

CAPITAL STRUCTURE AFFECTING FIRM VALUE IN THAILAND

Chanisa Maneerattanarungrot¹ and Kwunkamol Donkwa²

Abstract

This study explores how performance, growth opportunity, tangible assets, risk, and liquidity affect a firm's capital structure and how capital structure affects firm value. Structural equation modeling is used to analyze three accounting periods (2012–2014) of financial data from 315 firms listed on the Stock Exchange of Thailand. This study finds that tangibility positively affects debt financing and liquidity, risk negatively affect debt financing, and debt financing has no effect on a firm value. Financial managers could use these results to develop their capital structure to support other operations within the firm. These results will also fill the gap in both empirical and theoretical knowledge of debt financing's mediating role on the firms listed on the Stock Exchange of Thailand.

Keywords: Capital Structure, Firm Value, Structural Equation Model

INTRODUCTION

Integrating a firm's marketing, operating, human resource, and financial functions is necessary to increase firm value. The financial function should find the best sources of funds and have an appropriate capital structure so that the firm's other functions can operate

smoothly. Although the trade-off, agency, and pecking order theories of capital structure propose that debt financing can improve firm value (Jensen & Meckling, 1976; Kraus & Litzenberger, 1973; Myers, 1984), relevant research findings are still not definitive. Different studies have shown both positive and negative relationships between debt financing

¹Asst. Prof. Dr. Chanisa Maneerattanarungrot obtains a Ph.D. in Management from Suranaree University of Technology. Currently she is working as a lecture in the Institution of Social Technology, Suranaree University of Technology.

²Assoc. Prof. Dr. Kwunkamol Donkwa obtains a Ph.D. in Agricultural Economics from Kasetsart University. Currently she is working as a lecturer in the Institution of Social Technology, Suranaree University of Technology.

and firm value, and still others have shown no relationship. Moreover, the three capital structure theories propose that various factors affect debt financing differently. A consensus on what causes debt financing whether these causes affect debt financing positively or negatively has yet to be reached. Furthermore, only a few studies analyze liability as a mediator. Most studies examine either the causes or the effects of debt financing, but not both. In addition, most of the studies on capital structure use either total debt or long-term debt as proxies for capital structure and either total assets, stock price, or market-to-book ratio as proxies for firm value. Using a single indicator as a proxy leads to measurement error (Hair, Black, Babin, & Anderson, 2010). This study addresses the current gap in research by using the same model to examine both the causes and effects of capital structure and by using many indicators to measure capital structure and firm value. Thus, the objectives of this paper are to study how performance, growth, tangible assets, risk, and liquidity affect capital structure and how capital structure affects firm value.

The remainder of the paper is structured as follows. First, a literature review describes related theories, previous research findings, and the research framework. Next, the study's methodology, results, discussion are presented. Finally, the conclusion and recommendations are given in the last section.

LITERATURE REVIEW

The literature review is divided into three parts: capital structure theories, capital structure research results, and a research framework.

1. Capital Structure Theories

Each capital structure theory has a different context and assumption regarding its application. This research uses trade-off theory, agency theory, and pecking order theory to study the causes and effect of capital structure.

1.1. Trade-off theory: Firms should consider the benefits of tax deductions for interest and the costs of financial distress when they make plans for their capital structure. According to this theory, a firm's optimal debt load depends on the present value of its interest tax shield and its financial distress cost. Capital is at its lowest cost when the debt load is optimal, and finding this optimum increases a firm's value. Debt financing, therefore, has a positive effect on firm value. However, when forming their capital structures, firms should consider their characteristics. Trade-off theory proposes that performance, tangible assets, and liquidity positively influence the debt, but growth and risk negatively influence the debt. The higher the profit, the more tax a firm has to pay, so a high-performance firm should have more debt to gain more tax-shield benefits. Moreover, firms can use tangible assets as collaterals and enjoy lower interest rates. Therefore, firms with more tangible assets can have more debt. The more liquidity a firm has, the less likely it is to default, so firms with high liquidity have lower financial distress costs and can also have more debt. However, firms with more growth opportunity have higher business risks and financial distress costs, so they should have less debt. (Kraus & Litzenberger, 1973; Tudose, 2012) The causes and effects of debt according to trade-off theory are summarized in Table 1.

