

# Corporate Leverage Decisions in Malaysian Property Sector: Before and During Pandemic

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DOI: <https://dx.doi.org/10.47772/IJRISS.2023.7012134>

Received: 06 December 2023; Revised: 16 December 2023; Accepted: 20 December 2023;  
Published: 14 January 2024

## ABSTRACT

Financial constraints and leverage decisions have challenged the survival and expansion of property businesses, especially during unfavorable economic conditions. This study aims to investigate the factors of corporate leverage in the Malaysian property sector from 2015 to 2021, covering the coronavirus disease (COVID-19) pandemic. The sample size of this study consists of 55 top-listed property companies in Bursa Malaysia. Six pre-determined factors from the current literature include profitability, firm size, tangibility of assets, liquidity, growth opportunities and non-debt tax shields. On top of the full-period test, this paper examines the possible changes in the relationship before and during the COVID-19 pandemic. Overall, our panel data analysis shows that firm size and growth opportunities significantly positively affect leverage, while liquidity negatively correlates with leverage. In our sample, profitability and non-debt tax shields do not exhibit significant roles in the relationship with corporate leverage. Our conclusion is robust across the periods of study and regression models. It contributes updated empirical evidence to the already scarce studies of financing decisions in the sector, which plays a crucial role in driving the nation's economic growth.

**Keywords:** Corporate leverage; Capital structure; COVID-19; Property sector; Malaysia.

## INTRODUCTION

Corporations' capital structure and financial health significantly influence a country's macroeconomic and financial stability. One of the ways for the company to maximize the value of its assets is to maintain an ideal balance of debt and equity, known as a leverage profile. Leverage is measured by a company's total debt to total assets ratio. Optimal use of financial leverage in a corporate capital structure is important as it will positively impact a company's competitiveness and growth potential, fostering innovation and worthwhile economic investments. However, there still needs to be an established method for determining a company's ideal corporate leverage.

Malaysia's property sector is one of the contributors that directly impacts Malaysia's economy through the creation of employment, capital markets, consumer purchasing power, and the financial sector. According to the Property Market Report 2021 released by the Ministry of Finance Malaysia, the property market's performance improved slightly in 2021. However, it has not surpassed the pre-pandemic level prior to 2020. More than 300,000 transactions totaling nearly RM145 billion were recorded, representing an increase of 21.7 per cent in value and 1.5 per cent in volume over the previous year. The 2022 report indicates close to 390,000 transactions and RM179 billion total transaction value, representing increased volume and value of 29.5% and 23.6%, respectively. While the total transaction value is greater than the previous record high in 2014 (RM163 billion), the total transaction volume in 2022 is the greatest recorded in the last ten years (2012: 427,520 transactions).

The Malaysian government has announced the elimination of the real property gains tax starting January 1st, 2022, for property sales after the sixth year, aiming to promote growth and transactions in the real estate

industry, which has experienced a slowdown in recent years. However, publicly traded companies in Malaysia are not exempt from the pandemic's impact. The property sector was one of the industries impacted by the Movement Control Orders (Mohd Azhari et al., 2022). The COVID-19 outbreak has brought economic uncertainty to the real estate market, causing businesses to use new debt as a source of funding for their operations to survive. Choosing the best overall combination of funding options is crucial for starting and maintaining business operations. The property industry is unique due to its higher leverage ratios and more security, which are used to deal with higher debt amounts. Therefore, specific consideration should be given to the financing structure of property companies. There are still limited investigations of corporate leverage factors in the Malaysian property sector.

Numerous studies have shown that some businesses use debt financing for sustainable growth. A company that fails to adjust to the target leverage level will become more vulnerable to economic downturns (Tongkong, 2012). Therefore, managers must act wisely in identifying the optimal use of financial leverage and required to restructure their financial circumstances through leverage. Several studies on the relationship between capital structure and leverage have been carried out in developing and developed nations, and the findings from one country may not apply to others based on varied economic circumstances. The business values of property companies would increase as a result of optimum capital structure decisions made. Unfortunately, having a large amount of debt can also expose companies to increased liquidity risks because they are more susceptible to financial and economic shocks. The proportion of assets' tangibility, firm size, profitability, liquidity and growth opportunities are variables influencing capital structure decisions. Additionally, the property industry prioritizes the choice of financing, particularly when considering leverage levels. Since the industry requires a relatively large amount of money to invest in land and buildings, real estate companies are full of assets that can be used as collateral for debt.

Furthermore, the firm may or may not be able to pay the interest payments in the future, as the firm's future earnings are unknown and unpredictable. Therefore, if a property company does not investigate capital structure decisions before financing, it is unable to adjust to the target leverage level and eventually turns into a highly leveraged company. A high level of leverage makes the companies more vulnerable to economic downturns and at greater risk of going bankrupt (Tongkong, 2012). According to Yao (2015), the arrangement of corporate leverage is particularly crucial during the development of real estate companies because the property industry is capital-intensive. In order to comprehend the issue, particularly in the context of Malaysia, a study in this area should be conducted.

