Title paper: CAPITAL STRUCTURE CHOICE IN VIETNAM: EVIDENCE FROM THE CONSTRUCTION INDUSTRY

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ABSTRACT

There has been a huge amount of intense debate about capital structure which is considered as scholarly attention in the financial management arena over the years. As financial conditions of most companies in the construction industry are highly sensitive to the economic cycle, making a decision to finance their operation by whether external or internal source is absolutely vital. In this article, I have examined the effects of the characteristics of 74 Vietnam listed construction companies on their capital structure in 2015. Five factors, validated by many theories from the literature of finance, are identified and analyzed to find out reasonable results. The findings of the study show a negative relationship between profitability and the capital structure and a positive relationship between firm size, firm growth and the capital structure with significant relations. The other factors, including tangibility and liquidity receive no support. These findings help managers of construction companies recognize the importance and the influences of profitability, firm size and firm growth on making a right decision on the capital structure.

Key words: capital structure, construction industry, leverage

1. INTRODUCTION

Construction industry of Vietnam has been developing fast in recent years and plays a vital role not only in economic growth and development but also in satisfying basic physical and social needs. It is said that construction industry is capital intensive, requiring considerable amount of capitals with high proportion of fixed costs. As financial conditions of most companies in the construction industry are highly sensitive to the economic cycle, making a decision to finance their operation by whether external or internal source is absolutely vital. Therefore, planning a

reasonable capital structure of Vietnam listed construction companies is very necessary in the course of strong competition nowadays. This research on capital structure in 2015 gives us a deep understanding on the financial situation of construction industry in recent years.

A large majority of prior studies had investigated the factors of capital structure in developed countries. Glen and Singh (2004) confirmed capital structure of companies in developing countries or emerging markets and in developed countries are quite different. Moreover, prior studies rarely examined the determination, factors or any changes of the capital structure of construction companies. Therefore, this study is conducted within the construction industry of Vietnam, a developing country in Asia, with the purpose of filling this gap.

The remaining sections of this paper are organized as follows: Section II, III presents an overview of the literature on capital structure and develops testable hypotheses respectively. Section IV describes the methodology and measurement of variables. Section V reports and discusses the results. Section VI is conclusion.

2. LITERATURE REVIEW

Definition of capital structure

Capital structure of a certain company is defined as "*the relative amount of debt and equity used to finance a firm*" (Tran and Ramachandran, 2006, p.193). In other words, it refers to the combination of their debt and owners' equity (Karadeniz, 2009). Among three main decisions including investment, financing and dividend, making a decision on capital structure related to the magnitudes of debt and equity is challenging. According to Lumby and Jones (2011), selecting particular types of liabilities and equity in a company's project finance to manipulate capital structure could increase the wealth of its shareholders.

Since different types of capital have different levels of risk, distinguishing between debt and equity is essential (Lumby and Jones, 2011). In fact, in a certain company, debt is likely to be less risky, therefore, requires lower return compared to equity capital investment. Furthermore, interest on debt capital is the first claim on a company's net earnings and debt is a priority repayment over equity capital when companies go into liquidation.

Capital structure of a company is usually measured by using book value or market value (Watson and Head, 2010). There is an argument that book value might be better than market value as a consequence of less volatility. It is also true that debt in bond covenants are generally recorded in book value rather than market value (Ross, 2010). However, market value tends to reflect current value which is more useful and appropriate than historical value. Therefore, many financial economists suppose that current market value is much better than historical-based value in reflecting true intrinsic values.

Modigliani and Miller (I): the net income approach

Capital structure theory dates from Modigliani and Miller's the seminal work in 1958 with the "capital structure irrelevance" proposition related to the value of companies which operate in perfect markets. Miller and Modigliani Proposition I was that "*in a perfect capital market, the total value of a firm is equal to the market value of the total cash flows generated by its assets and is not affected by its choice of capital structure*". In other words, the selection between debt and equity capital does not have material impacts upon the firm value. Hence, in perfect capital markets, management would stop paying attention on the combination of debt and equity in their company (Sheikh and Wang, 2011). The proposition of Miller and Modigliani Proposition I is that at all levels of capital structure, the Weighted Average Cost of Capital remains unchanged, implying that no optimal capital structure exists in the perfect capital market (Watson and Head, 2010).

However, the theory was developed based on a number of restrictive assumptions which is not true in the real world, such as homogenous expectations, no taxes and transaction costs. In other words, Modigliani and Miller (1958) presented that the value of a company and the capital structure are fully independent in an idealized world. This conclusion is totally different from what have been seen in the imperfect capital market, where capital structure is a serious matter and debtors would refuse to finance a company with entire debt capital (Boateng, 2004). Anyway, the work of Modigliani and Miller (1958) plays a vital role in providing an extensive boost in the development of theoretical frameworks about capital structure in the future.

