



Optimal Capital Structure and Corporate Performance: The Case of Information Technology Industrial Companies in China

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ARTICLE DETAILS

ABSTRACT

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To research the optimal capital structure for corporate performance of information technology industry, the paper used three aspects to represent the capital structure, chose the information technology companies as samples, and constructed a quadratic function model to verify the relevant assumptions. The results state that Chinese companies in information technology industry have the optimal asset-liability ratio, the current liabilities ratio affects the their performance negatively, the concentration of ownership has an positive effect on the corporate performance, therefore companies should consider the mixture of equity and debt. The results will be used to research the optimal capital structure in other industries and countries.

1. Introduction

The study of capital structure theory can be traced back to the MM theory in 1958, which did not take into account the tax. Then scholars began to add a variety of factors, considering the value of debt and equity from different angles. They put forward the theory of agency cost, signal transmission and trade-off and believe that the composition of different equities and liabilities of enterprises will affect the performance, and the performance of any company hinges around its ability to operate on a capital structure (Bandyopadhyay A, 2016) [1]. With the development of social technology, the information technology industry is developing rapidly, which plays an important role in promoting economic prosperity. At present, most studies on the relationship between capital structure and corporate performance take the gem or small board listed companies as the background, or in large industries, such as manufacturing and real estate industry as an example, but less researchers analyze the information technology industry. Therefore, this paper is going to research the relationship between capital structure and company's performance based on information technology industry is of great significance.

2. Theoretical analysis and assumptions

2.1 The impact of financing structure on corporate performance

Comparing with the issuance of shares or raising funds directly from shareholders, the debt will bring tax shield benefits, interest costs reduce corporate profits, therefore contributing to reducing corporate taxes, which amplifies the changes in EBIT effect, thereby increasing shareholder confidence, bringing a good signal, expanding the scale of corporate development, increasing investment opportunities, improving economic efficiency. But the debt also produces the cost, companies are therefore facing debt pressure, while increasing the risk of corporate bankruptcy. Trade-off theory says that when the marginal tax shield income is greater than the cost of bankruptcy, increasing the debt is conducive to business performance increase, but when the debt increases to a certain extent, the corresponding bankruptcy costs will increase, and the tax shield income will be relatively reduced, when the bankrupt cost is equal to the tax shield income of marginal debt, the corporate value reaches the top point. Xiong J (2014) used the double threshold model to verify the non-linear relationship between leverage and corporate performance and found the non-linear relationship between them [2]. Therefore, debt financing should take into account the benefits and

costs of liabilities, and firms should consider the mixture of equity and debt since they are major determinants of corporate performance (Kakanda M M, 2016) [3], then choose the optimal asset-liability ratio. Based on the above analysis, this paper proposes:

H1: The corporate asset-liability ratio has the reverted U-shaped relationship with corporate performance.

2.2 The impact of debt structure on corporate performance

Compared to short-term debt, the debt pressure of long-term debt are less. Due to the longer period, the company does not have to repay the long-term debt in the short term. The longer preparation period is more conducive to the stability of cash flow. In addition, although short-term liabilities bring lower interest rates, but because of the short repayment period, the company needs to continue to borrow in order to maintain long-term business, which will bring refinancing cost, and rolling financing cost will increase, in addition, rollover risk implied by short-term funding adds to the cost of long-term debt (Klimenko N, 2015) [4], the use of excessive short-term debt to maintain the normal operation of the corporation will bring credit and liquidity risk, so the overall cost of capital in different current liabilities may be different, thus affecting the corporate performance. Based on the above analysis, this paper proposes:

H2: The current liabilities ratio is negatively related to the corporate performance.

2.3 The impact of the equity structure on the corporate performance

When the shares are highly dispersed, the different shareholding ratios bring different benefits, and for shareholders with the relative small proportion, spending the same cost as the major shareholders to supervise the manager is not worth, so the highly dispersed equity also means that shareholders need to spend more time, and more energy to make a consensus, this result will lead to governance costs more than the profits, which is not conducive to effective management of corporations. And the benefits assigned to the major shareholders are far greater than their supervision costs, so they have more impetuses to manage managers, giving full play to their functions, reducing managers' personal profit behaviors, and more easily through the shareholders to reach a consensus, thereby improving corporate performance. And Hastori H (2015) investigated determinants of agency costs, found that ownership concentration affected agency costs in vary [5].

H3: The proportion of the top ten shareholders is positively related to the corporate performance.

3. Sample selection and research design

3.1 Sample selection and data source

The samples are about Chinese information technology companies listed on the Shanghai and Shenzhen A Stock Exchange from 2013 to 2015, the data are from the Cathay Pacific database, a total of 582 samples were obtained.