It has been questioned whether management is doing enough to review their financing policies in order to consistently take proactive measures given the adverse impact of general economic uncertainty on the real estate market and its implications for future investment decision-making. Recently, management has been challenged to consider adjusting and assessing the company's financing policies to identify the latest trend in global financing policies to stay more competitive and thrive despite any extraordinary event. Therefore, to ensure an organization's survival and performance, it is essential to review its capital structure policies. There is still a lack of research on how this outbreak has affected South Asian real estate, particularly in Malaysia. Since the real estate industry increases a nation's GDP, it is essential to economic growth. In addition to contributing significantly to the movement of people from rural to urban areas, the expanding real estate market is a major source of funding for urban infrastructure development (Cai et al., 2020). This study aims to provide relevant evidence on the factors of corporate leverage in the Malaysian property sector and compare the possible changes in relationships among the variables before and during the pandemic.

## LITERATURE REVIEW

The pecking order theory of capital structure suggests that companies use retained earnings to finance their

operations, with debt used when return earnings are insufficient. New equity financing is only used in extreme situations. The financial resource sequence starts with internal cash from earnings, followed by short-term securities, debt, preferred stock, and common stock. Issuing common stock is the last available funding option. Capital and other supporting factors are essential for company continuity and expansion. Companies must determine their capital structure based on their current financial position, as every decision significantly affects the cost of capital and future earnings. Two funding sources are debt and equity, which a company usually uses to finance its operations and investments. The capital structure is defined as the long-term permanent financing consolidation (proportion) of debt, preferred stock equity, and common stock. However, it is found that the debt-to-asset ratio is frequently used as a financial indicator and a proxy for a company's capital structure (Looi et al., 2019). Different businesses use different methods to finance their capital. Some businesses can be entirely financed by debt, with no equity involved. Besides, a company's capital structure could be determined by combining the proportion of its financing sources from debt and equity. According to Agustin et al. (2020), management typically has a specific structure that serves as a reference, even though circumstances can change with shifting conditions. A trade-off between risk and return will be made in determining the capital structure; for example, using more debt will put more shareholders at risk. The estimated return on equity will, however, rise if more debt is used generally.

If a corporation takes on excessive amounts of debt relative to its operating cash and equity, it is known as highly leveraged. It has typically been observed that greater financial leverage would be more advantageous during economic booms. However, high-leverage businesses are more vulnerable to economic downturns and are more likely to underperform. Numerous studies have examined factors influencing financial leverage in developed and developing nations. However, it is found that the opinions, findings, and conclusions of all the empirical studies differ greatly. Onofrei et al. (2015) research to analyze the crucial elements of capital structure for Romania's micro and small businesses. The panel data includes 385 businesses with Romanian headquarters from 2008 to 2010. This study uses the debt ratio as the dependent variable, and leverage is used as an estimator. Profitability with return on assets, asset tangibility, growth, firm size, and liquidity are the estimators for the independent variables. Overall, the empirical findings demonstrate that this study is congruent with the pecking order theory.

Malinić et al. (2013) study the determinants that affect the capital structure of listed firms on the regulated market in the Republic of Serbia from 2008 to 2011. The panel data analysis demonstrates that the independent variables, liquidity, tangibility, and profitability, significantly negatively impact the debt ratios. At the same time, the growth prospects of Serbian firms have a significant positive effect on leverage levels. The findings support that Serbian firms adhere to the modified pecking order theory, which aligns with the earlier empirical studies conducted in emerging markets. Serghiescu and Văidean (2014) examine the determinants of capital structure for construction firms publicly listed on the Bucharest Stock Exchange from 2009 to 2011. The ordinary least squares (OLS) method and the fixed effects model are employed, showing that firm-specific factors like profitability and tangibility assets negatively affect the debt ratio. Next, the firm size of the company is positively correlated with the dependent variable, the debt ratio. Khalil and Obaid (2014) study the factor of capital structure for 322 Pakistan non-financial firms listed on the Karachi Stock Exchange from 2006 to 2014. It is found that profitability and leverage have a negative relationship. This indicates that the results generated are consistent with the pecking order theory. Moreover, growth and firm size variables are positively correlated with leverage.

Yao (2015) investigates the determinants of the capital structure of real estate companies listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange. The study finds that non-debt tax shields, firm size, and tangible assets positively correlate with total debt for these firms. This supports the trade-off theory, which suggests tangible assets act as collateral and security in times of financial distress. Additionally, profitability is negatively significant to leverage. The regression modeling supports the theories of capital structure and pecking order theory. Onofrei et al. (2015) examine the determinants of

capital structure for 385 micro and small enterprises in Romania from 2008 to 2010. The data of this study is analyzed by using a fixed-effects regression model. The findings show that all the determinants, assets tangibility, profitability, growth opportunities, liquidity and firm size are negatively related to the firm leverage. The three capital structure theories, trade-off theory, pecking order theory, and agency theory, are applied to support the findings. Jermias and Yigit (2019) suggest that the difference in the company's leverage level before, during and after the financial crisis is also an important research objective of this study. The positive relationship between firm size and leverage is relatively weak before and after the financial crisis that happened in 1994. This implies the effect of a financial crisis on the relationship between fundamental variables and leverage. Moreover, they discover that the positive relationship between asset tangibility and leverage is stronger during the 2001 financial crisis than afterwards. Meanwhile, profitability and growth opportunities have a negative association with leverage.

