HITOTSUBASHI UNIVERSITY

Global COE Hi-Stat Discussion Paper Series 110

Research Unit for Statistical and Empirical Analysis in Social Sciences (Hi-Stat)

The Determinants of the Fundraising Structure of Listed Companies in Vietnam: Estimation of the Effects of Government Ownership

Hidenobu Okuda
Lai Thi Phuong Nhung

February 2010

Hi-Stat Discussion Paper

Hi-Stat
Institute of Economic Research
Hitotsubashi University
2-1 Naka, Kunitatchi Tokyo, 186-8601 Japan
http://gcoe.ier.hit-u.ac.jp

The Determinants of the Fundraising Structure of Listed Companies in Vietnam: Estimation of the Effects of Government Ownership

Hidenobu Okuda* (Department of Economics, Hitotsubashi University)
Lai Thi Phuong Nhung (Ph.D. Program, Hitotsubashi University)

Abstract

This study investigates the factors determining the debt-ratios of listed companies on the Hanoi and Ho Chi Minh stock exchange markets. Estimation analysis using panel data covering the three-year period from 2006 to 2008 reveals the following results. (1) The debt-ratios of listed companies may be well explained by adjusted Modigliani and Miller theory combined with agency cost theory. (2) In order to borrow long-term outside funds, the ability to provide collateral is very important, even for qualified and listed companies. (3) Government controlled companies have weak incentives to save corporate tax payments by using debt financing. (4) In term of long-term fundraising, government controlled companies are perceived to present less risk than other companies. (5) In the determinants of fundraising, there is almost no difference in the determinants of fundraising between companies listed on the Ho Chi Minh stock exchange and those on the Hanoi stock exchange. (6) Compared to the fundraising activities of small- and medium-sized companies analyzed by Nguyen (2006) and Biger et al. (2008), those of listed companies could be better explained by using standard corporate financing theory. These observations suggest several policy implications. (1) Economic reform (Doi Moi) policies have successfully built up market based corporate financing systems for listed companies in Vietnam; however, (2) the protection of outside creditors should be further enhanced, as should be the disclosure of corporate information. (3) Further liberalization and privatization of the banking sector is urgently needed.

Keywords: Corporate Finance, Capital Structure, Transition Economy, Vietnam
JEL Categories: G32, G34, G38

* Corresponding author;

1. Introduction

After implementing the "Doi Moi" (economic reforms) policy Vietnam applied market mechanisms, and the economic structure has changed greatly. In order to multiply forms of possession, apply market mechanisms, and open the economy, the legal system has rapidly created many new laws such as the Private Company Law (1990), the State-owned Company Privatization Law (1990), the Company Law (2000), the Foreign Investment Law (2001), the Interest Rate Liberalization Law (2002), the Competition Law (2005), and others. In the period from 2000 to 2006, Vietnam's economy experienced a growth rate higher than 7% and a growth rate of investment over 10% (ADB (2006)). Moreover, according to the result of a survey conducted in 2007 by the Vietnam Statistics Bureau, the number of companies in Vietnam expanded from 420,000 companies in 2000 to 1,310,000 companies in 2006[1].

In the economic reform process, it was important to restructure state/public ownership balance, which is thought to play an important role in economic development; the privatization of state-owned companies and the equitization of the private companies have been performed successfully. Furthermore, recognizing the importance of a stock market where companies can raise medium- and long-term funds, the Ho Chi Minh Securities Exchange (HOSE) and the Hanoi Securities Exchange (HASE) were established in 2000 and 2005, respectively. Before the "Doi Moi," there were 5,000 state-owned companies. By the end of 2008, around 3,000 of those had been equitized. In addition, the number of listed companies increased rapidly to 340 companies at the end of 2008.

In the period of transition, understanding whether the types of companies that played a major role in domestic investment could raise funds effectively is crucial to marketizing Vietnamese economy. There have been many studies on the fund mobilization of companies in Central European countries and China that have experienced economic transition. In contrast, there are very few analyses of the actual nature of the fundraising activity of Vietnamese companies, and the characteristics and the problems of this activity.

Nguyen (2006), who studied empirically the fundraising structure of Vietnamese small and medium companies, conducted the first study of this field in Vietnam. In addition, Biger, N., Nguyen, N.V. and Hoang, Q.X. (2008) studied the financial structure of Vietnamese companies by using data from the company census conducted by the Vietnamese Statistics Bureau in 2002 and 2003. These studies clarified the

[1] Obtained from the homepage of the Vietnamese Statistics Bureau (http://www.gso.gov.vn/).

financial structure of companies under an imperfect policy environment, so the perspective of the financial activity of the Vietnamese companies remains largely unexplained.

The purpose of this study is to clarify the characteristics of the fundraising structures of the Ho Chi Minh Securities Exchange and Hanoi Securities Exchange listed companies that are representative companies of Vietnam and raising funds in the best policy environment.

Concretely, this study attempts to explain these two problems by using current standard corporate finance theories. (1) What are the characteristics of the fundraising structure of listed companies in such a transitional economy such as Vietnam, in comparison with those in developed economies. (2) What factors can explain the differences between the fundraising structures of Vietnamese listed companies and those of developed economies. In addition, this study attempts to suggest necessary policies for increasing the effectiveness of Vietnamese corporate finance.According to empirical analysis, the fundraising structures of Vietnamese listed companies are well explained by the corrected MM theory (trade-off theory) and agency cost approach, and are more coincided with corporate finance theories in comparison with Nguyen (2006) and Biger et al. (2008). In addition, fundraising determinants of state-owned companies are different from other companies: collaterals for external loans are less important and impact of corporation tax is weak. On the other hand, no statistical difference in fundraising determinants is observed between the Ho Chi Minh Securities Exchange listed companies and the Hanoi Securities Exchange listed companies. The characteristics of the Vietnamese listed company, which became clear in this study, suggest that the economic reform of Vietnam, whose goal was market economization, has already achieved certain successes in corporate finance. On the other hand, in order to improve information asymmetry, information disclosure reinforcement, creditor protection, privatization and competition, the promotion policy of the banking sector should be promoted more.

This study is organized as follows. Section 2 introduces the general view of Vietnamese listed companies. Section 3 presents the theoretical analysis framework used to explain the fundraising structures of Vietnamese listed companies and sets hypotheses. Section 4 surveys the characteristics of the management activities of Vietnamese listed companies. Section 5 explains the empirical analysis and estimation method. Section 6 discusses the empirical results compared to those of Nguyen (2006) and Biger et al. (2008). Section 7 summarizes the contents of this study and suggests a future research theme.

2. Vietnamese Company Reforms and Listed Companies

2.1 Corporate Sector Reform in Vietnam

After implementing the "Doi Moi" policy in 1986, the application of market mechanisms has been implemented in Vietnam. With the purposes of multiplying forms of possession, applying market mechanisms, and opening the economy, many new laws, such as the Private Company Law (1990), the State-owned Company Privatization Law (1990), the Company Law (2000), the Foreign Investment Law (2001), the Interest Rate Liberalization Law (2002), the Competition Law (2005), and others have been quickly implemented.

In order to restructure company organization, which plays an important role in the economic development along with the "Doi Moi," the privatization of state-owned companies and the equitization of the private companies have been performed successfully, reducing the number of state-owned companies from 5,000 in 1990 since the privatization of state-owned companies began in 1992.

(Table 2-1) Privatization of State-owned Companies in Vietnam

With the exception of special industries that remain government controlled, the privatization of state-owned companies has been carried out beginning with those of comparatively small scale and with a good chance of achieving business efficiency. As Table 2-1 shows, the industries that remain in government control have gradually decreased, and the number of privatized companies has increased. Before the "Doi Moi," there were around 5,000 state-owned companies, but by the end of 2008, about 3,000 of those had been privatized. The remaining 2,000 state-owned companies were scheduled for privatization by the end of 2010.

In many Vietnamese companies, the government became the controlling stockholder after they were equitized and influenced company activities. According to the latest State-owned Company Law (Luật doanh nghiệp nhà nước), enacted November 26, 2003, in addition to companies where the government invests 100%, those stock-issuing companies in which the government invests more than 50% are classified as state-owned (state-controlled) companies.

Along with company reforms based on the "Doi Moi," other reforms targeting marketization of the economy, such as banking reform, liberalization of interest rates, opening the stock market to foreign capital, and others, have been initiated (Assistant Table 1). Before the "Doi Moi," interest rate regulation was conducted under the

monobank system, and the real interest rate was negative. After the “Doi Moi” began, the functions of the state bank and commercial banks were separated, and the interest rate was gradually liberalized. Stock markets were opened to foreign investors fairly early in the period. Although there are limits on the participation of foreign investors, they now play an important role in Vietnamese stock markets.

2.2 Vietnamese Securities Exchanges and Listed Companies

Stock listing is the final stage of the privatization process in Vietnam. On July 10, 1998, it was decided to establish securities exchanges in Hanoi City and Ho Chi Minh City as stock markets for companies to raise mid- and long-term funds. The Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange were opened on July 14. 2000 and on July 28, 2005, respectively.

According to the Securities Law (Luật Chứng khoán) enacted on January 19, 2007, listing conditions on the Ho Chi Minh Securities Exchange are stricter than those of Hanoi Securities Exchange (Table 2-2). In order to be listed on the Ho Chi Minh Securities Exchange, companies need to have more minimum capital, better business performance, and a more dispersed stock holding structure.

(Table 2-2) Listing Conditions for the Hanoi and Ho Chi Minh Securities Exchanges

The number of listed companies, the amount of buying and selling, the trading value, the aggregate market value of the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange are summarized in Table 2-3. After the establishment of the securities exchanges, the number of listed companies failed to rise for several years. When the Ho Chi Minh Securities Exchange first opened, only 5 companies were listed. Although the Hanoi Securities Exchange was established after that, the number of listed companies totaled only 41 for both markets at the end of 2005.

(Table 2-3) The Number, Trading Amount, and Market Value of Listed Companies

According to Table 2-4, upon the establishment of stock markets, corporate tax preferential systems were established for listed companies in order to promote listing, but companies did not react positively. However, along with the participant of Vietnam in the World Trade Organization (WTO), the tax preferential system for conventional listed companies, which halved the corporate tax for the first two years after listing, was designated in October 2006 to be canceled beginning January 1, 2007, which spurred a

rush of listings by companies hoping for preferential taxation. At the end of 2006, 187 companies were listed. This rapid increase in the number of listed companies and the rapid growth of the stock market attracted attention, and funds flowed into the market from the foreign countries. As a result, many companies favored such a market environment and increased capital by issuing new stock, so that at the end of 2007, the ratio of the aggregate market value to the GDP was 43.7%. At the end of 2008, the number of listed companies in both markets was 340.

