



Do Financial Constraints Expand Lease Financing Capacity? In Perspective of Malaysian Firms

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ABSTRACT

The purpose of this study is to analyze the relationship between financial constraint factors that can affect the chosen of leasing for the firm in Malaysia. The sample of data consist of 1150 firms including listed firm, unlisted firm and SMEs with the total number of firm-years observation are 8339. This study covers 7 years period from year 2007 until 2014. The dependent variables are lease ratio and debt ratio while the independent variables are the financial constraint determinant such as internal funds, growth, collateral, and size. This study also include control variables such as uniqueness (R&D expenses), tax loss and macroeconomics factor such as based lending rates (BLR). The results indicate that not all financial constraint firms tend to used lease financing compare to debt financing. It depends on what types of financial constraint that the firm faces. For this analysis, the firm that have financial constraint in internal funds, collateral and size tend to used lease compare to debt financing. However, for the firms have less growth opportunities, it is difficult for them to choose either lease or debt financing because of their future survival.

Keywords: leasing, debt finance, financial constraint.

1. INTRODUCTION

The influence of financing conditions on corporate behaviour has been extensively explored in the finance literature. The theoretical model of Myers and Majful (1984) showed that firms may relinquish valuable investment opportunities when internal sources of funds are not sufficient. Nowadays the firms take investment decisions not only looking at the profitability of the project, but also on the basis of the availability and costs of external financing. Access to external finance is a key determinant of a firm's ability to develop, operate and expand. The availability of external finance is likely to vary with changes in the macroeconomic environment and monetary policy shocks. The sources of external financing can be from bank lending, informal financing, trade

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credit and leasing. In this study the external financing that will be focused is on leasing. A key potential benefit of leasing is the access to capital for firms that do not yet have assets to pledge for loan collateral. Leasing differs from collateral-based lending in that the choice whether to offer financing is frequently determined by the ability of the asset to contribute to cash flow rather than the balance sheet value of the collateral. Thus, it is thought to be particularly valuable in many low- and middle-income countries which unsecured loans can be difficult to obtain. Leasing arrangements generally allow the lender to retain legal ownership of the asset, which facilitates seizure in the case of default and can considerably reduce the risk to lenders or lessors (Eisfeldt and Rampini, 2008).²

From an economic perspective, leasing can be defined as a contract between two parties where one party (the lessor) provides an asset for usage to another party (the lessee) for a specified period of time, and expected for specified payments in returns (Fletcher et. al., 2005). Leasing is referred to as an asset based financing. As lessors retain ownership of the assets they lease throughout the life of the contract, these leased assets are therefore an essential form of collateral in such contracts. As a source of external financing, leasing is comparable to long-term debt. Leasing is focused on the lessee's ability to generate cash flows from the business operations to service the lease payments (Gallardo, 1997). Ownership of the asset may or may not pass to the customer at the end of the lease contract. Leasing enables borrowers with limited track record or credit histories and collateral to access the use of capital equipment, often even in cases where they would not qualify for traditional commercial bank lending (Gallardo, 1997; Berger and Udell, 2006).

Leasing was first introduced in Malaysia on September 1973 by United Orient Leasing Company Berhad³ which was based in Japan. Besides that the second earliest leasing company in Malaysia, Pembangunan Leasing Corporation (PLC)⁴ which is incorporated on 1 November 1977 was established to discover commercial financing market, specifically through leasing facility. Now it becomes the largest leasing provider in Malaysia. Total amount of leasing in Malaysia show an increasing trend from only RM1.66 billion in year 2004 to RM 14.72 billion in year 2014.⁵ This indicates that the potential of lease financing are very encouraging and become an alternative for financing method among the firms. Prior studies on leasing in Malaysia are based on the Islamic banking product named Al-Ijarah. Ijarah in Islamic banking and finance can simply mean leasing or hiring. Technically, ijarah is an agreement between two parties, one

² They confirm that access to lease financing is the only source of external finance reliably related to growth in GDP and the manufacturing sector.

³ Now it is called Orix leasing Malaysia Berhad which was involved in dealing finance lease, structured finance, real estate investment and development, and movable asset with 14 branched throughout Malaysia.

⁴ PLC is a subsidiary fully owned by Malaysian Development Bank, one of government linked company in Malaysia.

