Does Corporate Debt influence the Firms' Growth after Global Financial Crisis? Evidence from Malaysian Public Listed Companies

M.H. Nur Syabihah[1], M.H. Yahya[1], Meishan Chua[2]

[1]*School of Business and Economics, Universiti Putra Malaysia, Malaysia*
[2]*Faculty of Business and Management, Universiti Teknologi Mara, Puncak Alam, Selangor, Malaysia*

Corresponding author email: meishan@uitm.edu.my

Abstract – **This paper aims to investigate the impact of corporate debt on firm growth in Malaysia post Global Financial Crisis 2007-2008. Using a sample of 334 non-financial public listed companies in Bursa Malaysia from 2009 to 2018, this study finds that corporate debt is positively associated with firm growth. The possible reasons for this are; 1) the underdeveloped equity market in Malaysia that forced the firms to take up more debt as a financing resource and 2) the highly associated cost of issuing shares caused the firms to choose debt over equity, to finance the firms' growth. The result is robust using the random effects panel regression model which mitigates unobserved heterogeneity. The finding supports the Pecking Order theory. The practical contribution of the study lies in the need for firms to deliberately design the application of debt in order to mitigate the associated cost of financial distress that arises from debt.**

ARTICLE INFO

I.   Introduction

After the 2007-2008 global financial crisis, the corporate bond market soared with enormous volume of debts being issued, as a source of capital businesses. According to the Organisation for Economic Cooperation and Development (OECD), the debt issuance of non-financial companies reached almost USD13 trillion at the end of 2018, which is twice of the amount in the 2008 (as shown in Fig. 1). Non-financial firms have substantially increased their borrowings through corporate bonds, with an average value of USD1.7 trillion per year, post-crisis (2008-2018), compared to an average of USD864 billion, pre-crisis. Figure 1 also showed that firms in advanced economies, such as, the USA, Norway, Japan, Sweden and other developed countries hold 78.5% of the total global outstanding corporate debt market in 2018. These corporate debt volumes increased from USD 6 trillion in 2008 to USD10.17 trillion in 2018, which accounted for a 70% increment. Likewise, the emerging market also

exhibited similar trend, with the corporate bond volume increasing to USD 2.78 trillion in 2018. The enormous inclination for debt contributed towards a significant growth for firms. However, it is related with firms' bankruptcy risk, if the firms were unable to promptly meet the interest payments. The pitfall of debt is that it affects the financial market's stability and increases the risk of a crisis. In such circumstance, emerging markets, such as, Malaysia is likely to be exposed to significant risks of the financial instability and crisis. This study examines whether debt improves firms' growth or the other way around.

