FINANCIAL PREFERENCES OF LISTED FIRMS IN EMERGING MARKET: THEORY AND PRACTICE IN THE CASE OF THAILAND

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ABSTRACT

The study aims to identify the determinants of Thai listed firms' capital structure using derived theoretical-based models from CAPM and Hamada equations, which incorporate the control variables, i.e. company's operating performance and capital size, with time-invariant and random effects, for improving the explanatory power of the model. The empirical test employs the quarterly data covering the year 2006 to 2010 from the Stock Exchange of Thailand. The results showed that the tax shield and industry classification explicitly demonstrate material relevance to the alteration of the firm's degree of financial leverage. The results also showed that the fixed assets merely exert moderate influences on the firm's willingness to implement a policy of increasing financial leverage. Conclusively, none other relevant factors possess a significant impact on the choice of capital structure, in the case of Thailand.

Keywords: *Capital Structure, tax shield, financial leverage*

1. INTRODUCTION

In seeking for the optimal capital structure for profitable entrepreneurs, the existing controversies argue the propositions, contributed by Modigliani and Miller (1958) whose theories express the irrelevance of firms' capital structure and the further-developed limited relaxations of the assumptions including income taxes. In addition, MM theories of personal income taxes, that offset the benefits from but not totally eliminate the overall advantages of corporate income tax, favors the debt finance for maximizing the wealth of shareholders, which are further assured by the study of Masulis (1982) that the use of debt could add more value to the firm in terms of tax shields.

The broaden views of arguments incorporate the two major groups, the "Pecking Order" and the "Trade-off Theory". First of all, Myers and Majluf (1984) argue that the internal fund would be the prior consideration of raising the capital followed by external finances start with loan ahead of the equity financing, which is in consistency with the studies of, Sunder and Myers (1999), and Lemmon and Zender (2009). In addition, Brounen and Eichholtz (2001), and Myers (1984) remind the awareness of the issuing the firm's equity and risky debt that might dilute the equity value due to the signal effects under asymmetric information. These signaling effects have been explicitly demonstrated by Titman and Wessels (1988), in the inverse relationship between the firm's profitability and the company debt ratio. Secondly, in terms of Trade-Off effects, the optimal capital structure involves interactions between, tax-shield benefits, and bankruptcy and agency costs in the expressions of Bradley, Jarrell, Kim (1984). Following the agency cost of debt studied by, Jensen and Meckling (1976), Hart and Moor (1988), and Myers (1977), Fama and French (2002) and Wang (2006) emphasize on the impacts of firm's dividend policy on the change of the firm's capital structure. Furthermore, the study by DeAngelo and Masulis (1980) claim the significant linkage between the firm's leverage ratio and the industrial classifications of the firm due to the nature of bankruptcy costs, followed by the studies of, Bradley, Jarrell, Kim (1984), and Hatfield, Cheng, and Davidson (1994). The liquidity of the firm assets and the firm capital structure are also relevant according to Williamsom (1988), Shleifer and Vishny (1992), and Sibilkov (2007), who state that the more liquidity of the firm assets, the more likely for the firm to hire additional debt.

Reviewing the aforementioned contributions of, marginal tax effects, pecking order, and trade-off theory under asymmetric information, the study explores the realization of shareholder's wealth through equity valuation by incorporating the theory of capital asset pricing model (CAPM) and Hamada equation. The rationale relies on the transferring function of Hamada equation with Capital Asset Price Model, which converts the risk aversion for the capital structure to the required return of equity, due to the asymmetric information between the management and shareholders. With the increasing debt-to-equity ratio, the bankruptcy costs articulated to the