Using panel data techniques for the sample of 141 energy sector firms in India, Anindita and Ahindra (2019) determine the factors that influence the capital structure of Indian energy sector companies. Profitability and liquidity are negatively correlated with the capital structure. At the same time, firm size is positively correlated with the firm debt ratio. In addition, it was found that tangibility and non-debt tax shields have an insignificant relationship with the firm capital structure. Gharaibeh and AL-Tahat's (2020) study on 45 Jordanian service companies between 2014 and 2018 finds that capital structure significantly influences financial leverage. Size and non-debt tax shields positively impact the company's capital structure, while profitability and business risk negatively affect the debt-to-asset ratio. Fixed assets are not used as collateral, and firms with higher collateral values prefer smaller loan loads. Pecking order, agency cost, and trade-off theory are essential for understanding service company capital structure.

In the Southeast Asian region, Setiabudi and Agustia (2012) study 44 listed firms in Indonesia and find that profitability, firm size, and asset tangibility positively impact a company's corporate leverage. These findings can guide managerial decision-making to maximize stockholders' and owners' profitability and demonstrate the importance of developing capital structure theory in agency problems, thereby enhancing the effectiveness of disciplinary actions. Simatupang et al. (2019) conduct a study on the determinants of capital structures in 154 non-financial companies listed on the Indonesia Stock Exchange from 2014 to 2017. The study finds that non-debt tax shields and growth sales had no significant relationship with a company's capital structure, while profitability and tangibility assets are negatively correlated. Agustin et al. (2020) conduct a study on the capital structure determinants of real estate and property companies listed on the Indonesia Stock Exchange from 2010 to 2015. The research concludes that tangibility, liquidity and profitability negatively affect leverage, while firm size positively influences it. This is consistent with the trade-off theory, suggesting that larger companies use more debt than smaller ones. Kamila and Gandakusuma (2021) utilize the generalized method of moments estimator in conjunction with a dynamic partial adjustment model to study the factors that affect the target leverage of all listed Indonesian companies in sectors other than banking, finance, insurance and utilities for the period from 2014 to 2018. The findings show that profitability negatively affects firm leverage, while size, growth opportunity and asset tangibility positively affect firm leverage.

In Vietnam, Nguyen et al. (2020) investigate the factors that influence the financial leverage of firms from 2010 to 2019. Data from 448 companies of all sectors has been collected. The pooled OLS and fixed effects regressions show that financial leverage negatively correlates with asset tangibility, liquidity, growth opportunities, profitability and firm age. Meanwhile, firms' financial leverage has a positive relationship with firm size. The study recommends the importance of firm heterogeneity in determining financial leverage. In Thailand, Apichat and Tharinee (2021) examine the financial indicators that influence the debt ratio in 100 companies listed on the Stock Exchange of Thailand for ten years from 2009 to 2018. This excludes the financial business sector. Two-panel multiple regression models used for statistical testing at the level of 0.05 show that the total debt was positively correlated to asset structure and growth. Moreover,



profitability and liquidity are found to be negatively correlated to the total debt ratio. In addition, the total debt ratio shows an insignificant relation between firm size and non-debt.

Wahab and Ramli (2014) used two types of leverage, the book value of total debt ratio and long-term debt ratio to check for any important differences in financing and came up with mixed results. The analysis focuses on Malaysian government-linked companies listed on Bursa Malaysia, including various economic sectors. The regression analysis demonstrates a negative correlation between the debt ratios and firm size, profitability, liquidity, economic growth and interest rate. Contrarily, tangibility has a positive relationship with both debt ratios. The study also concludes that government-linked companies use low leverage to finance investment activities due to proper capital structure design and government intervention. Looi et al. (2019) examine the firm-specific factors on corporate leverage for 85 manufacturing companies in Malaysia from 2003 to 2017. The debt-to-asset ratio is used in this study as a measure of leverage. Profitability and non-debt tax shields positively correlate with firm leverage. In contrast, firm size and growth variables have a negative relationship with firm leverage. Karim et al. (2021) study the factors of corporate leverage of 231 service sector companies listed on Bursa Malaysia. This study covers the period from 2008 to 2018, and the result shows that the company's leverage is determined by ROE profitability, size, liquidity and growth opportunities. Other company-specific factors, such as sustainability and net profit margin, are found to have a negligible leverage impact for the listed service companies.

