



Impact of the Financial Markets Development on Capital Structure of Firms Listed on Ho Chi Minh Stock Exchange

Le Minh Tai*

Sai Gon Technology University, 180 Cao Lo, Ho Chi Minh City, Vietnam. *Email: minhtai9@gmail.com

ABSTRACT

This study test the impact of financial markets development on capital structure of firms listed on Ho Chi Minh stock exchange (HOSE). Base on the financial data of 116 firms listed on HOSE, in the period from 2009 to 2015 and generalized least square regression method, this study shows that market capitalization is positive relationship with debt rate in capital structure, volume of shares traded is negative effect to debt rate in capital structure. Size of the Vietnamese commercial banking system and credit growth are negative relationship with debt rate in capital structure. Meanwhile, interest rates of commercial banks is not statistical significance.

Keywords: Financial Markets, Capital Structure, Stock Exchange, Banking System

JEL Classifications: G10, G21, G32

1. INTRODUCTION

The common feature of most theories of capital structure as well as empirical research model that the authors focus on factors belonging to firm - specific (revenue, profit, expense, cash holdings, tax shield, business risk.) to measure an optimal capital structure. There is less researches attention to the impact of country - specific financial market characteristics to the firms' capital structure (Hackbarth et al., 2006). Hicks (1969) and Levine (1997) concluded that the development of the financial markets to encourage the development of industrial enterprises in the UK, when the financial markets less developed will not generate investment and economic growth. From these conclusions, the researchers suggested that the development of the financial markets is an important factor affecting the distribution of capital from investment funds to firms, risk diversification, and generate financial resources for businesses.

Those above conclusions suggest an study to research the impact of the development of the financial markets to the decision on the firms' capital structure, especially in developing countries. This is an experimental research gap in the Vietnam that this study tried to test the accreditation relationship between the developments of the financial markets to capital structure of firms listed on Ho Chi Minh stock exchange (HOSE). The consideration of the impact of these macroeconomic factors to the firms' financial management

decisions are started implementing recently and this study has a new research idea in Vietnam.

2. LITERATURE REVIEW

Jong et al. (2007) suggested that macroeconomic factors are significant impact to firms' capital structure decisions. When the bond market is developing, businesses easier access to it and use of debt. When the stock market is developing, the rate of owner equity would higher in capital structure. In the indirect aspects, the macroeconomic factors may affect the capital structure through their effects on the business context in which enterprises are involved.

Olorunfemi and Adeleke (2013) argued that the total money supply in the economy has an impact on the choice of corporates capital structure. Rayan (2008) and Bokpin (2009) found that capital structure is also affected by changes in the interest rates. The other elements of the macroeconomic also affect listed firms' capital structure decisions include: The level of the bond market development (Chekanskiy, 2009; Agarwal and Mohtadi, 2004), the level the stock market development (Olorunfemi and Adeleke, 2013), inflation (Bokpin, 2008; Negash and Lemma, 2012; Baltaci and Ayaydin, 2014); gross domestic product growth rate (Bokpin, 2009; Baltaci and Ayaydin, 2014; Chekanskiy, 2009).

2.1. Capitalization of the Stock Market and Firms' Capital Structure

Agarwal and Mohtadi (2004) argued that the stock market development (represented by the changes in value of market capitalization) generates financial resources to support businesses better, that is the businesses can use more equity by issuing shares and increase liquidity of shares.

The study of Maksimovic and Demircuc-Kunt. (1996) about the relationship between capital structure and the financial markets development in 30 countries during 11 years from 1980 to 1991 showed that there exists a reverse relationship between the stock market development and the rate of debt in the firms' capital structure. More specifically, the increase in capitalization of the stock market show that the stock market to help businesses easily raise equity by issuing shares, the liquidity of the market also makes investors buy shares to become owners easily. This makes firms use more owner's equity than debt in capital structure.