1.2. *Agency theory*: The separation of control and ownership creates a relationship between the shareholders and the managers. The managers, while acting as agents of the owners to manage the firm, may pursue their own targets instead of fulfilling the shareholders' targets. Therefore, the owners have to create mechanisms to govern the managers and to motivate the managers to add more value to the firm. These mechanisms create agency costs. Paying interest helps lower agency costs by reducing the free cash flow that managers could use to fulfil their own goals, so debt financing positively affects firm value. Moreover, performance, liquidity, growth opportunity, and tangible assets, collectively a firm's characteristics, have positive effects on debt. Firms with more profit and liquidity have more free cash flow, so they should have more debt to reduce the free cash flow. Firms with many investment projects also have more external financing needs. Furthermore, firms can reduce interest rates by using their tangible assets as collaterals. However, firms with high business risks should not increase their financial risks by adding more debt, so business risks negatively affect debt. (Jensen & Meckling, 1976; Tudose, 2012) The causes and effects of debt according to agency theory are summarized in Table 1.

1.3. *Pecking order theory*: When choosing which funds to use, firms first use their internal sources of funds, or retained earnings, then debt, and lastly equity. Using retained earnings involves lower funding costs and shorter processing times compared to debt funding, yet equity funding involves yet higher funding costs and even longer processing times. Therefore, debt financing positively affects firm value. This theory proposes that firm performance, risk, and liquidity have

negative effects on debt. Firms with more profit and liquidity have more retained earnings and do not need external funding. Firms involved in high-risk ventures should not more debt as more debt means even more financial risk. However, growth opportunities and tangible assets positively affect liability. The retained earnings of high growth firms might not match their capital requirements, so they add more debt. Moreover, tangible assets can be used as collaterals when firms require debt funding. (Myers, 1984; Tudose, 2012) The causes and effects of debt according to agency theory are summarized in Table 1.

Table 1 The causes and effects of debt financing according to the theories

Independent Variables	Theories		
	Trade-off	Agency	Pecking order
<i>Influence of firm characteristics on debt</i>			
Performance	+	+	-
Growth	-	+	+
Tangibility	+	+	+
Risk	-	-	-
Liquidity	+	+	-
<i>Influence on the firm value</i>			
Debt	+	+	+

Remark: “+” or “-” mean the independent variable positively or negatively affects the dependent variable.

2. Capital Structure Research Results

Although each theory proposes the causes and effects of different capital structures, current research results only support some parts of each theory. This section is divided into 6 parts: the effects of performance, growth opportunity, tangibility, risk, liquidity's effect on capital structure, and capital structure's effect on firm value.

2.1. Effect of performance on capital structure: Daoud Ellili (2011), Pornsit, Pandej, and Yixin (2012), Arshanapalli and Nelson (2014), and Dang, Kim, and Shin (2014) all found that performance positively affected the total debts of listed firms in the USA. Others also found that performance had a positive effect on long-term debts (Lee & Kuo, 2014; Thippayana, 2014) and short-term debts (Oino & Ukaegbu, 2015). However, most research found that performance negatively affected either total debts, long-term debts, or short-term debts for firms in the USA (Salama & Putnam, 2015), New Zealand (Smith, Chen, & Anderson, 2015), China (Chang, Chen, & Liao, 2014; Chen, Jiang, & Lin, 2014; Liang, Fang Li, & Song, 2014; Tian, Han, & Zhang, 2015), India (Handoo & Sharma, 2014; Komera & Lukose P.J, 2015), Malaysia (Ebrahim, Girma, Shah, & Williams, 2014), Taiwan (Pan, Lin, Lee, & Ho, 2015; Yang, Lee, Gu, & Lee, 2010), Thailand (Tongkong, 2012), Peru (Gómez, Mena Rivas, & Lizaraburu Bolaños, 2014), nine developing countries in Africa (Lemma & Negash, 2014), and seven countries in Europe (Mateev, Poutziouris, & Ivanov, 2013). Some papers concluded that performance had no effect on debt financing for the listed firms in the USA (Park & Jang, 2013), Australia (Islam & Khandaker, 2015), Brazil (Rodrigues Loncan & Frois Caldeira, 2014), China (Tse & Rodgers, 2014), G20 countries (Fauver & McDonald, 2015), and seven Muslim countries and nine non-Muslim countries (Gunn & Shackman, 2014). This research hypothesizes that firm performance negatively affects debt financing (H_1).