Haron (2014) studies 127 listed property firms in Malaysia that use a target capital structure affected by asset tangibility, profitability, firm size, growth opportunities, liquidity in their capital structure and the timing of their security issuance. A positive relationship between tangibility and target leverage of property firms has been found, which implies the presence of the dynamic trade-order theory. Then, it is recorded that profitability, growth opportunity and liquidity have a negative relationship with leverage. This study also explains the traces of market timing and pecking order hypotheses. The target capital structure is influenced by specific firm characteristics, a practice used by property firms in Malaysia. Moreover, the result suggests that companies with higher financial risk can reduce potential risk by changing the capital structure when the market environment is favorable. Idris (2018) examines the determinants of capital structure in the case of 72 property companies listed in the Main Market of Bursa Malaysia from 2009 until 2014. The analysis shows that firm size has a positive relationship with a company's capital structure. Meanwhile, liquidity, tangibility, non-debt tax shields and profitability show a negative relationship with the dependent variable total leverage.

### **Profitability**

Profitability refers to the relationship between revenues and costs produced using the firm's fixed and current assets in productive activities. A business can boost profitability by lowering expenses or increasing sales (Jayanty et al., 2021). Numerous studies have discovered a positive relationship between profitability and firm leverage. This is explained by higher-profitability companies that can easily borrow a massive amount of money from banks and the financial market. Therefore, the costs related to bankruptcy will be kept to a minimum (Gharaibeh & AL-Tahat, 2020). Additionally, these companies favor debt to pay less tax (Nguyen et al., 2020). However, the pecking order theory argues that there is a negative relationship between profitability and leverage (Kalantonis et al., 2021). This theory suggests that firms prefer to use retained earnings as the main source of financial funding, followed by debt and equity. It can be summarized that the higher a firm's profitability, the greater the use of retained earnings. Specifically, the following hypothesis will be tested: H1: Profitability is expected to have a significant relationship with firm leverage.

### **Firm Size**

Firm size is a measurement of the agency's costs of equity and the need for risk-sharing. Trade-off theory shows a positive relationship between firm size and leverage. This theory predicts that big companies are

more diversified, leading to a higher debt capability. Hence, it may prefer debt rather than equity financing for operation finance. Hence, larger companies have easier access to debt at lower costs than smaller companies (Nguyen et al., 2020). This finding suggests that firm size and leverage have a positive relationship (Khoa & Thai, 2021). On the contrary, size can be used as a proxy for the information asymmetry between insiders of the company and the capital markets. In addition, the pecking order theory supports that there is a negative correlation between firm leverage and size, with larger firms displaying an increasing preference for equity relative to debt financing. Specifically, the following hypothesis will be tested: H2: Firm size is expected to have a significant relationship with firm leverage.

### **Tangibility of Assets**

It is found that the tangibility of assets positively impacted the company's debt level (Apichat & Tharinee, 2021). A corporation with more tangible assets can raise more debt because it has more collateral to use as payment for a debt in the case of bankruptcy. Based on the trade-off theory, a company with higher growth in its tangible assets will have more chance of successfully securing a debt loan by having those assets as a guarantee. Tangible assets typically maintain value while a company struggles financially (Kamila & Gandakusuma, 2021). In contrast, based on the pecking order theory and studies by Gharaibeh and AL-Tahat (2020), it is suggested that tangibility is negatively correlated to corporate leverage. Asset tangibility minimizes the problem of informational asymmetry, making equity issues less expensive. Specifically, the following hypothesis will be tested: H3: Tangibility of assets is expected to have a significant relationship with firm leverage.

### **Liquidity**

The trade-off theory proposed that firms with more liquidity should seek to borrow more money. Because greater liquidity indicates that the company is able to pay its debts on time (Nguyen et al., 2020). Consequently, this theory suggests that liquidity and leverage have a positive relationship. However, the pecking order theory predicts that liquidity and leverage have a negative relationship. Businesses with greater liquidity levels have the flexibility to use internal financing instead of debt financing (Karim et al., 2021). Therefore, companies with more liquid assets are less likely to have debt resources. Specifically, the following hypothesis will be tested: H4: Liquidity is expected to have a significant relationship with firm leverage.

### **Growth Opportunities**

Khalil and Obaid (2014) and Apichat and Tharinee (2021) support the idea that there is a positive relationship between leverage and growth opportunities. The growth potential may be limited if a company solely relies on internal financing. In line with the pecking order principle, increased external borrowing results from greater growth opportunities. Because companies with greater growth potential are more likely to experience informational disparity, their debt levels are expected to be significantly high. Meanwhile, Jermias and Yigit (2019) predict a negative relationship between leverage and growth opportunities. Looi et al. (2019) show that companies with growth prospects typically have lower debt levels. Because companies with high potential future growth opportunities hold more intangible assets, they have less borrowing due to limited access to the debt market. Specifically, the following hypothesis will be tested: H5: Growth opportunity is expected to have a significant relationship with firm leverage.