tax benefit express the increasing trend, which in return alert the degree of risk aversion. Consequently, risk premium demanded by the equity holders must to increase, recognizing that the increase might change the prior decisions of financing by firm but still in the track of pecking order. The context of the study aims Thai stock exchange representing small-size developing capital market, to explore the determinants of Thai listed firms' capital structure, following the redefined model that synthesizes the Capital Asset Pricing Model and Hamada equation under the considerations of, pecking order, trade-off theory, and tax effects. The study seeks to answer the question, **what variables are the main determinants of financing preferences of the listing firms in small and median developing capital markets and emergency economy, to what context those material variables possess the influential power on the firm's financial decision on capital structure?"** Although, the long controversial issues regarding optimal capital structure remained as unsolved puzzle and under which optimal financial leverage singly means the one minimizes the weighted average cost of capital whereby increase the present value of future cash flows, the information asymmetry and bankruptcy costs are not well incorporated into the practical model. Therefore, the study explores the further concrete explanations regarding the choosing of firms' capital structure that caused by a combination effects of relevant factors, as well as, the dynamics of the markets, types of business, and the performance of the company itself. The main contributions of this paper shall be providing the observations of the developing financial markets, initiating an innovative model containing a set of variables possessing the explaining powers to clarify the variation of the firm's leverage ratio, as the supportive evidences for improving corporate financial strategies and market policies in emerging economies.

2. CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

According to Myers and Majluf (1984), in the favor of Pecking Order Theory, the company primarily chooses internal fund generated from its operation for financing the company's capital requirements, following which the firm moves to external financing for covering the gap between the capital needs and availability of retained earnings. It is due to the pursuit of minimizing cost of capital for maximizing the summation of present values of future cash flows therefore optimizing the corporate value, which is also supported by Bradley, Jarrell, and Kim (1984), who examined the concept of optimal capital structure that maximizes the firm value. Their studies have documented that the tax shield benefits arise when using debt, recognizing that the agency cost of debt and the volatility of the firm earnings also have a strong influence on the firms leverage ratio.

Conceptually, the firms leverage decision could be the result of the impacts from both internal and external factors associated with the firm. Under the theory of Pecking Order where the firm chooses to raise funds internally before considering issuing more debt and equity, the internal fund generated by firm would be one of the causal factors which impact the firm's leverage decision. This generating fund could be viewed in terms of the companies operating profit. In a particular period, if firms generate enough profit to finance its payments, then the firm will not have to search for the external financing. Moreover, to generate this profit, firms need to invest in the fixed assets and use them to run the operation, so the firms' decision on how it would raise more funds to finance these assets will be involved in this investing activity of the company. When this is the case, the operating side of the company would impact the company capital structure in two ways. Firstly, when the firm's profitability is high, the firm is theoretically predicted to have low leverage since it chooses to use the internal fund first when they want to invest or expand, according to the mentioned Pecking Theory. Secondly, when the company invests in fixed assets, more money would be required, resulting in higher debt borrowed to finance this investment, in other words, higher leverage to the firm.

If the firm chooses to issue more debt, they are obligated to pay interest to the lender as a cost of borrowing; nevertheless, when firms pay interest, company pre-tax earnings would be less, resulting in lower tax paid to the government. In this case, the firm will get the benefit from borrowing in terms of debt tax shield. This tax benefit would be yet another driver of the firms leverage. On the other hand, when the firm decides to issue more stocks to finance their projects, the firm should care about the required return on equity from the investors. The required rate of return on equity determines the price of stock, so it could be another factor that has influence on the capital structure of the firm. The prediction of an impact of higher expected return to equity on a firms leverage decision will lead to higher levels of leverage to the company.

In the study, three assumptions would be made. Firstly, all companies and investors are assumed to hold a well-diversified portfolio, so in this case only the systematic risk remains, so the study could use CAPM in the estimation of expected return on equity (Re). Secondly, to simplify the calculation, this study introduced the Hamada Equation into the model. The Hamada model mentions that the systematic risk or beta of the levered firm is higher than the beta of non-leverage firms; the equation is written as

$$B_L = B_{UL}*[1+D/E(1-T)] \quad (1)$$

This documentary assumed that the betas of unlevered firms are equal to 1; with this assumption, the levered firm's systematic risk will only account for the capital structure of the company. Lastly, the study assumes that the growth rate of the company dividend retained as fixed over time, which supports the Gordon's model for calculating the price of stock. In yet alternative rearrangement, the equation is employed for calculating the required return on equity (Re). The study assumes that the required return on equity calculated from Gordon's Model approximates the value of required rate of return on equity from CAPM.

