using more debt in a country with a better GDP.

Based on the literature above, it appears that capital structure is affected by firm characteristics, institutional uniqueness, as well as the health of the market in which the firms operate. Therefore, the sudden arrival of the COVID-19 pandemic had acutely affected firm-specific factors as well as the market as the whole world, which came to a complete halt socially and economically.

Capital Structure, Firm Performance and COVID-19 Pandemic

The effect of COVID-19 on firm performance can be seen throughout the world. In the most affected industry, which was the hotel and tourism industry, Purnamasari and Fauziah (2022) found that capital structure did not affect firm value during the pandemic. For the banking and financing industries, Islamic banks in GCC countries were found to have suffered more in terms of performance than their conventional counterparts (El-Chaarani et al., 2022). Financial performance such as profitability, liquidity, and financial risk were seen as significantly worse in Islamic banks as compared to conventional banks, whereas the capital structure between Islamic banks and conventional banks showed no statistical difference. In China, it was found that firm performance was severely affected during the pandemic, especially those that operated in the hotel, tourism, and transportation industries (Rababah et al., 2020).

There were also changes in the capital structure during the pandemic. Mohammad (2022) found that the capital structure of banks in Pakistan had decreased significantly during the pandemic. This result, however, contradicts the results found by El-Chaarani et al. (2022), in which the capital

structure of banks (Islamic or conventional) in GCC countries increased during the pandemic. In the same study, the capital structure of Islamic banks and conventional banks yielded no statistically significant difference before and during the pandemic. In addition to that, the capital structure during the pandemic was also heavily influenced by the type of firms, whether they were publicly listed or private. The rationale was that publicly listed firms had more internal funding capacity than private firms and thus would have no problem obtaining their own additional capital. Turkki (2021) found that private firms in European countries employed statistically more debt compared to public-listed firms during the pandemic. This also helped with the fact that the European capital markets were developed so as to not hinder private firms from obtaining additional funds during a crisis.

In Malaysia, firm capital structure decreased during the pandemic, as seen in short-term debt, long-term debt, and total debt (Mohd Azhari et al., 2022). Profitability was seen to affect long-term debts more significantly during the pandemic than short-term debts, and the negative relationship signified the existence of the pecking order theory, where firms with high profitability had larger internal funds to rely on rather than obtaining additional capital from outside of the firm. Larger firms with higher profitability avoided obtaining long-term debts due to the economic uncertainty during the pandemic, suggesting that the size of the firms played a major role in determining the level of capital structure during the pandemic.

Hypotheses Development

The trade-off theory predicts a positive relationship between capital structure and firm performance because firms with high profitability would employ higher leverage in order to capture the tax-shield benefits. Higher employment of debt also acts as a signal to the market about higher profitability since the issuance of higher debt leads to higher profitability (Jensen, 1986). Ayaz et al. (2021) found a positive relationship between firm performance and book value capital structure and a negative relationship for market value capital structure without the presence of the COVID-19 pandemic, suggesting evidence for the trade-off theory. On the other hand, studies have shown how firms employed lower leverage and gained lower profitability during the pandemic, suggesting the effect of the COVID-19 pandemic is prominent. The pecking order theory predicts that firms will

lower their capital structure because they have more internal funds or financial slack to finance their operations. Rather than relying on external financing, which has a higher information asymmetry and thus a higher cost of financing, the firms would opt to use internal financing first before resorting to borrowing. In the period of the pandemic, the information asymmetry would be high, and therefore, the firms would opt for less-risky forms of financing to support their business operations. This is supported by Mohd Azhari et al. (2022), who found the presence of the pecking order theory before and during the pandemic. The same study in India also found the presence of the pecking order theory during the pandemic (Prakash et al., 2022).

H1a: There is a significant negative relationship between DTA and firms' performance during the COVID-19 pandemic.