However, the authors noted that in some particular countries with economies in transition (developing countries), the impact of the stock market development on debt rate in capital structure is not direct and different from developed countries. In developing countries, the authors found that the stock market development is the same dimensional relationship with the debt. This is explained as the business risks are diversified and the asymmetric information is descending make firms' owners prefer to use more debt because the cost of debt is lower than owner's equity.

2.2. Liquidity of the Stock Market and Firms' Capital Structure

Maksimovic and Demircuc-Kunt, (1996) suggested that the increase in the volume and value of trading shares demonstrates the capability of raising equity. And so, more stock value increases, more ability to attract investors to buy shares, and thus increased the rate of owner's equity in the capital structure. Liquidity of the stock market at this time is showed through the volume of shares traded during the period and the total value of these transaction amounts.

The stock price is now trading up will attract to investors with the identification of good profitability, as well as confirm that the operating activities are efficient. Thereby, the liquidity of the stock increases, the issuance of additional shares to raise capital from the market is now easy to accept. At the same time, the firms acquire additional surplus capital shares offered by the stock price higher than the face value, which also contribute significantly to increase the rate of owner's equity in the capital structure and decrease the rate of debt in the capital structure.

2.3. Interest Rates of Commercial Banks and Firms' Capital Structure

Leland (2001) proved that an optimal capital structure is affected by changes in interest rates of commercial banks. The optimal capital structure is the trade-off between the benefits obtained from the tax shield when firms use debt and bankruptcy costs when firms increase using debt. Hyde (2007) also concluded that the adjustment of interest rates will lead to change in the financial

costs as evident from the cash balance of firms. However, Rayan (2008) argued that there is no significant correlation between firms' capital structure and interest rates of banks.

Overall, the authors showed that when interest rates of banks increase, the accessibility and the use of debt financing of firms become more difficult. Under static trade - off theory, cost of using debt will be much higher than benefits from the tax shield. While follow the pecking - order theory, using debt becomes less convenient and attractive to firms' managers than ever before. This makes debt rate in capital structure decrease.

2.4. Size of the Commercial Banking System and Firms' Capital Structure

Agarwal and Mohtadi (2004) used panel data from 21 developed countries over a period of 18 years to prove that the development of the stock market is related inversely to the debt rate but the development of the banking system will increase the rate of debt in capital structure. Moreover, the authors asserted that the development of the banking system and the stock market makes sense in long - term rather than short - term.

Clearly, with the increasing size of the commercial banking system, firms can easily gain access to the bank by geographically. On the other hand, developed banking system makes the implementation of business transactions between businesses - businesses, businesses - investors, business - management of state will become easier and more efficient. The development of the commercial banking system itself also creates competition among banks when making their lending policies for firms. This helps firms can find out more sources of debt with lower cost.

2.5. Credit Growth of the Commercial Banking System and Firms' Capital Structure

Leary (2009) indicated that credit growth is an important factor affecting capital structure. The rate of debt in capital structure increase as credit growth is higher. In contrast, during the credit crisis, firms are very difficult to access investment capital from debt financing. Poon et al. (2014) also provided new evidence on the impact of increased provision of credit on the selection of the capital structure of firms in China. This study indicated that the rate of debt relates positively with the ability to provide credit of banks. Firms are limited in accessing loans from banks will be less likely to change the capital structure, and their capital structure is mainly owner's equity.

Thus, when the credit balance of the economy increased, that means the ability to provide credit of commercial banks is better. This can confirm the number of firms that use debt increase or the value of debt that firms can access and use from commercial banks increase. Finally, debt rate in the capital structure of firms will increase.

3. RESEARCH METHOD AND DATA

3.1. Empirical Model

The first study to be addressed to determine the base for building the model of this study which is the impact of the

development of the stock market on corporates finance decision in 30 countries, during period of 11 years, from 1980 to 1991 by Maksimovic and Demirguc-Kunt (1996). The author gave a hint about specific elements in the financial markets impact on the capital structure that is the development of the stock market, including: The stock market capitalization and liquidity of the stock market.