Modigliani and Miller (II): corporate tax

In 1963, Modigliani and Miller adjusted their earlier seminal work by recognizing the existence of corporate tax as a determinant of the capital structure. According to Modigliani and Miller (II), the more a company gears up by replacing equity with debt, the more profits they can shield from corporate tax (Watson and Head, 2010). A company could reach the optimal capital structure when it is financed by 100 per cent debt.

Miller (1977) proposed that when considering corporate and personal taxes, based on the United States tax legislation, net tax savings from corporate borrowings tend to equal to zero. While interest income is just taxed at the personal level, equity income is taxed at not only the corporate level but also personal level when it does not come in the form of capital gains. Hence, Sheikh and Wang (2011) stated that the regular personal tax rate on interest income is often greater than the effective personal tax rate on equity income, leading to reduction of advantages of debt financing.

Trade off theory

Taking advantages of tax shields, companies are encouraged to increase more debt than other available external sources, but this kind of source financing definitely costs some types of costs (Sheikh and Wang, 2011). Three potential costs, namely bankruptcy, agency costs (Jensen and Meckling, 1976), and financial distress costs (Myers, 1977) constitute the first principle of trade-off theory.

Sheikh and Wang (2011) presented bankruptcy as a legal mechanism which allows credit providers to take over when there is a sharp decrease in the value of assets. In practice, high levels of gearing in a certain company cause considerable possibilities of defaulting on its debts as well as interest commitments, and then going bankrupt. At that time, a higher rate of return is required by shareholders as compensation for facing bankruptcy risk (Watson and Head, 2010).

In addition, the use of debt in a company can lead to agency costs which can be explained as the costs generated through conflicts of interest. Thus, agency costs stem owing to the relationship between shareholders and managers, and between shareholders and debt holders (Jensen and Meckling, 1976). According to Watson and Head (2010), with the effect of agency costs, an increase in gearing levels contributes to the reduction of the tax shield benefits.

Trade-off theory firmly states that companies should set a target of debt to value ratio and try to move towards it gradually (Karadeniz, 2009). An increase in debt results in an increase in agency costs and financial distress, and consequently a decrease in firm value or even bankruptcy. In other words, the trade-off theory mentions that companies would increase the debt up to the point where costs from the increased probability of financial distress are exactly equal to the tax savings from debts added (Sheikh and Wang, 2011). Hence, a company tries to reach an optimal capital structure by achieving a balance between disadvantages of debt such as financial distress and bankruptcy costs and advantages such as tax advantages (Karadeniz, 2009) to maximize the firm value.

Pecking order theory (Donaldson 1961; Myers and Majluf 1984; Myers 1984)

Pecking order theory of Donaldson (1961) disagrees that companies just have one composition of debt and equity to reach the minimum of the cost of capital. Sheikh and Wang (2011) recognized two important assumptions which the pecking order theory is based on, they are: (i) compared to outside investors, the managers have more information about their own company's prospects and (ii) managers try to perform their operation to bring the best interests for existing shareholders. This theory implies that when a company looks at their long-term investments to finance its projects, an order of preference relating to available sources of finance would be well-defined. Internal sources of finance or retained earnings are preferred to employ rather than external finance. And then, if internal finance is not sufficient, a company prefers external source of finance such as corporate bonds and bank borrowings. In case a company runs out of these two possibilities, issuing new equity capital is its least and final preferred source of finance (Watson and Head, 2010). In short, the theory provides the following a rule for the real world: *use internal financing and issue safe securities first* (Ross, 2010).

The first explanation for those preferences relates to not only issue costs but also the ease of accessing sources of finance. According to Watson and Head (2010), retained earnings are always ready to access with no issue costs and especially a company can pass over negotiating or dealing with third parties. The fact is that issuing new debt

costs much smaller expenses than issuing new equity. Furthermore, it seems to be impossible to raise a small amount of equity but small amounts of debt is often available with a number of sources. In addition, the potential ownership which is associated with the issue of new equity is avoidable when a company issues debt finance.

Myers (1984) gives more advanced explanations for the existence of a pecking order theory. He presented that the asymmetry of information between the capital market and company results in the order of preferences for sources of finance. Generally, insiders of a company have more information than investors, leading to the undervaluation of common-stocks in the market (Karadeniz, 2009).

Based on the second assumption of the pecking order theory that managers perform their company to support the interest of existing shareholders, it is suggested that a company is ready to sell their equity when it is overvalued (Myers, 1984). This leads to a conclusion that a company just issue new shares at a higher price than the real market value of the company (Mouamer, 2011). If external financing is not avoidable, the company will decide to choose secured debt rather than risky debt, and issuance of common stocks is always a last choice of a company (Abor, 2005).

Ross (2010) presented that the pecking order theory is perhaps more consistent with the real world. Companies are likely to have more equity in their capital structure than implied by the trade-off theory because internal financing is preferred to external financing as pecking order theory confirmed.