Long-term debt has a different impact on firm profitability as compared to short-term debt. This is mainly because long-term debts carry a lower risk due to a longer repayment period and firms have higher liquidity. Unlike long-term debts, short-term debts tend to increase the probability of insolvency and financial distress (Hamid et al., 2017). Furthermore, Nazir et al. (2021) stated that there is a positive effect of debt financing on profitability due to the very low cost of debt in Ghana. This situation is similar to the scenario that happened during the COVID-19 pandemic, where the Malaysian government provided various types of governmental monetary aid, such as loan moratoriums, where individuals and firms were exempt from paying loan repayments for a certain period of time, and reduced OPR throughout the pandemic period (see Figure 1). The pecking order theory states that firms prefer less risky forms of financing. Therefore, during times of economic uncertainty, firms are inclined to prioritise less risky forms of financing. A low cost of borrowing combined with a longer repayment period would have a positive impact on firm performance. Following the prediction of previous literature, the hypothesis for the impact of long-term debt on profitability is the opposite of H1a.

H1b: There is a significant positive relationship between LDTA and firms' performance during COVID-19 pandemic.

Many businesses suffer during a recession, as indicated by the drop in share values, and this has spurred the study of the effects of recession. A few studies, Ebrahim et al., (2014); Fosberg, (2008); Iqbal & Kume (2015) and Trinh & Phuong (2015) have found a minimal shift in the capital structure between the pre- and post-recession eras. There were also adjustments made to the pre- and post-recession link between leverage and firm as well as country-specific characteristics (Deesomsak et al., 2004). Debts were found to accumulate during a recession (Fosberg, 2008) and increase from the pre-recession period to the post-recession period (Iqbal & Kume, 2015). After the recession ended, leverage and accumulated debt were back to how they were before the recession (Fosberg, 2008; Iqbal & Kume, 2015). The COVID-19 pandemic acted as a macro-economic shock to firms, similar to how recessions impact capital structure. Furthermore, the significant change in results found by Ayaz et al. (2021) and Mohd Azhari et al. (2022), in which different Malaysian samples were used (with and without the pandemic), further signified the role of the pandemic in moderating the relationship between capital structure and firm performance. Therefore, the following hypothesis was posited:

H2: The COVID-19 pandemic moderates the relationship between capital structure and firm performance.

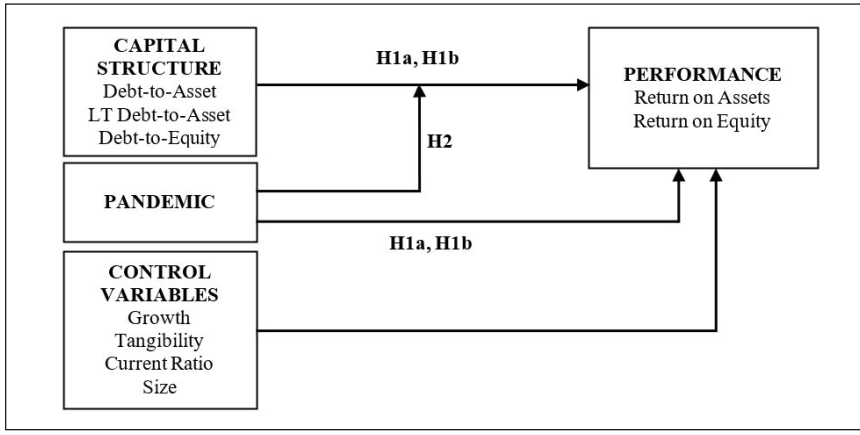

Figure 2: Conceptual Framework

METHODOLOGY

Sample selection

The sample included all Malaysian public firms listed on Bursa Malaysia's Main Market. We excluded firms from the finance and insurance sectors because their capital structures are highly regulated (Ayaz et al., 2021), as well as companies traded in the ACE and LEAP markets due to their different characteristics and unique regulations. This investigation studied the effect of capital structure on firm performance. The dependent, independent, and control variables were collected using the Refinitiv Eikon service. The independent and control variables were selected based on the previous literature, and they were found to influence firm performance. The study also removed outliers by winsorising all continuous variables that fell in the top and bottom 5% of the data (Ayaz et al., 2021).