⁵ Source from Bank Negara Malaysia Annual Report 2014.

being the owner of the asset, who gives possession of the assets for the use of the other party, the hirer, on an agreed rental over a mutually agreed period. It is also defined as transferring the usufruct of a particular property to another person in exchange for a rent claimed from him (Usmani, 2002). Even though the conventional leasing already started in 1970's compare to Islamic leasing which is just started by early 1990's, the paper related to conventional leasing in Malaysia perspective are very limited.

The objective of this paper is to analyse the relationship between the determinant of financial constraint with the firm decision of getting lease financing or debt financing. Looking specifically in Malaysia perspective, this study will analyse the impact of the different categories of financial constraint which can reflect the decision of the firm to choose lease financing. The samples are divided into most financially constraint to less financially constraint to analyse the relationship between the different factors of financially constraint to the chosen of lease financing and debt financing. This paper firstly contributes to the literature of leasing decision from the effects of financial constraints especially in Malaysia perspective. With very limited sources of Malaysia research in leasing, it can be a stepping stone for more investigation and argument in this area. Second contribution are besides using the microeconomic factors to evaluate the financial constraint and financing decision, this paper also used macroeconomic factors to be included in the analysis to avoid endogeneity problem in the regression and will also provide a comprehensive overview of the impact of financial constraint company's decision. The results indicate that the lease can have substitute relationship with debt financing and the use of leases strongly related to measures of financial constraints including internal funds, collateral and size. For most constrained firm, they used more lease compare to debt financing. However, for the lower growth firms, it is difficult to choose either lease or debt financing due to their future survival.

2. LITERATURE REVIEW

2.1 Financial constraint and lease financing

The most fundamental issue in financial economics is how firms obtain capital to fund operations and investment. Whited (1992)⁶ found that financial constraints, a diminished ability to access external financing, directly impacted firms' capital investment plans. The variables that increase a firm's ability to contract external finance will only have an effect on investment spending when investment demand is constrained by capital market imperfections. The composition of external finance has also attracted the attention of both theoretical and empirical papers. Denis and Mihov (2003) showed that the credit quality of the borrower is

⁶ This paper presents evidence supporting the theory that problems of asymmetric information in debt markets affect financially firm's ability to obtain outside finance.

the key determinant of the external financing. For this research, it will focus more on lease financing. In effect, leasing may increase the debt capacity of firms (Eisfeldt and Rampini, 2008). Moreover, the situation may be more difficult for the development of leasing because leasing mainly benefits small and mid-sized companies since there is less political motivation to develop the required legal and regulatory infrastructure (Carter, Barger, and Kuczynski, 1996).⁷ Following the arguments above, leasing might play a special role in financing growth in countries with weak institutional frameworks (Berger and Udell, 2006). If bank lending requires good collateral laws or registries and efficient courts in the case of default, then leasing will be more likely to have a differential impact on firm growth in a country with a weak regulatory environment.

2.2 Leases as complement to debt financing

Several studies investigate the relation between leasing and debt financing but the empirical evidence is mixed either leases and debt are complement or substitutes relationship. First part of the literature review will be focusing on the lease and debt as a complementary relationship which means that lease and debt have positive relationship. The first empirical study by Ang and Peterson (1984) explained that a greater use of debt is associated with a greater use of leasing. Finucane (1988) found that leases are positively related to the company's debt ratio, number of bond issues and bond rating, although he also found that leases are negatively related to the company's ratio of subordinated debt to assets.

Lewis and Schallheim (1992) framed the lease choice within the optimal capital structure choice. They showed that lease can actually increase a company's debt capacity by selling excess non-debt tax deductions, and that leases and debt can be complementary within an optimal capital structure. Lasfer and Levis (1998), classified by size, concluded that leases and debt are complements for large companies. Mehran et al. (1999) found that the Tobit model estimation suggested that debt and finance leases are complementary, but they did not find evidence of a significant interaction between debt and operating leases. Kang and Long (2001) also found that companies with high levels of regular debt also have higher levels of leases. Eisfeldt and Rampini (2008) presented another justification for increased debt capacity due to lease. They concluded that it is easier for a lessor to acquire a leased asset than it is to assure the collateral of a secured loan. This means that leases proportionate higher debt capacity than secured lending. However, leases can give rise to agency costs because of the separation of ownership and control of the leased assets. For these reasons, they concluded that leases tend to be more frequently used by companies that are more financially constrained.

⁷ Many SME's and new firms in developing countries use leasing to finance their investment because the leasing company retains legal ownership of the leased asset, it enables a firm to qualify for use of leased equipment based on its generated cash flow rather than its credit history, assets, or capital base.