3. DEVELOPING HYPOTHESES

Profitability

Construction companies in Vietnam are likely to use retained earning first as investment funds, and subsequently just move to debt and new external equity when necessary. Although an opposite prediction is suggested by the tax model that profitable companies would increase more debt in order to take more tax advantages, the fact is that Vietnam construction companies often meet difficulties in accessing credit. Besides, managers prefer using retained earnings because they do not want to lose their property and control over their companies to their creditors and potential investors. Thus, the hypothesis will be:

H1: Profitability will negatively related to debt ratio

Firm Size

For Vietnam construction industry, larger companies have not only more stable cash flows but also better business diversification, so have a lower probability of both bankruptcy and financial distress, resulting in positive relation between capital structure and firm size. The fact is that large companies in Vietnam might be able to make use of economies of scale to issue debts, as well as might have a strong

bargaining position over credit providers (Tran and Ramachandran, 2006). Therefore, the following hypothesis will be formulated:

H2: Firm size will positively related to debt ratio

Firm Growth

The main source of the customers' financing is often loans which are secured by the constructed facility itself (Moavenzadeh and Rossow, 1975). For high-growth construction companies, they tend to run out of internal funds to raise their working capital, therefore, the growth opportunities will encourage companies to seek external financing. In this case, most Vietnam construction companies prefer short-term liabilities to long-term debts to finance their operation. It leads to the positive relationship between debt ratio and firm growth. The following hypothesis can be developed:

H3: Firm growth will positively related to debt ratio

Liquidity

For some construction companies in developing countries like Vietnam, if they do not have sufficient assets to satisfy long-term investors of an acceptable level of risk, heavy reliance will be placed upon short-term finance (Lavender, 1996). Therefore, it seems that a high liquidity ratio might be a negative signal because it indicates some problems with regard to opportunities for investment decisions in long term that a company has to face (Mouamer, 2011). The following hypothesis should be tested here:

H4: Liquidity will negatively related to debt ratios

Tangibility

Lavender (1996) states that construction companies have to face certain problems with the financial system, particular those whose main activity is in contracting. In reality, because of owning fewer tangible assets, contractors meet greater financial difficulties than companies in manufacturing and retail. In Vietnam, it is likely that construction companies with a big amount of tangible assets have borrowed more debts from the banks than construction companies owning fewer tangible assets due to not only the diminished value of intangible assets but also lower risk of tangible assets in impairment. This confirms the positive relation between capital structure and tangibility. Therefore, the following hypothesis should be tested here:

H5: Tangibility will positively related to debt ratio

4. MEASUREMENT OF VARIABLES

Independent variables

The table below presents the summary of five independent variables with their measures and the expected relationship (either positive or negative) between every independent variable and capital structure of Vietnam listed construction companies.

Table 4.1 – Independent Variables

Independent variables	Measures	Expected sign
Profitability	Operating profit before interest, taxes / Total assets Psillaki and Daskalakis (2009); Karadeniz (2009); Qui and La (2010); Sheikh and Wang (2011); Mouamer (2011)	-
Firm size	Natural logarithm of sales Frank and Goyal (2004); Gaud et al. (2005); Teruel and Solano (2005); Kayo and Kimura (2010); and Sheikh and Wang (2011)	+
Firm Growth	Market value / Book value Ozkan (2002), Antoniou et al. (2002), Agca et al. (2004), Frank and Goyal (2004), Feidakis and Rovolis (2007), Karadeniz (2009), Qui and La (2010).	+
Liquidity	Current assets / Current liability Feidakis and Rovolis (2007), Mouamer (2011), and Sheikh and Wang (2011)	-
Tangibility	Tangible assets / Total assets Tran and Ramachandran (2006), Psillaki and Daskalakis (2009), Qui and La (2010), Sheikh and Wang (2011), Mouamer (2011).	+

Dependent variable

Debt ratio is used in the study as a measure of capital structure, calculated as a ratio of book value of total debt divided by the book value of total assets. The total debt is the sum of short-term liabilities and long-term debt. Although the strict notion of capital structure refers absolutely to long-term debt, the attendant of short-term liabilities in the formula of debt ratio can be explained by its considerable proportion in the composition of total debt (Sheikh and Wang, 2011).

Data collection

This study investigates the determinants of capital structure for all Vietnamese construction companies listed on the Ho Chi Minh Stock Exchange or Hanoi Stock Exchange in 2015. The data are published by The State Securities Commission of Vietnam in the website *http://www.cophieu68.com*, providing useful information on key accounts of the financial statements of construction companies. With the data collected, five variables which are relevant from the study can be calculated. There are 74 listed construction companies in 2015 which are chosen.

General form of regression model

In this study, univariate analysis and multiple regression analysis are performed to find out whether there is a relationship between the factors and the capital structure of listed Vietnam construction companies.