(Table 2-4) Corporate Tax on Listed Companies in Vietnam

Table 2-5 shows a breakdown of the number of listed companies by industry at the end of 2008. Most Vietnamese listed companies are manufacturing and construction companies, respectively forming 36% and 28% of all listed companies. The rest are companies in such industries as agricultural fishery, mining, electricity, services, transportation, finance and banking, communication, real estate, commerce, and others.

In the Ho Chi Minh Securities Exchange, the proportion of manufacturing companies is the highest, and the proportions of transportation companies, commerce companies, and agriculture fishery companies are also relatively high. On the Hanoi Securities Exchange, however, construction companies and manufacturing companies comprise, respectively, 40% and 30% of the total, while other industries are only sparsely represented.

(Table 2-5) Breakdown of Listed Companies by Industry

2.3 Problems of Fundraising for Vietnamese Listed Companies

Listing of companies is the final stage of the company reform process, in the hope that they will be able to raise funds effectively through the market. However, the financial environment surrounding listed companies continues to have many problems in spite of recent rapid economic reform.

First, it is obvious that the Vietnamese government still wields a strong influence on the listed company sector. Even among listed companies on the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange, where listing is the last process of company reform, more than 30% of them are state-controlled companies[2]. These companies are assumed to be able to use close relations with the government to get

[2] Among 211 companies listed on the Ho Chi Minh Securities Echange or the Hanoi Secuirities Exhange by the end of 2007, the number of state-controlled companies was 84 in 2007.

loans with advantageous conditions, but risk ineffective fund-raising ineffectively because of their weak motivation to minimize expenses.

Second, reform of the banking sector is still not sufficient. In Vietnam, banking reform has been implemented along with company reform. Separation of the functions of the state banks and commercial banks and the liberalization of interest rates have been carried out steadily (Table A1 in Appendix). As a result, the banking sector has also been marketized; the selection of borrowers and the setting of financing conditions have become more economically rational to reflect profitability and the risks of financing. However, the state-owned banks dominate the banking sector, which still provides most of the supply of domestic funds, and it is observed that there remain close relationships between state-owned companies and state-owned banks. Therefore, in terms of raising funds, state-controlled companies have more advantages than non-state-controlled companies, and are able to get funds regardless of economic rationality, as they could before the reforms.

Third, company information disclosure is insufficient among unlisted companies, and the negative effects of this problem cause concern about the fundraising activities of listed companies. Vietnamese stock markets were established so that excellent companies can easily raise middle- and long-term funds. However, enough company information must be disclosed to investors so that appropriate fund distribution can occur in the market. According to Nguyen (2006) and Biger et al. (2008), fund mobilization in Vietnamese small and medium sized companies does not accord with many aspects of corporate finance theory as a result of the information asymmetry caused by insufficient company information disclosure by listed, as well as fully state-controlled, companies.

Fourth, institutional investors in Vietnamese stock markets are immature. The existence of institutional investors with long-term investment goals is necessary for the stock market to serve its original function as the supply source of mid- and long-term funds. Liberalization has been implemented in Vietnamese securities exchanges by such measures as accepting the participation of foreign investors. However, in Vietnam, institutional investors such as life insurance companies and pension funds have not yet developed. Therefore, there is a concern that rational resource allocation is not at present made from long-term perspectives.

3. Analysis of the Fundraising Structure of Listed Companies in Vietnam

3.1 Literature Review

Regarding the problem of the fundraising structure of a transitional economy, there

are many studies about Eastern European countries and China. These studies focus on various influences of the government on the market and companies to examine corporate activities, based on the corrected MM theory, the agency cost approach, and the pecking order approach.

For example, Delcoure (2007) analyzed listed companies of the Czech Republic, Poland, Russia, and Slovakia, and showed that the fundraising structures of these nations' companies was explained by a corrected pecking order theory, which has the priorities of internal reserves, equities, bank borrowing, and bonds. Bauer (2004) analyzed Czech Republic listed companies and concluded that the fundraising determinants of these companies could be explained by the same economic factors as those of developed nations like the G7 countries. Hussain and Nivorozhkin (1997) analyzed Polish listed companies, and clarified that the concentration of stockholders has favorable influences on the debt ratio of companies, and that big companies, new companies, and foreign-affiliated companies tended to have higher debt ratios. Colombo (2001) analyzed Hungarian listed companies and showed that the fundraising structure of these companies was explained by the pecking order theory.

There are also many studies about the fundraising structure of Chinese companies. Jean (2004) considered the fundraising structure of Chinese listed companies and explained it with a corrected pecking order theory with priorities of internal reserves, equities, and long-term borrowing. In addition, Guihai and Frank (2006) showed that the fundraising determinants of developed as well as developing countries can also be applied to Chinese listed companies and even if the company is state-controlled or not, had no influence on the fundraising structure of Chinese companies, and the taxation system strongly influenced long-term borrowing by Chinese companies.

There is very little econometric analysis of Vietnamese corporate finance. Nguyen (2006) studied the earliest achievements of the fundraising structure of Vietnamese companies. Nguyen (2006) used data from 1998 to 2001 for 558 small- and medium-sized companies with fewer than 300 employees and less than 10,000,000,000 VND capital to estimate the determinants of debt ratio, short-term debt ratio, and short-term debt except for the bank borrowing ratio. The results of the analysis clarified the following problems: (1) The average debt ratio of Vietnamese small- and medium-sized companies was 43.9%. (2) The debt ratio of state-owned companies was higher than that of non-state-owned companies; larger companies had higher debt ratios; companies with high growth rates or high business risks had higher debt ratio; debt ratio and fixed assets had a reverse correlation; and a company's profitability had no effect on its debt ratio. (3) Relations with banks and networks of managers was an important determinant

of a company's debt ratio of; the stronger these relations are, the easier fundraising becomes.

Biger, N., Nguyen, N.V. and Hoang, Q.X. (2008) used company survey data from 2002 and 2003 research conducted by the Vietnamese Statistics Bureau to study the fundraising structure. Samples consisted of 3,778 companies chosen from the survey data and having over 10 employees. It was observed from the results of the analysis that (1) the long-term debt ratio of Vietnamese companies was limited at 20%, and there was little long-term investment, with low long-term profitability; (2) the debt ratio of companies had positive correlation with their scale of business as well as the percentage of their total stock issued that is owned by managers, but had negative correlation with profitability and depreciation; (3) the debt ratio had negative correlations with fixed assets and the corporate tax rate, and also with growth opportunity.

Nguyen (2006) and Biger et al. (2008) focused on companies that operate primarily in an imperfect financial environment, but our paper studies the fundraising determinants of listed companies on the Hanoi Securities Exchange and the Ho Chi Minh Securities Exchange, that are able to operate in a perfect financial system in Vietnam.

3.2 The Analysis Framework for Vietnamese Listed Companies

(1) Trade-off Theory

According to Modigliani and Miller (1958) (the MM theory), under such assumptions as a perfect capital market, no corporation tax, information symmetry, zero transaction cost, exogenous profitability, and company value being independent of capital structure, the fundraising structure has no impact on company value. However, in reality, the assumptions of the MM theory are not in effect. Let us examine the differences of reality from the MM theory, and their effects on Vietnamese corporate reform.

Corporation tax: According to Modigliani and Miller (1963), when a company has to pay corporate tax, it should raise funds by debts, such as bank borrowing or bonds, rather than equities, thus eliminating the payment of corporation tax, and allowing it to raise its value by that amount. In addition, as shown in chapter 2, preferential taxation was granted to companies newly listed on the Stock Exchange before 2007. Preferential taxation by the Corporate Tax Law enacted in 2003 also applied. Therefore, it is possible that the effective tax rate differs considerably among listed companies. It is expected that companies with higher effective tax rates tend to prefer financing by debts such as bonds or bank loans. However, if depreciation or a non-debt tax shield, such as other tax deductions, is available, the motivation to save tax payments through debt will

decrease.

Hypothesis 1a: The effective tax rate correlates positively with the debt ratio of listed companies.

Hypothesis 1b: The non-debt tax shield correlates negatively with the debt ratio of listed companies.

Bankruptcy risk: Because the possibility of business failures rises when the debt ratio of the company rises, payment of the risk premium for mobilizing funds by debt also rises. Because higher bankruptcy risk raises the cost of financing by debt, the debt ratio is expected to be lower. Generally, the bigger the company, the smaller the business reductions by exogenous shocks, so the bankruptcy risk becomes lower. Therefore, the larger the business scale and the smaller the business risk, the higher the debt ratio tends to become.

Hypothesis 2: The scale of the listed company and the debt ratio have positive correlation.

(2) Economic Factors Relating to Agency Cost

Besides corporate tax and business risk, when information asymmetry exists, agency cost has an important influence on the determination of corporate value, namely the decision on the most suitable capital structure of the company[3]. Since Jensen and Meckling (1976), Myers (1977), Myers and Majluf (1984), the problems of the conflict between the benefits to stockholders (clients) and managers (agents) and between creditors (clients) and stockholders (agents), which are factors of the agency cost, have attracted much attention.[4]

[3] The agency cost theory is known to concentrate on the necessary costs to adjust the contradiction among managers, stocktakers and creditors. The trade-off theory is known to improvie upon the MM theory by considering the merits and disadvantages of increasing debt. There is also the signaling theory, which analyzes the capital structure problem by information economics and the pecking order theory.

[4] The agency problem is influenced by the differences in the economic environments surrounding the companies. When it is difficult to observe managers' actions from outside, the growth or investment opportunities of the company are few, free cashflow of the company is high, or the liquidation value of the company is large, the conflict of interests between stockholders (clients) and managers (agents) worsens. Furthermore, when the bankruptcy cost to the company is high, or stockholders can easily change the assets structure and the dividend policy of the company to favor of themselves, the conflict of interests between creditors (clients) and stockholders (agents) becomes serious. The degree of disclosure of company information and the information asymmetry of

Internal funds: On the other hand, the problem of the agency cost between creditors (clients) and stockholders (agents) comes from the moral hazards that occur stockholders apply debt funds to dividends, or make high-risk/high-return investments under the limited liability system to get high dividends. In this case, it is desirable to reduce the debt ratio of a company to reduce the problem and to raise corporate value. Therefore, companies with abundant internal funds will tend to reduce dependence on the externally borrowed money. Because it is thought that the higher the business return rate is, the greater the internal funds are; it is expected that the debt ratio of such companies decreases.