2.2. Effect of growth opportunity on capital structure: Yang et al. (2010), Tongkong (2012), Chang et al. (2014), Ebrahim et al. (2014), Handoo and Sharma (2014), Rodrigues Loncan and Frois Caldeira (2014), Smith et al.

(2015), and Oino and Ukaegbu (2015) found that growth opportunity positively affected long-term debts and total debts for listed firms. Nevertheless, some concluded that growth opportunity had a negative effect on debt for the listed firms in the USA (Dang et al., 2014; Danis, Retzl, & Whited, 2014; Pornsit et al., 2012; Salama & Putnam, 2015), Iran (Alipour, Mohammadi, & Derakhshan, 2015), G20 countries (Fauver & McDonald, 2015), and a collection of thirty-six countries (Arosa, Richie, & Schuhmann, 2014). Others also found that growth opportunity had no effect on debt financing (Alves, Couto, & Francisco, 2015; Chen et al., 2014; Gómez et al., 2014; Islam & Khandaker, 2015; Lemma & Negash, 2014). Since most research articles found that growth opportunity had a positive effect on debt, this research hypothesizes that growth opportunity positively affects debt financing (H_2).

2.3. Effect of tangibility on capital structure: Most studies found that tangible assets positively affected long-term debt (Arosa et al., 2014; Gómez et al., 2014; Lee & Kuo, 2014; Yang et al., 2010), total debt (Arshanapalli & Nelson, 2014; Chang et al., 2014; Danis et al., 2014; Pan et al., 2015), or both long-term debt and total debt (Gao & Zhu, 2015; Handoo & Sharma, 2014). However, some studies found that tangibility negatively affected short-term debt (Alves et al., 2015; Mateev et al., 2013), total debt (Dang et al., 2014) or short-term, long-term, and total debt (Alipour et al., 2015). Some articles also concluded that tangibility had no effect on liability (Lemma & Negash, 2014; Oino & Ukaegbu, 2015; Tian et al., 2015). This study hypothesizes that tangibility positively affects debt financing (H_3).

2.4. Effect of risk on capital structure: A few studies concluded that business risks positively affect debt financing (Chang et al.,

2014; Ebrahim et al., 2014). Other researchers found that risk had a negative effect on short-term debt, long-term debt, or total debt (Alipour et al., 2015; Alves et al., 2015; Arosa et al., 2014; Lee & Kuo, 2014; Salama & Putnam, 2015). However, some studies found risk had no effect on debt financing (Lemma & Negash, 2014; Thippayana, 2014; Tse & Rodgers, 2014; Yang et al., 2010). This research hypothesizes that business risk negatively affects debt financing (H_4).

2.5. Effect of liquidity on capital structure: Mateev et al. (2013) found that liquidity had a positive effect on long-term debt. However, many researchers concluded that liquidity negatively affected total debt (Arosa et al., 2014; Aulovj & Hlavsa, 2013; Fauver & McDonald, 2015; Liang et al., 2014; Rodrigues Loncan & Frois Caldeira, 2014). Some researchers still found no effect of liquidity on debt (Gómez et al., 2014; Pan et al., 2015; Park & Jang, 2013). This study hypothesizes that liquidity negatively affects debt financing (H_5).