2.3 Leases as substitute to debt financing

The second part of the literature review highlight some previous literature that found the lease and debt financing have substitute relationship which means there are negative relation. Myers et al. (1976) developed a theoretical lease-buy decision model and defined the debt-to-lease displacement ratio (λ) that represents the substitution between debt and leases. For Myers et al. (1976), (λ) ranges between 0 and 1 (lease as a substitute to debt); however, they did not consider the possibility that λ could be < 0 (lease as a complement of debt). The most frequently advanced view is that leases and debt are perfect substitutes ($\lambda=1$). That is, an increase in leasing activity reduces borrowing on a same amount.

Marston and Harris (1988) used financial statement data and OLS regression approach to examine the changes in debt and lease obligations (finance and operating leases). They found that the estimated coefficient of substitution between leases and debt was significantly positive and between 0 and 1, showing that companies reduced non-lease debt when leases increased, but did so on a less than dollar-for-dollar basis. Beattie et al. (2000) investigated the degree of substitutability between lease and non-lease debt financing using comprehensive measures of leases and debt. To estimate total operating lease liabilities, they used the method of constructive capitalisation suggested by Imhoff et al. (1991). They found that lease and debt are partial substitutes, consistent with the argument that lessors bear some risks which are not inherent in debt contracts.

The results found by Yan (2006) yielded evidence that leases and debt substitute each other empirically rather than act as complements. They found that the degree of substitutability is greater for companies that pay no dividends, companies that have more investment opportunities, or companies with higher marginal tax rates. Besides that, Yan (2006) also founds that a higher lease ratio leads to less new debt financing, suggesting a substitutive relation between debts and leases. Therefore the relationship between debt and leases found in the previous studies may be an unidentified mix of both the true relationship and the factors that simultaneously affect leasing and debt financing.

2.4 The factors influence firm to lease.

The next important aspect on the literature review are about the factors of the firm choose lease compare to debt financing. There are many paper examined on how leases are used as an alternative form of financing. Smith and Wakeman's (1985)⁸ study is one of the most relevant studies about the determinant of leasing. They identified eight reasons for leasing besides tax motivation. There are asset

⁸ The analysis suggest that taxes are important in identifying potential leases and lessors but are less important in identifying the specific assets leased.

values not tied to use and maintenance; assets not specialised for the company; the useful life of the asset exceeds the lessee's expected period of use of the asset; the lessee's bonds contain specific financial policy covenants; management compensation is a function of return on invested capital; the company is closely held; the lessor has market power; and the lessor has a comparative advantage in disposing of the asset.

Lasfer and Levis (1998) analysed the leasing decision and found for companies that use leasing are more likely to have tax losses, high fixed capital investment, high debt-to-equity ratio and to be larger than companies that do not use leasing. However the determinants of leasing are not homogeneous across firms of different size. For large companies, leasing, profitability, leverage and taxation are positively correlated. In contrast, for small companies, the leasing decision is not driven by taxation or by profitability, but by growth opportunities. They show that small firms with high Tobin's q and those that are less profitable are more likely to use leasing.

Sharpe and Nguyen (1995) suggested that cash-poor or lower rated firms, those likely to face higher contracting costs, tend to lease more. Graham et al. (1998) showed that firms with more growth options in their investment opportunity sets have a lower proportion of fixed claims in the capital structure, debt or leases alike. For small firms that are not publicly traded, leasing is even more important. Eisfeldt and Rampini (2008) claimed that leasing may be the largest source of external finance for these small firms.

As discussed in Smith and Wakeman (1985), while leasing is similar to debt in a number of dimensions, it differs in another. For instance, during the bankruptcy procedure, it is simpler for the lessor to repossess the leased asset than for the secured debtholder to acquire the pledged asset. As a result, leasing may offer a higher debt capacity than secured lending. Two theoretical works discuss the determination of leasing-versus-debt decision. Eisfeldt and Rampini (2008), using the argument of higher debt capacity of leasing, derive that leasing ratio is increasing in firm's financial constraints, characterized as firm having low internal funds or having a return on internal funds exceeding the market interest rate. Rampini and Viswanathan (2011) argued that tangible assets are a key determinant of corporate debt capacity. Based on the need to collateralize loans with tangible assets, they develop a dynamic model of capital structure incorporating leasing as a financing alternative. As leasing amounts to a strong form of collateralization due to the relative ease with which the leased assets can be repossessed, they derived that firms with low tangible assets will lease more and borrow less. Based on these arguments and mix finding, it can be determined that the leasing and financial constraint are still relevant and interesting to investigate and discuss further.