Hypothesis 3: The debt ratio of the listed company decreases as business return rate increases.

Collateral: When borrowing externally, the more severe the information asymmetry between the managers of the company and the outside creditors is, the higher the agency cost of mobilizing funds through debt is. An effective method to reduce the agency cost of debt financing is to offer collateral to the creditors. The more collateral a company can offer, the lower the agency cost of debt financing becomes, so the higher the debt ratio of the company can rise. From this point of view, it is expected that the more the assets the company can offer as collateral, the higher its debt ratio is.

Hypothesis 4: The debt ratio of listed companies rises with the value of the collateral that they can offer.

Business growth: The issue of agency between stockholders (clients) and managers (agents) arises as stockholders expect the maximization of company value while managers pursue personal profit for themselves. If a company's growth is high, managers will seek to increase their earnings by raising the company's profits rather than pursuing personal profit from company. On the other hand, if company's growth is low, managers are going to increase their earnings by pursuing their personal profit from company, because increasing the company's profits becomes harder. Therefore, low-growth companies tend to increase financing through debt to prevent managers from plundering the profits of company. From this point of view, it is expected that the lower the business growth is, the higher the company's debt ratio becomes.

---

corporate management also greatly influence the agency cost.

Hypothesis 5: The lower (higher) the business growth of listed companies, the higher (lower) their debt ratio becomes.

(3) Influences of Company Characteristics

State control: There are many state-controlled companies among Vietnamese listed companies. These companies are thought to be different from non-state-controlled companies in their fundraising structure.

First, the government tacitly guarantees state-controlled companies; thus, their business risk is smaller than that of non-controlled companies. Therefore, it is expected that the debt ratio of state-controlled companies is higher than that of non-controlled companies.

Second, it is thought that state-controlled companies' incentive to increase debt to save corporate tax payment is different from non-controlled companies. From the viewpoint of government, which is a 50% stockholder in state-controlled companies, corporate tax payment is an income to the government itself, thus their incentive to use debt to save corporate tax payments is less than that of other stockholders. Therefore, the debt ratio of state-controlled companies is lower than that of non-state-controlled companies.

Third, it is thought that state-controlled companies have closer relations with state-owned banks than other companies. Vietnam's four major state-owned banks provide 78% of the financing of entire whole economy, and more than a half of that amount is provided to state-owned companies (Nguyen (2006)). Due to these relations, it is easier for state-controlled companies to access loans from state-owned banks regardless of the quantity of collateral they offer, and the influence of collateral on the debt ratio is smaller in case of state-controlled companies than other companies. In addition, for state-controlled companies, the difference between the agency cost of external debt and the agency cost of internal funds is small, so the influence of internal reserves on the debt ratio is smaller than in other companies.

Hypothesis 6a: The fact that state-controlled companies are tacitly guaranteed by the government could have the effect of raising the debt ratios of state-controlled companies.

Hypothesis 6b: The fact that state-controlled companies' incentive to save tax payments by using debt is weak could have the effect of decreasing their debt ratio.

Hypothesis 6c: Furthermore, the fact that state-controlled companies have close

relations with state-owned banks could have the effect of increasing their debt ratio.

Listing securities exchange differences: Listing standards are different between the Hanoi Securities Exchange and the Ho Chi Minh Securities Exchange. Compared to Hanoi Securities Exchange listed companies, the capital scale of Ho Chi Minh Securities Exchange listed companies is larger, and as a result, so are the sales amounts and fixed assets scales. According to the trade off theory, the higher the bankruptcy risk is, the lower the debt ratio is. Thus, Ho Chi Minh Securities Exchange listed companies whose bankruptcy risks are low have higher debt ratios in comparison to Hanoi Securities Exchange listed companies.

Listing standards of the Ho Chi Minh Securities Exchange are stricter than those of the Hanoi Securities Exchange; therefore, Ho Chi Minh Securities Exchange listed companies' credibility in market is higher. Hence, the Ho Chi Minh Securities Exchange listed companies can raise funds from outside creditors more easily, regardless of the quantity of their collateral, and the effect of collateral on the debt ratio is smaller than that of Hanoi Securities Exchange listed companies. In addition, for Ho Chi Minh Securities Exchange listed companies, as the difference between the agency cost of financing from outside creditors and that of internal funds is small, it is thought that the effect of internal reserves on the debt ratio is less than it is for Hanoi Securities Exchange listed companies.

Hypothesis 7: The fact the Ho Chi Minh Securities Exchange listed companies satisfy stricter listing standards than do the Hanoi Securities Exchange listed companies has the effect of increasing the debt ratio of Ho Chi Minh Securities Exchange listed companies in comparison to that of Hanoi Securities Exchange listed companies.

4. Method of Estimation

4.1 Estimation Function

Like Rajan and Zingales (1995), this paper estimates debt ratio, which is the most basic index demonstrating the capital structure of companies. Y_{it} is an explained variable, X_{jit} represents the explanatory variables (j=1,2,…, k), *STATE* is the state-controlled company dummy, *HOSE* is the Ho Chi Minh Securities Exchange listed company dummy. α is the fixed effect, β_j、γ_j、φ_j are coefficients (j=1,2,…, k), ε is the matrix of error items, i expresses company, t expresses time.

$$
\begin{aligned}
Y_{it} = \alpha_i &+ \sum_1^k \beta_j X_{jit-1} \\
&+ \gamma_1 STATE + STATE \cdot \sum_2^{k+1} \gamma_j X_{jit-1} \\
&+ \phi_1 HOSE + HOSE \cdot \sum_2^{k+1} \phi_j X_{jit-1} + \varepsilon_{it}
\end{aligned} \qquad (1)
$$

(1) Explained Variables

We used four debt ratios as explained variables: Total debt ratio (*DR*), Long-term debt ratio (*LDR*), Long-term bank loan ratio (*LBR*), and Short-term debt ratio (*SDR*).

Total debt ratio (*DR*) expresses the ratio that fundraising by debt holds in the entire funding of company, and it is the most basic index of the fundraising structure. Because of the effects of saving tax payments and bankruptcy risk on finance structure (= debt ratio) relates to the whole debt; using the debt ratio is considered appropriate to observe the influences of these factors on the fundraising structure. We calculated Total debt ratio (*DR*) by dividing the amount of total debts by the amount of total assets.

Short-term debts, such as accounts payable or bills used as methods of balancing short-term funds and long-term debts used for long-term investments, as for equipment, have different characteristics. Accounts payable and bills relate to clients, so the information asymmetry of fundraising by accounts payable and bills is comparatively small. On the other hand, information asymmetry between firms and creditors of long-term debt is larger. Thus, the influence of the agency cost of long-term debt on capital structure is stronger than that of short-term debt. We calculated the Long-term debt ratio (*LDR*) by dividing the total long-term debt amount (debt period is more than one year) by the total assets amount. The short-term debt ratio (*SDR*) was calculated by dividing the total short-term debt amount (debt period is less than one year) by the total assets amount.

(2) Explanatory Variables

We used (i) corporate tax rate and firm scale based on the corrected MM theory (trade-off theory), (ii) operating income ratio, fixed assets ratio, and Tobin's Q based on the agency cost approach, and (iii) the state-controlled company dummy, the Ho Chi Minh listed company dummy, industry dummies and other control variables expressing characteristics of Vietnamese listed companies as explanatory variables.

Effective tax rate (*TAX*): We used this effective corporate tax rate to observe the influence of saving tax payments upon debts. The greater the amount of corporate tax that a company actually paid is, the higher the debt ratio theoretically becomes to save

tax payments. The effective corporate tax rate is defined as the ratio of the amount of corporation tax payment divided by the amount of operating income[5].

Non-debt tax shield ratio (*NDTS*): The higher the non-debt saving tax payment frameworks are, the lower is the incentive to use debt to save tax payments. This variable is defined as the ratio obtained by dividing the total amount of depreciation and other tax deductions by the amount of total assets.

Business scale (*SIZE*): Business scale can be interpreted as a proxy variable for the bankruptcy risk of companies. Because the bigger the business scale is, the greater business diversification and risk dispersion could be, bankruptcy risk accompanying debt decreases; thus, it is easier for large-scale businesses to increase debts.[6]

Operating income ratio (*PROF*): This operating income ratio is used as a proxy variable for free cash-flow. Because free cash-flow is the source of funds whose agency cost is the lowest, it is the first used by the company. Therefore, it is thought that companies with more free cash-flow tend to decrease their debt ratio. Operating income ratio is defined as the ratio obtained by dividing the amount of operating income (the total amount of profit before interest payment and tax payment) by the amount of total assets. Because there is no operating income term in the financial reports of Vietnamese companies, we calculated operating income by totaling profits before taxes and interest payment amounts[7].

Fixed assets rate (*TANG*): We used the fixed assets rate as a proxy variable for the ability to provide collateral. Because fixed assets are easy to screen and monitor, they are preferred to other assets as collateral. By using fixed assets as collateral, information asymmetry between creditors and firms decreases, so the agency cost associated to financing by debts falls, and companies can more easily increase debt. The fixed assets rate is defined as the ratio of the total fixed assets amount divided by the total assets amount. The amount of fixed assets here includes the amount of both tangible and intangible fixed assets[8].

Business growth (*GROWTH*): We used Tobin's Q (the ratio of dividing the total amount of debts and the present value of stocks by the book value of total assets) as a proxy variable for the business growth of companies. The higher business growth is, the

[5] Guihai and Frank (2006) used the same variables.
[6] Business scale is used as a proxy variable of a company's recognition in the market. The better known to society the company is, the lower information asymmetry between outside creditors and company becomes. Thus, agency cost decreases and the company can raise debt more easily. The natural logarithm of the total assets is used as the proxy variable for business scale (for example, Jean (2004)). The natural logarithm of sales is also often used as a proxy variable for business scale.
[7] Guihai and Frank (2006) and Wiwattanakantang (1999) used the same variables.
[8] Rajan and Zingales (1995) and Wiwattanakantang (1999) used the same variables.

weaker the incentive for managers to plunder personal profit from the company becomes, so the agency cost of financing by stock shrinks. Therefore, it is expected that the higher the business growth is, the lower company's debt ratio becomes.