2.6. Effect of capital structure on firm value: Altan and Arkan (2011), Collins, Filibus, and Clement (2012), Park and Jang (2013), Yu and Zhao (2014), and Winarto (2015) found debt financing had a positive effect on firm value. However, some researchers found that debt

negatively affected firm value (O'Brien, David, Yoshikawa, & Delios, 2014; Rodrigues Loncan & Frois Caldeira, 2014). Others also concluded that debt had no effect on firm value (Chowdhury & Chowdhury, 2010; Garça-Meca & Pedro Sınchez-Ballesta, 2011). This paper hypothesizes that debt financing positively affects firm value (H_6).

3. RESEARCH FRAMEWORK

Although the capital structure theories propose that a firm's characteristics affect debt financing, which in turn affects firm value, the research results have been only partly consistent with the theories. Therefore, this study uses the research framework in Figure 1 to analyze the causes and effects of debt as a mediator. Moreover, both debt and firm value are latent variables, and thus, to reduce errors, researchers use at least three different indicators when measuring their values.

METHODS

This study uses secondary data of firms listed on the Stock Exchange of Thailand (SET) to study the causal relationships listed previously. The data were retrieved from SETSMART

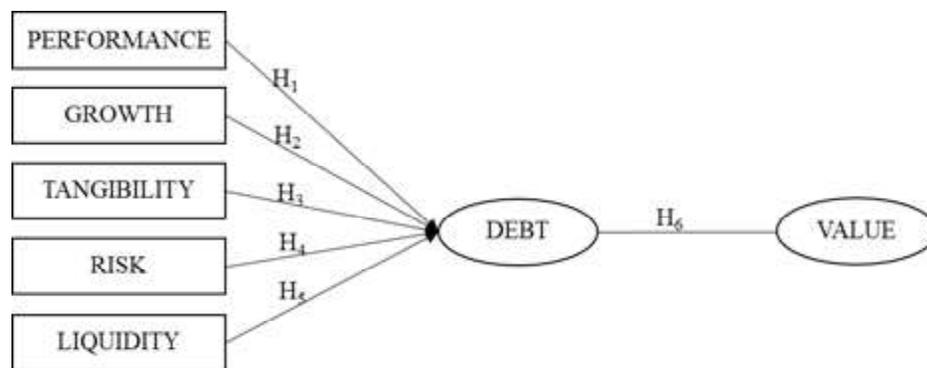


Figure 1 Research Framework

databases. The population is 354 listed firms during the period between 2012 and 2014, excluding firms in financial and resource industries and firms under rehabilitation due to regulations.

Table 2 shows the details of how each variable in the research framework was measured. First, all independent variables, except growth and risk, were measured in 2012. Growth opportunity was the percentage change in total assets between 2012 and 2013. Risk was the

standard deviation of Return on Assets (ROA) from 2012 to 2014. Next, the mediator was the latent variable and was measured from total debt ratio, long-term debt ratio, short-term debt ratio, and debt-to-equity ratio (all ratios were from 2013). Finally, the dependent variable was also the latent variable and was measured from market value of total assets, market to book value of total assets, and stock price (all from 2014 data).