Every firm needs growth in its operation for long-term survival. In finance, debt is a source of capital that contributes towards the growth of a firm. Specifically, it provides two essential benefits for firms' sustainability. Firstly, it reduces the agency conflict between management and shareholders through its disciplinary role which control the managers against investing into non-profitable investments (Jensen & Meckling, 1976). Secondly, the usage of debt provides a reduction in income tax payment because interest expenses are tax deductible (Kraus & Litzenberger, 1973). In this sense, the usage of debt is supposed to encourage the firms to use more debt in order to support their growth. However, more debt does not always bring good prospect to the firms because it is associated with the bankruptcy risk. Since debt capital is a key driver that contributes towards firms' growth and performance, a study that investigate how the usage of debt influences firms' growth in Malaysia is essential.
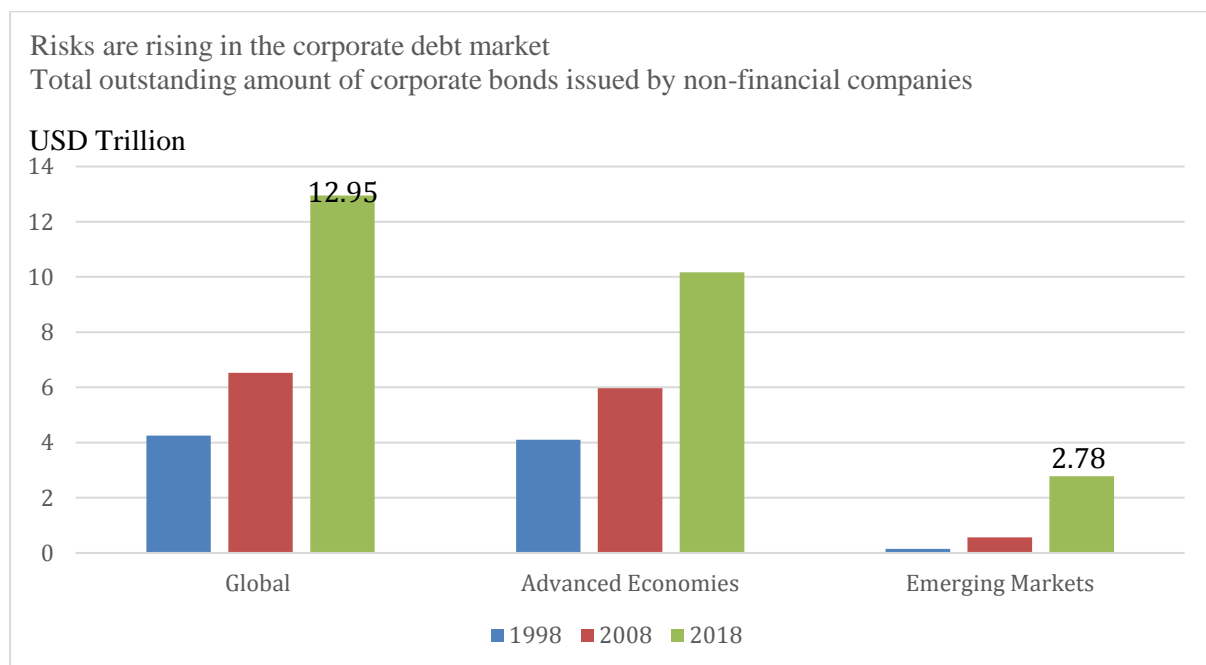

Figure 1: Corporate Debts Statistics from Organisation for Economic Cooperation and Development (OECD)
Source: Corporate Bond Markets in a Time of Unconventional Monetary Policy (Celik et al., 2019)

This study employed the Random Effect Model to test the relationship between debt and firm growth, during post-crisis period. Using 796 public listed firms from the period between 2009 and 2018, it is found that firms' debt was positively related to sales and assets' growth of public listed firms in Malaysia. The findings signified that the higher the usage of debt, the higher is the firms' growth. The findings support the Pecking Order Theory; i.e. firms which requires more capital will turn to debt when the internal funds are insufficient to support their growing operations. This study contributed to the literature in three ways. Firstly, unlike Anton (2017) and Hamouri, Al-Rdaydeh, & Ghazalat (2018), which focused on the periods from 2001 to 2011 and 2005 to 2016, respectively; this study provided the empirical evidence that concentrated on debt growth during post-crisis period. This is to capture the capability of corporate bond market in Malaysia in providing debt capital to support firms' growth opportunities. Secondly, this research used a 10 year period (2009 - 2018) as the study period to apprehend the economic cycle effect on the development of corporate bond market in Malaysia. The four economic cycles, i.e. expansion, crisis, recession and recovery, are important as they encompass the whole businesses circle during which, firms used debt for growth. Thirdly, unlike Chaleeda, Islam, Tunku Ahmad, & Mosa Ghazalat (2019), Ayaz et al. (2021) and Hasan et al. (2021), which examined the indirect impact of debt to firm's growth through

the firm performance perspective, this research investigated this relationship in a direct way, i.e. looking at the direct effect of firm's debt to sales and asset growth