$$\boldsymbol{P_0} \quad = \quad \frac{\boldsymbol{Div\,(1+g)}}{\boldsymbol{(Re-g)}} \qquad (2)$$

Reviewing the investors' side for the value of equity investment, the investor is assumed to be rational and diversify the risks of equity with or without fixed income investments, by constructing the portfolio, which means required rate of return on equity investment can be obtained by using Capital Asset Pricing Model. Referring to the stock price model obtained above, the required rate of return on stock will be replaced with the expected return on asset from CAPM (the result of this replacement is shown below). The new terms introduced here is the return on risk free asset (Rf), the market risk premium (RPm), which basically is the difference between market return (Rm), the risk free return (Rf), and the beta coefficient (*b*) which is the market risk of the company stock.

$$\boldsymbol{P_0} \quad = \quad \frac{\boldsymbol{Div(1+g)}}{\boldsymbol{(Rf \;+\; RPm*b-g)}} \qquad (3)$$

Equity value for rational investor is jointly determined by, risk free return, the market risk premium, and the systematic risk of the particular equity investment or called beta coefficient. For theoretically incorporate the debt-equity ratio into the valuation of equity investment, Hamada equation's claim over the systematic risk of the levered firm contributes linkage to the constructing of new model. It is defined that, the term b0 represents the systematic risk of unleveraged firms, which has been assumed to be unit, while $\frac{D}{E}$ represents the firms leverage, and *T* is the relevant tax rate.

$$\boldsymbol{P_0} \quad = \quad \frac{\boldsymbol{Div\,(1+g)}}{\boldsymbol{(Rf+\;RPm*b0*[\,1+\frac{D}{E}(\,1-T)]\;-g)}} \qquad (4)$$

Through the mathematical manipulation, the derived model, of capital structure as the function of the theoretical relevant factors, is constructed as follows.

$$\frac{\boldsymbol{D}}{\boldsymbol{E}} \quad = \quad \frac{\boldsymbol{\frac{Div\,(1+g)}{P0}+g-(Rf+\;RPm*b0\,)}}{\boldsymbol{[RPm*b0*(\,1-T)]}} \qquad (5)$$

Therefore, the logarithmic function is used to isolate the equation into separate terms for analytical purposes. The model, post log-function is shown as;

$$\boldsymbol{\log\left(\frac{D}{E}\right)=\log\left[\frac{Div\,(1+g)}{P0}+g-(Rf+RPm*b0\,)\right]-\log(RPm)-\log(b0)-\log(1-T)} \qquad (6)$$

Moreover, when look closely at the first term on the right-hand side of the equation, it shows the combination terms between the company's dividend policy and the return on market as the result of the change made earlier. However, if re-arrange the stock valuation model (in the equation 1) by holding "Re" on one side of the equation and the rest of the variables on the other side, then it results as the Dividend Capitalization Model which is similar to the first part of the combination of the equation (6). This dividend capitalization model is another approach used in order to calculate expected return on equity, meaning that in this case, it could replace the first part of the combination term of the model with the term "Re". From this, the first term of the model would be reduced to "log (Re – Rm)", and it measures the excess return on stock over the market return, which will be given the name of "The Excess Risk Premium".

$$\boldsymbol{\log\left(\frac{D}{E}\right)} \quad = \quad \boldsymbol{\log(Re\;-\;Rm)-\log(RPm)-\log(1-T)}$$

$$\boldsymbol{\log\left(\frac{D}{E}\right)} \quad = \quad \boldsymbol{\log(Re\;-\;Rm)-\log(Rm-Rf)-\log(1-T)} \qquad (7)$$

In order to predict and monitor the impact of the excess risk premium on a firms leverage decision, this paper will use a simulation technique to generate the sensitivity analysis. To do this simulation, it has to use the assumed values of each variable, but these values will be closely related to the real value in Thailand. The assumed values of this simulation are tax=30% according to the tax rate in Thailand, where the risk free return (Rf) is fixed at 3%.