The multiple regression equation:

$$DR \text{ (Debt Ratio)} = \beta_0 + \beta_1 \text{ Profitability} + \beta_2 \text{ Firm size} + \beta_3 \text{ Firm growth} + \beta_4 \text{ Liquidity} + \beta_5 \text{ Tangibility} + \varepsilon$$

5. ANALYSIS AND RESEARCH FINDINGS

Descriptive Statistics

Statistics

		Leverage	Profitability	Firmsize	Firmgrowth	Liquidity	Tangibility
N	Valid	74	74	74	74	74	74
	Missing	0	0	0	0	0	0
Mean		.6922	.0477	5.5087	.7399	1.4646	.1480
Median		.7273	.0404	5.6630	.6758	1.2290	.0893
Std. Deviation		.17408	.04049	.89089	.39390	1.40548	.18416
Minimum		.22	-.05	1.59	.17	.10	.00
Maximum		.99	.15	7.14	2.16	11.86	1.00

Table 5.1 - Descriptive statistics of dependent and independent variables

Among 74 Vietnam listed construction companies in 2015, debt ratio was 69.22 per cent on average. The very high average debt ratio could be explained by the characteristic of construction industry being capital intensive as well as the ease of accessing short-term liabilities in Vietnam, but it will lead to greater risk related to the companies' operation or even bankruptcy. However, it is recognized that the debt ratio variation was quite large across all chosen companies, ranging from a maximum of 22 per cent to a minimum of 99 per cent.

Univariate analysis and multicollinearity diagnostic

Correlations

		Leverage	Profitability	Firmsize	Firmgrowth	Liquidity	Tangibility
Leverage	Pearson Correlation	1	-.336**	.343**	.162	-.138	.063
	Sig. (2-tailed)		.003	.003	.167	.241	.592
	N	74	74	74	74	74	74
Profitability	Pearson Correlation	-.336**	1	.138	.206	-.067	.126
	Sig. (2-tailed)	.003		.239	.078	.573	.284
	N	74	74	74	74	74	74
Firmsize	Pearson Correlation	.343**	.138	1	.044	-.063	.044
	Sig. (2-tailed)	.003	.239		.711	.593	.709
	N	74	74	74	74	74	74
Firmgrowth	Pearson Correlation	.162	.206	.044	1	.095	.160
	Sig. (2-tailed)	.167	.078	.711		.419	.173
	N	74	74	74	74	74	74
Liquidity	Pearson Correlation	-.138	-.067	-.063	.095	1	-.146
	Sig. (2-tailed)	.241	.573	.593	.419		.215
	N	74	74	74	74	74	74
Tangibility	Pearson Correlation	.063	.126	.044	.160	-.146	1
	Sig. (2-tailed)	.592	.284	.709	.173	.215	
	N	74	74	74	74	74	74

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.2: Correlation Matrix of Dependent and Independent Variables (SPSS output)

Hair et al. (2006) states that the correlation among independent variables might present problems in interpreting regression coefficients. The correlation matrix of independent variables is used to test the possibility of the collinearity degree among variables. As can be seen from table 5.2, the correlation matrix does not strongly apply the existence of correlation. Therefore, collinearity problems among independent variables are not serious enough to affect the findings of the research thanks to the in sufficiently large correlation coefficients. This implies that multiple regression analysis could be conducted to build up the model of capital structure.

Multiple Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.592ª	.350	.302	.14541

a. Predictors: (Constant), Tangibility, Firmsize, Liquidity, Profitability, Firmgrowth

Table 5.3: Model summary (SPSS output)

Table 5.3 provided by SPSS is a summary of the model. This summary table provides the value of R, R square and adjusted R square for the model that has been derived. The value of adjusted R square is 0.302 as shown in Table 5.3 which tells that five independent variables explain 30,2 per cent change in capital structure.

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.774	5	.155	7.324	.000^a
	Residual	1.438	68	.021		
	Total	2.212	73			

a. Predictors: (Constant), Tangibility, Firmsize, Liquidity, Profitability, Firmgrowth

b. Dependent Variable: Leverage

Table 5.4: Analysis of variance ANOVA (SPSS output)

Table 5.4 reports an analysis of variance ANOVA which shows the various sums of squares and the degree of associated with each. The results of multiple regression analysis are presented to consider the consecutive effects of all proposed determinants (Tran and Ramachandran, 2006). For these data, F is 7.324, which is significant at p< 0.001. This result tells us that *'there is less than a 0.1% chance that an F-ratio this large would happen by chance alone'* (Field, 2005, p.154). In other words, the model of capital structure is significant at the 1 per cent level. This confirms that there is a relationship between the debt ratio and independent variables.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.316	.113		2.808	.007		
	Profitability	-1.962	.436	-.456	-4.499	.000	.929	1.077
	Firmsize	.075	.019	.383	3.873	.000	.977	1.023
	Firmgrowth	.110	.045	.248	2.440	.017	.922	1.084
	Liquidity	-.020	.012	-.162	-1.620	.110	.956	1.046
	Tangibility	.038	.095	.041	.402	.689	.941	1.062

a. Dependent Variable: Leverage

Table 5.5: Coefficients (SPSS output)

To find out the relationship between capital structure and each determinant, the outcomes of multiple regression analysis are discussed with table 5.5. There are a significant negative relation between profitability and the debt ratio and a significant positive relation between firm size, firm growth and the debt ratio. The findings of this research are quite similar to other studies pertaining to the determinants of construction companies' capital structure in the European Union (Feidakis and Rovolis, 2007), and Malysia (Baharuddin, 2011).