3. HYPOTHESIS

In general, most of the studies found that higher leverage companies have less debt capacity; they are more likely to use leases rather than other forms of financing. Eisfeldt and Rampini (2008) and Sharpe and Nguyen (1995) found that companies facing greater financing constraints, due to information asymmetries, have a higher propensity to make operating leases. They argued that leases provide creditors with more security, higher priority in bankruptcy and an effective way of reducing adverse selection and moral hazard problems that arise from information asymmetries. Companies have been found to lease as a means to avoid debt financing (Ang and Peterson, 1984; Marston and Harris, 1988; Myers et al., 1976). As the higher debt capacity of leasing is more valuable to firms that are short on internal funds, they predicted that the lease versus borrowing decision depends on the available internal funds and the return on the internal funds. Literature suggests that firms with low internally generated cash flow or high fluctuation in their internal funds are more constrained (García-Vega, Guariglia, & Spaliara, 2012).

Hypothesis 1: *Firm with less internal funds tend to used lease financing compare to debt financing.*

Rampini and Viswanathan (2011) developed a capital structure model based on the need to collateralize loans with tangible assets by taking leasing into account. As only tangible assets can be used as collateral, in the absence of leasing, low tangibility is equivalent to low debt capacity. Firm with low tangible assets thus are more constrained and borrow less. Their model predicts that the most constrained firms with minimal collateral lease all physical assets and purchase only intangible assets and the less constrained firms substitute debt for lease. Graham et al. (1998) argued that leasing is tied to tangible assets and thus firms using more tangible assets in their production process should use more leases. According to Rampini and Viswanathan (2011), high tangibility of assets is equivalent to a better ability of collateralization, which determines financial leverage. Thus, firms with fewer tangible assets are more constrained and use more leases and less borrowing.

Hypothesis 2: *Firm with less growth opportunities tend to used more debt financing compare to lease financing.*

Size is related to the costs of obtaining external funds. Smaller companies tend to bear higher costs for getting external financing (Graham et al., 1998). Lessors may choose to reduce the uncertainty surrounding their claims by leasing rather than lending to small companies. Leases are preferred because the lessor's security is tied to the asset itself rather than his general credit. Thus, other elements held constant, smaller companies are predicted to lease relatively more, suggesting a negative relationship between size and leases. Size is related to

diversification and the ability to redeploy assets internally, and larger companies tend to be more diversified than smaller ones. Mehran et al. (1999) investigated the relationship between total leases and size, measured as total sales. Their results showed that size is positively related to leases, which means that larger companies with more diversification possibilities tend to lease more. Deloof and Verschuere (1999) also investigated the determinants of the financial leasing decision and they used total assets as a measure of size. Their results showed that the coefficient of size is significant and positive for the entire sample, but also when the sample is split between small and large companies.

Hypothesis 3: *Firms with less collateral tend to use more lease financing compare to debt financing*

For firms with more growth opportunities, the conflicts of interest between debtholders and stockholders may lead to costly underinvestment problem. These underinvestment incentives can be alleviated by reducing the amount of debt in capital structure (Myers, 1977) or by using financing with high priority claims such as leasing or secured debt (Stulz & Johnson, 1985). Thus, high-growth firms prefer leasing to debt financing. Underinvestment problem here means an agency problem where a company refuses to invest in low-risk assets, in order to maximize their wealth at the cost of the debt holders. Low-risk projects provide more security for the firm's debt holders, since a steady stream of cash can be generated to pay off the lenders. The safe cash flow does not generate an excess return for the shareholders. As a result, the project is rejected, despite increasing the overall value of the company.

Hypothesis 4: *Size of the firm has same impact between the choice of lease financing and debt financing*

4. DATA AND EMPIRICAL METHODOLOGY

4.1 Data

The sample for this analysis was collected from Bureau van Dijk Orbis Database for the period of 2007-2014. The samples consist of listed, unlisted⁹ and SME's firm from various industries in Malaysia. This paper used three different categories of firm in order to analyse the impact of financial constraints and the behaviour of the firm decision either to obtain lease financing or debt financing. The sample contains 1150 firms which consist of 627 from listed firms, 470 from unlisted firms and 53 from SME's. The total numbers of firm-years observation are 8339.