The data used was taken from 2018 until 2021 to ensure that it was a balanced panel data. Panel data is used because it combines cross-sectional and longitudinal data, which may assist in the modelling of the unobserved heterogeneity (also called firm fixed effects), possibly reducing or eliminating the endogeneity problem derived from omitted variables (Barros et al., 2020). The sampling period was chosen to provide stable measures of firm performance and capital structure (Abu-Abbas, Alhmoud, & Algazo, 2019). We categorised the data from 2018 to 2019 as non-pandemic and the data from 2020 to 2021 as pandemic (Edberg & Kjellander, 2022; Mohd Azhari et al., 2022; Turkki, 2021). Companies with incomplete data from 2018 until 2021 were excluded from the final sample. The number of companies that satisfied all the criteria was 489.

Table 1: Summary of Data

		No of companies	Total Observation
Retrieved number of companies		814	3256
Less:	Finance sector	35	140
	ACE and LEAP Markets	164	656
	Missing values	126	504
Final Sample of companies		489	1956

Table 1 shows the summary of data finalised for 2018–2020. The financial sector includes banks and insurance companies. The ACE market is a sponsor-driven market designed for companies with growth prospects. It was formerly known as the MESDAQ Market prior to August 3, 2009. The LEAP market is an adviser-driven market that aims to provide emerging companies, including small and medium-sized enterprises, with greater fund-raising access and visibility via the capital market. It is accessible only to sophisticated investors. (via www.bursamalaysia.com)

Variable selection

Dependent variables chosen to measure firm performance were ROA and ROE (Alarussi, 2021; Alarussi & Alhaderi, 2018; Ayaz et al., 2021). The independent variable was the capital structure. Booth et al. (2001); Deesomsak et al. (2004) and Fraser et al. (2006) found that the significant negative relationship between profitability and debt was as predicted by the pecking order theory, which asserted that highly profitable companies tended to finance investments with retained earnings rather than using debt or equity. Proxies for debts chosen by this study were DTA (Alarussi, 2021; Ayaz et al., 2021) and LTDA (Öhman & Yazdanfar, 2017). This study also included control variables that had been proven in the previous literature to have an impact on firm performance, such as growth, asset tangibility, size and current ratio (Alarussi & Alhaderi, 2018; Ayaz et al., 2021; Öhman & Yazdanfar, 2017). The pandemic dummy variable was included to study the impact of the pandemic on firm performance and it was denoted by a value of 1 for pandemic and 0 for non-pandemic.

Regression Model

In order to achieve the research objectives, this study opted for the following regression models that were built based on the pecking order theory and the static trade-off theory. To test the first hypothesis, the study used the following models to examine the linear relationship between capital structure and firms' performance, controlled by the selected variables. The firm performance variables were measured using Return on Assets (ROA) and Return on Equity (ROE). For the capital structure, the variables were Debt-to-Assets (DTA) and Long-term Debt-to-assets (LTDA). For robustness purposes, the study applied Debt-to-Equity (DTE) as an alternative proxy for capital structure. The first model tested the relationship between firm performance and capital structure from 2018–2021 without distinguishing before and during the pandemic periods (R1). The second regression model tested the relationship between firm performance and capital structure from 2018 to 2021 by including a dummy PANDEMIC variable to examine whether the relationship changed (R2). The third regression model answered the second research objective, which was to examine the moderating effect of PANDEMIC (R3). The study aimed to examine whether or not the presence of the COVID-19 pandemic had a

greater influence on the relationship between capital structure and firm performance. Thus, the regression models were:

$$PERFORMANCE_{it} = \beta_1 (CAPITAL\ STRUCTURE)_{it} + \beta_2 (CONTROL)_{it} + \varepsilon_{it} \quad (1)$$

$$PERFORMANCE_{it} = \beta_1 (CAPITAL\ STRUCTURE)_{it} + \beta_2 (PANDEMIC)_{it} + \beta_3 (CONTROL)_{it} + \varepsilon_{it} \quad (2)$$

$$PERFORMANCE = \beta_1 (CAPITAL\ STRUCTURE) + \beta_2 (PANDEMIC)_{it} + \beta_3 (CONTROL)_{it} + \beta_6 (CAPITAL\ STRUCTURE*PANDEMIC)_{it} + \varepsilon_{it} \quad (3)$$

