THE IMPACT OF FINANCIAL LEVERAGE ON FIRM PERFORMANCE: A CASE OF CONSTRUCTION FIRMS IN VIETNAM

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Abstract

The debt situation of Vietnam construction sector is analyzed by the study. Construction firms in Vietnam are very familiar with using debt. They diversify their capital structure by 7:3 or 70% of leverage and 30% of owners' equity.In spite of the high financial leverage rate, the increase in sales revenue and the ability to liquidate current debts, the profitability, return on equity rate and book value decreased considerably. With the sample of 45 listed construction companies in Vietnam, this paper analyzes the effects of financial leverage on financial performance of construction industry in Vietnam from 2007 to 2011. GLS estimation has been carried out to analyze the relationship between financial leverage and financial performance in Vietnam construction industry during five years from 2007 to 2011. From the results, the financial leverage is positively correlated to return on equity, earnings per share, and negatively related to return on asset and quick ratio..

Key words: financial leverage, financial performance, construction industry

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1. Introduction

Since the work of Modigliani and Miller (1958), there is a sizable body of research on the role of corporate structure, especially financial debt, on firm performance. It is widely acknowledged that the decisions of firm's managers on capital structure, defined as the mix of equity and debt in finance (Brealey *et al.*2008), play a vital role in helping firm to operate smoothly (Abor, 2005). However, the effect of financial leverage on corporate performance has been inconclusive in the corporate finance literature. Existing empirical studies have reported ambiguous results on this issue. Some scholars report negative correlations between leverage and corporate performance, such as Jensen and Meckling (1976), Myers (1977), Kinsman and Newman (1999), Majumdar and Chhibber (1999). Meanwhile, others, including Spence (1985), Jensen (1986), Lubatkin and Chatterjee (1994), Nickell et al. (1997), Nickell and Nicolitsas (1999) and Weill (2007) argue a positive and significant relationship. This signals that there might not be an universal relationship, rather, it should be a mixed result(Harris and Raviv, 1991) depending on many factors, such as research methods, the dynamics of industries, even the differences in management culture varying across countries (Weill, 2008).

Vietnamese construction firms have made significant progress since Government decided

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to transition economy several decades ago. In the past, most construction firms in Vietnam were in the system of budget subsidies. Firms were owned by State and there is a zero-leverage level. However, since various changes in business environment have made numerous changes in structure of the domestic economy such as the prevalence of private companies or foreign investment, Vietnamese firms have been expected to operate independently. Hence, being lack of capital during operation leads to the demand of using debt. Firms have realized that debt is essential for improving their performance and maximizing the value of firms and as well as owners. As the result, Vietnamese firms have accepted the using of financial leverage and accessed to this source. The capital structure of Vietnamese firms has been changed gradually. The following figure presents the proportion of debt in capital of four industries in Vietnam from 2000 to 2003.
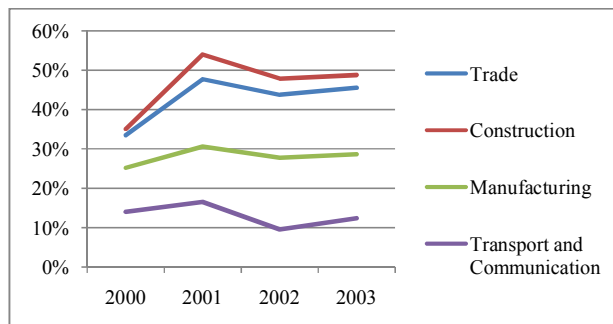

Figure 1. The proportion of debt in capital by industries in Vietnam

Source: World Bank database 2000-2003

In early years of 21st century, capital structure of construction firms consisted of approximately 40 per cent of debt and 60 per cent of owners' equity. This sector revealed the highest level of financial leverage in comparison with the other three sectors which are trade, manufacturing,

and transport and communication (Figure 1). In general, these sectors tended to have the upward trend in using debt for financial performance. In 2012, construction sector was ranked at the top ten Vietnam industries which were financed by the highest level of debt (BIDV Securities Company, 2013).The debt- to- equity ratio of construction sector is the second highest one,at 4.5. Until 2012, debt accounted for a hefty 82 per cent averagely in capital structure of Vietnamese construction firm. In comparison with the last decades, capital structure comprised around 40 per cent of debt. This fact poses a question, also creat a gap for research, that is what is the relationship between financial leverage and financial performance of construction firms in Vietnam?