Maksimovic and Demirguc-Kunt (1996) also combined with elements belonging to the banking system. With the argument that the commercial banking system acting as the intermediary financial institutions in the financial markets, the decisions of the commercial banks about interest rates or the development of the commercial banking system also affects the accessibility loans of firms. Therefore, in conjunction with the conclusion of Rayan (2008), Leary (2009), model of this study adds element: interest rates of commercial banks to test association with the firms' capital structure. Other elements of the banking system include: the size and the credit growth of commercial banking system (Maksimovic and Demirguc-Kunt, 1996) that will be developed as the independent variables. Based on the arguments and theories overview have been presented, the regression model of this study are shown as follows Figure 1.

Based on the model proposed research, econometric models were presented as follows:

$$D / Cap_{it} = \alpha_i + \beta_1 HOSESIZE_{it} + \beta_2 TVT_{it} + \beta_3 TOR_{it} + \beta_4 LENINT_{it} + \beta_5 BSIZE_{it} + \beta_6 GROWCRE_{it} + \beta_7 InFSIZE_{it} + \beta_8 Z_{it} + \varepsilon_{it}$$

Measurement of variables in the model is showed in Table 1.

3.2. Data

There are 116 firms listed on HOSE ensure full and proper financial statements over the years from 2009 to 2015. Thus, there have 812 observations. Data is collected from the firms' financial statements, annual reports of HOSE, annual reports of the state banks of Vietnam. This data ensures statistical values for the regression model applied in the study.

4. RESULTS ANALYSIS

4.1. Test of Model Goodness

Factor variance inflation factor (VIF) shows to have multicollinearity in the study model. Table 2 shows that independent variables have high VIF value (over 10), averages VIF lead to very high in this model (21.59). Thus, we can conclude that the independent variables have multicollinearity and can falsify the estimate results of the model. The usual solution in this case is to consider removing variables with high VIF value from model (Gujarati, 2003). In Table 2, variable GROWCRE has the highest VIF value. However, both variables turnover ratio (TOR) and transcatheter valve therapies (TVT) reflect the liquidity of the stock market should be able to consider eliminating one of these variables to test the multicollinearity phenomenon. This will also not affect other variables testing the hypotheses in the model. Accordingly, TOR variable has higher VIF value than TVT, so it should be excluded from the model. The second multicollinearity test results for the independent variables in the model after removing variables TOR showed in Table 3.

Average VIF value of independent variables is 2.36 and none of independent variables with VIF exceeds 10. After removing TOR variable, the model ensures the requirements to test regression.

This study has used the regression method with fix effect method and random effect method to test the model. Then Hausman test