To capture the impact of excess risk premium (Re-Rm) on firm capital structure from the simulation, this paper will be focusing on the systematic risk (Beta) because it has direct impact on Re (expected return on equity), and

it is known that the higher risk, the higher expected return, hence the higher excess return on stocks over the market. In this case, the study assumed that the beta is varied as 1.5, 2, 3, 4 and 10. The assumed value of the market return will be increasing from 8% to 16% with incremental of 2%. The results from this simulation are as follows: Generally, the beta or firm's systematic risk is used to calculate the expected return on equity (Re) according to CAPM approach and it has been proved by Hamada that as this systematic risk has positive relationship with the expected return on stocks, in other words; as the firms systematic risk increases, it would results in higher levels of Re, hence; the gap between the company's return on stock over the market return is also higher.

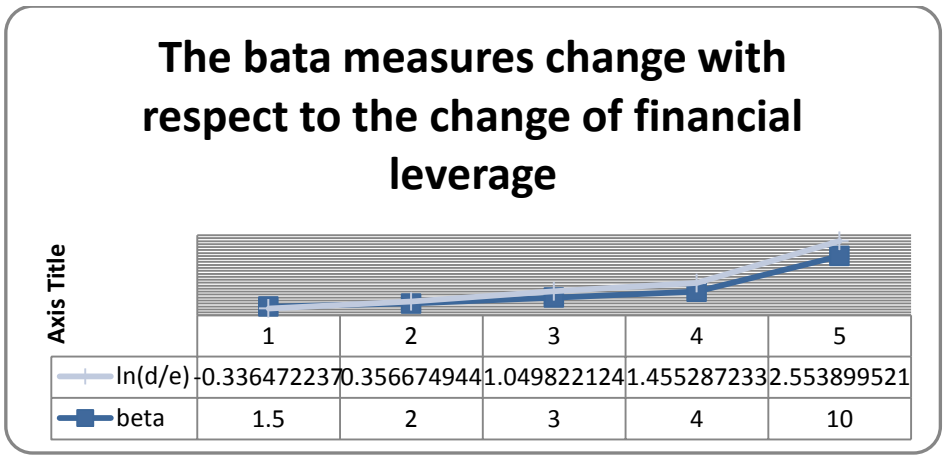

Figure 1: Simulation Analysis

According to the figure 1, there are two lines where the top line represents different level of beta and the bottom line shows the outcome from each of the assumed value of beta on leverage decision of the firm. From the result, the firm's leverage tends to increase with the beta, it could predict that the leverage decision of the firm has a positive relationship with the excess risk premium since the beta and the excess risk premium are also positively related to each other. However, from this figure, it could be assumed that the beta and the firm's leverage ratio are not linearly related. As shown by the first half of the graph, these two lines are increasing almost parallel to each other up to a certain level, and then the slope of the beta becomes higher than the slope of debt-equity ratio. In other words, the beta increases at the increasing rate while the leverage ratio is increasing at an almost constant rate. To conclude, as the firm's leverage increases, it causes the firms risk to increase but at a higher rate.

According to the model developed earlier, this paper theoretically predicted that the excess risk premium, the market risk premium, and the firm's tax shield would have some impact on firms leverage ratio. In addition, this documentary would like to include a few more control variables into the analysis; which are, operating assets and company pre-tax operating profits since these two items represent the efficiency of the company. Furthermore, this study also examines whether the industrial classification possesses implications on the firms leverage decision. In this case, these top thirty-two companies would be classified into 5 different categories: (1) Services, (2) Resources, (3) Agro &Food Industry, (4) Property &Construction, and (5) Others Industries. According to this, 4 dummy variables would be added into the econometric model to capture the effect of the industry on capital structure. Moreover, to control the unobserved time-invariant effect and other seasonal effect, this paper will also have to add dummy variables for firm, year, quarter, and also add the trend variable into the model. From this, the model will be modified and the final econometric model is:

$$\log\left(\frac{D}{E}\right)_{it} = \alpha_1 + \alpha_2 Firm_{2i} + \alpha_3 Firm_{3i} + \ldots + \alpha_{32} Firm_{32i} + \alpha_{33} Year_{2i} + \alpha_{34} Year_{3i} + \ldots + \alpha_{36} Year_{5i} + \alpha_{37} Quarter_{2i} + \ldots + \alpha_{39} Quarter_{4i} + \alpha_{40} Industry_{2i} + \alpha_{41} Industry_{3i} + \ldots + \alpha_{43} Industry_{5i} + B_1 \log(ExRM)_{it} + B_2 \log(RP_m)_{it} + B_3 \log(TaxS)_{it} + B_4 PPE_{it} + B_5 EBITDA_{it} + B_6 Trend_{it} + u_{it} \quad (8)$$

With the econometric model stated above, the left-hand side is the dependent variable of the model (which is the firm leverage ratio). In order to investigate which factors have significant impact on company capital structure, the data use for this variable will be calculated by total debt divided by total equity of the firm.

After adding all these variables in the econometric model, in all there will have forty-eight variables; which are 6 explanatory variables including trend, thirty-one firm dummy variables, four years dummies, three quarter dummies, and four industries dummies.

All the dummy variables are placed at the beginning of the econometric model leading by thirty one firm dummies which helps to control the fixed effect of the model, then following by four years dummies to make this model become the "two-way fixed effect model". This study is also concerned about the seasonal effect, so the addition of the three quarter dummy variables will be added into the model as well. Never the less, there are several studies that examine the effect of industry on the firms leverage decision, and most of the studies claimed that the industry classification has high significant impact on the firms' capital structure. According to this theory, the study will also show that the industry classification has some influence on the firms leverage ratio, so the addition of four dummy variables to represent five industries to capture the impact was included.

The first control variable in the model is "log (ExRM)" or in this case it is called the "excess risk premium", which refers to the excess of return the investors get when they invest in company's stocks rather than investing in the market portfolio (Re-Rm). To obtain the data for this variable, this study simply subtract the return from the firm's stock with the return from the overall market (use the return from the SET50 Index); The analysis from the previous section explains that the higher the gap between the expected return on equity and the market return, the higher leverage ratio, or in other words, when investors require more return, the company will need to borrow more money. The second term in this model is "log (RPm)" or the "market risk premium" which could be calculated by the return on market portfolio (Rm) minus the risk free rate (Rf). In this model, the risk free rate will be acquired from the 3-month T-Bill rate.

The third term is "log(TaxS)" which is the tax shield from using debt. Theoretically, this tax shield would have a positive relationship with the firms leverage. The more debt that the firm uses, the more tax benefit will be received. In this study, the company's tax saving would be calculated by the company's interest expense multiply with the tax rate.

The company's operating asset could be used as collateral when the firm wants to borrow more money to finance the company's projects and payments, and in order to acquire those long-term assets, the firm must borrow more money; in this case, the operating asset is included into the model written as "log (PPE)". For the analysis, PPE is defined as: company net property, plant, and equipment and it could represent the size of the firm. Then, a theoretical prediction states that the net property, plant, and equipment would have positive impact on a firms leverage decision.

Next, the term "log (EBITDA)" in this model is referred to as, "the company's operating profit before the deduction of interest, tax, and depreciation." The more profit the firms have, the more internal funds will be available, resulting in a less external fund in which the firm will desire, according to the Pecking Order Theory. Thus, pre-tax profitability is theoretically and negatively associated with the firms leverage decision.

This study will be based on the data in Thailand using the quarterly historical data over the past five years, beginning from the 1st quarter, 2006 to the 3rd quarter, 2010, which included the companies currently listed in the SET 50 index. The quarterly information of these firms will be extracted from Bloomberg. The data validation is the next concern, and it will be done by eliminating the company's with incomplete data during the period of this study. Eventually, thirty-two companies with the complete data will be all that is left.