### **Non-Debt Tax Shields**

Non-debt tax shields are frequently referred to as an alternative to the tax deduction given by debt financing. Firms seek to take advantage of tax deductibility to reduce their tax burden. Gharaibeh and AL-Tahat (2020) suggest that non-debt tax shields and debt have a positive correlation. Large organizations tend to employ

more debt since they have a lot of fixed assets and can afford greater depreciation and amortization charges. However, Apichat and Tharinee (2021) discover that leverage and non-debt tax shields have a significant negative relationship. The tax shields comprise specific financial tools, including amortization, depreciation, research and development costs, and carry-forward tax loss credits that lower yearly earnings before interest and tax (EBIT) and the tax benefits of debt financing. Higher depreciation and amortization expenses make it less probable for businesses to acquire debt financing, which reduces their taxable income (Ali et al., 2022). Despite this, Gungoraydinoglu and Öztekin (2011) suggest that depreciation and tax do not explain much about the variations in leverage. Specifically, the following hypothesis will be tested: H6: Non-debt tax shields are expected to have a significant relationship with firm leverage.

### **COVID-19 Pandemic Effect**

According to Vo et al. (2022), many companies face challenges maintaining the target leverage ratio during the pandemic. The detrimental impact of COVID-19 on the financial health of many businesses, especially those with high levels of borrowing, may cause them to experience financial distress (Huang & Ye, 2021). The COVID-19 pandemic has consequently caused enterprises to restructure their capital base, particularly in the Malaysian context. Therefore, the factors of corporate leverage in the property sector may vary before and during COVID-19. In addition, more research is needed on the effects of significant events like the COVID-19 pandemic. Specifically, the following hypothesis will be tested: H7: There are differences in terms of the factors of corporate leverage before and during COVID-19.

### **Significance of Study**

This study aims to provide significant and relevant empirical evidence on the factors of corporate leverage in the Malaysian property sector and compare the relationship of the change between the variables before and during the pandemic. Theoretically, this study will add additional information to the existing literature on the factors of corporate leverage. There are numerous studies related to the factors of corporate leverage. However, most of the studies focus more on developed countries than developing countries or on aggregate analysis. Therefore, these studies could not cover the entire market with detailed information, especially the studies related to corporate leverage in the Malaysian property sector are inadequate. This study is important to fill the existing literature gaps related to Malaysia's corporate leverage by employing the pecking order and trade-off theory in analysing the factors of corporate leverage in Malaysian property firms.

Practically, this study's findings provide new insight into corporate management, regulatory authorities and practitioners in achieving optimal levels of financial stability, capital structure and firm-specific factors. In addition, the investor could use these research results as a guideline to choose and decide on the most valuable companies to optimize their stakeholder wealth in the future. From the empirical, the factors of corporate leverage are varied across industries. Moreover, high-leverage firms in different industries may not be suitable for comparison with low-leverage firms. Consequently, the outcome benefits investors by improving leverage evaluation, such as the factors to consider when comparing companies in different industries.

## **METHODOLOGY**

### **Data Collection and Variables**

This study focuses on the property sector in the Main Markets of Bursa Malaysia, covering the period from 2015 to 2021. The data was gathered from the Thomson Reuters DataStream and company annual reports published in Bursa Malaysia. Companies listed on Bursa Malaysia's Ace Market and Leap Market are excluded from this study because they are generally newer and have insufficient track records. Publicly traded property firms that do not have a complete financial report, do not publish data on stock, or do not

declare any short-term and long-term debt for more than one year during the study period are also excluded from the sample. As a result, there are a total of 55 listed property companies that fulfil the screening criteria.

### Data Analysis Method

Multiple linear regression is employed to illustrate the relationship between explanatory (independent) and response (dependent) variables. Panel data is defined as longitudinal data or cross-sectional time-series data. Multiple points with repeated measurements taken at various times make up a panel data set. Panel data can be analyzed using a fixed or random effects model, which can identify effects on individuals, groups, or both across time. Generally, there are situations when we might have suspicions about the influence of the omitted variable on the dependent variable in the research. Therefore, panel data is employed to find solutions for unmeasurable or unobserved sources of individual or heterogeneity effects that vary across entities but are invariant over time. It is more appropriate to use panel data analysis as this study has multiple time series and cross-sectional data points. Hausman test assesses whether the fixed effects (reject the null hypothesis) or random effects (fail to reject the null hypothesis) model is preferred. It basically examines the independent variables and common effects of orthogonality. The random effects method is preferred if the Hausman test accepts the null hypothesis or the p-value is larger than 0.05. Likewise, the fixed effects model is more proper. The following base equation is tested, and the descriptive statistics of the variables are shown in Table 1.

$$LEV_{it} = \beta_0 + \beta_1PROF_{it} + \beta_2SIZE_{it} + \beta_3TANG_{it} + \beta_4LIQ_{it} + \beta_5GROW_{it} + \beta_6NDTS_{it} + \epsilon_{it} \quad (1)$$

Where LEV is debt ratio measured by total debt to total assets; PROF is profitability measured by net income before tax to total assets; SIZE is firm size measured by natural logarithm of total assets; TANG is tangibility measured by fixed assets to total assets; LIQ is liquidity measured by current assets to current liabilities; GROW is growth opportunities measured by market value of equity to book value of equity; NDTS is non-debt tax shields measured by depreciation charge to total assets.  $\beta_n$  is the coefficient of respective explanatory variables;  $\epsilon$  is the error term;  $i$  denotes firms, and  $t$  denotes time.