State-controlled company dummy (*STATE*): This is one of the dummy variables stating the characteristics of Vietnamese firms. As explained in Chapter 2, among Vietnamese listed companies, there are many state-controlled companies, more than 50% of whose stock is held by the government. These companies have closer relations with state-owned banks and therefore, access loans much more easily from these banks, as compared to other companies. Also, because corporate tax becomes an income of government, the incentive to use debts to save tax payments from state-controlled companies is weaker than that of other companies. The state-controlled company dummy takes 1 for companies whose government stock holding is more than 50%, and takes 0 for the others.

Ho Chi Minh Securities Exchange listed company dummy (*HOSE*): As explained in Chapter 2, the listing standards of the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange are different. Compared to the Hanoi Securities Exchange listed companies, Ho Chi Minh Securities Exchange listed companies have larger business scales, better business achievements, and lower bankruptcy risk and agency costs, so they are thought to be able to increase debt easily. The Ho Chi Minh Securities Exchange listed company dummy takes 1 for companies listed on the Ho Chi Minh Securities Exchange and takes 0 for companies listed on the Hanoi Securities Exchange.

Year dummy (*YD2007*): In 2006, the listings on the Vietnamese securities exchanges grew rapidly. Vietnamese stock markets attracted domestic and foreign investors, and the liquidity of stock markets increased. Therefore, in 2007 Vietnamese listed companies raised funds by publishing new stocks aggressively. On the other hand, in 2008, the stock market turned worse due to the influences of the non-stabilization of the Vietnamese economy and the stagnation of the world economy caused by the issue of sub-prime loans. In order to control the influences of the macroeconomy, we used a year dummy variable that takes 1 for the year 2007, and takes 0 for the other years.

Industry dummies: In order to control for influences on fundraising strategies unique to different industries, we used such industry dummy variables as construction industry (*CONS*), manufacturing industry (*MANU*), mining industry (*MIN*), electricity industry (*POWE*), services (*SERV*), communications (*COMM*), real estate (*REAL*), and commerce (*COM*). Because laws and regulations or degrees of information disclosure differ among industries, the agency cost of debt may also vary among industries[9].

[9] For example, in order to be listed on Hanoi Securities Exchange, infrastructure companies do not

4.2 The Data Set

The samples we used in the analysis are the non-financial companies listed on the Ho Chi Minh Securities Exchange or the Hanoi Securities Exchange before 2007, for which we can get the necessary data for at least two continuous years, from 2006 to 2008. Financial institutions were excluded from the sample because determinants of their capital structure are different from those of non-financial institutions. The data before 2005 was excluded from the sample because it was too small in comparison with the data since 2006, and thus made estimation results biased. The necessary data was acquired from the annual financial reports of listed companies that were disclosed on the Web pages of the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange[10].

There were 141 companies listed on the Ho Chi Minh Securities Exchange and 110 companies listed on the Hanoi Securities Exchange before 2007. Among of these, 116 non-financial companies listed on the Ho Chi Minh Securities Exchange and 95 non-financial companies listed on the Hanoi Securities Exchange were included in the samples. The total sample was 211 non-financial companies.

Table 4-1 breaks down the sample by industry and state-control status of the company for each stock market. Most of companies in the sample are in the manufacturing and construction industries. The number of companies in the transportation industry, commerce, service, and agriculture follow the two leaders in descending order of quantity. On the Ho Chi Minh Securities Exchange, the proportion of manufacturing companies is the greatest, followed by construction companies and transportation companies. On the other hand, on the Hanoi Securities Exchange, the proportion of construction companies is the greatest, and is followed by manufacturing companies; the proportion of companies in other industries is very small. In addition, of the 84 state-controlled companies, 31 companies were on the Ho Chi Minh Securities Exchange, and 53 companies were on the Hanoi Stock Exchange.

(Table 4-1) Breakdown of the Sample by Industry and State-control of the Company

Tables 4-2 shows the characteristics of the main variables used in the analysis by using the sample of 211 companies. The sample was divided into four groups by stock

---

have to satisfy the condition that one year before listing must be profitable, thus the Hanoi Securities Exchange listed construction companies are thought to have less free cashflow and a higher debt ratio than other companies. See table 2-1 for more detail.

[10] http://www.hsx.vn, http://www.hastc.org.vn

markets and state-control of the company.

(Table 4-2) Comparison of State-controlled and Non-state-controlled Companies

4.3 Estimation Method

Nguyen (2006) and Rajan and Zingales (1995) used four-year average value of both explained variables and explanatory variables for estimation. Booth et al. (2001), Wiwattanakantang (1999), Lee (2000), Suto (2001) used simultaneous explained variables and explanatory variables for estimation. However, in this study we take a one period lag for explanatory variables in comparison with explained variables.

Representative analysis methods for panel data are the Ordinary Least Squares method (OLS), the random effect model and the fixed effect model. However, samples used in this study are 211 companies for two-year or three-year periods. After taking the lag, the periods become one year or two years. There are 90 companies with only a one-year period. Because time series are too short in comparison with cross sections, estimation results of the fixed effect model become too dependent on the fixed effect and are therefore improper. For this reason, we did not use the fixed effect method. In order to find out whether the OLS method or the random effect method is more proper, we performed the Lagrange Multiplier Test (LM test) in which OLS is the null hypothesis (Kitamura (2005)).

4.4 Basic Statistics

Table 4-3 demonstrates the basic statistics of the main variables. The average debt ratio of Vietnamese listed companies is 47%, approximately same as that of Chinese listed companies (50%) as shown in Guihai and Frank (2006). However, the variance of debt ratio among Vietnamese listed companies is high. The average long-term debt ratio of Vietnamese listed companies is below 10%, approximately same as that of Chinese listed companies (7%) as shown in Jean (2004). The average fixed assets rate of Vietnamese listed companies is 30%, slightly lower than that of Chinese listed companies (34%) as shown in Guihai and Frank (2006). In contrast, the average operating income ratio of Vietnamese listed companies is 10%, higher than the ratio of 5.7% of Chinese listed companies (Guihai and Frank (2006)). Finally, the average effective corporate tax rate of Vietnamese listed companies is 11%, much smaller than the official rate of 28%, which means that most of Vietnamese listed companies enjoyed tax preference.

(Table 4-3) Basic Statistics of the Main Variables

5. Estimation Results and Discussion

5.1 Estimation Results of the Model with the Non-debt Tax Shields Variable

(1) Estimation Results of Total Debt Ratio

Table 5-1 summarizes the estimation results of debt ratios. The coefficient of determination is 0.250, not high, but the F statistic is 5.026. Thus, it can be said that the model is proper[11].

(Table 5-1) Estimation Results of Total Debt Ratio, Long-term Debt Ratio, Long-term Bank Loan Ratio, and Short-term Debt Ratio.

Investigating the impacts of the corrected MM theory based factors, we saw that the sign of corporate tax rate (TAX) is positive, agreeing with the hypothesis, while the sign of the non-debt tax shields (NDTS) is positive, contrary to hypothesis. However, both are insignificant. The business scale (*SIZE*) is significantly positive, agreeing with the hypothesis. This means that business risk is a determinant of capital structure.

Investigating the impacts of the agency cost based factors, we saw that only the coefficient of operating income rate (*PROF*) is significantly negative, as per the hypothesis. This means that firms with high internal funding, whose agency cost is thought to be lowest, tend to have lower external debts. Other than those findings, the impact of the fixed assets rate (*TANG*) and business growth (*GROWTH*) were found to be insignificant.

Investigating the influences of state control, we saw that coefficients of *STATE*TAX* and *STATE*TANG* are negative at the significant levels of 10% and 1%, respectively. This means that in comparison with other companies, state-controlled companies have a weaker incentive to save on tax payments and so raise less funds through collateralized debt.

Investigating the influences of different stock markets, we did not see any significant coefficient. This means that despite different listing standards, the Ho Chi Minh Securities Exchange listed companies and the Hanoi Securities Exchange listed companies have no difference in fundraising structures.

As for other factors, the 2007 year dummy and the real estate industry dummy are

[11] Next, take the LM test where Pool OLS Model is null hypothesis and random effect model is opposite hypothesis. X^2 estimator with degree of freedom 210 is 658.561, thus null hypothesis is rejected at significant level of 1%. Therefore, random effect model was used to estimate.

positive at significant levels of 1% and 5% respectively. This means that the downward trend of the economy 2008 caused listed companies to face difficulties in raising funds through debt. In Vietnam, construction companies tend to have higher debt ratio in any case.

(2) Estimation Results of Long-term Debt Ratio

The coefficient of determination is 0.245, and the F statistic is 4.926, so the model can be said to be proper[12]. In comparison with the estimation results for the total debt ratio, the estimation results of the long-term debt ratio agree better with the theoretical hypotheses.

Investigating impacts of the corrected MM theory based factors, we found that the coefficients of business scale (*SIZE*) and corporate tax rate (*TAX*) are both significantly positive. This means that large-scale companies will be less risky, so they find it easier to obtain long-term loans. If the corporate tax rate is high, non-state-controlled companies tend to borrow more long-term debt to save on tax payments.

Investigating the influences of agency cost theory based factors, we found that the coefficient of the fixed assets rate (*TANG*) is significantly positive. This means that companies with high fixed assets will be able to provide considerable collateral to reduce their agency cost of debt, and thus be able to obtain long-term debts easily. We did not observe any significant effects of the operating income rate (*PROF*).

Observing the impacts of state control, we found that the coefficient of the state-controlled company dummy (*STATE)* is significantly negative, and that of *STATE*SIZE* is significantly positive. This means that compared to other companies, state-controlled companies are less dependent on long-term debt and are perceived to be less vulnerable to bankruptcy.

Observing the impacts of different stock markets, we saw the same results as in the total debt ratio model, that there is no difference in long-term fundraising structures between Ho Chi Minh Securities Exchange listed companies and Hanoi Securities Exchange listed companies.

(3) Estimation Results of Long-term Bank Loan Ratio

The coefficient of determination is 0.168, and the F statistic is 3.444, so the model can be said to be proper[13]. As in the estimation results for long-term debt ratio, the

[12] Take the LM test where Pool OLS Model is null hypothesis and random effect model is opposite hypothesis. The X^2 estimator with degree of freedom 210 is 930.415, thus null hypothesis is rejected at significant level of 1%. Therefore, random effect model was used to estimate.