II.   Literature Review

Several theories are used to explain the relationship between debt and growth opportunities. This includes Trade-off Theory (Kraus & Litzenberger, 1973), Pecking Order Theory (Myers & Majluf, 1984) and Agency Theory. According to trade-off theory, the firm's debt is inversely related to the firm's growth. Harris & Raviv (1990) explained that firms can either use debt or equity to finance its investment opportunities. Specifically, the firms would choose debt if they possessed a large portion of tangible assets (better liquidation value) and equity if they have a substantial portion of intangible assets (firms' growth). Since firm growth is an intangible asset, it is expected that firms would choose equity when they need external financing. Similarly, the Agency Theory also suggested a negative relationship between firm's debt and growth (Jaafar et al., 2019). This is because firms with high growth opportunities would use less debt in order to avoid the disciplinary effect of debt which restrains the opportunistic behaviour of managers (Jensen, 1986). According to Stulz (1990), this impact is more apparent for the firms with higher cash flows because firms with low level of free cash flows experience less intense agency conflict that do not require the disciplinary role of debt to control the incongruent interest of its' managers.

Contrarily, the Pecking Order Theory suggests a direct positive relationship between firm leverage and growth. Firms would prefer to issue debt rather than equity when they need more financial resources because equity is subjected to high information asymmetry costs. Myers & Majluf (1984) argued that high growth opportunity firms would firstly consider equity over debt because they have an overvalued shares compared to low growth opportunity firms' share prices. However, new shareholders who have access to the information would demand for a discount during the issuance of new shares. Therefore, to reduce the associated asymmetric information costs of shares, managers tend to avoid issuing new shares. As such, the firms would prefer to choose internal financing initially and external financing as the last resort. In short, firms with growth opportunity that lack internal cash flow prefer debt over equity.

Empirically, the relationship between corporate debt and firm growth are mixed. These mixed results are applicable to both the western and non-western countries. For example, Lang, Ofek, & Stulz (1996) studied American firms from 1970 to 1989 and found that debt negatively influence the future growth of the firms. Likewise, Aivazian, Ge, & Qiu (2005) who also examined American firms from 1986 to 2002, found a negative relationship between corporate debt and firm growth for firms that has less investment opportunities. Dang (2010) examined UK firms from 1993 to 2003 and they also found an inverse relationship between both variables. This was due to managers being forced to spend available cash to pay the high interest rates of the firms' debts. This has greatly reduced their ability to invest and resulted in underinvestment. Thus, firms that have a high growth opportunity, try to avoid this problem by reducing their debt (Dang, 2010; Suhaila et al., 2020).

Additionally, Anton (2017) examined the Romania firms from year 2001 to 2011 and found a positive relationship between corporate debt and firm growth. The bigger the firm indebtedness, the quicker its growth, especially for smaller firms. In the meantime, Hamouri et al. (2018) studied listed firms in Jordan from 2006 to 2015 and reported mixed findings; *i.e.* 1) insignificant relationship between debt to assets growth and 2) positive impact of debt on sales growth. It is also found that firm debt and growth could have a non-linear relationship. For example, Huynh & Petrunia (2010) examined Canadian firms from 1984 to 1998 and found a positive relationship but it has in a non-linear trend in accordance with the firms' age. Other than the large public companies, previous literature investigated the impact of firm debt on the growth of the small and medium enterprises (SMEs). For instance, researchers, such as, Hermelo & Vassolo (2007) [Argentina], Heshmati (2001) [Sweden], Honjo & Harada (2006) [Japan] reported a positive relationship between corporate debt and firm growth of the SMEs.