Owing to the above conflicts of empirical results, the purpose of this paper is to shed more light on the relationship between financial leverage and firm performance, espically in construction industry in Vietnamese research context. Via the analysis, the paper is also tooffer some suggestions for construction firms to utilise the tool of financial leverage in order to financially perform well in the future.

2. Theoretical framework

2.1. Financial leverage

In addition to available capital, a company needs to mobilize external capital sources in order to ensure smooth processes, capacity expansion, and investment diversification. These external capital sources are called liabilities. Myers (1984), Myers and Majluf (1984), and Miller and Rock (1984) state two choices for firms when increasing borrowings, which are equitizing and financing by debts. At the first glance, most firms prefer debts

to equitizing since going to equity market costs much more than the other one (Myers, 1984). Hence, financial leverage is a tool for companies to use debts or other sources with interest expenses to increase returns.

Pecking order theory, introduced by Myers (1984), states that firms tent to use their retained earnings (internal sources) before generating external sources. When they face with the shortage of retained earnings, they will look for debts whereas equity is the last choice

Based on book value, the financial leverage of a business can be defined as debt to equity ratio (D/E ratio). By this ratio, investors can understand that how a company faces with debt and its payment obligations. There are various decisions for investors as well as owners when analysing this ratio. For example, if the shareholders stop contributing equity to the company, they can highly leverage to maintain the operation of the company. Or, many companies conducted share repurchase by using debt, thereby gaining more retained earnings. This ratio is calculated as (Brealey *et al.,* 2008):

$$\text{Debt-to- equity} = \frac{\text{Total Debt}}{\text{Total Equity}} \qquad (2.2)$$

D/E ratio indicates an overview of investors about a company's financial strength and structure. Normally, if this ratio is greater than 1, a company's asset is mostly financed by debts, and vice versa, a company's asset is funded primarily by owners' equity. Generally, a high D/E ratio presents that enough cash is not able to be generated to liquidate its liabilities. Otherwise, a low ratio shows that the benefits which financial leverage might bring are not fully utilized.

2.2. *Financial performance*

For all companies, the highest target is earning money or gaining profit. In order to earn profit, managers have to set many objectives and goals which are accomplished efficiently and effectively. All of these efforts to approach those objectives and goals to reach the final point of profit can be seen as performance. In practices, there are various definitions about "performance". Amstrong (2007) opines that performance includes both aspects of behaviors and results; the performer with an appropriate behavior will alter performance from ideology to action. Hence, it is seemed that performance is an indicator to evaluate situations and successes of firms.

Financial performance can be seen as accomplishments and achievements of a firm in financial activities. To evaluate financial health of a firm over a period of time, information on financial statements can provide the firm's performance on productivity, profitability, liquidity, working capital performance, solvency, repayment capacity, financial efficiency, etc. Each of the above criteria indicates various backgrounds of a firm's financial performance as well as its financial position. For examples, *liquidity* depicts the ability of a firm to accomplish its financial liabilities when they are overdue including principal and expected return on debt; *solvency* involves the payment of all debts after selling all assets of a firms; *profitability* shows the net income of the firm during fiscal year. Thus, the financial performance determines a picture of a firm's financial situations which can be strong or weak in term of profit and loss.

Each indicator of financial performance has different measures to explain various

perspective of the indicator. To better reflect financial performance of firms, in this paper, a number of indicators are used. For instances, quick ratio is use to measure liquidity of a firm; the firm's profitability measured by return on assets (ROA) and return on equity (ROE), earning per share (EPS) are employed to indicate how well the firm's managers maximising shareholder wealth.

2.3. The effects of financial leverage on financial performance

Ross (1977) proves that the quality of a firm can be reflected by debt. Companies with good quality tend to be familiar with issuing debt. In other words, firms which acquire more debt are able to have better performance and more profitability. Hence, Ross points out the positive link between financial leverage and financial performance. Ferri and Jones (1979) research the correlation between financial leverage and a firm's size. The paper supports a general view that larger firms are seemed to take more advantages since larger firms can be easily received preferential capital markets, higher credit ratings for issuing debt, and lower interest rates. It also unveils that a company might improve the earnings after taxes by using leverage due to lower interest rates; then, the higher profit may positively affect EPS after taxes or dividend payout ratios which contribute partly to firm's financial performance.