[13] Take the LM test where Pool OLS model is the null hypothesis and the random effect model is the

estimation results for the long-term bank loan ratio also agree better with the theoretical hypotheses than did the estimation results for the total debt ratio.

Investigating the impacts of Trade-off theory based factors, we saw that the coefficient of business scale (*SIZE*) is positive at the significant level of 5%. This means that large-scale companies have fewer business risks, and thus can more easily obtain bank loans.

Investigating the impacts of agency cost theory based factors, we saw that the coefficient of the fixed assets ratio (*TANG*) is positive at the significant level of 1%, and that of business growth (*GROWTH*) is negative at the significant level of 5%. This means that companies with a high level of fixed assets can provide much collateral to reduce the agency cost of debt, and thus have easier access to long-term bank loans. Companies with high growth have a low agency cost of equity, and thus tend to have lower debt-financing. We did not observe any significant impact of the operating income rate (*PROF*).

Observing the impacts of state control, we saw the same results as for the long-term debt ratio. The coefficient of the state-controlled company dummy (*STATE*) is significantly negative at the 5% level, and that of *STATE*SIZE* is significantly positive at the 5% level. This means that state-controlled companies are less dependent on long-term debt and are perceived to be less vulnerable to bankruptcy than other companies.

Observing the impacts of different stock markets, we found the same results as with total debt ratio and long-term debt ratio models, that there is no difference in the long-term bank loan raising structures of Ho Chi Minh Securities Exchange listed companies and Hanoi Securities Exchange listed companies.

(4) Estimation Results of Short-term Debt Ratio

The coefficient of determination is 0.266, and the F statistic is 4.490, so the model can be said to be proper[14]. However, we observed no significant coefficients of the corrected MM theory based factors.

As for agency cost based factors, only the operating income rate (*PROF*) is significantly negative. This means that companies with more internal reserves and whose agency cost is the least tend to carry lower debts. However, the coefficients of

---

opposite hypothesis. X^2 estimator with degree of freedom 210 is 1114.311; thus, the null hypothesis is rejected at the significant level of 1%. Therefore, the random effect model was used to estimate.

[14] Take the LM test where Pool OLS model is the null hypothesis and the random effect model is the opposite hypothesis. The X^2 estimator with degree of freedom 210 is 831.493; thus the null hypothesis is rejected at significant level of 1%. Therefore, the random effect model was used to estimate.

fixed assets (*TANG*) and business growth (*GROWTH*) are insignificant.

Observing the impacts of state control, we found that the coefficient of the state-controlled company dummy is positive at the significant level of 10% and that of *STATE*SIZE* is negative at the significant level of 1%.

Observing the impacts of different stock markets, we found no significant coefficient. This means that there is no difference in the short-term fundraising structures of Ho Chi Minh Securities Exchange listed companies and Hanoi Securities Exchange listed companies.

5.2 Robustness of Estimation Results

(1) Estimation Results of the Model without Non-debt Tax Shields

The estimation result of the effective corporate tax rate may be affected by using non-debt tax shields. In order to check the robustness of the estimation results, we estimated the model without non-debt tax shields. Table 5-2 summarizes the estimation results of random model[15].

(Table 5-2) Estimation Results without the Non-debt Tax Shields Variable

As for estimation results of the total debt ratio, the F statistic and the coefficient of determination are 5.406 and 0.246, respectively, almost the same as those of the model with non-debt tax shields. In the model with non-debt tax shields, factors whose coefficients are significant are business scale (*SIZE*), operating income rate (*PROF*), state-controlled company dummy (*STATE*) and *STATE*TANG*. In the model without non-debt tax shields, coefficients of these factors have the same signs as those in the model with non-debt tax shields and are highly significant.

As for estimation results of long-term debt ratio, the F statistic and the coefficient of determination are 5.359 and 0.244, respectively, almost the same as those of the model with non-debt tax shields. In the model with non-debt tax shields, factors with significant coefficients are effective corporate tax rate (*TAX*), business scale (*SIZE*), fixed assets rate (*TANG*), state-controlled company dummy (*STATE*) and *STATE*SIZE*. In the model without non-debt tax shields, except for the coefficient of effective corporate tax rate (*TAX*), the coefficients of the other factors have the same signs as those in the model with non-debt tax shields at high significant levels. The sign of the

[15] Following the same process as 5.1 to decide the estimation method, the random effect model was chosen to estimate the total debt ratio, the long-term debt ratio, the long-term bank loan ratio and the short-term debt ratio.

coefficient of the effective corporate tax rate (*TAX*) is unchanged but its significance is lower.

As for estimation results of long-term bank loan ratio, the F statistic and the coefficient of determination are 3.966 and 0.180, respectively, almost the same as those of the model with non-debt tax shields. In the model with non-debt tax shields, the factors with significant coefficients are business scale (*SIZE*), fixed assets rate (*TANG*), business growth (*GROWTH*), state-controlled company dummy (*STATE*) and *STATE*SIZE*. In the model without non-debt tax shields, the coefficients of all the factors have the same signs as those in the model with non-debt tax shields at high significant levels.

As for estimation results of short-term debt ratio, the F statistic and the coefficient of determination are 4.943 and 0.226, respectively, almost the same as those of the model with non-debt tax shields. In the model with non-debt tax shields, the factors with significant coefficients are profitability (*PROF*), state-controlled company dummy (*STATE*) and *STATE*SIZE*. In the model without non-debt tax shields, except for profitability (*PROF*), the coefficients of the other factors have the same signs as those in the model with non-debt tax shields at high significant levels. Profitability (*PROF*) has the same sign but a lower level of significance.

Generally, estimation results of the model without non-debt tax shields are almost the same as those of the model with non-debt tax shields in 5.1.

(2) Estimation Results of the Model without Tobin's Q

The correlation coefficient of the operating income rate (as a proxy of internal reserves) and Tobin's Q (as a proxy of business growth) is high. Thus, in order to check the robustness of the estimation results of the model in 5.1, we estimated the model without Tobin's Q. Table 5-3 summarizes the estimation results of this model by the random effect method[16].

(Table 5-3) Estimation Results without Tobin's Q

As for the total debt ratio, the long-term debt ratio, and the long-term bank loan ratio, all of the factors that were highly significant in the model of 5.1 are also highly significant in this model. Their signs are also unchanged. In other words, among factors

[16] Using the same approach as in 5.1 to decide the estimation method, the random effect model was chosen to estimate total debt ratio, long-term debt ratio, long-term bank loan ratio and short-term debt ratio.

that were highly significant in this model (Table 5-3), there are no factors that have opposite signs at highly significant levels in comparison with the model in 5.1.

As for short-term debt ratio, except for business profitability (*PROF*), the factors that were highly significant in the model of 5.1 have the same signs at highly significant levels in this model. Although the significant level of business profitability (*PROF*) is lower, its sign remains unchanged. In other words, among factors that were highly significant in this model (Table 5-3), there are no factors that have opposite signs at highly significant levels in comparison with the model in 5.1.

Generally, estimation results of the model without Tobin's Q are almost the same as those of the model in 5.1.

5.3 Characteristics of Fundraising of Listed Companies in Vietnam

According to the estimation results in Table 5-1, Vietnamese listed companies have the following characteristics[17]. First, as to the capital structure of Vietnamese listed companies, we could not observe any contradiction to the hypotheses of standard corporate finance theory. This means that standard corporate finance theory could be proper to the capital structure of Vietnamese listed companies.

According to the trade-off theory, the higher the effective corporate tax rate is, the larger the business scale is, and the more stable the business is, then the higher the company's debt ratio becomes. We could observe that the lower the business risk of Vietnamese listed companies is, the higher their total debt ratio, long-term debt ratio, and long-term bank loan ratio are, at highly significant levels. We also observed that the debt ratio tends to become greater at a highly significant level as the effective corporate tax rate is higher.

According to the agency cost theory, debt ratios increase when internal reserves are abundant, the ability to provide collateral is high, and Tobin's Q is low. We observed that the total debt ratio and the short-term debt ratio of Vietnamese listed companies decrease when the profitability is high or the internal reserves are abundant. We also observed the fact that the long-term debt ratio and the long-term bank loan ratio increase when the fixed assets rate is high or business growth is low, at highly significant level.

Second, we found that there are differences between the determinants of long-term fundraising and short-term fundraising of Vietnamese listed companies. Moreover, the standard corporate finance theories apply better to long-term fundraising. Tax payment saving by means of debt and business stability is an important determinant of long-term

[17] Besides these characteristics, we also found that construction companies tend to have less long-term debt. However, we could not determine the implications of this characteristic.

fundraising, but does not affect decisions about short-term fundraising. Contrary to this, the amount of internal reserves is an important determinant of short-term fundraising, but not important for long-term fundraising decisions. The ability to provide collateral and the rate of business growth are important determinants for long-term borrowing and long-term bank borrowing decisions, but are not important to short-term borrowing decisions. The ability to provide collateral is an important determinant for both long-term and short-term borrowing decisions in non-state-controlled companies.

Third, we found the differences between fundraising determinants of state-controlled companies and those of non-state-controlled companies. The incentive to use debts to save tax payments is weaker for state-controlled companies than for non-state-controlled companies. In raising long-term funds, the business risk of state-controlled companies is perceived to be lower than that of other companies[18].

Fourth, the fundraising structures of the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange are almost the same. We could not observe any difference in borrowing determinants when Ho Chi Minh Securities Exchange listed companies and Hanoi Securities Exchange listed companies had the same fixed assets rate. There is no significant difference in the information asymmetry of companies listed on each stock market for outside creditors and outside investors.[19].

Comparing these estimation results to those of Nguyen (2006) on capital structure determinants of Vietnamese small-to-medium companies, we found many interesting differences. First, the debt ratios of listed companies are higher than those of small-to-medium companies. Listed companies are highly trusted by the markets, and their information disclosure is better; thus, their agency cost of debt is lower than that of small-to-medium companies. For this reason, listed companies have easier access to outside debts to increased debt ratios than small-to-medium companies.

Second, the fundraising structure of listed companies is better explained by standard corporate finance theories than that of small-to-medium companies. According to Nguyen (2006), the debt ratio decreases as business scale increases. This is contrary to our finding. However, the debt ratio of small-to-medium companies decreases as their

[18] The average business scale of state-controlled companies is larger than that of other companies; thus, state-controlled companies are assumed by the markets to be more stable than other companies. This can be interpreted that the long-term debt ratio of state-controlled companies is higher than that of non-state-controlled companies.