Variable	Measurement	Source
Performance (PERF)	Return on total assets ₂₀₁₂ Unit :%	Chen et al.(2014); Dang et al.(2014); Ebrahim et al.(2014); Gunn and Shackman (2014)
Growth (GROW)	Total assets growth rate _{2012,2013} Unit :%	Chang et al.(2014); Gómez et al.(2014); Alipour et al.(2015); Oino and Ukaegbu (2015)
Tangibility (TANG)	Fixed assets to total assets ₂₀₁₂ Unit :%	Lee and Kuo (2014); Liang et al.(2014); Pan et al.(2015); Salama and Putnam (2015)
Risk (RISK)	Standard deviation of ROA _{2012,2014} Unit :%	Arosa et al.(2014) ; Chen et al.(2014); Gómez et al.(2014); Tse and Rodgers (2014)
Liquidity (LIQ)	Current ratio ₂₀₁₂ Unit :time	Mateev et al.(2013) ; Arosa et al.(2014); Handoo and Sharma (2014); Liang et al.(2014)
Capital Structure (DEBT)	Total debt to total assets (TD) ₂₀₁₃ Unit :%	Dang et al.(2014); Ebrahim et al.(2014); Alipour et al.(2015); Oino and Ukaegbu (2015); Pan et al.(2015)
	Long-term debt to total assets (LTD) ₂₀₁₃ Unit :%	Mateev et al.(2013); Lee and Kuo (2014); Alipour et al.(2015); Gao and Zhu (2015); Oino and Ukaegbu (2015)
	Short-term debt to total assets (STD) ₂₀₁₃ (only interest-bearing debt) Unit :%	Mateev et al.(2013) ; Arosa et al.(2014); Alipour et al.(2015); Oino and Ukaegbu (2015)
Firm value (VAL)	Debt-to-equity (DE) ₂₀₁₃ Unit :%	Gunn and Shackman (2014); Fauver and McDonald (2015)
	Market value of total assets (TA) ₂₀₁₄ Unit :a billion baht	Altan and Arkan (2011)
	Market-to-book value of total assets (MB) ₂₀₁₄ Unit :time	García-Meca and Pedro Sánchez-Ballesta (2011); O'Brien et al.(2014); Park and Jang (2013); Rodrigues Loncan and Frois Caldeira (2014)
	Price per share (PR) ₂₀₁₄ Unit :baht	Chowdhury and Chowdhury (2010); Collins et al.(2012)

The data were first examined for multivariate outliers by the estimated Mahalanobis distance. Thirty-nine outliers were detected and removed from the sample. So, the sample size was 315 and conformed to the proper sample-size ratio of 5 to 20 times the indications in the model (Hair et al., 2010; Wolf, Harrington, Clark, & Miller, 2013). The data were then analyzed with descriptive statistics such as mean, standard deviation, maximum, minimum, kurtosis, and skewness.

Next, the variables were tested for normality and linearity. When the variables are not normally distributed, the standard errors and the chi-squared goodness-of-fit statistics may be incorrect and may give too many significant results. Nonlinear relationships may also result in underestimation of the actual strength of the factor loadings in the confirmatory factor analysis or of the beta coefficients in the structural equation model. Therefore, if the observed variables did not conform to the normality or linearity assumptions, the variables were transformed into the natural logarithm (Hair et al., 2010).

After the variables met the assumptions, construct validity of the latent variables was tested by the confirmatory factor analysis technique. Finally, the causal relationships among the independent and dependent variables were analyzed with the structural equation model. The data were analyzed by MPLUS version 7.3.

RESULTS

The samples were listed in six industries: property & construction (22.86%), services (22.86%), industrial products (21.59%), agro & food (12.06%), consumer products (10.79%), and technology (9.84%). Table 3

shows the descriptive statistics for each observed variable of 315 listed firms. Their average was 7.42% for performance, 11.39% for growth opportunities, 24.22% for tangibility, 3.89% for risk, and 2.98 times for liquidity. Most of their capital structures were equity funded. Firms in the sample also preferred short-term debt to long-term debt. Some of them did not have short-term or long-term debt. Their average total assets were 17.61 billion baht at 1.82 times the market-to-book value. However, most of the variables did not have normal distributions, with their standard deviations higher than their means, the skewness between 0.05 to 11.33, and the kurtosis between -0.96 to 157.22. Therefore, all of the variables in the model were transformed into the natural logarithm. Table 4 shows the correlations between the model's variables. The correlations between independent variables and dependent variables ranged from -0.408 to 0.421. The correlations between independent variables ranged from -0.218 to 0.354 and showed no multicollinearity problems. All correlations of indicators in capital structure factor and firm value factor, except for the correlation between short- and long-term debts, were positive and statistically significant.