According to Jensen (1986), since managers who have moral hazard behaviors are able to act under their own interests and minimize the firm's value, debt is used in order to increase more pressure on managers to perform well and increase the firm's income. In other words, financial leverage is an appropriate tool to reduce the agency costs and to shoot up value of firms since managers are put under pressure to generate interests for shareholders (Jensen 1986) and avoid threat of bankruptcy or liquidation (Grossman and Hart, 1982). Jensen and Meckling (1976), Harris and Raviv (1991), and Myers (2001) show the fact is that capital structure of firms has changed with the trend of increasing financial leverage. High level of debt also regulates the investment decisions of shareholders and managers. Additionally, there are also conflicts between creditors and shareholders. Jensen and Meckling (1976) and Myers (1977) define that debtholders or creditors are risk averse. If an investment in a project is successful and higher earnings than the debt value, the profit belongs to shareholders. Otherwise, if it fails, both shareholders and creditors have to suffer loss. Thus, agency costs between these two parties may cause the negative link between financial leverage and financial performance.

2.4. A brief of empirical results from previous papers

There is no generally agreed relationship between financial leverage and corporate performance, and the mixed results might come from the differences in research methods, the way authors measuring performance, and the dynamics of industry and the different nature across countries. Theories explaining the relationship can be categorized in three classifications. The first oneto refer to mainly according to information asymmetries and signalling. Debt is a conceivable signal of the quality of firms and good quality firms are more tending to issue debt (Ross 1977). Therefore, this theory suggests that the highest performing firms, those having the more profitable investments, acquire more debt: Consequently, a positive relationship should exist between financial leverage and corporate performance.

The second one to note that debt financing increases the burden onmanagers to act, as a result of it lower the moral hazard behavior by decreasing free cash flow at the disposal of managers (Jensen 1986). Accordingly, the firms withthe higher leverage may better their performance (i.e., a positive relationship should occur between financial leverage and corporate performance). The third one to watch out for a higher leverage implies higher agency costs owing to the disparate interests between shareholders and debt holders which enhance the total cost of the company, so that leverage may be negatively linked to performance (Jensen and Meckling 1976) (Myers 1977). Therefore, previous documents provide contrary contentions on the relationship between financial leverage and corporate performance.

There are various empirical papers which have been conducted to analyze the relevance between financial leverage and financial performance. The different results are pointed out due to different measures of financial performance. Majumdar and Chhibber (1999) collect a number of Indian companies and concluded that there is a negative relationship between financial leverage and financial performance by choosing the measurement of profitability as financial performance. Furthermore, Kinsman and Newman (1999), by a sample of US firms, find that there is a negative link between financial leverage and corporate performance measured by firm value and cash flow.The negative relationship exists between efficiency of financial performance and leverage is found by Margaritis and Psillaki (2007). They emphasize that the higher level of leverage leads to the decrease in the financial performance.

Nevertheless, there are many authors who have the reverse argument on the correlation between financial leverage and firm's performance. Haim and Marshall (1988) opine that when a firm is financed by debt, the ownership among shareholders and bondholders is not diluted. In fact, by using debt, a firm becomes more adaptable to unpredicted circumstances. Moreover, they conclude that debt can exaggerate the retained earnings to firm's owners if return on assets is higher than the cost of debt. Hence, the more debt is financed, the higher return on equity a firm can earn. On the other hand, if a firm faces with a higher cost of debt than return on assets, earnings per share will be diminished. Lasher (2003) strongly support that there is a rise in shareholder returns when increasing the debt- to- equity ratio. However, Lasher (2003) believes that earnings per share positively correlates to financial leverage.

Jensen (1986) argues that if a company uses low levels of financial leverage, it will lead to limited and unsustainable cash flows; hence, investment opportunities as well as level of diversification will be decreased. However, Gibbs (1993) presents that investment opportunity has no correlation with financial leverage. Since managers always want to avoid risks, they might choose to invest earnings after taxes in projects. Therefore, leverage is able to be reduced. Additionally, Jensen (1989) implies that a company financing high level of debts might cope with difficulties to make payment in comparison with those at low debt levels.