[19] Recently, there have been many companies that meet the listing conditions of the Ho Chi Minh Securities Exchange but remain listed on the Hanoi Securities Exchange. It is thought that there is almost no difference between listing on the Ho Chi Minh Securities Exchange and the Hanoi Securities Exchange.

fixed assets rate increases, and their profitability does not affect their debt ratio. Our study did not find any contradiction to the trade-off theory or the agency cost theory. The judicial system surrounding listed companies, which constitute the sample of our study, is more complete than that of the small-to-medium companies that comprised Nguyen's (2006) sample.

Third, contrary to Nguyen (2006), our study did not find that state-controlled companies or state-owned companies have a higher debt ratio than other companies. We did find that the state-controlled companies' incentive to save tax payments by using debt is weaker than that of other companies. We also found that the business risk of state-controlled companies is perceived to be lower than that of other companies.

6 Conclusion

This study used data from 2006 to 2008 for Ho Chi Minh Securities Exchange and Hanoi Securities Exchange listed companies that are representative of Vietnamese companies, in order to investigate their fundraising determinants. According to the estimation results, we observed many interesting findings.

(1) The trade-off theory and the agency cost theory are well explanatory of the fundraising structure of listed companies. (2) The ability to provide collateral is an important determinant in long-term fundraising, even for listed companies that are perceived to be the best in Vietnam. (3) The incentive for state-controlled companies to use debt to save tax payments is weaker than it is for other companies. (4) In raising long-term funds, state-controlled companies are perceived to be less risky than other companies. (5) There is no statistically significant difference between the fundraising determinants of companies listed on the Ho Chi Minh and Hanoi Securities Exchanges.

Compared with the estimation results of Nguyen (2006) and Biger et al. (2008), we found interesting differences. (1) The debt ratio of listed companies is much higher than that of small-to-medium companies. (2) The fundraising structure of listed companies matches better with standard theoretical corporate finance theories than does that of small-medium companies.

We could derive three policy implications from the estimation results of our study. First, according to the estimation results, fundraising determinants of listed Vietnamese companies is well explained by the agency cost theory. This means that the fundraising activities of listed Vietnamese companies can be explained by the economic rationality that is often observed in developed countries. Almost all the companies in the samples of Nguyen (2006) and Biger et al. (2008) have low information disclosure; thus the

information asymmetry between the companies and their outside creditors and outside investors is high. The judicial system surrounding listed companies is more robust than that surrounding small-to-medium companies, with the result that information disclosure and corporate management are more suitable for raising funds from markets. These facts imply that the economic reform implemented by the Vietnamese government, which is aiming at economy marketization, has achieved some goals in term of corporate finance.

Second, we found that even listed non-state-owned Vietnamese companies that are representative of all Vietnamese companies need to provide collateral when raising long-term funds. In most developing countries, collateral is not explained properly and the rights of creditors are not preserved well, eroding creditor confidence and negatively affecting companies' ability to raise funds. To make things worse, the problem of financing without proper debtor valuation is often observed in developing countries. In order to prevent these problems in Vietnam in the future, it is important to update the system of using collateral with better regard for creditor protection and the suitable collateral valuation.

Third, we also found that the incentive for state-controlled companies to use debt to save tax payments is weaker than it is for other companies, and that business risk of state-controlled companies is perceived to be less than that of other companies. The fact is that the incentive to use debt to save tax payments may be rational to the government, which at the same time gets the tax payments as income, but not be rational to outside investors because it reduces the company's value. As a further complication, the government's risk distribution of across all state-controlled companies also makes corporate governance and financial health unclear and causes the companies' value to decrease from the perspective of external investors. In order to reduce the severity of these problems, it is necessary to make transparent the corporate governance of state-controlled companies.

References

(1) ADB (2002) "Technical assistance to the Social Republic of Vietnam for capacity building for non-bank financial institutions and the capital market," TAR: VIE 31368.

(2) Bauer, P. (2004) "Determinants of Capital Structure Empirical Evidence from the Czech Republic", *Czech Journal of Economics and Finance,* Vol. 54, pp. 2004, 1-2

(3) Biger, N., Nguyen, N.V. and Hoang, N.V. (2008) "The determinants of capital structure: Evidence from Vietnam," *International Finance Review,* Vol 8, pp. 307-326.

(4) Booth, L., V. Aivazian, A. Kunt-Demirguc, and V. Maksimovic. (2001) "Capital structure in developing countries," *Journal of Finance*, Vol. 56, pp. 87-130.

(5) Delcoure, N. (2007) "The determinants of capital structure in transitional economies", *International Review of Economics and Finance,* Vol. 16, pp. 400−415

(6) Guihai, H. and M.S. Frank,. (2006) "The determinants of capital structure: Evidence from China," *The China Economic Review*, Vol. 17, No. 1, pp. 14-36

(7) Hussain, Q. and Nivorozhkin, E. (1997), "The capital structure of listed companies in Poland", *IMF Working Paper*, 97/175, pp. 1-27.

(8) Jean, J. Chen. (2004) "Determinants of capital structure of Chinese-listed companies," *Journal of Business research,* Vol. 57, No. 12, pp. 1341-1351

(9) Jensen, M.C and Meckling, W.H. (1976) "Theory of the firm: managerial behavior, agency costs and ownership structure," *Journal of Financial Economics*, Vol. 3, pp. 305-360.

(10) Lee, J.W., Lee, Y.S. and Lee, B.S. (2000) "The determination of Corporate Debt in Korea," *Asian Economic Journal*, Vol.1, No.4, pp. 333-356

(11) Modigliani, F. and Miller, M.H. (1958) "The Cost of Capital, Corporate Finance, and the Theory of Investment," *American Economic Review*, Vol.48, pp. 261-275.

(12) Modigliani, F. and Miller, M.H. (1963) "Corporate Income Taxes and the Cost of Capital- A Correction," *American Economic Review*, Vol. 53, pp. 276-298.

(13) Myers, S. C. (1977) "Determinants of Corporate Borrowing," *Journal of Financial Economics*, Vol.5, pp.147-175.

(14) Myers, S.C. and Majluf, N. (1984) "Corporate financing and Investment decisions when firms have information that investors do not have," *Journal of Financial Economics*, Vol. 13, pp. 187-221.

(15) Nguyen, Tran Dinh Khoi. (2006) "Capital structure in small and medium-sized enterprises: the case of Vietnam," *ASEAN Economic Bulletin*, Vol. 23, No.2, pp.

192-211.

(16) Rajan, R. G., Zingales, L. (1995) “What Do We Know about Capital Structure? Some Evidence from International Data,” *The Journal of Finance*, Vol. 50 (5), pp. 1421-1460.

(17) Suto, M. (2003) “Capital Structure and Investment Behavior of Malaysia Firms in the 1990s: a study of corporate governance before the crisis,” *Corporate Governance and International Review*, Vol. 11(1), pp. 25-39.

(18) Wiwattanakantang, Y. (1999) “An empirical study on the determinants of the capital structure of Thai firms,” *Pacific Basin Finance Journal,* Vol. 7, No. 3-4, pp. 371-403.

Table 2-1 Privatization of State-owned Companies in Vietnam

Regulation on equitization of State-owned companies（7/5/1996）
Object companies: State-owned companies that satisfy 3 conditions: ① Small-medium companies, ② There is no need for state to hold 100% ownership, ③ There is an efficient investment plan.
Methods of equitization: ① Equitizing state-owned captial and letting state own all of this capital along with increasing capital by issuing new equities, ②Equitizing state-owned captial and selling a part of this capital, ③ Dividing company into parts and equitizing only the part that satisfies equitizing conditions.
Regulation on equitization of State-owned companies (revised)（29/6/1998）
Object companies: State-owned companies that there is no need for state to hold 100% ownership.
Methods of equitization: ① Equitizing state-owned captial and letting state own all of this capital along with increasing capital by issuing new equities, ②Equitizing state-owned captial and selling a part of this capital, ③Equitizing state-owned captial and selling all of this capital, ④Dividing company into parts and equitizing only the part that satisfies equitizing conditions.
Regulation on equitization of State-owned companies (revised)（19/6/2002）
Object companies: No changes
Methods of equitization: ① Equitizing state-owned captial and letting state own all of this capital along with increasing capital by issuing new equities, ② Equitizing state-owned captial and selling a part of this capital, □ Equitizing state-owned captial and selling a part of this capital along with increasing capital by issuing new equities, □ Equitizing state-owned captial and selling all of this capital, □ Equitizing state-owned captial and selling all of this capital, along with increasing capital by issuing new equities.
Priority sequence of ownership: □ State (in case of remaining state ownership), □ Employees of equitized companies, □ Material suppliers (in case of companies of agriculture, forestry and fisheries), □ Outside investors (At least 30% of capital. Investors with technology, markets, capital, management skills are preceded.
Regulation on equitization of foreign-owned companies（15/4/2003）
Object companies: Foreign-owned companies that have been running at least 3 years and made profit in previous year of applying for equitizing.
Conditions of post-equitization: There is at least one foreigner among establishers whose investment is at least 30% of the total capital.
Regulation on equitization of State-owned companies (revised)（16/11/2004）
Object companies: No changes
Methods of equitization: No changes.
Priority sequence of ownership: ①State (in case of remaining state ownership), □ Employees of equitized companies,③ Strategy investors (at most 20% of capital), ④ Public sale (at least 20% of capital).
Simultaneity of equitizing and listing of state-owned companies (4/8/2005)
State-owned companies that satisfy listing conditions of Ho Chi Minh Securities Exchange or Ha Noi Securities Exchange can equitize and list at the same time.
Regulation on issuing company bonds（19/5/2006）
Object companies: joint-stock companies, state-owned companies that have become joint-stock companies or limited liability companies, foreign-owned companies.
Regulation on equitization of State-owned companies (revised)（26/6/2007）
Object companies: No changes
Methods of equitization: No changes.
Priority sequence of ownership: ①State (in case of remaining state ownership), □ Strategy investors and other investors (at least 25% of capital, at least 50% of this is sold to other investors), ③ Labor uinons of equitized companies (at most 3% of capital), ④Employees of equitized companies.