…where i = firms and t = year

This study opted for balanced panel data regression analysis to consider the cross-sectional as well as time factors of the data. A battery of specification tests, including the F-test, correlation matrix (Table 2), VIF multicollinearity tests, and Hausman tests, were conducted to determine an appropriate regression model for analysis. All the independent variables had a VIF value less than 3, and the correlation matrix showed a value less than 80% for all chosen variables, which meant that all the variables were free from multicollinearity problems. The Hausman specification test functions as an indicator of which variance parameter should be applied, that is, whether fixed or random effects should be adopted. Using STATA software, the null hypothesis of the Hausman test is that the appropriate model is the random effect model, and if the chi-value is significant, then the hypothesis is rejected.

DATA ANALYSIS, RESULTS AND DISCUSSION

Descriptive Analysis

Table 2 shows the descriptive analysis of variables used to study the effect of capital structure on firm performance. Firm performance showed an average of 3.498% for ROA and 4.16% for ROE during the pandemic. ROA showed a reduction in firm performance during the pandemic, which supported the previous literature (El-Chaarani et al., 2022; Mohd Azhari et al., 2022; Purnamasari & Fauziah, 2022; Rababah et al., 2020). ROE showed

an increment during the pandemic as a result of the increase in DTA and LDTA, which shrank the equity portion and caused ROE to improve. The DTA and LTDA showed an increment during the pandemic, which was in contrast to the studies done by Mohd Azhari et al. (2022) and Prakash et al. (2022), where they found firms decreased their debts during the pandemic period. DTA was seen to slightly increase from 20.12% to 20.2%, whereas LTDA increased from 0.09% to 0.10%. However, the descriptive analysis captured the data from 2018 to 2021 only. As exhibited in Figure 3, the DTA declined further in 2022, which supported the findings of previous studies.

Table 2: Descriptive Analysis

Var	Before PANDEMIC				During PANDEMIC				Full Sample			
	Mean	SDev	Min	Max	Mean	SDev	Min	Max	Mean	SDev	Min	Max
ROA	3.51	6.03	-9.93	16.08	3.48	6.22	-9.93	16.08	3.50	6.12	-9.93	16.08
ROE	4.08	11.70	-23.82	26.88	4.16	11.98	-23.82	26.88	4.12	11.84	-23.82	26.88
DTA	20.12	15.50	0.01	50.20	20.20	15.64	0.01	50.20	20.16	15.56	0.01	50.20
LTDA	0.09	0.11	0.00	0.36	0.10	0.11	0.00	0.36	0.10	0.11	0.00	0.36
GROW	1.03	0.12	0.83	1.34	1.04	0.12	0.83	1.34	1.04	0.12	0.83	1.34
TANG	0.31	0.22	0.01	0.75	0.31	0.21	0.01	0.75	0.31	0.22	0.01	0.75
CR	2.54	1.96	0.60	8.27	2.60	2.04	0.60	8.27	2.57	2.00	0.60	8.27
SIZE	5.91	0.61	4.98	7.27	5.94	0.61	4.98	7.27	5.93	0.61	4.98	7.27

Table 2 shows the descriptive analysis of the variables for 2018–2021. DTA is debt-to-asset (total debt/total assets), and LTDA is long-term debt-to-asset (long-term debt/total assets). ROA is return on assets (net profit/total assets), and ROE is return on equity (net profit/common equity). Tangibility (net tangible assets/total assets) and growth (total assets/last year's total assets) SIZE is the company's size (natural log of total assets), C_RATIO is the current ratio (current assets/current liabilities), and PANDEMIC is a dummy variable in which 1 is the pandemic period and 0 is the non-pandemic period.