1. Measurement Models

According to the confirmatory factor analysis, the capital structure model fit with the empirical data, with $\chi^2 = 4.238$, $df = 2$, $p\text{-value} = 0.120$, $\chi^2/df = 2.119$, $CFI = 0.998$, $TLI = 0.995$, $RMSEA = 0.060$, and $SRMR = 0.019$ (Hair et al., 2010). Moreover, convergent validity for the capital structure factor was demonstrated with an average variance extracted (AVE) of 0.667.

Furthermore, all factor loadings in the model were statistical significant with positive signs; debt-to-equity had the highest factor loading and long-term debt had the lowest factor loading.

The firm value model was a perfect fit with the empirical data, with $\chi^2 = 0$, $df = 0$, p -value = 0, CFI = 1, TLI = 1, RMSEA = 0, and SRMR = 0, because its number of free parameters were equal to its number of observed variables (Hair et al., 2010). Its factor loadings were positive and statistically significant. Total assets had the highest factor loading and stock price had the lowest factor loading. CFA results are shown in Table 5.

2. Structural Model

According to the structural equation model, the causes and effects of debt model and the data were fitted, with $\chi^2 = 125.240$, $df = 42$, p -value = 0.000, $\chi^2/df = 2.982$, CFI = 0.953, TLI = 0.938, RMSEA = 0.079, and SRMR = 0.043 (Hair et al., 2010). Figure 2

shows the results of the structural equation model analysis. Variance in the characteristics of the firms and of their capital structures can explain 3.7 percent of the firm value variance. However, 35.4 percent of the capital structure variance can be explained by the firm characteristic variance. Performance and growth opportunity had no effect on the debt financing. H_1 and H_2 are thus rejected. Tangibility had a positive and statistically significant effect on debt financing, meaning the more tangibility a firm has, the more debt it has also. H_3 was therefore not rejected. Risk and liquidity had negative and statistically significant effects on the debt financing, meaning the more liquidity and risk a firm has, the less debt it has also. Thus, H_4 and H_5 were accepted. Liquidity had the strongest effect and risk had the weakest effect on debt. The last hypothesis (H_6) is rejected because debt financing did not significantly affect firm value. Although the results show that debt had a positive effect on firm value, the effect is not strong enough to change firm value.

Table3 Descriptive statistics

Variable	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
PERF	7.42	8.13	-14.46	43.17	1.09	2.85
GROW	11.39	22.35	-22.45	169.76	3.62	18.85
TANG	24.22	20.58	-	91.67	0.81	0.06
RISK	3.89	4.47	0.07	35.14	3.16	14.08
LIQ	2.98	5.03	0.02	47.88	5.73	39.59
TD	37.52	19.88	0.51	86.24	0.05	-0.96
LTD	10.41	12.35	-	57.22	1.51	1.40
STD	12.29	14.11	-	66.37	1.37	1.58
DE	81.75	76.40	0.51	626.94	2.20	9.01
TA	17.61	37.73	0.33	292.13	4.71	26.28
MB	1.82	1.35	0.44	12.74	3.63	19.85
PR	38.57	132.58	0.05	2,000.00	11.33	157.22

Table 4 Correlations among observed variables

	PERF	GROW	TANG	RISK	LIQ	TD	LTD	STD	DE	TA	MB	PR
PERF	1	-0.55	.105	.354**	.002	-.175**	-.138*	-.245**	-.209**	.043	.421**	.121*
GROW		1	-.218**	.047	.123*	-.060	.001	-.055	-.015	.036	.091	-.097
TANG			1	-.020	-.149**	-.033	.027	-.068	-.115*	-.180**	-.007	.149**
RISK				1	-.041	-.105	-.120*	-.041	-.086	-.044	.112*	-.033
LIQ					1	-.408**	-.122*	-.267**	-.278**	-.065	-.009	-.005
TD						1	.481**	.671**	.895**	.256**	-.053	-.070
LTD							1	.002	.400**	.401**	.023	-.012
STD								1	.618**	.003	-.132*	-.111*
DE									1	.258**	-.055	-.075
TA										1	.224**	.145**
MB											1	.292**
PR												1