Table 2-2 Listing Conditions for the Hanoi and Ho Chi Minh Securities Exchanges

Conditions	Ha Noi Securities Exchanges	Ho Chi Minh Securities Exchanges
Minimum capital	10 billion VND	8 billion VND
Business performance	have made a profit in the year before listing (excluding privatized state-owned companies, newly established companies of infrastructure industry and high-tech industry.	have made profits in two years before listing
Voting shares	Have to be possessed by at least 100 shareholders.	At least 20% of voting shares have to be possessed by at least 100 shareholders.

Source: Vietnam Securities Law

Table 2-3 The Number, Trading Amount, and Market Value of Listed Companies

	Number of Listed Companies		Amount of Buying and Selling (million shares)		Trading Value (trillion VND)		Aggregate Market Value	
	HASE	HOSE	HASE	HOSE	HASE	HOSE	Tril. VND	%GDP
2000	0	5	0	300	0	90	na	na
2001	0	11	0	1,900	0	964	na	na
2002	0	20	0	3,500	0	959	na	na
2003	0	22	0	2,800	0	502	na	na
2004	0	28	0	7,300	0	1,971	4	0.6
2005	6	35	20	9,400	0.26	2,784	10	1.2
2006	81	106	95	53,800	3.91	35,472	221	22.7
2007	110	141	612	181,400	63.42	217,835	491	43.7
2008	168	172	153	297,700	57.12	124,576	210	17.0

Source: Homepages of Hanoi and Ho Chi Minh Securities Exchanges

Note: All are shown in year-end value. HASE means Hanoi Securities Exchanges, HOSE means Ho Chi Minh Securities Exchanges

Table 2-4 Corporate Tax on Listed Companies in Vietnam

Corporate Tax Law (17/6/2003) （1）Tax rate: 28% （2）Preference tax rate: ① Applying tax rate of 20%, 15%, 10% for the companies that are newly established in preference industries or preference areas, ② Applying tax exemption (at most 4 years) and half reduction (at most next 9 years) for the companies that are moved to preference areas, ③ Applying tax exemption (at most 4 years) and half reduction (at most next 7 years) for the increasing profit of the companies that apply new production line or new technology.
Regulation on tax preferences for listed companies (20/10/2004) ① Applying tax exemption in 2 years after listing for newly listed companies, ② If listing is not at the beginning of the year, tax exemption could be caculated from next year, ③ If Preferences of Corporate Tax Law are being applied, this preference could be applied after applying those preferences.
Nullification of Regulation on tax preferences for listed companies (8/9/2006) ① For the companies listing after 1/1/2007, preferences of above regulation are not applied, ② For the companies listing before 1/1/2007, preferences of above regulation are applied.

Source: Homepages of Ho Chi Minh Securities Exchange and Ha Noi Securities Exchange.

Table 2-5 Breakdown of Listed Companies by Industry

	Ha Noi Securities Exchanges		Ho Chi Minh Securities Exchanges		Total	
	Number of companies	Proportion (%)	Number of companies	Proportion (%)	Number of companies	Proportion (%)
Agriculture, forestry and fisheries	4	2.38	15	8.77	19	5.60
Construction	67	39.88	27	15.79	94	27.73
Manufacturing	54	32.14	68	39.77	122	35.99
Mining	8	4.76	4	2.34	12	3.54
Power	4	2.38	5	2.92	9	2.65
Service	11	6.55	7	4.09	18	5.31
Carrier	8	4.76	19	11.11	27	7.96
Finance	6	3.57	4	2.34	10	2.95
Communication	3	1.79	2	1.17	5	1.47
Real estate	1	0.60	6	3.51	7	2.06
Commerce	2	1.19	14	8.19	16	4.72
Total	168	100	172	100	340	100

Source: Homepages of Hanoi and Ho Chi Minh Securities Exchanges

Table 4-1: Breakdown of the Sample by Industry and State-control of the Company

Industry	Ha Noi Securities Exchanges	Ho Chi Minh Securities Exchanges	Total
	Number of companies（State-owned companies）	Number of companies（State-owned companies）	Number of companies（State-owned companies）
Agricultural	0 (0)	11 (0)	11 (0)
Construction	40 (20)	18 (3)	58 (23)
Manufacturing	30 (17)	46 (14)	76 (31)
Mining	2 (1)	3 (1)	5 (2)
Power	4 (4)	4 (3)	8 (7)
Service	8 (3)	4 (1)	12 (4)
Carrier	8 (7)	12 (6)	20 (13)
Communication	1 (0)	1 (0)	2 (0)
Real estate	1 (1)	5 (1)	6 (2)
Commerce	1 (0)	12 (2)	13 (2)
Total	95 (53)	116 (31)	211 (84)

Source: Homepages of Hanoi and Ho Chi Minh Securities Exchanges

Table 4-2 Comparison of State-controlled and Non-state-controlled Companies

	Ha Noi Securities Exchanges		Ho Chi Minh Securities Exchanges	
	State-owned companies	Non-state-owned companies	State-owned companies	Non-state-owned companies
Total debt ratio	0.577	0.521	0.424	0.429
Long-term debt ratio	0.116	0.102	0.117	0.076
Long-term bank loan ratio	0.070	0.072	0.073	0.048
Total assets	4321.1	2638.5	8754.7	6599.1
Fix assets ratio	0.283	0.297	0.381	0.272
Operating profit	0.109	0.132	0.154	0.124
Tobin's Q	1.653	2.042	2.476	2.131
Effective tax rate	0.118	0.121	0.093	0.133
Depreciation rate	0.045	0.045	0.052	0.031

Source: Homepages of Hanoi and Ho Chi Minh Securities Exchanges
Note: Average value from 2006 to 2008. Total assets is expressed in VND.

Table 4-3 Basic Statistics of the Main Variables

	DR	*LDR*	*LBR*	*SIZE*	*TANG*	*PROF*	*Growth*	*TAX*	*NDTS*
Mean	0.483	0.097	0.062	26.094	0.295	0.126	2.045	0.100	0.040
Median	0.500	0.031	0.000	26.047	0.254	0.110	1.580	0.097	0.033
Maximum	1.000	0.693	0.693	29.786	0.939	0.591	17.518	0.362	0.208
Minimum	0.034	0.000	0.000	22.844	0.002	0.008	0.346	0.000	0.000
Std. Dev.	0.229	0.1389	0.112	1.340	0.200	0.074	1.484	0.082	0.032
Obs.	575	575	575	575	575	575	575	575	575

Table 4-4 Correlation coefficients of explanatory variables

	SIZE	*TANG*	*PROF*	*GROWTH*	*TAX*	*NDTS*	*STATE*	*HOSE*
SIZE	1							
TANG	0.0226	1						
PROF	-0.2317	0.0306	1					
GROWTH	0.0813	-0.0243	0.4451	1				
TAX	-0.1775	-0.1660	0.1555	0.0550	1			
NDTS	-0.2814	0.4330	0.2326	-0.0336	-0.1664	1		
STATE	-0.0053	0.0945	-0.0117	-0.0488	-0.2440	0.1789	1	
HOSE	0.2981	0.0247	0.0844	0.1313	0.0517	-0.1372	-0.3059	1

Table 5-1 Estimation Results of Debt Ratios.

Variable	Total debt ratio *DR*		Long-term debt ratio LDR		Long-term bank loan ratio *LBR*		Short-term debt *SDR*	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.331	0.5073	-0.559	0.0651 **	-0.546	0.0172 **	0.224	0.6380
TAX(-1)	0.240	0.3136	0.303	0.0336 **	0.148	0.1344	-0.066	0.7782
NDTS(-1)	0.316	0.5877	0.241	0.4900	0.315	0.2012	0.178	0.7544
SIZE(-1)	0.031	0.0920 *	0.028	0.0448 **	0.021	0.0129 **	0.010	0.5911
PROF(-1)	-0.727	0.0301 **	-0.220	0.2724	0.031	0.8289	-0.569	0.0815 *
TANG(-1)	0.117	0.2880	0.246	0.0002 ***	0.153	0.0016 ***	-0.171	0.1068
GROWTH(-1)	0.008	0.4953	-0.011	0.1209	-0.010	0.0406 **	0.017	0.1400
STATE	0.593	0.2462	-0.677	0.0284 **	-0.463	0.0392 **	1.175	0.0178 **
*STATE*TAX(-1)*	-0.491	0.0398 **	-0.130	0.3613	-0.155	0.1134	-0.325	0.1674
*STATE*NDTS(-1)*	-0.916	0.1552	-0.136	0.7231	-0.140	0.5990	-0.751	0.2362
*STATE*SIZE(-1)*	-0.012	0.5228	0.027	0.0230 **	0.019	0.0239 **	-0.036	0.0562 *
*STATE*PROF(-1)*	-0.288	0.3871	0.117	0.5558	-0.073	0.6027	-0.382	0.2413
*STATE*TANG(-1)*	-0.194	0.0927 *	-0.027	0.6918	0.026	0.6029	-0.156	0.1648
*STATE*GROWTH(-1)*	-0.018	0.2547	-0.005	0.5784	0.001	0.8493	-0.014	0.3739
HOSE	-0.007	0.9897	-0.058	0.8659	0.276	0.2946	0.098	0.8571
*HOSE*TAX(-1)*	-0.214	0.3911	-0.205	0.1714	-0.048	0.6403	-0.038	0.8773
*HOSE*NDTS(-1)*	0.476	0.5358	-0.114	0.8058	-0.543	0.1046	0.389	0.6017
*HOSE*SIZE(-1)*	-0.002	0.9073	0.002	0.8718	-0.010	0.2888	-0.006	0.7481
*HOSE*PROF(-1)*	0.266	0.4705	0.023	0.9158	-0.015	0.9257	0.277	0.4392
*HOSE*TANG(-1)*	-0.070	0.5595	-0.114	0.1167	-0.041	0.4442	0.065	0.5740
*HOSE*GROWTH(-1)*	-0.012	0.3385	0.009	0.2310	0.005	0.3383	-0.019	0.1169
YD2007	0.037	0.0022 ***	0.009	0.1929	0.007	0.1738	0.028	0.0189 **
CONS	0.073	0.2455	0.039	0.3063	0.020	0.5178	0.036	0.5411
MANU	-0.037	0.5420	0.004	0.9055	-0.007	0.8220	-0.036	0.5205
MIN	-0.133	0.1790	0.026	0.6650	0.023	0.6359	-0.149	0.1072
POWE	-0.037	0.6934	0.182	0.0015 ***	-0.041	0.3690	-0.206	0.0189 **
SERV	-0.036	0.6530	0.024	0.6167	0.004	0.9284	-0.053	0.4695
CARR	-0.021	0.7753	0.080	0.0691	0.077	0.0310 **	-0.091	40.175
COMM	0.048	0.7361	-0.091	0.2994	-0.043	0.5443	0.142	0.2868
REAL	0.212	0.0261 **	0.096	0.0980 *	0.001	0.9794	0.115	0.1939
COM	0.004	0.9574	-0.005	0.9162	-0.030	0.4101	0.0100	0.8871
Adjusted R-squared	0.250		0.245		0.168		0.226	
F-statistic (Prob.)	5.026	(0.000)	4.9258	(0.000)	3.444	(0.000)	4.490	(0.000)
Obs	364		364		364		364	

Note: ***, **, * indicate significance at 1%, 5%, 10% levels.