The control variables showed results that conformed to the previous literature as well. SIZE and GROWTH increased during the pandemic, and the results concur with Mohd Azhari et al. (2022), which stated that despite the COVID-19 pandemic, the firms still continued to show increases in short-term growth and size. CR increased as well due to the financial support given by the government during the COVID-19 pandemic, where firms were exempt from paying for financial costs. Asset tangibility (TANG) remained unchanged. It indicated the GROWTH was not due to additional investments in tangible assets.

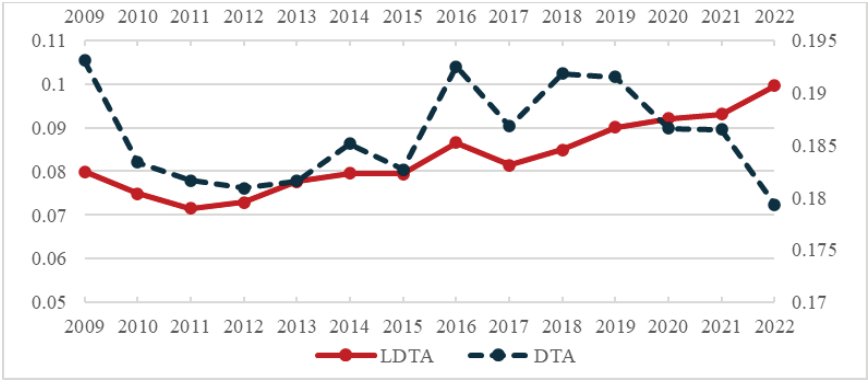

Figure 3: Trend Analysis of Capital Structure in Malaysia 2009-2022
Source: Thomson Eikon Refinitiv

As for the capital structure employed by the firms, total debts accounted for 20.159% and long-term debts accounted for only 0.097% of total assets. Based on Figure 2, the DTA decreased from 2009 to 2015 due to the massive 2008 recession before stabilising until the pandemic hit in 2019, and the firms were seen to be reducing business risks by opting for lower levels of debt. It was supported by the fact that LTDA increased despite low DTA, suggesting the firms were removing the risky short-term borrowings and preferring the lower-risk long-term loans. The increment of long-term debts and the decrease of short-term debts during the pandemic concurred with previous literature (Mohd Azhari et al., 2022). The steeply declining DTA continued until the end of 2022.

Panel Date Regression Analysis

The results are categorised into two main dependent variables, which are ROA and ROE. Table 3: Panel A: Model 1, 2, and 3 results showed that DTA had a significant negative relationship to ROA. The dependent variable of ROE yielded similar results. This supported H1a, which meant that firms with a low level of debt were less vulnerable, had reduced bankruptcy risks and agency costs, and preserved a higher market share that amplified firm profitability. Factoring in the PANDEMIC variable (Models 2 and 3), the negative relationships between DTA and ROA and ROE stayed strongly significant due to the fact that firms employed lower debts during economic uncertainties (Iqbal & Kume, 2015; Mohd Shaari et al., 2022).

However, when the result focused on LTDA, the results changed from a negative relationship to a positive relationship, and they were significant at 5% for Models 1, 2, and 3 for both dependent proxies of firm performance. Long-term debts generally carry less bankruptcy and liquidity risks to the firms as well as to the lender due to a longer repayment period, regular repayments, and higher liquidity. According to the pecking order theory, firms are inclined to prioritize less risky forms of financing. Therefore, in times of acute economic uncertainty such as the pandemic, firms are more likely to take on long-term debts rather than short-term debts in their effort to decrease their risks. This is seen in Figure 2, where DTA decreased but LDTA increased in the period before and after the COVID-19 pandemic. Therefore, this concurred with H1b, where firms relied more on less-risky forms of financing during the period of economic uncertainty, as seen in the higher LDTA's coefficient value in Model 2 and thus, showing evidence of the pecking order theory.