Table 5 Confirmatory Factor Analysis

Factor	Observed Variable	Factor Loading	S.E.	R ²
DEBT	TD	.989**	.001	.978
	LTD	.482**	.043	.232
	STD	.693**	.030	.480
	DE	.994**	.001	.988
VAL	TA	.935**	.008	.874
	MB	.434**	.049	.188
	PR	.207**	.058	.043

Note: - ** and * mean .01 and .05 statistical significance

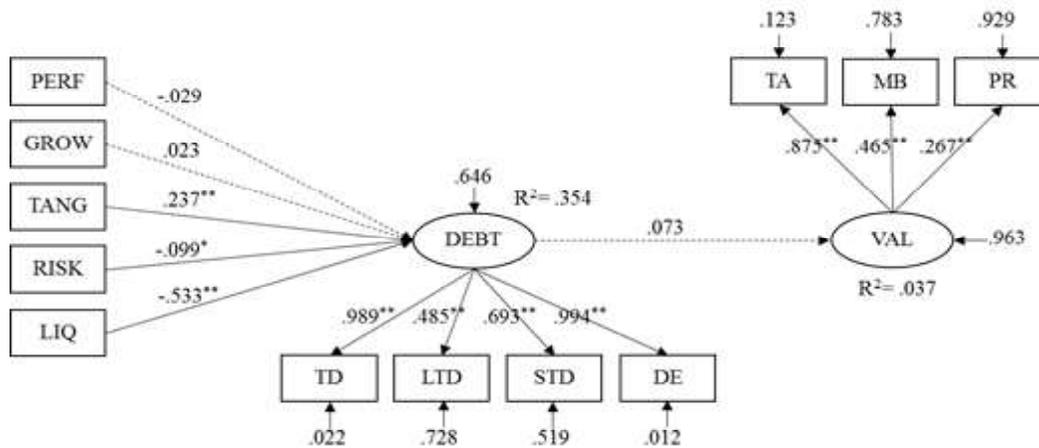


Figure 2 Structural Equation Model

Note: - ** and * mean .01 and .05 statistical significance, respectively

Discussion

The causes and effects of debt financing do not behave completely according to the theories of capital structure. The theories have proposed that performance, growth opportunity, tangibility, risk, and liquidity affect debt financing, which affects firm value in turn. However, from the data analysis, firms should consider their liquidity, tangibility, and risk when forming their capital structure. Doing so could support the operations of other functions of the firms, instead of directly increasing firm value. Thus, for listed firms in Thailand, all three capital structure theories can explain how tangibility and risk affect debt, but only the pecking order theory can describe the behavior of the debt financing in terms of liquidity. However, none of the theories can explain the effects of performance and growth opportunity on debt. Moreover, the trade-off, agency, and pecking order theories cannot explain the effect of the debt financing.

Firm performance is consistent with the pecking order theory. Firms with high profits should have enough retained earnings to fund their projects, so they require less external funding or debts. However, the effect is too weak to have a statistical significance. The findings do not support the trade-off, pecking order, or agency theories. These findings are in agreement with Park and Jang (2013), Gunn and Shackman (2014), Rodrigues Loncan and Frois Caldeira (2014), Tse and Rodgers (2014), Fauver and McDonald (2015), and Islam and Khandaker (2015).

Growth opportunity performs as trade-off theory proposes. Firms with high growth opportunities have high business risks and financial distress costs, so they should have low debt levels. Nevertheless, the growth effect

is not strong enough to have statistical significance. Therefore, the result does not support any of the capital structure theories. This finding is also consistent with the studies of Chen et al. (2014), Gómez et al. (2014), Islam and Khandaker (2015), Lemma and Negash (2014), and Alves et al. (2015).

