

CHAPTER 5

CAPITAL STRUCTURE DIFFERENCES BETWEEN LISTED AND NON-LISTED FIRMS

The model that investigates capital structure determinants in the previous chapter cannot explain the underleverage by listed firms relative to non-listed firms. The investigation in the previous chapter can only explain why specific firms follow aggressive capital structure or use debt conservatism without considering whether they are listed or non-listed.

Due to the manager's self-interest, he may choose capital structure in order to maximize his own wealth that may not maximize shareholders' wealth. Manager has incentive to maximize his own tenure in the firm. Due to the underdiversified human capital, he may have preference for low leverage in order to reduce firm's risk. Furthermore, the use of debt may reduce free cash flow and bring in the monitoring by creditors that increase value of firm but decrease his utility. Therefore, the optimal capital structure for manager may deviate from the ex ante efficient capital structure for shareholders due to the manager incentive to maximize her tenure as suggested by Novaes and Zingales (1995). Manager may underlever if there are high costs of disciplinary mechanism.

Since the underleverage incentives toward listed firms may not happened among non-listed firms having less separation of ownership and control due to the fact that managers of non-listed firms are being or closely controlled by the large shareholders, the higher the ownership that the manager has, the lower the underleverage incentive. Therefore, managerial ownership, measured as the total

percentage shareholdings by all board of directors, is also incorporated in the model as suggested by Graham (2000).

Petersen and Rajan (1994) proposed that the amount borrowed from more expensive sources should measure the degree to which firms are supply constrained. Firms with unlimited access to capital would never turn to the more expensive source. The firm would exhaust its cheapest source, internal cash, before approaching the financial institutions. Trade credit was the most expensive source of credit due to the implicitly substantial costs from discounts for early payment and the penalties for late payment. Chapter 3 stated that non-listed firms have higher debt level than listed firms not only the total debt but also the non-debt liabilities, non-listed firms may have higher extent of financial constraints. Therefore, the lack of access to equity market by non-listed firms may induce the more aggressive capital structure compared to listed firms.

The untabulated results show that there is no difference in total liabilities to total assets ratio between listed and non-listed firms in the lowest quartile based on profitability, which have the basic earnings ratio less than 0.01. Furthermore, both listed and non-listed firms in the lower quartiles of profitability have higher total liabilities to total assets ratios. A possible explanation is that listed firms that are not profitable cannot issue equity or intentionally do not issue equity while non-listed firms depend on liabilities especially short-term liabilities as the major sources of external financing. Thus, the access to stock market only among listed firms may induce the underleverage by listed firms compared to non-listed firms.

In order to investigate the hypothesis that the inaccessibility to stock market of non-listed firms results in their higher leverage ratios than listed firms, we use the proxy for the limited equity of non-listed firms by the difference of the natural

logarithm of shareholders' equity of non-listed matched firms and the natural logarithm of shareholders' equity of listed firms. Since accounts payable is the important financing source among Thai firms, non-listed matched firms having less accounts payable to total assets ratio would need more fund. Therefore, we also use the difference between the accounts payable to total assets ratio of non-listed matched firms and the accounts payable to total assets ratio of listed firms as the independent variable.

In order to test the differences in capital structure between listed and non-listed firms, the capital structure determinants in the previous chapter except for profitability will be controlled for the differences in leverage-related costs and benefits due to trade-off theory. Profitability is used to investigate whether the differences in capital structure between listed and non-listed firms are according to the pecking order theory as suggested by Graham (2000).

In conclusion, several possible hypotheses may explain the capital structure differences between listed and non-listed firms. Listed firms may be intentionally use low leverage due to the following arguments. Trade-off theory asserts that the optimal capital structure is determined by weighing leverage-related costs and benefits. Therefore, the relatively lower leverage by listed firms may result from the higher net leverage-related costs relative to non-listed firms. Pecking order theory indicates that profitable firms will use little debt. If pecking order theory can explain this capital structure difference, listed firms must have higher profitability or lower internal funds. Due to the differences in the ownership structure between listed and non-listed firms, managers among listed firms may have incentives to borrow less debt due to the entrenchment effect. Finally, the financial constraints among non-listed firms due to

the lack of access to stock market may force non-listed firms to raise external financing via borrowing, leading to the higher leverage compared to listed firms.