⁹ Unlisted firms refer to the firm other than SME's definition and not listed in Bursa Malaysia

4.2 Empirical Methodology

4.2.1. *Dependent variables*

The main dependent variables are the lease ratio and debt ratio. This paper follow Graham et al. (1998) to measure the present value of the operating leases¹⁰ as the current year rental expense and the rental commitments over the next five years. Since it is operating leases not the capital leases that typically enjoy the repossession advantage, this paper rely on operating leases as the “true lease”. Following the Graham et al. (1998), this paper also compute the debt ratio as the long-term debt divided by the total assets.

4.2.2. *Financial constraint variables*

Four different variables was used to measure the firms are financially constrained, including internal funds (Internal funds), growth opportunities (Growth), asset tangibility (Collateral) and size (Size). Literature suggests that firms with low internally generated cash flow or high fluctuation in their internal funds are more constrained (García-Vega, Guariglia, & Spaliara, 2012). For firms with more growth opportunities, the conflicts of interest between debtholders and stockholders may lead to costly underinvestment problem. These underinvestment incentives can be alleviated by reducing the amount of debt in capital structure (Myers, 1977) or by using financing with high priority claims such as leasing or secured debt (Stulz & Johnson, 1985). Thus, high-growth firms should prefer leasing to debt financing.

Graham et al. (1998) argued that leasing is tied to tangible assets and thus firms using more tangible assets in their production process should use more leases. However, their argument may not apply to operating leases as much as to capital leases since a true lease allows the lessee to use a physical asset without appearing on the balance sheet. According to Rampini and Viswanathan (2011), high tangibility of assets is equivalent to a better ability of collateralization, which determines financial leverage. Thus, firms with fewer tangible assets are more constrained and use more leases and less borrowing. Finally this paper also includes firm size as another proxy for financial constraint as Eisfeldt and Rampini (2009) suggested that the size of the firm is increasing in internal funds.

4.2.3. *Control variables*

Titman and Wessels (1988) suggested that uniqueness of firm's assets can be categorized by its investment in research and development. Since the distribution of the expenditures on research and development is highly skewed and more than half of the firms do not have any research and development in any year, this

¹⁰ Formula for operating leases by added the current rental expense to the PV of the operating lease commitments for the next five years and then divided by the total assets.

paper use the dummy (Uniqueness) equal to one when the firm has expenditures on research and development as the proxy for firm's asset uniqueness. An alternative argument for why firms with more R&D spending might use less leasing is that the intangible assets like research and development cannot be repossessed and thereby the agency problem involved is severe.

Lewis and Schallheim (1992) suggested that the non-debt tax shields can encourage firms to lease since leasing offers the opportunity to “sell” tax shields to the party that values them more highly. Leasing is relatively cheaper when the lessor “buys” the tax shields by reducing the lease payment. Consistent with Barclay and Smith (1995), this paper proxy the non-debt tax shields by the dummy variable (Tax-loss) equal to one if the firm has tax-loss-carry forwards. This paper expects that firms with tax-loss-carry forwards to use more operating leases and secured debt.

Besides the microeconomic factors which are reflect by the firm itself, this paper also used the macroeconomic factor to understand the relationship between real economic situation and the decision of the firm to take lease or debt financing. For the macroeconomic factors, this paper used based lending rates (BLR).¹¹ This rates used as a benchmark to analyse the effect of interest rate fixed by the Central Bank of Malaysia to the choice of lease and debt. It is understand that the higher rates influenced the firm decisions either to rent or buy the assets. The BLR are determined by the banks’ benchmark cost of funds and Statutory Reserve Requirement (SRR). The BLR changes according to the overnight policy rate (OPR), which is being determined by the central bank from time to time.

5. EMPIRICAL RESULTS

5.1. *Descriptive statistics*

Table 1 shows the used of leasing and debt based on industry. This paper used seven categories of industry such as manufacturing, services, retail, communication, construction, transportation and agricultures. The most industry used of leasing manufacturing and construction. The less industry used leasing is agriculture. The average used of leasing and debt financing for manufacturing industry are 0.24226 and 0.238216. From the table we can see that manufacturing, communication, construction, and transportation used more leasing compare to debt financing. Other industry like services, retail, and agricultures used more debt financing compare to lease financing.

¹¹ Bank Negara has introduced BR (base rate) that will be replacing the BLR(Base Lending Rate) framework effectively on 2nd, January 2015.