To answer H2, we turn to Model 3. Unlike cyclical recessions, the economic downturn caused by the pandemic was an unexpected event, and it offered firms less time to prepare for it (Ariff et al., 2023). The PANDEMIC variable showed a negative relationship to ROA and ROE, which meant that the pandemic adversely impacted firms' ROA and ROE, and they were both significant at the 1% level. However, when looking into the moderating variable (PAN*DTA), the positive results indicated that the adverse impact of PANDEMIC on firms' ROA and ROE can be mitigated by employing debts (specifically DTA), and it was significant at the 10% level. Information asymmetry can contribute to agency problems by allowing agents (management) to possess information that shareholders do not. To mitigate this agency problem, a form of monitoring mechanism and control system can be adopted to ensure that the agents act in the shareholders' best interests. Debts can be used as a mitigation tool as they reduce information asymmetry through thorough reporting provided by firms (Platikanova & Soonawalla, 2019) and thus reduce the cost of financing expansion activities needed to improve firms' performance. Debts also serve as an effective tool for monitoring and mitigating managerial discretion by limiting their ability to appropriate firms' wealth, hence improving firm performance (Colla et al., 2013). In addition to that, with Malaysia's distinctive legal structure and robust creditor protection regulations, creditors can manage their risks easier when a borrower defaults. Therefore, a higher level of

borrowing exerts enormous pressure on managers to focus on activities that yield higher net present values to generate enough cash flows to meet debt obligations, which in turn improves firms' performance (Ayaz et al., 2021). These results concur with the pecking order theory and the agency cost theory. Furthermore, the COVID-19 pandemic presented a unique situation, reducing the base lending rate to such a low level to aid firms in weathering the economic shock. This mitigated the adverse impact of debt on firm performance because the firms enjoyed the additional funds without needing to bear the high cost of financing and the financial risks attached to it as long as the governmental aid continued during the COVID-19 pandemic.

Table 3: Panel Data Regression Results

Panel A: Dependent Variable – Return on Assets									
	Model 1: Without PANDEMIC			Model 2: With PANDEMIC			Model 3: Moderating Effects		
Variables	**β**	**t-value**	**p-value**	**β**	**t-value**	**p-value**	**β**	**t-value**	**p-value**
(Constant)	-24.489	-3.100	0.002	-53.857	-4.950	0.000	-27.877	-3.460	0.001
DTA	-0.161	-6.580	0.000	-0.236	-7.450	0.000	-0.179	-7.070	0.000
LTDA	6.838	2.300	0.022	8.926	2.390	0.017	6.366	2.020	0.044
GROW	14.224	15.380	0.000	13.282	13.530	0.000	14.367	15.420	0.000
TANG	-5.278	-3.040	0.002	-6.283	-2.740	0.006	-5.272	-3.050	0.002
CR	0.355	2.740	0.006	0.374	3.070	0.002	0.373	2.890	0.004
SIZE	2.792	2.020	0.043	8.190	4.290	0.000	3.422	2.420	0.016
PANDEMIC	-	-	-	-0.382	-1.690	0.092	-0.945	-3.530	0.000
PAN*DTA	-	-	-	-	-	-	0.026	1.660	0.096
PAN*LTDA	-	-	-	-	-	-	1.515	0.640	0.521
Observation		1956			1956			1956	
Category		489			489			489	
R-square		0.1988			0.1421			0.1985	
F-value		71.19***			65.22***			49.32***	
Hausman Chi-sq		96.92***			92.72***			93.69***	
Model		Fixed Effect			Fixed Effect			Fixed Effect	
Panel B: Dependent Variable – Return on Equity									
Variables	**β**	**t-value**	**p-value**	**β**	**t-value**	**p-value**	**β**	**t-value**	**p-value**
(Constant)	-55.645	-3.540	0.000	-60.020	-3.730	0.000	-62.645	-3.900	0.000
DTA	-0.411	-8.420	0.000	-0.416	-8.500	0.000	-0.459	-9.100	0.000
LTDA	22.535	3.800	0.000	23.155	3.890	0.000	22.973	3.650	0.000
GROW	27.193	14.760	0.000	27.039	14.650	0.000	27.410	14.790	0.000
TANG	-12.837	-3.720	0.000	-12.682	-3.670	0.000	-12.933	-3.760	0.000
CR	0.502	1.950	0.052	0.509	1.970	0.049	0.538	2.090	0.037
SIZE	6.809	2.480	0.013	7.605	2.700	0.007	8.136	2.890	0.004
PANDEMIC	-	-	-	-0.425	-1.310	0.191	-2.106	-3.950	0.000
PAN*DTA	-	-	-	-	-	-	0.085	2.680	0.007