TABLE 1

#### Descriptive Statistics

	Min	Max	Mean	SD
LEV	0.0002	0.5345	0.2165	0.1406
PROF	-0.1697	0.1858	0.0288	0.0616
SIZE	17.6747	24.1239	20.9229	1.5489
TANG	0.0306	0.9357	0.5145	0.2244
LIQ	0.3060	10.8664	2.5110	2.0675
GROW	0.1093	11.1357	1.0651	2.1197
NDTS	0.0002	0.0417	0.0056	0.0069

## FINDINGS AND DISCUSSION

### Regression Results

To examine the presence of multicollinearity among the variables, variance inflation factors (VIF) and correlation matrix are used to investigate the multicollinearity issue in this study. Table 2 demonstrates the



VIF values for each variable. If multicollinearity between the independent variables is found, one of the high-correlation variables must be eliminated. Multicollinearity among independent variables will lead to less precise statistical findings. The result shows that all six variables have a low-centered VIF value of less than 3. The correlation matrix (see Table 3) also indicates low correlations (<0.5) between the variables. Thus, the multicollinearity issue does not exist.

TABLE 2

Variance Inflation Factors (VIF)

Variable	VIF	1/VIF
PROF	1.21	0.8284
SIZE	1.41	0.7082
TANG	1.3	0.7704
LIQ	1.21	0.8288
GROW	1.39	0.7207
NDTS	1.44	0.6932
Mean	1.33	

TABLE 3

Correlation Matrix

	LEV	PROF	SIZE	TANG	LIQ	GROW	NDTS
LEV	1						
PROF	-0.1241	1					
SIZE	0.3556	0.2444	1				
TANG	0.2868	-0.1741	0.2668	1			
LIQ	-0.3957	0.0832	-0.2193	-0.3576	1		
GROW	0.1349	-0.1444	-0.3199	0.0672	-0.1185	1	
NDTS	0.1048	-0.3222	-0.2679	0.1646	-0.11	0.4678	1

The Hausman indicates that the p-value is lower than 5%, supporting that the null hypothesis is rejected and the fixed effects model is preferred for this dataset. Table 4 shows that the fixed effects model has the highest R-squared of 34.17%, compared to the random effects model (31.88%) and pooled OLS regression (30.24%). It explains 34.17% of the variability of the response data around its mean. All models show that three out of six variables are consistently significant. Firm size, liquidity, and growth opportunities significantly influence the leverage decisions. Firm size and growth opportunity are positively associated with leverage, while liquidity is negatively related to leverage. The non-debt tax shields are consistently insignificant across the models. It is consistent with the claim by Gungoraydinoglu and Öztekin (2011).

TABLE 4

Regression results (Full Period)

	Fixed Effects	Random Effects	Pooled OLS
PROF	-0.00778	-0.04300	-0.34769***
	(0.0718)	(0.0740)	(0.1077)

SIZE	0.12016***	0.07195***	0.03593***
	(0.0108)	(0.0077)	(0.00460)
TANG	-0.05422*	-0.02005	0.02823
	(0.0300)	(0.0294)	(0.0307)
LIQ	-0.01214***	-0.01245***	-0.01724***
	(0.0024)	(0.0024)	(0.0032)
GROW	0.02673***	0.01643***	0.01250***
	(0.0046)	(0.0040)	(0.0034)
NDTS	1.31376	0.88230	0.77515
	(0.8112)	(0.8195)	(1.0456)
Cons	-2.2748***	-1.2684***	-0.51408***
	(0.2249)	(0.1614)	(0.0973)
Observation	385	385	385
R-squared	0.3417	0.3188	0.3024

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Based on the fixed effects model in Table 4, four out of six independent variables significantly influence the dependent variable at various confidence interval levels. Meanwhile, two variables are statistically significant and positively associated with leverage: the firm size (+0.12016) and growth opportunities (+0.2673). Then, the tangibility of assets (-0.05422) and liquidity (-0.1214) are negatively associated with the leverage ratio at a 90% and 99% confidence interval, respectively. The remaining independent variables, profitability and non-debt tax shields are insignificant to the leverage ratio. If the firm size and growth opportunities increase by 1 per cent, the leverage ratio increases by 0.12016 and 0.2673, respectively. However, the increase of 1 per cent in the tangibility of assets and liquidity is associated with a decrease in the leverage ratio by 0.05422 and 0.1214, respectively.