With the results of multiple regression analysis via table 5.5, the five hypotheses developed can be examined below.

Hypothesis 1

The finding generally indicates that profitability is negatively related to the debt ratio which is consistent with the pecking order theory stating the preference of internal financing to external. In addition, profitability becomes statistically significant with the significance value of 0.000 (p<0.01). Hence, the findings provide strong evidence to support hypothesis 1 stating that there is a relationship between profitability and leverage.

Construction companies prefer to use their retained earnings first and then resort to debt when additional finance is crucial. External financing is costly and therefore avoided by construction companies. Thus, companies with high profitability require less debt. These results are in line with Barton and Gordon (1988), Michaelas et al. (1998), Booth et al. (2001), Bevan and Danbolt (2004), Voulgaris et al. (2004), Frank and Goyal (2004), Gaud et al. (2005).

Hypothesis 2

The finding shows that the variable size has positive relationship with the debt ratio. The standardized regression coefficient (+0.383) implies a relatively strong effect among all determinants. That confirms the powerful influence of firm size on financing companies' operations. This finding seems to match the implications of the trade-off theory suggesting that larger companies should employ higher levels of debt, because of not only their ability to diversify risks but also their advantage of taking the benefit of tax shields on interest payments. The significant positive relationship between debt and size of a company supports the hypothesis that size is positively related to debt ratio. This finding is consistent with some empirical studies (Michaelas et al. 1999; Sogorb Mira 2005; Tran and Ramachandran 2006).

A reasonable explanation for the finding is most clients, suppliers, and commercial banks are more familiar with larger construction companies than smaller ones, leading the reduction of information asymmetry issues for making their decisions on providing credit for larger companies. Moreover, in Vietnam, larger construction companies have a stronger bargaining position than smaller ones when dealing with creditors, and consequently, larger companies have much more chances to get loans from banks, trade credits from suppliers, or other liabilities from networks (Tran and Ramachandran, 2006).

Hypothesis 3

Firm growth is positively related to the debt ratio. In the final model for capital structure, standardized coefficient of firm growth variable is +0.248. This means that firm growth is one of the determinants influencing capital structure with 5% significance. In general, the finding supports the hypothesis 3 stating that there is a positive relation between growth and debt ratio. It can be explained that for high-growth construction companies, they tend to run out of internal funds to raise their working capital, therefore, the growth opportunities will encourage companies to seek external financing.

Hypothesis 4

Liquidity negatively effects on capital structure with standardized coefficient -0.162 but it is insignificantly related to debt ratio. Therefore, the finding does not support the hypothesis 4 stating that there is a negative relation between liquidity and debt ratio.

Hypothesis 5

The finding indicates that tangibility is positive related to the measure of capital structure. However, looking into the standardized coefficients in table 5.5, it is found that the effect of tangibility on capital structure is relatively weak (-0.041), compared with other determinants in the regression model. In addition, tangibility is insignificant with the significance value of 0.689. As a result, this finding does not support hypothesis 5.

6. CONCLUSION

The findings have been critically analysed in this chapter. First, the descriptive statistics of dependent and independent variables is presented with an overview of variables for 74 chosen Vietnam listed construction companies in 2015. It indicates that there is considerable variation in the extent of capital structure across Vietnam listed construction companies.

In order to find out the right research findings of the dissertation, the five hypotheses were initially tested by conducting the univariate analysis via SPSS software. The univariate association between the dependent variable and every independent variable can be separately determined. Support was found for the negative impact of profitability, and positive impact of firm size and firm growth. In short, thanks to the outcomes of the multiple regression analysis, profitability, firm size and firm growth are three main determinants influencing the capital structure of listed Vietnam construction companies.

The disadvantages of using secondary-data-only research in this study basically relate to the subject of reliability of the data (Cameron and Price, 2009). In the study, most of financial data from financial statements is book value, which is out-of-date and then inaccurate in reflecting the value of assets, liabilities and equity of companies. However, all of financial statements of listed construction companies are audited before publication by high-quality audit firms to be consistent with Vietnam Accounting Standards (VAS), leading to the more reliability of secondary data in this study.

In addition, the research examined a limited number of factors that might explain capital structure of Vietnam listed construction companies in practice. Just five factors are checked to find out the determinants influencing capital structure. It can be explained by the shortage of data and time and the complication of this research.