PAN*LTDA	-	-	-	-	-	-	-0.469	-0.100	0.920
Observation		1956			1956			1956	
Category		489			489			489	
R-square		0.0739			0.1948			0.1963	
F-value		16.64***			15.2***			52.38***	
Hausman Chi-sq		154.40***			155.86***			149.73***	
Model		Fixed Effect			Fixed Effect			Fixed Effect	

Table 3 shows the panel data regression results for firms' performance of the variables for 2018–2021. DTA is debt-to-asset (total debt/total assets), and LTDA is long-term debt-to-asset (long-term debt/total assets). ROA is return on assets (net profit/total assets), ROE is return on equity (net profit/common equity), TANG is tangibility (net tangible assets/total assets), and GROW is growth (total assets/last year's total assets). SIZE is the company's size (natural log of total assets), C_RATIO is the current ratio (current assets/current liabilities), and PANDEMIC is a dummy variable in which 1 is the pandemic period and 0 is the non-pandemic period. PAN*DTA and PAN*LDTA are the interaction variables between DTA (LDTA) and the dummy variable PANDEMIC.

The control variables also followed the predictions of the pecking order theory. Firms with higher growth will have higher performance. Asset tangibility (TANG) was seen to have a negative relationship with ROA and ROE, and this conformed to the previous literature (Ayaz et al., 2021). This is because high investments in asset tangibility will increase depreciation as well as other operating costs to maintain the assets, which will further reduce firm profitability. Size was positively related to ROA and ROE, and this is because larger firms will have easier access to more financial resources, which leads to a lower cost of capital and higher profit (Alarussi & Alhaderi, 2018). Liquidity, as measured by the current ratio (CR), is imperative for firms to fulfil short-term obligations and run daily business activities. High liquidity will lead to high profitability, higher business efficiency, and lower bankruptcy risk (Alarussi, 2021), and it is positively related to performance. Larger firms also experience fewer problems related to information asymmetry, moral hazard, financial distress, and bankruptcy risk that can lead to higher firms' performance (Fama & French, 2002a; Rajan & Zingales, 1995).

Robustness Check using Debt-to-Equity

This study also repeated the analysis by using a different capital structure proxy to ensure the results remain similar by using Debt-to-Equity (DTE). Table 4 shows the output of DTE on ROA and ROE. The overall findings were consistent with those illustrated in Table 3 under long-term debts (LTDA), suggesting that the financial leverage of the Malaysian firms was positively influencing their performance. It meant that firms with lower equity values enjoyed a higher ROA and ROE during the pandemic.

This result is similar to that of Ayaz et al. (2021). The pandemic was also significantly affecting firm performance, and it was significant at the 1% level. It is interesting to note that the pandemic reduced the positive effect of debt on firm performance, whereas in LTDA, the moderating effect was not significant. It may suggest the shareholders perceive the pandemic as an obstacle to generating shareholders' wealth.

Table 4: Panel Data Regression Results Using Debt-to-Equity

Dependent Variable	ROA		ROE	
Independent Variable	**β**	**t-value**	**β**	**t-value**
(Constant)	-31.06	-3.93***	-75.08	-4.82***
DTE	-0.05	-8.65***	-0.13	-11.63***
GROW	14.33	15.67***	27.77	15.39***
TANG	-5.01	-3***	-10.82	-3.29***
CR	0.45	3.65***	0.74	3.02***
SIZE	3.82	2.76***	9.88	3.62***
PANDEMIC	-0.78	-3.48***	-1.71	-3.9***
PAN*DTE	0.01	3.73***	0.03	4.74***
Observation	1956		1956	
Category	489		489	
R-square:	0.1978		0.2031	
F-value	66.04***		75.25***	
Hausman Chi-sq	102.34*** (FE)		181.82***(FE)	