Figure 1: Proposed model

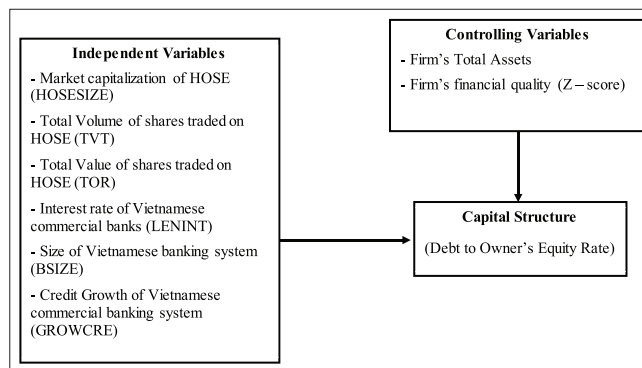


Table 1: Summary of the variables in the models

Variable	Measurement	Previous study	Expected sign
D/Cap	Debt to owner equity	Alonso (2005), Cheng and Tzeng (2011), Graham and Harvey (2001)	
HOESIZE	Market capitalization of HOSE to GDP of Vietnam	Bokpin (2008), Agarwal (2004), Maksimovic (1996)	-
TVT	Total volume of share traded on HOSE to GDP of Vietnam	Maksimovic (1996)	-
TOR	Total value of share traded on HOSE to market capitalization of HOSE	Maksimovic (1996)	-
LENINT	Interest rate of commercial banks in Vietnam	Rayan (2008), Leary (2009)	-
BSIZE	Size of Vietnamese banking system to GDP of Vietnam yearly	Maksimovic (1996), Muhtar (2014)	+
GROWCRE	Credit growth of Vietnamese commercial banking system	Maksimovic (1996), Poon (2014)	+
InFSIZE	Logarit total assets of firm listed on HOSE	Deesomsak et al (2004), Huang and Song (2006),	+
Z	Z=0.012X1+0.014X2+0.033 X3+0.006X4+0.999X5	Altman (1968), Donaldson (1961), Leary (2009)	+

HOSE: Ho Chi Minh stock exchange, TVT: Transcatheter valve therapies, TOR: Turnover ratio, GDP: Gross domestic product

Table 2: VIF value of independent variables in the model

Variable	VIF
HOESIZE	25.12
TVT	23.49
TOR	49.87
LENINT	1.05
BSIZE	1.54
GROWCRE	69.58
LnFSIZE	1.06
Z	1.04
Average VIF	21.59

HOSE: Ho Chi Minh stock exchange, TVT: Transcatheter valve therapies, TOR: Turnover ratio, VIF: Variance inflation factor

Table 3: The second VIF test results of independent variables in the model

Variable	VIF
HOESIZE	5.72
TVT	3.54
LENINT	1.04
BSIZE	1.34
GROWCRE	2.78
LnFSIZE	1.06
Z	1.04
Average VIF	2.36

HOSE: Ho Chi Minh stock exchange, TVT: Transcatheter valve therapies, VIF: Variance inflation factor

is used to select the appropriate model (Table 4). Next, Wald test and Wooldridge test are used to test heteroscedasticity and autocorrelation in the model (Table 5). Finally, the method generalized least square is used to get the best estimators (Table 6).

4.2. Regression Result

4.2.1. The impact of the market capitalization of HOSE on the firms' capital structure

The impact of the market capitalization of HOSE on capital structure is positive affected. Compared to the theory, this result contrasts with Agarwal and Mohtadi (2004) but similar with Bokpin and Isshaq (2008).

This result has similarities with special notes of Maksimovic and Demirguc-Kunt (1996). The author emphasized that in countries with economies in transformation (developing countries), the development of the stock market helps investors can diversify investment, reduce risk and asymmetric information, thus costs of lending will be lower. This will appeal to firms' owners and they will increase the use of debt in the capital structure. This proves that firms in Vietnam following the rules to raise and use of capital similar to other developing markets. When the stock market development, information disclosure and investor diversification became popular, firms in Vietnam will increase the use of debt by lending because lending cost will fall more than usual.

4.2.2. The impact of stock market liquidity of HOSE on the firms' capital structure

The impact of the total volume of shares traded on the capital structure is negative.

The study results also fit with the theoretical and experimental study of Maksimovic and Demirguc-Kunt (1996). Corresponds

Table 4: Hausman test

Value inspection and concluded	
P-value	0.00
Method	FEM

FEM: Fix effect method

Table 5: Wald test and wooldridge test

Test	Value inspection and concluded	
Wald test	P-value	0.00
	Hypothesis H_0 : No heteroscedasticity	Rejected
Wooldridge test	P-value	0.00
	Hypothesis H_0 : No autocorrelation	Rejected

Table 6: Results of GLS

Variable	Coefficients	P value
HOESIZE	2.205***	0.00
TVT	-37.024.49***	0.00
LENINT	0.32	0.265
BSIZE	-0.18***	0.00
GROWCRE	-0.25**	0.044
LnFSIZE	0.109***	0.00
Z	0.027**	0.024
VIF	2.36	
F	158.65	