Table 1: The use of leasing and debt: Average by industry

Industry	No of observations	Operating lease	Debt
Manufacturing	5535	0.24226	0.238216
Services	372	0.2378	0.2486
Retail	484	0.2236	0.2677
Communication	63	0.3669	0.2799
Construction	1701	0.25503	0.2444
Transportation	152	0.25841	0.2496
Agricultures	32	0.2146	0.3285
	8339		

Table 2 shows the time series of leases and debt based on early basis. This paper used 7 years period from year 2007 until 2014. The most number of observations used in year 2007 (1138), 2008 (1132) and the less number of observation are in year 2011 (917) and 2010 (969). The economic crisis in 2007 and 2008 may contribute to the reason of higher number of firm using lease financing. In year 2007, 2008, 2009, 2012, and 2013 most firm used leasing while in year 2010, 2011, and 2014 debt financing are most preferable among the samples firm.

Table 2: Time series of leases and debt. Average by yearly basis

Year	No of observations	Operating lease	Debt
2007	1138	0.2403	0.2323
2008	1132	0.2382	0.2315
2009	1109	0.2508	0.2415
2010	969	0.2409	0.2443
2011	917	0.2306	0.2504
2012	1055	0.2523	0.2438
2013	1031	0.2507	0.2416
2014	988	0.2529	0.2589
	8339		

Table 3 shows the descriptive statistics for the variable used in this paper. The table reports the summary of statistics for the sample data. The sample includes 8339 observation for 1150 firms over the period from 2007 to 2014. The report shows the mean, standard deviation, minimum and maximum for each variables. On average the operating lease ratio and debt ratio are 24.47% and 24.25%. Under the financial constraint variables, the internal funds shows on average 4.5%, growth 91.4%, collateral 33.6%, and the average size of the firm are 0.07662. For the control variables, the uniqueness variables which indicate for

R&D expenses shows 13.9%, while tax-loss and BLR show an average 81.6% and 64.03%.

Table 3: Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Operating lease ratio	8339	0.2447	0.234	0.0000222	0.99241
Debt ratio	8339	0.24256	0.2257	0.0000395	0.99372
Internal funds	8339	0.04502	0.3105	-20.82172	11.0597
Growth	8339	0.9142	0.0736	0.70813	0.9999
Collateral	8339	0.33679	0.283363	0	4.6811
Size	8339	0.07661	0.4286027	-21.166	18.406
Uniqueness	8339	0.139225	0.3462	0	1
Tax-loss	8339	0.816	0.3874	0	1
BLR	8339	0.6403	0.00467	0.055	0.0685

5.2 The decision between leasing and debt.

Table 5 reports the results of OLS regression between leasing and debt. The most constrained firms are the firms that rank in the bottom half while the less constrained firms are the firms that rank in the top half of internal funds, growth, collateral and size. This paper divided each of the financial constraint determinants such as internal funds, growth, collateral and size to analyse the relationship between the leasing and debt financing. Under internal funds, the relationships are same between lease and debt in all samples firms. After separate the samples between most constraint and less constraint, it found that the lease have positive relationship between lease and internal funds. This indicates that when the higher number of constraint firm, they prefer used of lease financing due to less number of their available internal funds. In contrast, the debt financing have negative relationship between the internal funds variables. These results consistent with the hypothesis 1 where firm with less internal funds tend to used lease financing compare to debt financing.

Table 5: Determinant of leasing and debt (Internal funds) ***, **, denote significance at the 1%, and 5% levels, respectively.

	All sample firms		Most constraint		Less constraint	
	Operating lease	Debt	Operating lease	Debt	Operating lease	Debt
Variable used to measure financial constraint						
Internal funds	-0.0397**	-	0.0291	-	-	-0.0146
	(-4.85)	0.0432***	(1.81)	0.0380***	0.0537***	(-5.43)
		(-5.43)		(-2.49)	(-5.43)	(-1.51)

Control variables:						
Uniqueness	0.0828*** (11.24)	0.0191*** (2.67)	0.0769*** (7.24)	-0.0082 (-0.81)	0.0846*** (8.29)	0.0400*** (4.00)
Tax loss	0.0314*** (-4.76)	0.0205*** (-3.2)	0.0615*** (-7.26)	0.0229*** (-2.85)	0.0060 (0.56)	0.0475*** (-4.51)
BLR	-0.0428 (-0.08)	-0.2255 (-0.43)	0.7512 (0.98)	-1.1010 (-1.51)	-0.8621 (-1.13)	0.8053 -1.07
Constant	0.2632	0.2730	0.2195	0.30633	0.2907	0.2561
R ² from OLS	21.30%	5.80%	29.00%	4.10%	23.50%	9.80%
N	1150		575		575	

Table 6 analyses the second financial constraint determinant which is growth, both of lease and debt financing have same relationship for all sample firms. Both have negative relationship with the less growth firm. It indicates that the future prospect or the firm development are important for the financial provider either debt or lease financing provider to ensure the firm can survive in the future. However after add some control variable such as tax-loss and BLR, it indicates that the most constraint firm in terms of growth, prefer to take debt financing compare to lease financing. These results consistent with hypothesis 2 where firm with less growth opportunities tend to used more debt financing compare to lease financing.