Although the dissertation has some limitations, this project supplies a base for future research capital structure in Vietnam which could enable to clarify the explanations for the results and gaining adoption of the research in practice. While just secondary data are collected in the current study, the further research can be conducted with primary data to analyse the influences of other factors such as relationship with the banks or psychology of company's managers. It means that more variables can be employed, so that the study can explain more the change of debt ratio. Further research could also cover a longer period in order to examine the capital structure of construction companies and increase the number of chosen companies to conduct

investigation. In fact, examining a wider range of companies should be better for future research. Moreover, this research can be employed by other researchers to examine determinants influencing capital structure of construction companies in countries being experiencing similar economic condition.

REFERENCES

Abor, J. (2005), *The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana*, The Journal of Risk Finance, Vol. 6 No. 5, pp. 438-45

Agca, S. and Mozundar, A. (2004), *Firm size, debt capacity, and corporate financing choices*, SSRN Working Paper Series

Antoniou, A., Guney, Y. and Paudyal, K. (2002), *Determinants of Corporate Capital Structure: Evidence from European Countries, Centre for Empirical Research in Finance*, Department of Economics and Finance, University of Durham

Baharuddin, N. S., Khamis, Z., Mahmood, W. M. W., and Dollah, H. (2011), *Determinants of Capital Structure for Listed Construction Companies in Malaysia,* Journal of Applied Finance & Banking, vol.1, no.2, 2011, 115-132

Baker, H. K. and Martin, G. S. (2011), *Capital Structure and Corporation Financing Decisions – Theory, Evidence and Practice*, 1st edition, John Wiley & Sons, Inc.

Baker, H. K. and Powell, G. E. (2005), *Understanding Financial Management – A Practical Guide*, Malde, Ma: Blackwell Publishing

Barclay, M.J. and Smith, C. W. (1999), *The Capital Structure Puzzle: Another Look at the Evidence*, Journal of Applied Corporate Finance 12:1, 8-20

Barton, S. L. and Gordon, P. J. (1988), *Corporate strategy and capital structure*, Strategic Management Journal, 9, 623–32

Berk, J. and Demarco, P. (2011), *Corporate Finance*, 2nd edition, Pearson Education Inc

Bevan, A.A. and Danbolt, J. (2002), *Capital structure and its determinants in the UK, a decompositional analysis*, Applied Financial Economics, Vol. 12 No. 3, pp. 159-70

Bevan, A. A. and Danbolt, J. (2004), *Testing for inconsistencies in the estimation of UK capital structure determinants*, Applied Financial Economics, 14, 55–66

Boateng, A. (2004), *Determinants of capital structure: Evidence from international joint ventures in Ghana*, International Journal of Social Economics, Vol. 31 Iss: 1 pp. 56 – 66

Booth, L., Aivazian, V., Demirguc-Kunt, A., and Maksimovi, V. (2001), *Capital Structures in Developing Countries*, The Journal Of Finance Vol. Lvi, No. 1

Bryman, A. and Bell, E. (2007), *Business research methods*, 2nd edition, Oxford University Express

Buferna, F., Bangassa, K. and Hodgkinson, L. (2005), *Determinants of capital structure: evidence from Libya*, Research Paper Series No. 2005/08, University of Liverpool

Cameron, S. and Price, D. (2009), *Business research methods - a practical approach*, 1st edition, Chartered Institute of Personnel and Development

Changa, C., Lee, A. C., Lee, C. F. (2009), *Determinants of capital structure choice: A structural equation modeling approach*, The Quarterly Review of Economics and Finance 49 (2009) 197–213

Chittenden, F., Hutchinson, P. and Hall, G. (1996), *Small firm growth, access to capital market and financial structure: a review of issues and empirical investigation*, Small Business Economics, Vol. 8, pp. 58-67

Collis, J. and Hussey, R. (2009), *Business research: a practical guide for undergraduate and postgraduate students*, 3rd edition, Basingstoke: Palgrave Macmillan

Construction spending analysis and forecast for Vietnam (2010). Last accessed 23 August 2012 at http://www.construction-int.com/article/vietnam-construction-market.html

Creswell, J. W. (2003), *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, 2nd edition, Thousand Oaks, CA: Sage

Damodaran, A. (2000), *Investment Valuation*, John Wiley & Sons, New York, NY

DeAngelo, H. and Masulis, R. (1980), *Optimal capital structure under corporate and personal taxation*, Journal of Financial Economics, Vol. 8, pp. 3-29

Deesomsak, R., Paudyal, K., and Pescetto, G. (2004), *The determinants of capital structure: evidence from the Asia Pacific region,* Journal of Multinational Financial Management 14 (2004) 387–405

Demirguc-Kunt, A. and Maksimovic, V. (1999), *Institutions, financial markets and firm debt maturity*, Journal of Financial Economics, Vol. 54, pp. 295-336

Fama, E.F. and Jensen, M. (1983), *Agency problem and residual claims*, Journal of Law & Economics, Vol. 26, pp. 327-49

Feidakis A. and Rovolis, A. (2007): *Capital structure choice in European Union: evidence from the construction industry*, Applied Financial Economics, 17:12, 989-1002

Field, A. (2005), *Discovering Statistics Using SPSS*, 2nd edition, SAGE Publications

Filbeck, G. and Gorman, R. (2000), *Capital structure and asset utilization: the case of resource intensive industries*, Resource Policy, 26, 211–8

Frank, M. and Goyal, V. (2004) *Capital structure decisions: Which factors are reliably important?*, Working Paper, University of British Columbia.