The studies of Harris and Raviv (1991) and Titman and Wessels (1988) are opposed to each other. Harris and Raviv (1991, p. 334) state that "leverage increases with fixed assets, non-debt tax shields, growth opportunities, and firm size and decreases with volatility, profitability, and uniqueness of the product", which is supported by Fama and French

(2002). However, Titman and Wessels (1988, p. 17) argue that "results do not provide support for an effect on debt ratios arising from non-debt tax shields, volatility, collateral value, or future growth". Meanwhile, Wijst and Thurik (1993), Rajamand Zingales (1995), Chittenden *et al*. (1996),and Michaelas *et al*. (1999)argues that it should be a negative relationship. Similarly, almost studies show a negative relationship among leverage and profitability such as. According to Mohapatra (1999), he exemplifies the negative relationship between financial leverage and profitability since a profitable firm has abundant sources of finance which are considered as internal funds; the firm has more chances to utilize its internal funds in case it needs cash for operation. Hence, the firm no longer depends on the external sources of finance, particularly financial leverage. Some other empirical results are presented on Table 1 as following.

Table 1- Summary of empirical studies

Authors	Data collection	Results	
		The negative relation between:	The positive relation between:
Michaelas *et al*. (1999)	Lotus One-Source Database of UK small firms	debt and profitability	(i)non-debt tax shield and long-term debt (ii) firm growth and debt (iii) asset structure and debt
Esperanca *et al*. (2003)	995 Portuguese small manufacturing firms	leverage and profitability	Leverage and firm size, asset composition, and firm growth
Huang and Song (2006)	More than 1000 Chinese listed companies	leverage and profitability	Leverage and firm size, non-debt tax shields and fixed assets
Sayılgan *et al*.(2006)	123 Turkish manufacturing firms from 1993-2002	Leverage ratio and profitability and non-tax debt shield.	Leverage ratio and firm size and firm growth
Eldomiaty (2007)	99 firms from 14 non-financial industries		Firm growth and debt
Gill *et al*. (2009)	158 American service firms	Leverage and collateralized assets and firm's profitability.	
Gill and Mathur (2011)	166 Canadian firms listed from 2008-2010	Financial leverage and collateralized assets, effective tax rate, firm performance, and firm growth.	Financial leverage and firm size

Source: author's compilation

In general, there are various theorem and empirical results which have been conducted to analyze the relationship between financial leverage and financial performance. Some results are still controversial while some are strongly supported.

3. Data collection and research methodology

Sample selection and data sources

The data is collected from financial statements of listed construction companies in Vietnam securities market, including HNX and HOSE. These audited annual financial statements were published from 2007 to 2011. By obtaining from State Securities Commission website (http://www.ssc.gov.vn/) and http://cafef.vn/, there are 45 quoted construction companies in both HNX and HOSE chosen as the sample of this study. All the annual reports are downloaded on these two above websites. Furthermore, this data is processed, tested, and analyzed by using GLS technique to test the hypothesis. In order to run GLS regression, the data is defined as panel data which observations are at 5-year-period and consist 45 different companies.

Hypothesis and Research model

By using the chosen variables to analyze the relationship between financial leverage and financial performance, the hypothesis for the collected observations under the above assumptions is that:

H_1: *Financial leverage has a positive impact on financial performance of construction industry in Vietnam*

From the hypothesis, the expected multiple regression model is:

Performance = $\alpha + \beta_1 D/E_i + \beta_5 LogSales_i + \varepsilon_i$

In which, the dependant variable of performance can be measured by several ways:

Return on equity (ROE): It represents the net income over a dollar of shareholders' equity. According to **Modigliani and Miller (1958)**'s positions 2 as well as empirical results, return on equity is related to firm's financial leverage. **Modigliani and Miller (1958)**'s position 2 states that when a firm increases the level of debt, the higher level of expected return on equity is. It clearly shows the positive impact on financial leverage. Addition to the **Modigliani and Miller (1958)**'s proposition 2, the empirical results of War and Price (2006), Lasher (2003), and Haim and Marshall (1988) also suggest shareholder return is expected to shoot up when increasing the degree of borrowings.

Return on assets (ROA): Return on assets is considered as a proxy of weighted average cost of capital. As **Modigliani and Miller (1958)**'s position 2 and traditionalists' opinions show, return on asset decreases as firm increases debt- to- equity ratio until reaching the optimal point. Hence, it is supposed to be a negative impact on debt. The higher level of debt is, the lower return on assets rate is.