Every capital structure theory proposes that tangible assets have a positive effect on debt financing. Tangibility is also found to positively affect the debt level. This means firms with more tangible assets can have higher debts because they can be used as collaterals. Specifically, the model shows that a one percent increase in tangible assets will cause the debt level to increase by 23.7 percent. The finding of a positive effect of tangibility on the debt financing is also consistent with the findings of Yang et al. (2010), Arosa et al. (2014), Arshanapalli and Nelson (2014), Chang et al. (2014), Danis et al. (2014), Gómez et al. (2014), Handoo and Sharma (2014), Lee and Kuo (2014), Gao and Zhu (2015), and Pan et al. (2015).

The results show that risk negatively affects debt as proposed by all the capital structure theories. This means firms with high business risks should not have high debt levels. The model shows that a one percent increase in business risk will cause the debt level to decrease by 9.9 percent. Nevertheless, compared to liquidity and tangibility, risk has the weakest effect on debt levels. The observed negative relationship between risk and debt financing is consistent with the studies of Arosa et al. (2014), Lee and Kuo (2014), Alipour et al. (2015), Alves et al. (2015), and Salama and Putnam (2015).

The pecking order theory proposes that liquidity negatively affects debt financing, and the results of this study confirm this theory.

This means firms with high liquidity have low debts. Specifically, the model shows that a one percent increase in liquidity will cause the debt level to decrease by 53.3 percent. Furthermore, listed firms in Thailand relied more on short-term debt than on long-term debt, as seen in the descriptive results. If a firm had enough liquidity, it would not need to raise any more short-term debts. This finding is consistent with those of Aulová and Hlavsa (2013), Arosa et al. (2014), Liang et al. (2014), Rodrigues Loncan and Frois Caldeira (2014), and Fauver and McDonald (2015).

Although trade-off, agency, and pecking order theories all propose that debt financing has a positive effect on firm value, this study does not confirm this effect. Here, a positive effect of debt financing on firm value is shown, but benefits from debts, such as an interest tax shield and reduced agency or funding costs, may be too few to increase the firm value with a statistical significance. Usually, financial expenses are the smallest component of an income statement. Therefore, firms should focus more on producing and marketing activities to build sustainable competitive advantages for themselves. Firms should also form the most efficient capital structures in order to manage their producing and marketing functions without being interrupted by financial problems. The finding that debt financing does not affect firm value is consistent with those of Chowdhury and Chowdhury (2010) and García-Meca and Pedro Sánchez-Ballesta (2011).

CONCLUSION AND RECOMMENDATION

This study analyzes the causes and effects of capital structure in a single model while reducing measurement error by treating capital

structure and firm value as latent variables. For listed firms in Thailand, tangibility positively affects debt financing, but risk and liquidity negatively affect debt financing while performance and growth opportunity have no effect on debt financing. Moreover, debt financing has no effect on firm value. The trade-off, agency, and pecking order theories can describe the causes of debt financing in term of tangibility and risk, but only the pecking order theory can explain the cause of debt financing in terms of liquidity. Furthermore, no theory can explain the effects of performance and growth opportunity on debt financing, nor can any theory explain the how debt financing affects firm value.

When making decisions about their capital structures, firms should consider both their own characteristics and the external environment. Specifically, firms with high levels of tangible assets and low levels of liquid assets and business risk should rely on debt to fund their investment projects. However, firms with high levels of liquidity and risk and low levels of tangibility should rely on equity. Along with liquidity, tangibility, and risk, firms should consider external factors, such as the inflation rate, interest rate, GDP growth rate, or stock market liquidity, when making decisions about their capital structure. Because financial expenses are usually the smallest portion in the income statement, firms should focus more on reducing buying and selling expenses to improve their performance. Furthermore, in order to increase firm value, the financial function should form the appropriate capital structure, so that the producing, marketing, and other functions of the firm can operate smoothly without being affected by financial deficit problems.

With regard to future research, panel data

should be used in this model to help researchers control differences in business practices across companies or factors that change over time, but not across companies. Researchers could also add other internal factors such as payout policy, asset utilization, or intangible assets, or other external factors, such as interest rates, inflation rates, or GDP growth rates into this model.

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