***Significant at 0.01 level, **significant at 0.05 level, GLS: Generalized least square, HOSE: Ho Chi Minh stock exchange, TVT: Transcatheter valve therapies

to the Vietnam market, when volume of stocks trading increases, stocks are attractive investors and trading activities ongoing that capital be rotated quickly, creating strong liquidity for market. Therefore, the issue of new shares will easily raise owner's equity and take advantage of surplus capital by issuing shares by market value instead of face value. The cost of using equity will lower than lending costs.

4.2.3. The impact of interest rates of commercial banks in Vietnam on firms' capital structure

The impact of interest rates on capital structure is no significant (at statistical significance level 10%). This result do not match with the arguments of Leland (2001), when the author said that interest rate of commercial banks has a strong impact on the capital structure as a negative trend. However, this result fit with Rayan's argument (2008), when the author argument that there is no significant correlation between the capital structure and interest rates.

This result can be explained according Rayan (2008), firms in Vietnam choose the source of capital according to pecking order theory rather than depending on static trade off theory. It means that firms choose capital funding under the favorable access and not depend on considering interest rates and tax shield benefits so much. On the other hand, descriptive statistics also show that many firms in Vietnam have no long - term debt and a little short-term debt; it may also be a reason for interest rate variable without statistical significance in the model.

4.2.4. The impact of size of Vietnamese commercial banking system on the firms' capital structure

The impact of size of Vietnamese banking system on the capital structure is negative.

This result is inconsistent with the conclusion of Maksimovic and Demirguc-Kunt (1996), but is consistent with the conclusion of Muhtar (2014) when the author showed that the development of the banking system to reduce the debt in capital structure. Compared with research data, duration of 7 years (from 2009 to 2015) of this study cannot show long - term development of the banking system, leading to the impact of size of banking on capital structures is different from Maksimovic and Demirguc-Kunt, (1996). On the other hand, the firms on HOSE have no long - term debt, so that the impact on the capital structure is not clear.

4.2.5. *The impact of credit growth on the firms' capital structure*

The impact of credit growth on the firms' capital structure is negatively impacts.

These results also different from the theoretical and empirical research that Poon et al. (2014) launched. This discrepancy can be explained in many ways. Due to credit growth of the commercial banks did not have to spend for the listed firms, it spent for other business objects or consumer loans. On the other hand, while bad debt due to the economic crisis has yet to be recovered during restructuring the banking system process, new loans had been issued. With theoretical and previous experimental studies, this leads to deviations in determining the correlation between capital structure of listed firms and credit growth in Vietnam market.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This study has solved the impact of the financial markets development (macroeconomic factors) to the capital structure of firm listed on HOSE in period 2009 - 2015.

The study results showed that the market capitalization of HOSE has a positive effect and the volume of shares traded (an indicator of the market liquidity) have a negative effect to the firms' capital structure.

These factors are set out in the research questions include lending rate of commercial banks, size of the commercial banking system, credit growth of commercial banking system. The results of the study showed that both size of commercial banking system and credit growth are negative impact on the capital structure of firms listed on the HOSE.

5.2. Recommendations

Firms can increase the owner's equity ratio when the stock market is strong growth. At this time, the liquidity of the market is better, raising capital by issuing new shares is easier and lower cost. Firms can increase using debt when commercial banking system decline in interest rates. This time, the ability to access the debt financing becomes easier, interest expenses and indirect expenses lower than usual as banks begin to compete for seek profit.

Policies to maintain stability and develop financial markets are important for the development of firms in the economy. So

who manage macroeconomic policies like as State Bank, Stock Exchange, Securities and Exchange Commission should follow the economic rules to manage financial markets efficiently, also need to increase information transparency and accessibility of information. This will reduce the costs of asymmetric information, administrative costs.

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