In order to investigate the explanation toward capital structure differences between listed and non-listed firms, we perform the ordinary least squares regression between the excess leverage by non-listed matched firms compared to listed firms (ΔLEV_{it}) and the excess (Δ) of leverage-related costs and benefits, profitability and ownership of non-listed matched firms compared to listed firms. The other variable is the financial constraints by non-listed firms. The following model will be used to investigate whether listed firms intentionally follow debt conservatism or non-listed firms must rely on debt as the important external financing source.

$$\begin{aligned} \Delta LEV = & \alpha_0 + \alpha_1 \Delta(NDTS) + \alpha_2 \Delta(\ln TA) + \alpha_3 \Delta(SG\&A/SALE) \\ & + \alpha_4 \Delta(Z''PROB) + \alpha_5 \Delta(Sale/TA) + \alpha_6 \Delta(TAN) + \alpha_7 \Delta(GTA) \\ & + \alpha_8 \Delta(BEP) + \alpha_9 \Delta(OWN) + \alpha_{10} \Delta(\ln Equity) + \alpha_{10} \Delta(AP/TA) + \varepsilon_{it} \quad (7) \end{aligned}$$

Then, the second objective of this study is to investigate the different capital structure between listed and non-listed Thai firms. We test for the following hypotheses.

Hypothesis II: If trade-off theory induces the relatively lower leverage of listed firms, α_2 , α_4 and α_6 should be positive while α_1 , α_3 , α_5 and α_7 should be negative.

Hypothesis III: If pecking order theory induces the relatively lower leverage of listed firms, α_8 should be negative.

Hypothesis IV: If entrenchment effect induces the relatively lower leverage of listed firms, α_9 should be positive.

Hypothesis V: If financial constraint induces the relatively higher leverage of non-listed firms, α_{10} and α_{11} should be negative.

Results in the Table 10 show that the excess leverage by non-listed matched firm compared to listed firm are affected by the greater total assets, the greater asset tangibility, the larger ownership of board of directors and the lack of other financing sources no matter from shareholders' equity or trade credit.

The higher leverage by non-listed matched firms relative to listed firms is found to be related to the greater total assets of non-listed matched firms relative to listed firms. The larger total assets of non-listed matched firms relative to listed firms may increase borrowing capacity due to the less prone to bankruptcy by larger firms, which is consistent with the trade-off theory.

The statistically significant and positive relationship between asset tangibility and excess leverage by non-listed firms relative to listed firms suggests that non-listed matched firms with lower asset substitution problem from larger fixed assets have higher borrowing capacity relative to listed firms. It means that non-listed matched firms may borrow aggressively due to lower leverage-related costs, which are consistent with the trade-off theory. Non-listed matched firms that have the additional percentage of fixed assets to total assets will have 0.15% higher leverage than listed firms.

There is positive relationship between differences in ownership and excess leverage. The manager's incentive to entrench or maximize his own tenure in the firm may affect the relatively lower leverage of listed firms compared to non-listed matched firms. This finding is consistent with Berger et al. (1997). The higher leverage by non-listed matched firms relative to listed firms may be resulted not only from the different capital determinants but also the manager's self interest to reduce firm's risk.

The other factor that induces non-listed matched firms to borrow more aggressively than listed firms is the lack of access to equity market. There is the statistically significant and negative relationship between the equity deficit of non-listed firms relative to listed firms and excess leverage by non-listed matched firms relative to listed firms. This finding suggests that non-listed matched firms with greater equity deficit have to raise more debt, which is consistent with the financial constraint hypothesis.