Gaud, P., Jani, E., Hoesli, M. and Bender, A. (2005), *The capital structure of Swiss companies: an empirical analysis using dynamic panel data*, European Financial Management, 11, 51–69

Ghauri P. and Gronhaug, K. (2005), *Research Methods in Business Studies: A Practical Guide*, 3rd edition, Harlow: Financial Times Prentice Hall

Ghosh, A. (2008), *Capital Structure and Firm Performance*, 1st edition, Transaction Publishers, New Brunswick, New Jersey

Green, S. B. (1991), How many subjects does it take to do a regression analysis?, Multivariate Behavioural Research, 26, 499-510

Harris, M., and Raviv, A. (1990), *Capital structure and the informational role of debt,* The Journal of Finance, 45(2), 321–349

Harris, M., and Raviv, A. (1991), *The theory of capital structure*, The Journal of Finance, 46, 297–355

Heshmati, A. (2001), *The Dynamics of Capital Structure: Evidence form Swedish Micro and Small Firms*, SSE Working Paper Series in Economics and Finance No. 440. Department of Economic Statistics, Stockholm School of Economics

Hillebrandt, P. M. (2000), *Economic theory and the construction industry*, 3rd edition, Macmillan Press Ltd

Huang, S. G. H and F. M. Song (2001), *The determinants of capital structure: Evidence from China,* School of Economics and Finance and Center for China Financial Research, The University of Hong Kong Press for SSRN, 2001

Hutchinson, P. (2003), *How much goes growth determine SMEs' capital structure?*, 16th Annual Conference of Small Enterprise Association of Australia and New Zealand, 28 September–1 October 2003

Jensen, M.C. (2001), *Value Maximization, Stakeholder Theory, and the Corporate Objective Function,* Journal of Applied Corporate Finance 14:3, 8-21

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 No. 4, pp. 305-60

Karadeniz, E., Kandir, S. Y., Balcilar, M. and Onal, Y. B. (2009), *Determinants of capital structure: evidence from Turkish lodging companies*, International Journal of Contemporary Hospitality Management Vol. 21 No. 5, 2009 pp. 594-609

Lavender, S. (1996), *Management for the construction industry*, The Chartered Institute of building

Lucey, B. (2010), *Determinants of capital structure in Irish SMEs*, Small Bus Econ (2010) 35:357–375

Lumby, S. and Jones, C. (2011), *Corporate Finance – Theory & Practice*, 8th edition, South-Western Cengage Learning

Maddala, G. S., & Nimalendran, M. (1995), *An unobserved component panel data model to study the effect of earnings surprise on stock prices, trading volumes, and spreads*, Journal of Econometrics, 68, 229–242.

Michaelas, N., Chittenden, F., and Poutziouris, P. (1999), *Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data*, Small Business Economics, 12, 113–130

Miller, M.H. (1977), *Debt and taxes*, The Journal of Finance, Vol. 32 No. 2, pp. 261-75

Moavenzadeh, F. and Rossow, J. A. K. (1975), *The Construction Industry in Developing Countries*, Technology Adaptation Program - Massachusetts Institute of Technology

Modigliani, F. and Miller, M. H. (1958), *The cost of capital, corporation finance and the theory of investment,* The American Economic Review, 48(3), 261–297

Modigliani, F. and Miller, M. H. (1963), *Corporate income taxes and the cost of capital: A correction*, The American Economic Review, 53(3), 433–443

Montgomery, D. C., Peck, E. A. and Vining, G. G. (2006), *Introduction to linear regression Analysis,* 4th edition, John Wiley & Sons, Inc

Mouamer, F. M. A., (2011), *The determinants of capital structure of Palestine-listed companies*, The Journal of Risk Finance, Vol. 12 Iss: 3 pp. 226 – 241

Myers, S.C. (1977), *Determinants of corporate borrowing*, Journal of Financial Economics, Vol. 5, pp. 147-75

Myers, S. C. (1984), *The capital structure puzzle,* The Journal of Finance, 39, 575–592

Myers, S. C. (2001), *Capital structure*, The Journal of Economic Perspectives, 15(2), 81–102

Myers, S. C. and Majluf, N. S. (1984), *Corporate financing and investment decisions when firms have information that investors do not have*, Journal of Financial Economics, 13, 187–221

Myers, S.C. and Rajan, R.G. (1998), *The paradox of liquidity*, The Quarterly Journal of Economics, Vol. 113 No. 3, pp. 733-71

Ozkan, A. (2002), *The determinants of corporate debt maturity: evidence from UK firms*, Applied Financial Economics, 12, 19–24