3. EMPIRICAL TEST AND RESULTS

In this paper, the determinants of capital structure in Thailand's market will be investigated. According to the theoretical model, there are three factors that could have some influence on firm's capital structure decision; which are "the excess risk premium", "the market risk premium", and "the tax shield benefit". A simple regression of the model to find the relationship between the debt-equity ratio and these three variables will be needed.

It results that the model has the R-square value of 0.1547 and the adjusted R-square of 0.1505, which means that the model could explain about 15.05% after taking into account numbers of regresses with the p-value (F) of 0.0000, the model is statistically significant at 5%; meaning that at least some of the control variables could explain the variation of the firm's leverage decision. Observe closely at the coefficient of each variable, it pictures that the excess risk premium has the highest impact value to this model following by the tax shield from using debt, then the market risk premium respectively. However, only the excess risk premium and the tax shield from this model are significant at 10%. After the first regression, an improvement to the model by adding two more control variables will be done. The improvements are the firm's pre-tax operating profit (EBITDA), and the fixed asset, which many studies have claimed that these factors have some influence on the firm's Debt-Equity ratio.

According to the results, it reveals that the R-square and adjusted R-square have improved by a few percentages, which means that the explanatory power also improved from the previous model. Moreover, it demonstrates that the significant level of the three explanatory variables from the previous model has improved as the p-value of each coefficient decreased. However, the two variables that were just added into the model (EBITDA and fixed asset) and the market risk premium (Rm – Rf) are still not significant at a 10% level, while the ranking of the impact of each variables to the leverage ratio still remain at the same rank with the same positive impact, except for the EBITDA and fixed asset, where the result shows that they have a negative relationship with Debt-Equity ratio.

After adding two more variables into the model, this study also wants to account for the "fixed effect" by adding firm dummy variables into the model in order to take control of the time-invariant effect, which may be caused by different features of each firm; such as different management styles and different firm policy. As predicted, the R-square and the adjusted R-square have increased by huge amounts to 90.02% and 89.39% which could be the result of adding more variables into the model while most of the coefficient of each control variables decrease after taking this fixed effect into account. As taking a look closely at each of the explanatory variable's coefficient, the coefficient of excess risk premium and market risk premium have a large decrease relatively compared to the tax shield. As the result, tax shields become the variables which have the highest impact to Debt-Equity ratio. There is also a slight change in EBITDA's coefficient with negative relationship between EBITDA and leverage ratio; however, this variable is still not significant. Nevertheless, the big difference in terms of interpretation after adding firm dummy variables into the model is the relationship between company's fixed asset and its leverage decision. Before taking the action of the fixed effect, the result from the regression shows that the company's fixed asset is negatively related to Debt-equity ratio; however, the coefficient becomes positive after the firms dummy variables were added into the model, which means that this control variable, fixed asset, could have positive impact on the level of the firm's Debt-Equity ratio.

Moreover, the study believes that the leverage function could change over time; leads to the creation of an extended model, called "Two-Way Fixed Effect Model" by taking time and seasonal effect into account. In this case, this extended model will add four years dummies and three quarters dummies plus the trend variable to capture the movement of firm's leverage decision overtime. The result of the extension is reported in table 4.4 which shows the increase in both R-square and adjusted R-square from 90.02% to 90.58% and from 89.39% to 89.86% respectively. The slope coefficient of the explanatory variables change in the same direction as the previous model, where firm dummy variables are introduced; and also the sign of the coefficient remain unchanged according to the previous model, which means that their relationship with leverage decision is the same except for the market risk premium which now have a negative relationship with firm's leverage decision, while the rank of the impact of each variable on Debt-Equity ratio remain the same. The result also shows that the significant level of most of the variables also increased as you could see that the p-value has decrease. Moreover, the trend variable have negative slope coefficient and also significant at 5% level (with the P-value of 0.0009), so this could be explained that the leverage ratio would decrease overtime.