To the best of our knowledge, Malaysia lacks studies that examined the direct influence of debt on the growth of large public listed companies, especially after the global financial crisis in order to understand the ability of bond market in providing financing resources to Malaysian firms. In Malaysia, Chaleeda et al. (2019) showed that corporate debt has a positive relationship with firm value. They argued that it was debt financing which assisted in mitigating the agency cost which led to improved firm performance. Although their studies examined the corporate debt via an indirect way, we expect a direct relationship between corporate debt and firm growth because a firm needs growth to improve its value. Furthermore, many of the previous researchers who investigated this topic focused on SMEs rather than public listed firms in Malaysia. For example, Wong, Sabki, Regupathi, & Syed Salim, (2019) found that the usage of debt improved SMEs' growth.

Hence, we postulated the following hypotheses:

H_1 : There is a positive effect of corporate debt on firm growth of Malaysian firms.
Fig. 2 illustrates the conceptual framework of the corporate debt and firm growth that was examined in this research.

Figure 2: Conceptual Framework

III. Methodology

Data
The sample of our study consists of 796 public listed firms in Bursa Malaysia. The study period was from 2009 to 2018. This time span was chosen because the main objective of the study was to examine the relationship between firm leverage and firm growth after the global financial crisis in 2008. The data was obtained from the DataStream Database. Financial firms were excluded due to their different debt structure compared to non-financial firms'. Firms with missing or incomplete data and firms without annual report from the period of 2009 to 2018 were also excluded. After these exclusions, 334 firms satisfy our requirements.

Variables
The main dependent variable is firm growth and total asset growth is used as a proxy for firm growth. The total assets growth is the difference in the number of assets in two consecutive years divided by number of total assets in previous year (Anton, 2017). Meanwhile, corporate debt is the independent variable and debt ratio is used to measure corporate debt, *i.e.* the ratio of total liabilities to total assets. The two advantages of using debt ratio are: 1) it acknowledged the trade credit as a source of short term financing; and 2) all of the firms possess this piece of information (Rajan & Zingales, 1995) that is needed in order to investigate the impact of corporate debt on firm growth.

In this study, we control the variables that are commonly used as the explanatory variable in past literature. This includes 1) firm size and 2) profitability. Size is measured by the log of total assets of the firm (Salim and Yadav, 2012). We included firms size as control variable due to the fact that firm growth can be influenced by the firm size; as larger firm have more capacity and capabilities (Ebaid ,2009). Profitability is measured by the return on firm's total assets. As suggested by the pecking-order theory, highly profitable companies tend to reduce their external funding which, in the end, signals the creditors of the firm's low bankruptcy risk (Titman & Wessels, 1988; Rajan & Zingales, 1995; Wald, 1999; Supanvanij, 2006). In other cases, highly profitable firms can issue debt at low cost since they are considered less risky by the creditors. Furthermore, profitable firms are able to generate large earnings and use lesser amount of debt capital compared to firms that make little profit (Titman & Wessels, 1988; Mazur, 2007; Rajan & Zingales, 1995; Abor, 2005). All these variables are tabulated in Table 1:

Table 1: The measurements of variables

Variables & Abbreviations	Measurements
Total assets growth (TAG)	Ratio of number of total assets in current year minus number of total assets in previous year divided by number of total assets in previous year, $\frac{TA_1 - TA_0}{TA_0}$
Corporate debt (Debt)	Ratio of total liabilities divided by the total assets, $\frac{Total\ liabilities}{Total\ assets}$
Firm Size (SIZE)	Natural log of total assets of the firm
Profitability (ROA)	Ratio of earnings before taxes divided by total assets

Estimation Model

The estimation model from Anton (2017) has been adopted for this study. Equation (1) below shows the estimation model that was used in this study:

$$TAG_{i,t} = \beta_0 + \beta_1 * Debt_{i,t-1} + \beta_2 * SIZE_{i,t-1} + \beta_3 * ROA_{i,t-1} + \varepsilon_{i,t}$$
(1)

where, $TAG_{i,t}$ denotes assets growth for firm i in year t $(i=1,.., N; t=1,...t)$; $Debt$, measures the degree of indebtedness, *FIRM SIZE* and *ROA* are the control variables for firm i at time t. Finally, $\beta_0, \beta_1, \beta_2$ are the parameters to be estimated and $\varepsilon_{i,t}$ is the disturbance term.