Table 6: Determinant of leasing and debt (Growth). ***, **, denote significance at the 1%, and 5% levels, respectively

Variable used to measure financial constraint	All sample firms		Most constraint		Less constraint	
	Operating lease	Debt	Operating lease	Debt	Operating lease	Debt
Growth	-3.1733*** (-981.00)	-0.1077*** (-3.17)	-3.5036*** (-909.05)	-0.1798*** (-3.94)	-2.5668*** (-3587.06)	-0.7923*** (-3.77)
Control variables:						
Uniqueness	-0.0098*** (-14.24)	0.0167*** (2.30)	-0.0028** (-4.69)	-0.0227*** (-3.26)	-0.0001*** (-1.92)	0.1009*** (6.54)
Tax loss	0.0038*** (6.17)	-0.0179*** (-2.79)	-0.0025** (-4.39)	0.0126** (1.86)	0.0077*** (1.96)	-0.0459*** (-3.98)
BLR	-0.0069 (-0.14)	-0.2898 (-0.55)	-0.0401 (-0.8)	0.3362 (0.56)	0.0033 (1.13)	-0.8433 (-0.98)

Constant	3.1445	0.3719	3.4244	0.37108	2.5651	1.0964
R ² from OLS	79.16%	3.50%	79.50%	7.60%	89.97%	12.47%
N	1150		575		575	

Table 7 shows the third financial constraint determinant which is collateral. In most constraint firms it shows that lease and debt financing have negative relationship. Firm tend to used lease financing when they have less collateral. It indicates that firm that used debt financing must have good and enough collateral to get loan approval from bank. These results consistent with hypothesis 3 where firms with less collateral tend to used more lease financing compare to debt financing.

Table 7: Determinant of leasing and debt (Collateral). ***, **, denote significance at the 1%, and 5% levels, respectively

	All sample firms		Most constraint		Less constraint	
	Operating lease	Debt	Operating lease	Debt	Operating lease	Debt
Variable used to measure financial constraint						
Collateral	0.0043*** (0.48)	- (-2.83)	0.2910*** (6.73)	0.0054** (0.13)	0.1849*** (-11.26)	- (-6.30)
Control variables:						
Uniqueness	0.0835*** (11.32)	0.0192*** (2.68)	0.0464*** (4.15)	0.0499*** (4.55)	0.0823*** (8.40)	-0.1713 (-1.79)
Tax loss	-0.0302*** (-4.58)	0.1808*** (-2.82)	0.0223*** (-2.36)	0.0565*** (-6.09)	0.0104*** (-1.12)	0.0319** (3.53)
BLR	-0.1052 (-0.19)	-0.2840 (-0.54)	-0.0358 (-0.05)	-0.4307 (-0.56)	-0.1892 (-0.26)	-0.2823 (-0.39)
Constant	0.2630	0.2811	0.2112	0.3110	0.3742	0.2925
R ² from OLS	1.90%	3.20%	2.01%	1.60%	5.95%	1.10%
N	1150		575		575	

Table 8 analyses the last financial constraint determinant used in this paper are size. The table shows that for the most constraint firm in terms of size, they tend to used more lease financing compare to debt financing. This is because the size can indicate the capability of the firm to pay back the loan from their daily operation. When the firm have less size, they need to find some financing which

have suitable with their capability. This paper used total sales divided by total asset as a size in these samples. Firms with less number of sales will tend to used lease financing compare to debt financing due to longer time period and affordable rate of interest. These results however inconsistent with the hypothesis 4 where lease and debt financing actually have different relationship with the firm size especially the most constraint firms. In terms of Based Lending Rates variables, it shows that when the rates are lower, firms tend to used debt financing compare to lease financing.

Table 8: Determinant of leasing and debt (Size). ***, **, denote significance at the 1%, and 5% levels, respectively.