The last extended model that becomes the econometric model in this paper is the one that account for both individual firm effect and the overall market effect. There are numerous studies showing that the firms in different markets favor non-identical capital structure. In the study, the four industry dummy variables are added into the model in order to capture the impact of industry classification on capital structure. It shows that all the industry dummy variables are significant at 5% level. However, there might be just a slightly decimal change in the R-square, adjusted R-square, the slope coefficient of the other five controlled variables, and its significant level (represented by t-statistic and p-value), so it seems that the result from this model is the same as the result of the previous model.

It reports the summary results from the regressions of the model, in which the implied factors jointly determine the capital structure of the firm in Thailand market. Each column in the table represents the slope-coefficient, R-square, adjusted R-square, t-statistic, and p-value from each model. Starting from the left to the right are the model that are more extended which include more explanatory variables in order to improve the explanatory power of the model. The earlier models show the results of the theoretical model and the extended model from adding EBITDA and fixed asset without taking into account the control of those unobserved time-invariant effect or any seasonal effect; while the next 2 models show the result from the one-way and two-way fixed effect model respectively. Moreover, this study

Table 1: The Empirical Results from the Models

Dependent Variable : ln(Debt-Equity Ratio) Method : Least Square Number of Observations : 608										
Model :	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	**Coefficient**	**P-Value**	**Coefficient**	**P-Value**	**Coefficient**	**P-Value**	**Coefficient**	**P-Value**	**Coefficient**	**P-Value**
ln(Re-Rm)	0.283709	0.0720	0.289936	0.0650	0.029589	0.6050	0.021312	0.7160	0.021312	0.7160
ln(Rm-Rf)	0.086477	0.6240	0.113937	0.5180	0.030503	0.6340	-0.074925	0.4630	-0.074925	0.4630
ln(Tax Shield)	0.122737	0.0000	0.138386	0.0000	0.122634	0.0000	0.121735	0.0000	0.121735	0.0000
EBITDA			0.00000195	0.801	-3.09E-06	0.448	-3.45E-06	0.3940	-3.45E-06	0.3940
Fixed Asset			-9.14E-07	0.2700	4.86E-07	0.3830	9.24E-07	0.1060	9.24E-07	0.1060
Trend							-0.006049	0.0090	-0.006049	0.0090
_Industry2									0.497799	0.0000
_Industry3									0.287259	0.0000
_Industry4									0.446013	0.0000
_Industry5									0.271501	0.0030
constant	-0.452211	0.0000	-0.453734	0.0000	-0.878964	0.0000	-0.795522	0.0000	-0.795522	0.0000
R-Square	0.1547		0.1634		0.9002		0.9058		0.9058	
Adjused R-Square	0.1505		0.1564		0.8939		0.8986		0.8986	
Prob(F-Statistic)	0.0000		0.0000		0.0000		0.0000		0.0000	

also add several dummy variables and trend variable in order to take the control of seasonal effect into the fourth model, and the result shows that the explanatory power of the model have improved and the significant level is stronger as more variables were added to improve the model.

According to the econometric model, will have in all 48 coefficients to estimate including the common intercept, thirty-one firms dummies, four years dummies, three quarters dummies, four industries dummies, and six slope coefficient. Instead of adopting the regression on the firm's specific risks considering stochastic-time variation impacts, the model explicitly incorporates the systematic risks which implied by the overall market trend and type of business, to seek the determinations of Thai firm's leverage decision, from which the four industry dummy variables have been expressed for capturing the industrial classification's impacts. Furthermore, the contradictory results from the coefficient parameters of fixed assets and market premium holding the time invariant, in the models, without and with trend dummies and industrial categories, respectively, argue the insufficient combination in the previous model for the lack of systematic risks, which in turn, highlights the importance of the supportive dummy variables added in the model. As a result, it suggests that the final model contributes the relatively concrete and irresistible explanation power to the decision model of firms' leverage.