Estimation Method

The panel data regression is used because it controls the unobservable firm characteristics and missing values which may influence firm growth (Brooks, 2008). To generate unbiased and consistent estimator, we firstly ran the estimation model – equation (1), with the most common estimation method for panel data, namely, the ordinary least squares (OLS) estimator. It was argued that the OLS might not be able to capture endogeneities in the variables. Thus, to reduce the tendency of generating biased and inconsistent variables, we also tested the model with Random Effect (RE) and Fixed Effect (FE) models. The Lagrange Multiplier test (LM) was applied to test the preferred model between RE and OLS models. The null hypothesis for the LM test is that the individual-specific or time-specific error variance components are zero. If the p-value of the Chi-square distribution is less than 0.05, the RE model is better to control for heterogeneity. The Hausman test was then used to identify the preferred model between the RE and FE models. The null hypothesis for the Hausmen test is that the RE estimator is the preferred model. If the p-value of Chi-square distribution is less than 0.05, FE method is more appropriate than RE method.

IV. Empirical Results

Table 2 shows descriptive statistics of the dependent, independent and control variables. The mean value of firm's *Corporate Debt* is 19.75 percent. The minimum and maximum are 0.00 percent and 85.57 percent, respectively, with a standard deviation of 15.77 percent. The mean value of *Total Asset Growth (TAG)* is 6.32 percent. Meanwhile, the minimum and maximum are -74.16 percent and 90.43 percent respectively with a standard deviation of 13.72 percent.

Table 3 contains the Pearson Correlations among the observed variables. Correlation analysis was performed to identify the multicollinearity issue of the variables. The results from the correlation analysis reveals that firm's *Corporate Debt* has a significant positive correlation with *TAG*. There is a positive correlation between profitability (*ROA*) and firm's growth. The Pearson coefficient is 0.42 and 0.29 respectively and significant at 5 percent level. Nonetheless, it can be observed that none of the variables has a correlation coefficient that is greater than 0.6; hence, suggesting that the variables are free from multicollinerity issues (Damodar, 2004).

Table 2: Descriptive Statistics for Sample Firms Data

	Corporate Debt	**Assets Growth**	**Profitability (ROA)**	**Firm Size**
Mean	19.75324	6.320018	5.489	13.28189
Min	0.0000	-74.16	-70.84	7.862112
Max	85.57	90.43	75.32	18.84991
Standard deviation	15.77167	13.72418	8.021242	1.584127
Skewness	0.680026	1.039556	0.782331	0.6265695
Kurtosis	3.141142	8.208541	16.67429	3.537397

Table 3: Pearson Correlation Analysis

	Assets Growth	**Corporate Debt**	**Profitability (ROA)**	**Firm Size**
Assets Growth	1.0000			
Corporate Debt	0.0531*	1.0000		

	(0.0022)			
Profitability (ROA)	0.3247*	-0.1658*	1.0000	
	(0.0000)	(0.0000)		
Firm Size	0.0994*	0.2891*	0.0948*	1.0000
	(0.0000)	(0.0000)	(0.0000)	

Note: p-values are in parentheses. Correlation is significant at level of 5%.

The Relationship between Corporate Debt and Firm Growth Results

In order to identify the best method that explains the relationship between corporate debt and firm growth, we follow the steps written in the estimation method section. Table 5 reports the Breusch-Pagan Lagrange multiplier (LM) test results for Model 1. From the result, the null hypothesis is rejected because the p-value is less than 0.05. Therefore, we conjectured the RE model is preferred over OLS. Next, we run the Hausman test to identify whether the FE model is better than RE in explaining the relationship between corporate debt and firm growth. Table 4 documents the Hausman Test results for model 1 and we find that the RE model is preferred over FE model because the p-value is more than 0.05.