Earnings per share after interest and taxes (EPS): This indicator represents the profitability of the company. After deducting all expenses and taxes, a firm divides the earnings after taxes by the number of shares outstanding to calculate earnings per share. Many authors such as Ahmed and Khababa (1999) and Al-Malkawi (2007) opine that EPS is a determinant of financial performance. Since earnings per share is a proxy of profitability, many papers prove that profitability and financial leverage have a negative relationship such as Titman and Wesels (1988), Rajan and Zingales (1995), Van der Wijst and Thurik (1993), Chittenden et al. (1996), Michaelas et al. (1999), and Ooi (1999). Furthermore,

Myers (1984) and Titman and Wessels (1988) consider that these firms have enough internal funds to finance the operation, external sources are not necessary. In short, it should be a negative relationship between financial and profitability (i.e. earnings per share)

Quick ratio (QR): This measurement is defined as (current assets – inventory)/current liabilities. This ratio determines the liquidation of a firm when using debt. Kinsman and Newman (1999) recommend that cash flows within the firm and the financial leverage are negative related. When the firm increases the level of debt, cash flow is not guaranteed to be abundant to operate which in turn affects the liquidation of the firm. Hence, it is assumed that borrowings have a negative impact on quick ratio.

Dependant variable (Debt- to- equity ratio (D/E)): This indicator shows the relevance between a firm's debt and equity. Although this ratio is calculated by the book value, many authors have taken it as a variable to analyze the impact of debt on a firm's financial performance. Since Myers (1977) opines that debts are supported more by assets or owners' equity, debt- to- equity ratio is more preferable and widely used.

*Control variable (The natural logarithm of sales (LogSales):*This indicator is considered as the representation of firm size. Normally, a firm's scale is large enough to generate high sales revenue if it operates effectively. Additionally, the natural logarithm of sales indicates the growth rate of sales during the given period. Hence, it provides information about the capacity of the firm. Normally, larger firms tend to diversify assets and afford more the costs of financial shock (Rajan and Zingales, 1995). Rajan and Zingales (1995) also prove the positive impact of leverage on natural logarithm of sales.

4. Findings and analysis

This part comprises three main sections which present entirely the empirical findings of this paper. The first section describes data statistic to estimate the general picture of using financial leverage of construction firms in Vietnam. The following section presents tests using for the model in order to assure that four assumptions are applied. Finally, the empirical results and explanation are presented by running the multiple regression estimation.

Descriptive statistics

The following table presents the statistic of construction sector in Vietnam during five years from 2007 to 2011:

Table 4: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
D/E ratio	2.347	1.867	.00023	9.845
Return on asset	0.061	0.058	-0.044	0.453
Return on equity	0.166	0.128	-0.315	0.950
Earnings per share	4,012.675	3,917.349	-3,869	25,357
Quick ratio	1.042	1.291	-1.536	10.840
Logarithm of Sales	11.412	0.734	7.62	13.03

Source: SPSS outputs

The above table shows that all construction firms in Vietnam have used debt to run business. In average, debt-to-equity ratio of 2.347 indicates that debt makes up a sizeable 70 per cent of the capital structure. Some companies can borrow money from external sources with the amount up to nearly ten times higher than equity. However, the percentage of return on equity is just around seventeen per cent. While some others may get a hefty 90 per cent return on equity, some operate ineffectively and suffer loss. The minimum value is -0.315 which shows that some companies cope with the loss value is estimated at 31.5 per cent of the total value of owners' equity. Generally, Vietnamese construction firms use debt ineffectively since with around 60 per cent of debt in capital structure, earnings for owners' equity is only 17%, a low rate. We have return on asset equal 0.061 and D/E is 2,347 times, which mean in 1000 VND in net income, 42.8 will generated from debt and 18.8 will generated by equity. Furthermore, earnings per share are VND 4,000 per year in average but there are some firms which cope with annual loss of around VND 3,000 per share in comparison with others which can get more than VND 25,000 /share/ year. It shows that most construction firms in Vietnam can earn profit.. In order to adapt to the impressive increase, the capacity or scale of these firms has also expanded. A modest eleven per cent is the annual growth rate of sales revenue. Although there is an increase in sales revenues, the return on equity is still low. It means that the rise in costs leads to the decrease in net income of these firms which causes the low return on equity rate. This fact raises the assumption that the cost management of Vietnamese construction firm is weak and ineffective. Next indicator is quick ratio average which is around 1. This is a very

good point since these firms have quick asset just equal current assets, which means they can pay off its current liabilities without selling any long-term assets. Overall, these firms have make balance between their short-term assets and long-term assets to make profit in safe condition.Last but not least, average book value of these firms' share is near VND 11,000 while the highest net asset value per share is VND 56,000.