Referring to the empirical results of the econometric model, it concludes that the tax shield is statistically significantly relevant to the firm's leverage decision, with confidence level presumed at 5%, according to the relative highest slope coefficient among all other variables. It suggests that, while the level of tax shield increase by 1%, on average given other variables constant, the firm's leverage ratio would goes up by 0.121735%. The crucial exploration drawn from the completed model implies the explicit determination of the industrial categories to the decision models of firm's capital structure. Nevertheless, with or without the completed variables incorporated, it results that excess return on stocks over the market return possesses the weakest-impacting power over the model, on the basis of its lowest significant coefficient parameter to the debt-equity ratio. In addition, although the relevance of EBITDA and the market risk premium has been indicated to be negatively, jointly with the opposite direction of impact from fixed assets, to the firm's leverage, the overall significance is too weak to reject null hypothesis.

4. CONCLUSIONS

The study aims at exploring the determinants of the Thai listed firms' capital structure, covering the year 2006 to 2010 quarterly, by employing discounted dividend model based on the value of the company stockholders as an analysis tool. A few more factors, that were theoretically suggested by literatures, have been added into the model, resulting in five control variables in the econometric model which are; excess returns on the firm stocks over the overall market return (excess risk premium), market risk premium, amount of company's tax saving, EBITDA, and the value of company fixed assets.

It results that company tax shield is the most important factor that influences firm's willingness to employ a higher degree of financial leverage, which is in consistency with the empirical results of most literatures. Even though the corporate income tax rate in Thailand is relatively low comparing to advanced economies, Thai firms favors borrowing for the tax shield benefits from incurring debt due to the immaturity of the Thai market. Under constraint factor in emerging economy, most companies in developing countries choose debt rather than equity finance financing the projects. Furthermore, it might expresses the result that Thai companies select a method of raising more capital by relying upon the pecking order theory where they use debt financing ahead of equity financing.

The results also reveal that the type of industry that a firm resides in plays a role in explaining the firm's debt ratio to a certain extent. Normally, different industries have different liquidity levels and require different sizes of the investment; therefore it is probable that the businesses in the industries that require a large amount of investment may acquire more debt than smaller businesses that require lower investment. For example, Banpu Public Company Limited and Glow Group are in resources industry where their core business is to provide power and energy supplies, so a vast investment is required to finance their projects resulting in the high debt ratio to this type of the firm. Whereas, the investment required by companies; such as BEC World and Bumrungrad Hospital, that operate in the service industry is relatively low when compared to the larger companies mentioned earlier, so most of the firms in this industry show relatively lower leverage ratio.

Unfortunately, the rest of the control variables, which are excess risk premium, market risk premium, the firm's EBITDA, and fixed assets, are not statistically significant. It results in the rejection of the argument that, as relative higher level of excess risk premium are realized so does firm's willingness to increase the degree of financial leverage, which is in inconsistency with the theoretical sensitivity analysis performed by the study in which the instantaneous co-movement exists between the systematic risk beta and excess risk premium. The reason of this contradictory could be that most of the Thai firms selected into portfolio are not well-diversified, reflecting the fact of emerging economy of Thailand, in which the expected return of the firm's equity is not fully systematically relying on the market risk. Consequently, the excess risk premium shows no result on the firm debt-equity ratio as predicted. In addition, according to the Thai market that has yet to mature, it could be that the firm's systematic risk does not fully depend upon the market, in other words, firms tend to rely more upon their specific risk, and that may be the reason why the relationship between the market risk premium and the firm Debt-Equity ratio are not significant.

The firm's earning and debt ratio that theoretically was supposed to demonstrate correlations between each other within failed to display their relationships which could be due specifically to the lagging effect that the company's earning has on debt ratio; for instance, the firm's earning in this period could have an impact on the firm's financial leverage decision in the future periods. Lastly, the company fixed assets which could implicate the size of the firm failed to show the positive relationship between debt-equity as suggested by many researchers as they claimed that the more a company acquires these fixed asset, the more money the company needs to borrow and some studies explained that firms could use their fixed asset as a collateral when firm borrow money, hence, fixed asset could be another driver of higher firm's leverage level. The contradict results may arise from the same reason as the failure linkage between the company's operating profits and the firm capital structure, where the company fixed assets in this period may lead to higher leverage to the firm in other periods because firm will have to use the fixed assets that they already have as the collateral when they borrow more money. In other words, the company's fixed assets have lag impact on firm's capital structure.

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