The positive relationship of firm size with leverage is consistent with the empirical studies by Setiabudi and Agustia (2012), Serghiescu and Văidean (2014), Khalil and Obaid (2014), Yao (2015), Idris (2018), Jermias and Yigit (2018), Anindita and Ahindra (2019), Agustin et al. (2020), Nguyen et al. (2020), Gharaibeh and AL-Tahat (2020), Karim et al. (2021), and Kamila and Gandakusuma (2021). Meanwhile, the result is contradicting the findings of Wahab and Ramli (2014), Onofrei et al. (2015), and Looi et al. (2019). The positive effect of firm size could be related to the large property companies having more diversification. Stronger bargaining power with creditors and smaller debt-issuance costs allow large firms easier access to loans at lower costs. Hence, debt financing is one of the preferable options for large property companies.

The negative correlation of the tangibility of assets with leverage supports the research hypothesis, a significant relationship between the tangibility of assets and leverage. The finding is corresponding with Malinić et al. (2013), Onofrei et al. (2015), Idris (2018), Simatupang et al. (2019), Nguyen et al. (2020) and Gharaibeh and AL-Tahat (2020); while contrary to the empirical studies Setiabudi and Agustia (2012), Haron (2014), Wahab and Ramli (2014), Yao (2015), Jermias and Yigit (2019), Kamila and Gandakusuma (2021) and Apichat and Tharinee (2021). The negative effect of the tangibility of assets can be explained by businesses with more tangible assets, which will reduce the problem of informational asymmetry, making equity issues less expensive. As a result, company more likely to choose equity financing than debt financing (Noulas & Genimakis, 2011; Idris, 2018).

Furthermore, growth opportunities recorded a positive relationship with leverage. The result is aligned with the research hypothesis of studies by Malinić et al. (2013), Khalil and Obaid (2014), Karim et al. (2021),

Kamila and Gandakusuma (2021), and Apichat and Tharinee (2021). Meanwhile, the result is contradicted by Haron (2014), Onofrei et al. (2015), Jermias and Yigit (2019), Looi et al. (2019) and Nguyen et al. (2020). The positive relationship indicates that higher external borrowing results from stronger growth potential because the possibilities for growth may be limited if a company solely relies on internal financing.

On the other hand, there is an inverse relationship between liquidity and corporate leverage. The finding meets the research hypothesis and also aligned with the research by Malinić et al. (2013), Haron (2014), Onofrei et al. (2015), Idris (2018), Simatupang et al. (2019), Agustin et al. (2020), and Nguyen et al. (2020). Meanwhile, the result is contradicted by Karim et al. (2021). The negative relationship is due to large current asset firms usually prioritizing internal financing over external funding sources for their operations. It implies that businesses with more liquid assets are less likely to have debt resources. Profitability and non-debt tax shields show insignificant roles in the fixed effects model. A possible reason could be that these variables are not included in the company's consideration in deciding corporate leverage.

### Before and During Covid-19

Further analysis to compare the relationships before and during the pandemic in the property sector is shown in the section below. Like the full-period sample, the samples before and during COVID-19 do not suffer from multicollinearity issues. Before the pandemic (refer to Table 5), firm size and growth opportunity are the only two variables that are statistically significant and positively associated with corporate leverage at the 1% significance level. The increase in firm size or growth opportunity would increase the leverage ratio of the property company. Meanwhile, liquidity is statistically significantly and negatively associated with leverage ratio at the 1% significance level. An increase in liquidity variables would indicate a decrease in leverage. Therefore, the findings suggest that property companies may consider firm size, liquidity and growth opportunities in debt financing decisions.

TABLE 5

Comparisons Before and During COVID-19

	Before COVID-19		During COVID-19	
	Fixed Effects	Pooled OLS	Fixed Effects	Pooled OLS
PROF	0.04552 (0.1061)	-0.47823*** (0.1343)	-0.15395*** 0.0690	-0.11262 0.1915
SIZE	0.10689*** (0.0132)	0.03402*** (0.0058)	0.14815** 0.0563	0.04217*** 0.0077
TANG	0.00917 (0.0424)	0.04385 (0.0379)	0.24988*** 0.0638	0.01401 0.0541
LIQ	-0.01055*** (0.0028)	-0.01548*** (0.0038)	-0.01285*** 0.0033	-0.01944*** 0.0055
GROW	0.02648*** (0.0055)	0.00920** (0.0037)	0.09972*** 0.0323	0.04157*** 0.0116
NDTS	0.85105 (0.9078)	0.04074 (1.1301)	-0.90580 1.5479	4.39385* 2.5991
Cons	-2.02960*** (0.2699)	-0.47008*** (0.1207)	-3.07865** 1.2114	-0.68061*** 0.1686
Observation	275	275	110	110
R-squared	0.3495	0.2932	0.5019	0.3889

During the pandemic, the R-squared of the fixed effects model is 0.5019, which indicates that the model explains 50.19% of the variability of the response data around its mean. The estimation demonstrated that five variables are statistically significant at a 95% confidence interval. At a 95% confidence interval, firm size, asset tangibility, and growth opportunities are positively correlated with leverage. In contrast, profitability and liquidity are negatively correlated with leverage in the property sector. Hence, the findings indicate that firm size, the tangibility of assets, growth opportunities, profitability, and liquidity are the factors that might influence a company’s leverage decision among the variables.