Table 5: Correlation matrix

	ROA	ROE	EPS	Quick ratio	D/E
ROA	1				
ROE	0.836				
EPS	0.1674	0.2391	1		
Quick ratio	0.0322	-0.0406	0.0238	1	
D/E	-0.3908	-0.0045	0.0235	-0.20	

Source: SPSS outputs

The above table shows the degree of inter-correlation of variables including dependent and independent variables. Return on assets and return on equity are correlated strongly and positively at 83.61% The positive correlation between return on assets and return on equity is expected since total asset is equal to the sum of total liabilities and shareholders' equity on the balance sheet. The left- hand side and the right- hand side of the balance sheet are supposed to be equal in any circumstances. Hence, this formula shows the strong relationship between asset and equity which reflects these firms's use of financial leverage more than debt. When testing the correlation, the variables which involve in asset and equity are expected to relate with each others. However, ROE and EPS are just possible positive when they have r just equal 0,2391, which means only 5.72% of EPS can be predicted from ROE. It maybe caused by the size of share outstanding.

Assumption tests

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity shows that chi2(1) = 8.41, p = 0.0037, showing signal of heteroskedasticity. This conclusion is supported via White test, with chi2(27) = 138.22, p = 0.0000. Wooldridge test for autocorrelation in panel data show that F(1, 44) = 11.995, p = 0.0012, indicating an autocorrelation and heteroskadescity problem within the dataset. We will use robust option (panels(heteroskedastic) and corr(ar1)) to correct these violation. In addition, lag 1 year for the dependant variable of D/E is used to control for simultaneity (Bansah et al., 2007).

Empirical results

After all the tests, in order to get the mostaccurate typical regression estimation for the paper's hypothesis, generalised leasted square (gls) with robust standard errors are used for reducing most errors:

Table 5- Multiple regression estimation (Robust standard errors)

Variable	Model 1 ROA	Model 2 ROE	Model 3 EPS	Model 4 Quickratio
Lag1D/E	-.0013 (-1.06)	0.073 (2.97)***	0.2651 (3.89)***	-0.0517 (-4.04)***
Logsale	.0071 (1.84)	0.0244 (3.09)***	0.3183 (1.73)*	-0.3158 (-4.34)***
Wald chi2 (2)	4.05	19.08	19.22	41.36
P value	0.1319	0.000	0.000	0.000

Note:

- *** and * implies significance at 1% and 10% of confidence levels respectively

- Dependant variables: ROA, ROE, EPS, and Quickratio

- Constants are included but not reported in this table

Source: SPSS outputs

From Table 5, there are some noticeable results:

- Debt is negatively and insignificantly related to return on assets

This finding is consonant with the opinion of traditionalists in comparison with Modigliani and Miller (1958)'s propositions and Haim and Marshall (1988). When using the higher level of debt, the managers can utilize more effectively the external sources rather than the real assets in order to generate earnings since firms which are financed by debt have to suffer the cost of debt as well as the cost of capital. Particularly, most Vietnamese construction firms use the level of financial leverage which is approximately two times higher than owners' equity; thus, the managers have to ensure that they, firstly, think of generating return from the debt; then, from the companies' assets. In general, in 1,000 VND as net income, firm can generated 42.8 as return from debt and 18.8 as return from other assets.

- Financial leverage is positively and significantly related to ROE.

This indicates that firms which finance more debt can expect the higher return on owners' equity. This result strengthens the Modigliani and Miller (1958)'s proposition 2 as well as the result of Haim and Marshall (1988)and Lasher (2003). Normally, a firm decides to increase borrowings for its performance in order to maximize profitability which can earn higher income for shareholders. Hence, financial leverage is expected to increase return on owners' equity.

- Financial leverage maintains the positively correlation with EPS.

Since earnings per share after taxes is a proxy of profitability, this result shows the positive relationship between financial leverage and profitability. This empirical result is similar

to the suggestion of Lasher (2003) and contradicts to the finding of many authors such as Haim and Marshall (1988), Van der Wijst and Thurik (1993), Rajan and Zingales (1995), etc. According to Mohapatra (1999), the profitable firms tend to consider its retained earnings as the first priority before seeking out to borrowings from external funds. However, the result of the model is opposed.