Table 4 shows the panel data regression results for the accounting performance of the variables for 2018–2021. DTE is debt-to-equity (total debt/total common equity). ROA is return on assets (net profit/total assets), ROE is return on equity (net profit/common equity), TANG is tangibility (net tangible assets/total assets), and GROW is growth (total assets/last year's total assets). SIZE is the company's size (natural log of total assets), CR is the current ratio (current assets/current liabilities), and PANDEMIC is a dummy variable in which 1 is the pandemic period and 0 is the non-pandemic period. *DTE is the interaction variable between DTE and the dummy variable PANDEMIC.

CONCLUSION

The Malaysian economy was impacted by the onset of the COVID-19 pandemic between 2020 and 2021, prompting responsive actions from the Malaysian government. Nevertheless, the measures implemented by the government to contain the spread of the virus, including prolonged quarantine orders, had significantly disrupted businesses in Malaysia. This study was conducted with two research objectives: (1) to examine the impact of capital structure on firm performance during the COVID-19 pandemic; and (2) to study the moderating effect of the COVID-19 pandemic on the relationship between capital structure and firm performance. This is due to

the fact that the brief adjustments made to the monetary and fiscal policies throughout the pandemic era alter the capital structure decision made by the companies, ultimately affecting their performance or profitability.

Results showed that capital structure variables and control variables significantly affected firm performance variables, which conformed to the existing capital structure theories. Firms with lower debt (DTA) exhibited a significant negative relationship with ROA and ROE. Conversely, long-term debts (LTDA) showed a positive and significant relationship with both performance proxies during economic uncertainty (PANDEMIC). This preference for long-term debts is consistent with the pecking order theory, as it reflects a strategy of choosing less risky financing options during uncertain economic conditions. In addition, Model 3 introduced the moderating variable PAN*DTA, revealing that debt (DTA) can mitigate the adverse impact of PANDEMIC on ROA and ROE, supporting H2 and aligning with the pecking order theory and the agency cost theory. The unique circumstances of the COVID-19 pandemic, including reduced base lending rates, further influenced the relationship between debt and firm performance, illustrating the interplay of financial theories in real-world scenarios. Interestingly, in contrast to previous studies, this study discovered a positive relationship between long-term debts and firm performance during the COVID-19 pandemic. We posit that the positive relationship between long-term debts and firm performance can be attributed to firms opting for less risky forms of financing during the pandemic, aligning with the principles of the pecking order theory. This study also found that the pandemic variable was significantly and negatively related to firm performance. However, the moderating variables of the pandemic and total debts on firm performance showed that the pandemic could mitigate the adverse effect of debts on firm performance due to the availability of additional funds without needing to bear the high cost of financing and the financial risks attached to it as long as the governmental aid continued during the COVID-19 pandemic.

The COVID-19 pandemic, which is considered an economic shock, is different from other recessions because of the massive governmental financial aid provided to individuals and firms. Due to that, we believe that the fiscal and monetary policies implemented during the period would lead to changes in the financing decisions and the capital structure of businesses,

eventually impacting the profitability and performance of those businesses. The practical implication of this study can be concluded that by easing the lending and borrowing facilities provided by financial institutions, the positive impact of debts on firm performance is more pronounced. Just like during the pandemic, when BNM lowered the Overnight Policy Rate (OPR), the statutory reserve requirement (SRR), and supported loan deferment and loan restructuring, the government can also use these similar financial aids to help improve firm performance when the next economic shock comes or when the government wishes to stimulate the economy.

This study, however, has its limitations in its period of study, which could be extended beyond 2022 in the future. Furthermore, this study focussed on trading firms and excluded small-medium enterprises (SMEs) from the sample. Therefore, for future research, it would be beneficial to include SMEs because they also received similar governmental financial aid during the pandemic. In addition, the period of study should extend beyond 2021, where future research could focus on the changes in capital structure from before, during and in the aftermath of the pandemic.

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