Generally, the overall analysis has examined four out of six significant variables. Meanwhile, some variables are insignificant in the situation before and during the COVID-19 data analysis. A possible reason could be the limitation of the sample size used for the data analysis and property companies might use borrowed funds due to other determinants that were not included in this study. Table 6 represents a quick summary of the estimated relationships between the dependent variables and independent variables.

TABLE 6

Results Summary of Factors to Leverage

	Overall Analysis	Before COVID-19 Analysis	During COVID-19 Analysis	Hypothesis
PROF			-	Supported
SIZE	+	+	+	Supported
TANG	—		+	Supported
LIQ	-	-	-	Supported
GROW	+	+	+	Supported
NDTS				Not supported

Note: “+” and “-” indicate positive and negative relationship to leverage at a 95% confidence interval; meanwhile “++” and “--” means the positive and negative relationship to leverage at a 90% confidence interval. The blank part indicates that the variable is insignificant to the leverage of the property company before and during COVID-19.

The firm size and growth opportunities ratio have shown a statistically significant and positive correlation with leverage in all estimations. Meanwhile, liquidity has a statistically significant and negative correlation with corporate leverage in the property sector in all estimations. Therefore, the study recommends that firm size, growth opportunities, and liquidity play a vital role in making a leverage decision as they are significant in the conditions before and during COVID-19. In addition, the profitability variable has an insignificant and negative relationship with leverage before and during COVID-19. Moreover, the relationship of the tangibility of assets is insignificant and positively correlated with the leverage ratio before and during COVID-19. Hence, the finding has met the research hypothesis, H7. Moreover, in the before and during COVID-19 analyses, the during COVID-19 analysis records the most five significant variables, while the before COVID-19 analysis has the least of three significant variables. The important roles of liquidity and profitability during the pandemic suggest the motives of property companies in preserving cash flow and financing capacity for financial sustainability.

**CONCLUSIONS**

In a nutshell, this study investigates the relationship between the corporate leverage of Malaysia-listed property companies and the firm’s profitability, firm size, the tangibility of assets, liquidity, growth opportunities, and non-debt tax shields. In order to address the research objectives, this study has examined the determinants of corporate leverage overall and the changes in the relationship of variables before and



during COVID-19. In conclusion, the hypotheses H2, H3, H4, H5 and H7 meet the expectations and the hypotheses are supported. It is concluded that firm size and growth opportunities are the determinants positively correlated to corporate leverage. Meanwhile, the tangibility of assets and liquidity are negatively correlated with the corporate leverage of the listed property companies in Bursa Malaysia. In the data analysis before and during COVID-19, two studied variables (profitability and non-debt tax shields) report different results. The result suggests that while there are changes in leverage determinants in the sector before and during COVID-19, the overall conclusion remains robust.

In this study, the finding of three variables is supported by the pecking order theory that companies prioritize their financing options from internal finance to equity and reserve equity financing as a last alternative. First, the pecking order theory shows that tangibility is negatively correlated to corporate leverage. Small property companies have limited assets to serve as collateral for banks. Second, the pecking order theory suggests that the liquidity of firms has a negative effect on leverage. As a result, high-liquidity enterprises can convert money to finance easily. Therefore, highly liquid enterprises with more available money will have a lower leverage ratio. Third, the pecking order model suggests that fast-growing businesses require more capital than they anticipate the need to borrow. Therefore, it is in line with the studies in pecking order theory, in which leverage is positively correlated with growth opportunities like acquisitions of landbank. The trade-off theory proposes that companies have a specific optimal financial structure that achieves an equilibrium between the costs of financial distress, the agency benefits and costs of debt, and the tax advantages of debt financing. This study observes a significantly positive relationship between firm size and leverage. This is consistent with the theory predicting that big companies have higher debt capabilities, which leads to higher leverage for the company. This study offers clearer ideas and an understanding of the factors of corporate leverage decisions for Malaysian property companies. It provides a reference for the firm management to determine capital structure policy for various purposes, including risk management. From the investor's perspective, it allows better decision-making considering the quality of the target firm's financial characteristics and performance.

More local market-related research on corporate leverage in the emerging market's property sector, like Malaysia, is still needed, especially with the updated empirical evidence. Future researchers can enlarge the sample size in order to cover a broader population across markets or in any other sectorial study. Besides, longer time-series data can be considered. In addition to considering other possible explanatory variables, those insignificant variables relevant to managerial implications may attract further attention in future studies.

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