Table 5-2 Estimation Results without the Non-debt Tax Shields Variable

Variable	Total debt ratio *DR*		Long-term debt ratio LDR		Long-term bank loan ratio *LBR*		Short-term debt *SDR*	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.411	0.3790	-0.494	0.0881 *	-0.478	0.0342 **	0.089	0.8433
TAX(-1)	0.097	0.6646	0.194	0.1637	0.030	0.7737	-0.118	0.5948
NDTS(-1)	—	—	—	—	—	—	—	—
SIZE(-1)	0.034	0.0511 *	0.020	0.0589 *	0.019	0.0237 **	0.014	0.3907
PROF(-1)	-0.526	0.0817 *	-0.090	0.6288	0.188	0.1764	-0.476	0.1104
TANG(-1)	0.149	0.1487	0.255	0.0001 ***	0.182	0.0002 ***	-0.142	0.1531
GROWTH(-1)	0.004	0.7362	-0.012	0.0825 *	-0.011	0.0326 **	0.014	0.2394
STATE	0.518	0.2838	-0.665	0.0265 **	-0.45	0.0472 **	1.087	0.0210 **
*STATE*TAX(-1)*	-0.471	0.0403 **	-0.217	0.1306	-0.259	0.0128 **	-0.217	0.3423
*STATE*NDTS(-1)*	—	—	—	—	—	—	—	—
*STATE*SIZE(-1)*	-0.010	0.5824	0.026	0.0213 **	0.019	0.0301 **	-0.033	0.0639 *
*STATE*PROF(-1)*	-0.342	0.2896	0.178	0.3724	0.00	0.9798	-0.495	0.1213
*STATE*TANG(-1)*	-0.276	0.0097 ***	-0.05	0.3862	-0.001	0.9792	-0.209	0.0449 **
*STATE*GROWTH(-1)*	-0.014	0.3556	-0.007	0.4763	-0.001	0.9139	-0.001	0.5607
HOSE	0.218	0.6845	-0.079	0.8129	0.001	0.5000	0.310	0.5461
*HOSE*TAX(-1)*	-0.081	0.7321	-0.077	0.6001	0.105	0.3288	-0.022	0.9277
*HOSE*NDTS(-1)*	—	—	—	—	—	—	—	—
*HOSE*SIZE(-1)*	-0.011	0.5995	0.003	0.8340	-0.007	0.4697	-0.014	0.4656
*HOSE*PROF(-1)*	0.135	0.6929	-0.130	0.5388	-0.247	0.1182	0.248	0.4587
*HOSE*TANG(-1)*	-0.061	0.5903	-0.100	0.1556	-0.050	0.3540	0.057	0.6017
*HOSE*GROWTH(-1)*	-0.009	0.4674	0.011	0.1477	0.007	0.1993	-0.017	0.1595
YD2007	0.035	0.0029 ***	0.007	0.3385	0.004	0.4874	0.029	0.0171 **
CONS	0.085	0.1727	0.040	0.2944	0.015	0.6252	0.046	0.4307
MANU	-0.026	0.6589	0.004	0.9026	-0.012	0.6888	-0.027	0.6298
MIN	-0.123	0.2118	0.025	0.6851	0.019	0.7071	-0.135	0.1427
POWE	-0.014	0.8785	0.185	0.0012 ***	-0.052	0.2563	-0.19	0.0271 **
SERV	-0.021	0.7862	0.024	0.6258	-0.005	0.8937	-0.040	0.5828
CARR	-0.007	0.9209	0.076	0.0812 *	0.062	0.0821 *	-0.075	0.2491
COMM	0.080	0.5711	-0.081	0.3560	-0.042	0.5595	0.163	0.2175
REAL	0.226	0.0170 **	0.104	0.0759 *	0.010	0.8328	0.123	0.1640
COM	0.002	0.9796	-0.006	0.9010	-0.030	0.4236	0.010	0.8822
Adjusted R-squared	0.246		0.244		0.180		0.226	
F-statistic (Prob.)	5.406	(0.000)	5.359	(0.000)	3.966	(0.000)	4.943	(0.000)
Obs	366		366		366		366	

Note: ***, **, * indicate significance at 1%, 5%, 10% levels.

Table 5-3 Estimation Results without Tobin's Q

Variable	Total debt ratio *DR*		Long-term debt ratio LDR		Long-term bank loan ratio *LBR*		Short-term debt *SDR*	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.448	0.371	-0.523	0.077 *	-0.504	0.027 **	0.081	0.081
TAX(-1)	0.237	0.324	0.271	0.056 *	0.116	0.246	-0.046	-0.046
NDTS(-1)	0.290	0.623	0.287	0.411	0.353	0.156	0.107	0.107
SIZE(-1)	0.036	0.050 **	0.021	0.057 *	0.020	0.021 **	0.016	0.016
PROF(-1)	-0.634	0.030 **	-0.358	0.040 **	-0.122	0.331	-0.371	-0.371
TANG(-1)	0.114	0.305	0.254	0.000 ***	0.165	0.001 ***	-0.184	-0.184 *
GROWTH(-1)	—	—	—	—		—	—	—
STATE	0.750	0.137	-0.669	0.026 **	-0.517	0.020 **	1.302	0.007 ***
*STATE*TAX(-1)*	-0.496	0.039 **	-0.093	0.511	-0.120	0.221	-0.349	0.141
*STATE*NDTS(-1)*	-0.889	0.169	-0.136	0.722	-0.175	0.514	-0.698	0.273
*STATE*SIZE(-1)*	-0.020	0.288	0.025	0.024 **	0.021	0.013 **	-0.042	0.021 **
*STATE*PROF(-1)*	-0.303	0.274	0.194	0.238	0.081	0.482	-0.462	0.090 *
*STATE*TANG(-1)*	-0.189	0.106	-0.033	0.635	0.021	0.673	-0.149	0.1899
*STATE*GROWTH(-1)*	—	—	—	—	—	—	—	—
HOSE	0.173	0.761	-0.085	0.802	0.258	0.322	0.303	0.303
*HOSE*TAX(-1)*	-0.199	0.428	-0.173	0.245	-0.033	0.756	-0.056	-0.056
*HOSE*NDTS(-1)*	0.543	0.485	-0.181	0.696	-0.572	0.091	0.495	0.495
*HOSE*SIZE(-1)*	-0.010	0.634	0.004	0.780	-0.009	0.327	-0.015	-0.015
*HOSE*PROF(-1)*	0.101	0.769	0.108	0.596	0.020	0.892	0.038	0.038
*HOSE*TANG(-1)*	-0.067	0.579	-0.122	0.092 *	-0.049	0.356	0.075	0.075
*HOSE*GROWTH(-1)*	—	—	—	—	—	—	—	—
YD2007	0.039	0.001 ***	0.014	0.0440 **	0.010	0.024 **	0.027	0.021 **
CONS	0.072	0.263	0.041	0.296	0.020	0.528	0.035	0.558
MANU	-0.042	0.493	0.002	0.956	-0.009	0.762	-0.038	0.498
MIN	-0.128	0.204	0.015	0.809	0.011	0.820	-0.131	0.155
POWE	-0.033	0.728	0.186	0.001 ***	-0.041	0.373	-0.203	0.022
SERV	-0.043	0.596	0.018	0.717	-0.002	0.959	-0.054	0.467
CARR	-0.021	0.779	0.082	0.064 *	0.077	0.030 **	-0.090	0.183
COMM	0.040	0.782	-0.093	0.293	-0.049	0.485	0.137	0.308
REAL	0.210	0.031	0.093	0.111	-0.000	0.998	0.116	0.196
COM	0.004	0.960	-0.005	0.919	-0.027	0.458	0.010	0.882
Adjusted R-squared	0.249		0.242		0.167		0.225	
F-statistic (Prob.)	5.468	(0.000)	5.296	(0.000)	3.700	(0.000)	4.917	(0.000)
Obs	364		364		364		36	

Note: ***, **, * indicate significance at 1%, 5%, 10% levels.

Appendix

Table A1: Banking Reform and Liberalization of Interest Rates in Vietnam

Period	
Before 1988 (Before "Doi Moi")	Monobank system: There is no separation of the functions of financial institutions. Regulation on interest rate is independent of foreign interest rate. Nominal interest rate is lower than inflation rate, thus real interest rate is minus.
26/3/1988	Separation of the functions of the state bank and commercial banks. According to 53/HDBT Order.
1989 ～ 5/1992	Fixed interest rate regime. Interest rate is adjusted in relation with the fluctuation of price index. Interest rates of foreign currencies are those of world market.
6/1992 ～1995	Limited interest rate regime State Bank of Vietnam fixes the lower limit of deposit interest rate and the ceiling of lending interest rate. Commercial banks decide their interest rates basing on those interest rates.
1996 ～ 7/2000	Ceiling interest rate regime Deposit interest rate is liberated, ceiling of lending interest rate is fixed.
8/2000 ～ 5/2002	Basic interest rate and Flexible interest rate regime Basic interest rate and allowed movement rate are announced monthly. In neccesity, State Bank will announce proper adjustment. Commercial banks negotiate with borrowers and decide lending interest rate basing on these rates.
5/2001 ～ Present	Liberalization of interest rates of foreign currencies Interest rates of foreign currencies are decided basing on their interest rates on world markets and their demand and supply in domestic market.
6/2002 ～ Present	Expansion of liberalization of deposit interest rate and lending interest rate. Liberating deposit interest rate and lending interest rate of VND. Setting ceiling for deposit interest rate of USD of companies, but liberating deposit interest rate of USD of individuals.

Source: Homepage of State Bank