	All sample firms		Most constraint		Less constraint	
	Operating lease	Debt	Operating lease	Debt	Operating lease	Debt
Variable used to measure financial constraint						
Size	-0.1470*** (-2.48)	- 0.03** *	0.0202** (2.57)	-0.01 (-1.30)	-0.0563*** (-5.82)	-0.0161 (-1.67)
Control variables:						
Uniqueness	0.0831*** (11.27)	0.02** *	0.0762*** (7.04)	-0.004 (-0.40)	0.0852*** (8.5)	0.0358** *
Tax loss	-0.0304*** (-4.62)	- 0.20** *	-0.0558*** (-6.55)	0.03** *	-0.0008 (-0.07)	0.0481** *
BLR	-0.0805 (-0.15)	-0.25 (-0.47)	0.6125 (0.79)	-1.09 (-1.50)	-0.7151 (-0.95)	0.7450 (0.99)
Constant	0.2643	0.27	0.2263	0.30	0.2848	0.2623
R ² from OLS	1.98%	0.52%	2.74%	0.38%	2.52%	0.80%
N	1150		575		575	

Overall, not all financial constraint firm tend to used lease financing compare to debt financing. It depends on what types of financial constraint that the firm face. For this analysis, this paper found that the firm that have financial constraint in internal funds, collateral and size tend to used lease compare to debt financing. However, for the firms have less growth opportunities, it is difficult for them to choose either lease or debt financing because of their future survival.

5.3 Robustness test

Literature suggests that firm size is likely to be correlated with financing decision as well as other factors that influence the financing costs. Table 9 sort the sample firms into large and small size of firm based on their total asset. Based on the table, it shows that the small size firms are tend to used leasing compare to large firms. This is because the small firm don't have enough collateral to pledge for debt financing. While this finding may partially reflect the fact that firms accumulate tangible assets as they grow in size, it is also consistent with Rampini and Viswanathan's (2011) prediction that tangibility determines firm leverage and the lack of tangibility increases the incentive to lease.

Table 9: Relationship between leasing and financial constraint variables based on size of total asset. ***, **, * denote significance at the 1%, 5% and 1% levels, respectively.

	Overall firm	Large firm	Small size
Dependent variable: Operating lease ratio			
Internal funds	0.0013695** (1.19)	0.251517*** (1.72)	-0.0020531*** (-1.72)
Growth	-3.170822*** (-903.16)	-3.187161*** (-440.49)	-3.188855*** (-443.12)
Collateral	-0.0024048 (-2.73)	-0.013*** (-6.72)	-0.0014518*** (-0.97)
Size	-1.43* (-0.65)	3.78** (1.64)	4.45*** (5.14)
Control variables:			
Uniqueness	-0.0088094*** (-11.99)	-0.0054383** (-4.85)	-0.01106*** (-4.78)
Tax loss	0.0045828*** (6.85)	0.0007862 (0.77)	0.00609*** (2.85)
BLR	-0.0421081 (-0.79)	-0.1240474 (-1.3)	-0.0117033*** (-0.11)
R ² from OLS	0.9915	0.9549	0.992
N	8337	2780	2778

6. SUMMARY AND CONCLUSION

As a conclusion, the results consistently show that the use of leases is negatively related to the use of debt financing from the impact of financing constraint, suggesting that debt and leases are used as substitutes. However it also depends

on what types of financial constraint that the firm face. For the financial constraint firm, especially for the firm with lower internal funds and lower collateral they prefer used leasing rather than debt financing. This indicates that when the firm have less internal fund available, they did not used debt financing because of difficulties to get the loan approval from the bank or financial institutions. Same goes to collateral. For firm with less collateral, it indicates that firm cannot use debt financing because of unavailability of asset to act as collateral and for them to take debt financing they must have good and enough collateral to get loan approval from bank.

Firm with lower growth have same impact with lease and debt financing. Both have negative relationship with the less growth firm. It indicates that the future prospect or the firm development are important for the financial provider either debt or lease financing provider to ensure the firm can survive in the future. Firms that are smaller, with low internal funds, tend to lease more and borrow less. The smaller firms may don't have strong financial position to apply for debt financing. Besides that, for the firm that have less collateral will used more lease compare to debt financing. This is due to the demand for collateral if the firms used debt financing.

From the analysis done, it can conclude that not all financial constraint factors can affect firm to choose lease financing rather than debt financing. It depends on what types of financial constraint they face. For the firm have less internal funds and less collateral, it can expand lease financing. While the firm have less growth opportunities have same effect on the lease and debt financing.

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