Psillaki, M. and Daskalakis, N. (2009), *Are the determinants of capital structure country or firm specific?*, Small Bus Econ (2009) 33:319–333 DOI 10.1007/s11187-008-9103-4

Qian, Y., Tian, Y. and Wirjanto, T.S. (2007), *An Empirical Investigation into the Capital-Structure Determinants of Publicly Listed Chinese Companies: A Static Analysis*, available at: www.arts.uwaterloo.ca/twirjant

Qiu, M. and La, B. (2010), *Firm Characteristics as Determinants of Capital Structures in Australia*, Int. J. of the Economics of Business, Vol. 17, No. 3, November 2010, pp. 277–287

Quinlan, C. (2011), *Business research methods*, 1st edition, South-Western Cengage Learning

Rajan R., and Zingales, L. (1995), *What do we know about capital structure? Some evidence from international data,* Journal of Finance, 50, 1421–1460

Remenyi, D., Williams, B., Money, A. and Swartz, E. (1998), *Doing Research in Business and Management: An introduction to Process and Method*, London: Sage

Robson, C. (2002), *Real Word Research*, 2nd edition, Oxford: Blackwell

Ross, G. C. (1977), T*he determinants of financial structure: The incentive signaling approach*, Bell Journal of Economics and Management Science, 8, 232–240

Ross, S. A., Westerfield, R. W., and Jaffe, J. (2010), *Corporate Finance*, 9th edition, New York: McGraw-Hill Higher Education

Saunders, M., Lewis, P., and Thornhil,l A. (2006), *Research methods for business students,* 4th edition, Harlow: Financial Times Prentice Hall

Sekaran, U. (2000), Research Methods for Business – A skill building Approach, 3rd edition, John Wiley & Sons, Inc.

Sheikh, N. A., Wang, Z. (2011), *Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan*, Managerial Finance, Vol. 37 Iss: 2 pp. 117 – 133

Smith, R.G. and Bohn, C. M. (1999), *Small to Medium Contractor Contingency and Assumption of Risk,* Journal of Construction Engineering and Management, ASCE. March-April 1999

Stern, J. M. and Chew, D. H. (2003), *The Revolution in Corporate Finance*, 4th edition, Blackwell Publishing Ltd

Stewart, D. W. and Kamins, M. A. (1993), *Secondary Research: Information Sources and Methods*, 2nd edition, Newbury Park, CA: Sage

Swinnen, S., Voordeckers, W. and Vandemaele, S. (2005), *Capital structure in SMEs: pecking order versus static trade-off, bounded rationality and the behavioural principle*, European Financial Management Association, 2005 Annual Meetings, June 29–July 2, 2005, Milan, Italy

Teruel, G. P. J. and Solano, M. P. (2005), *On the determinants of SMEs cash holdings: evidence from Spain*, SSRN Working Paper Series

The construction industry of Vietnam (2010). [online]. Last accessed 23 August 2012 at

http://www.roofandfacade.com/rfa/index.php?option=com_content&view=article&id=170%3Athe-construction-industry-of-vietnam&catid=63%3Acountry-focus&Itemid=2&showall=1

Titman, S. and Wessels, R. (1988), *The determinants of capital structure choice*, Journal of Finance, Vol. 43, pp. 1-19

Tran, D.K.N. and Ramachandran, N. (2006), *Capital Structure in Small and Medium-sized Enterprises The Case of Vietnam*, ASEAN Economic Bulletin Vol. 23, No. 2 (2006), pp. 192–211

Vietnam Construction & Building Industries (2012). [online]. Last accessed 23 August 2012 at http://www.vietpartners.com/default-industry.asp?industry=Construction

Vietnam Construction Industry Building Edifice of Growth. [online]. Last accessed 23 August 2012 at http://www.rncos.com/Blog/report_list.php?year=http://www.rncos.com/Blog/blog_report.php&month=07&blog_pagename=Vietnam-Construction-Industry-Building-Edifice-of-Growth

Vietnam Industry Outlook. (2011). [online]. Last accessed 23 August 2012 at http://www.construction-vietnam.com/

Voulgaris, F., Asteriou, D. and Agiomirgianakis, G. (2004), *Size and determinants of capital structure in the Greek manufacturing sector*, International Review of Applied Economics, 18, 247–62.

Watson, D. and Head, A. (2010), *Corporate Finance – Principle & Practice*, fifth edition, Person Education Limited

Yeh, H. (2008), *Capital Structure Before And After The Asian Financial Crisis Of 1997-1998: Evidence From The Construction Industry Of Taiwan*, Department of Business Administration, College of Management, National Pingtung University of Science and Technology

Zikmund, W. G., Babin, B. J., Carr, J. C. and Griffin, M. (2010), *Business Research Methods*, 8th edition, South-Western Cengage Learning

Zou, H. and Xiao, Z.J. (2006), *The financing behavior of listed Chinese firms*, The British Accounting Review, Vol. 38 No. 3, pp. 239-58