In order to explain this situation, we need to understand how construction firms can gain profit. The fact is that, when the Government issued many policies to regulate and constrain the real- estate bubble in 2007 and 2008, the construction sector has faces with significant difficulties. Demand for construction has reduced dramatically, the price index of construction materials and equipment has increased together with the rise in inflation, financial crisis of the general economy, etc. Construction firms have had to expand their business activities in order to generate enough income to maintain their operation. Since a number of construction projects have fall impressively, they have shifted to other financial services such as consultancy and investment or utilized the dividend gained from investment in the past. Hence, this profitability does not come from the original business line and become unstable in operation. Although they have profit, they still need to borrow more. This fact is opposed to results of Myers (1984) and Titman and Wessels (1988) which indicate that profitable companies prefer their internal sources to external sources.

The second question is that why construction firms need the leverage sources when they are profitable. When securities, gold, real- estate, and foreign exchanges markets fall down, they suffer losses and cannot withdraw due to the widespread investment and the inappropriate capital allocation. Hence, these firms still earn

profit; however, they mostly maintain their construction and other financial activities based on debt.

- *Financial leverage negatively influences on quick ratio.*

This finding is consistent to Jensen (1989). According to Jensen (1989), a firm which generates higher level of debt is unable to make current payments. It implies that the more debt is generated, the lower liquidation ability is. For Vietnamese construction sector, quick ratio is not significant related to debt. In 2011, Vietnamese construction firms have a sufficient quick ratio at 1 which means they have enough current assets to cover its current liabilities and till take the advantages of long-term assets. Compare to previous years, debt is financed much more larger..

5. Conclusions and commendation

The debt situation of Vietnam construction sector is analyzed by the study. Construction firms in Vietnam are very familiar with using debt. They diversify their capital structure by 7:3 or 70% of leverage and 30% of owners' equity.In spite of the high financial leverage rate, the increase in sales revenue and the ability to liquidate current debts, the profitability, return on equity rate and book value decreased considerably. This result is seen more clearly in 2011 when the perspective of construction industry was very gloomy.

GLS estimation has been carried out to analyze the relationship between financial leverage and financial performance in Vietnam construction industry during five years from 2007 to 2011. From the results, the financial leverage is positively correlated to return on equity, earnings per share, and negatively related to return on asset and quick ratio. Earnings per share is proxies of profitability and it was expected to be negative relationship. The

situation of Vietnamese construction firms explains this reverse result. Generally, it can be seen that when the degree of financial leverage increases, the financial performance of Vietnamese construction firms raises up. This finding is consistent to other studies in literature review. This result is reflected clearly in 2007 and 2008 when there was the real- estate bubble together with the abundant capital of these firms.

*Recommendation:*The findings of this paper give a conclusion about the inefficiency in using financial leverage of construction firms in Vietnam. The empirical results open the assumption that the construction firms in Vietnam have troubles in cost management. Since costs for operating construction firms are very high, wise cost management is necessary. They should reconsider about the cost and capital allocation. For firms with high level of debt, costs need constraining in order to ensure the ability to liquidate debts. Furthermore, Vietnamese construction firms faces with spread investment. In 2007 and 2008, addition to main business lines, these firms invested in other financial tools such as securities, real- estate, gold, and foreign exchanges. Spread investment have made these firms fall into crisis. Since Government implemented policies to regulate and constrain securities, real- estate, gold, and foreign exchanges market, these firms have been affected significantly because huge amount of capital has been invested in these markets.

That is reason why construction firms have coped with crisis for current years.

Limitations: The study cannot avoid the following limitations. Firstly, construction industry consists more than two thousand companies while the sample observations are limited at 45 companies. Moreover, these companies are listed on Hanoi Stock Exchange and Hochiminh Stock Exchange while other markets have not been researched such as over- the- counter (OTC) market. The limited data may not reflect the whole picture of the industry. Secondly, data is collected based on book value. Hence, the results might not satisfy people who rely on market value. Furthermore, market value reflects the situation more precisely and immediately while book value does not. Finally, the variables used in this study are just seven including debt- to- equity ratio, return on equity, return on asset, earnings per share, quick ratio, natural logarithm of sales. These variables are main indicators of financial leverage and financial performance but they do not represent for entire prospects of financial leverage and financial performance.

*Future research:*Because there are many determinants which measure financial leverage and performance, adding variables is necessary for future studies. Some suggested indicators of financial leverage are debt- to- capital ratio, financing debt to market value. Some other variables should be controled arcorporate taxesand interest rate.❑

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