There is the statistically significant and negative relationship between the difference of accounts payable to total assets ratio of non-listed matched firms and accounts payable to total assets ratio of listed firms and excess leverage by non-listed matched firms relative to listed firms. Since non-listed firms cannot get access to equity market immediately for the additional fund, they have to file for the public offerings that may take a long time. If non-listed firms have the additional financing needs, they may have to raise from trade credit. Non-listed matched firms that cannot raise additional funds from trade credit will have to borrow while listed firms that cannot raise additional funds can raise equity from the stock market. Therefore, these findings imply the additional cause of higher leverage by non-listed firms relative listed firms to be the limited access to stock market.

In conclusion, there are several causes of the use of higher leverage by non-listed matched firms relative listed firms. The less leverage-related costs of non-listed matched firms may increase their borrowing capacity relative to listed firms, which is consistent with the trade-off theory. Furthermore, the greater leverage of non-listed matched firms relative to listed firms is induced not only by the \square underleverage incentive of listed firms but also by the limited access to stock market of non-listed matched firms. The use of higher leverage by non-listed firms may harm their

performance due to the high costs of capital from borrowing as suggested in Chapter 2. The next chapter will investigate the relationship between leverage and profitability.

Table 10 Regression Results of the Capital Structure Differences Investigation

The dependent variable is the difference of leverage ratios, calculated as total debt to total capital ratios, between non-listed matched firms and listed firms. The second column shows the regression result among the whole sample in 2001. The third column shows the regression result among sample with higher leverage by non-listed matched firms. The model used to investigate whether non-listed firms have to borrow more aggressively or listed firms are intentionally borrow more conservatively is as following:

$$\begin{aligned} \Delta LEV = & \alpha_0 + \alpha_1(\Delta NDTS) + \alpha_2(\Delta LnTA) + \alpha_3(\Delta SG\&A/Sale) + \alpha_4(\Delta Z''PROB) \\ & + \alpha_5(\Delta Sale/TA) + \alpha_6(\Delta TAN) + \alpha_7(\Delta GTA) + \alpha_8(\Delta BEP) + \alpha_9(\Delta OWN) \\ & + \alpha_{10}(\Delta LnEquity) + \alpha_{11}(\Delta AP/TA) + \varepsilon_{it} \end{aligned} \quad (7)$$

t-statistics are in parentheses. *, ** and *** significant at the 10, 5 and 1 percent level, respectively. Δ variable indicates the differences of specific variable between the non-listed matched firms and the listed firms. LEV is the ratio of total debt to capital which is calculated as (Short term debt + Long term debt)/(Short term debt + Long term debt + Equity). NDTS is the proxy for non-debt tax shields which is calculated as EBIT – Interest expenses – (Taxes paid/Tax rate) standardized by total assets. LnTA is the natural logarithm of total assets. SG&A/Sale is the ratio between selling and administrative expenses and total sales. Z''PROB is the modified Z-score adjusted from *Altman (1995)* which equals to $6.56X_1 + 3.26X_2 + 6.72X_3$ where X_1 = working capital/total assets, X_2 = retained earnings/total assets, X_3 = earnings before interest and taxes/total assets. Sale/TA is the proxy for the agency costs of equity which is calculated as total sales over total assets. TAN is the proxy for the agency costs of debt which is measured as the ratio of the plant, property and equipment to total assets. GTA of total assets is the percentage changes in total assets from the previous year. BEP is calculated as the ratio of earnings before interest and tax to total assets. OWN is the managerial ownership calculated as the total percentage of ownership from all board of directors. Equity is the shareholders' equity. AP/TA is the ratio between accounts payable and total assets.

Dependent Variable	ΔLEV
$\Delta NDTS$	-0.254 (-1.15)
$\Delta LnTA$	0.269*** (9.11)
$\Delta SG\&A/Sale$	-0.011 (-0.61)
$\Delta Z''PROB$	0.004 (0.49)
$\Delta Sale/TA$	0.006 (0.28)
ΔTAN	0.150*** (2.58)
ΔGTA	0.013 (0.23)
ΔBEP	-0.245 (-1.41)
ΔOWN	0.002** (2.22)
$\Delta LnEquity$	-0.223*** (-13.60)
$\Delta AP/TA$	-0.597*** (-3.91)
F-statistics	26.57***
Adjusted R ²	0.580