Table 4: Breusch-Pagan Lagrange multiplier (LM) test results

Chi-Chi^2	360.40
Prob> chi^2	0.0000

Table 5: Hausman Test Results for Model 1

	Fixed		**Random**
Corporate Debt	0.090207		0.057391
Chi-Chi^2		1.72	
Probability		0.19	

Table 6 reports the RE model result for the relationship between corporate debt and firm debt. Our results showed the coefficient for *Corporate Debt* is 0.114223 and is significant at 5 percent level. This indicates that the higher the employment of corporate debt, the better is the firm growth. This finding supports by the Pecking Order Theory that explain the avoidance of firms in issuing equity when they need external resources due to the higher cost of asymmetric information of equity. The result is consistent with Hamouri et al. (2018) [Jordan], Anton (2017) [Romania] and Huynh & Petrunia (2010) [Canada] that showed the increased in debt improved firm growth. As such, H$_1$ is accepted.

With regard to the control variables, firm size has a significant positive relationship with assets growth in model 2. This means that, the larger the firm, the higher is its asset growth. Similarly, firm profitability (ROA) also shows a positive and significant relationship with assets growth. This indicates that the higher the firm's profitability, the higher is its asset growth.

Table 6: Regression Output of Random Effect Panel

	Random effect	
	Coefficients	P-value
Corporate Debt	0.114223*	0.0000
Profitability (ROA)	0.7104908*	0.0000
Firm Size	0.5383638*	0.0160
Constant	-6.9866	0.0160
R^2	0.1183	
No. of observations	3340	

Note: * significance at level of 0.05

V. Discussions and Conclusions

This study aims to investigate the impact of corporate debt to the growth of Malaysia firms. Using the period after the Global Financial Crisis 2007-2008, we found a direct and positive relationship between firm leverage and firm growth for Malaysia firms. The positive result achieved could be due to several reasons. Firstly, Malaysia is an emerging market with an underdeveloped capital market; where the firms that operate in the market would be better off only if they are able to obtain debt financing to support their growth (Dinh *et al*., 2010). This phenomenon is common for firms in developing nations (Avarmaa, 2011). Furthermore, Malaysia is subjected to less efficient and incomplete capital and stock markets compared to developed countries. This is likely to contribute towards increase in the cost of issuing stocks as an additional financing resource (Eldomiaty, 2007). Secondly, the benefits of interest payment deductible expenses might motivate firms to employ more debt. This is because tax deductibles increase cash flows and firm value. Taken together, the findings suggest the usage of more debt if Malaysian firms need additional finance. However, the Malaysian authority should regulate the usage of debt as debt financing is associated with the cost of financial distress that might jeopardise the operation and the value of the firms.

There are several implications from this study. Firstly, it provides empirical evidence regarding the positive impact of corporate debt on Malaysian firms' growth. The findings show that Malaysia firms' growth adhered by the Pecking Order Theory of debt. Secondly, the government could implement the fiscal policy that promote the firms' financial health, so that the firms are able to run their operation smoothly and contribute to better economic development for Malaysia. Other than that, the policymakers can make use of the research findings to formulate effective instruments or public policies that provide control on the firms from falling into excessive debt. One of the methods can be by taking bank loans to fund growth opportunities because bank loan offers attractive interest rates with low bankruptcy risks compared to long-term debt. Lastly, business owners and managers could tailor make befitting financial plans that suit their business operations.

Despite these findings, this study is not without its limitations. Firstly, the research findings focused only on the public listed firms in Malaysia, where the capital market development might not be as well established as in the developed countries. Thus, researchers shall carefully interpret the findings when applying the findings for other countries. Secondly, this research focused on the Trade-off theory, Agency theory and Pecking Order theories of debt in explaining firms' growth. However, firms' growth is not limited only to the firms' specific variables. Hence, researchers might need to look at other perspectives, such as, the potential benefits of human capital for firm growth.

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