3.2 Variable selection

3.2.1 Company performance evaluation index

This paper uses the factor analysis to measure the corporate performance.

Table 1 Business performance indicators

Indicator type	Indicator definitions	Indicator description
Profitability	Return on assets	(Total profit + financial expenses) / average total assets
	Return on equity	Net profit / average balance of shareholders' equity
	Table1 · Con	
	Operating margin	Operating profit / operating income
	Operating net profit margin	Net profit / operating income
Operating ability	Receivables turnover	Operating income / receivables average occupancy
	Inventory turnover	Operating cost / inventory average occupancy
debt-paying ability	current ratio	Current assets / current liabilities
	Quick ratio	(Current assets - inventory) / current liabilities
	Interest expense multiplier	EBIT / interest expenses
Development ability	Total profit growth rate	(Total profit for the current period - total profit for the previous period) / total profit for the previous period
	Basic earnings per share	(Basic earnings per share for the current period - Basic earnings per share for the previous period) / Basic earnings per share for the current period

Table 2 Various variables and instructions

Variable type	Variable name	Variable definitions	Variable description
dependent variable	PER	Corporate Performance	Measured by the factor analysis
Independent variable	LEV	Total asset - liability ratio	Average total liabilities / average total assets
	CDR	Current debt ratio	Ending current liabilities / ending total liabilities
	CR10	Top 10 shareholding	Number of shares held by top 10 shareholders / total number of shares
Control variable	FAR	Fixed asset ratio	Ending fixed assets / ending total assets
	SIZE	Company size	The logarithm of ending total assets
	MSR	Executive shareholding ratio	Number of shares held by executive shareholders / total number of shares

3.2.2 Model

$$PER_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 LEV_{it}^2 + \beta_3 CDR_{it} + \beta_4 CR10_{it} + \beta_5 FAR_{it} + \beta_6 SIZE_{it} + \beta_7 MSR_{it} + e_{it}$$

Where $\beta_1 \sim \beta_7$ are the regression coefficients, e_{it} is the residual.

4. Empirical results and analysis

4.1 An analysis of the current situation of capital structure

Table 3 Descriptive statistics of capital structure indicators

Indicator	Year	Maximum	Minimum	Mean	Standard deviation
LEV	2013	78.93%	2.39%	30.03%	0.183
LEV	2014	77.85%	2.43%	31.13%	0.182
LEV	2015	78.58%	2.71%	32.39%	0.180
CDR	2013	100%	22.35%	90.66%	0.126
CDR	2014	100%	23.49%	89.70%	0.128
CDR	2015	100%	26.23%	88.03%	0.135
CR10	2013	88.81%	14.03%	58.41%	3.104
CR10	2014	99.63%	13.92%	58.42%	2.314
CR10	2015	99.00%	14.00%	56.72%	0.148

LEV	2013	78.93%	2.39%	30.03%	0.183
	2014	77.85%	2.43%	31.13%	0.182
	2015	78.58%	2.71%	32.39%	0.180
CDR	2013	100%	22.35%	90.66%	0.126
	2014	100%	23.49%	89.70%	0.128
	2015	100%	26.23%	88.03%	0.135
CR10	2013	88.81%	14.03%	58.41%	3.104
	2014	99.63%	13.92%	58.42%	2.314
	2015	99.00%	14.00%	56.72%	0.148

The average asset-liability ratio in China's information technology industry is about 31%, which indicates that the industry prefers equity financing, the proportion of debt financing is relatively low. Although the current liabilities are declining, but the three-year averages are all more than 85%, the sample companies are inclined to short-term financing. The average proportion of the top ten shareholders is more than 50%, which means that more than half of the company's voting rights are in the hands of few shareholders, the equity is more concentrated.

4.2 Analysis of regression results

Table 4 The regression results

Variable	Coefficient	standard error	T value	P value	Collinearity statistics	
					Tolerance	VIF
C	0.4435	0.5335	0.8313	0.4064	-	-
LEV	-4.8132***	0.4059	-11.8588	0.0000	0.655	1.526
LEV^2	4.6252***	0.5562	8.3157	0.0000	-	-
CDR	-0.3440**	0.1450	-2.3722	0.0182	0.926	1.079
CR10	0.0002**	0.0020	2.0503	0.0409	0.943	1.061
FAR	-0.4717***	0.1673	-2.8194	0.0051	0.912	1.097
SIZE	0.0396*	0.0233	1.6994	0.0901	0.605	1.653
MSR	-0.0564***	0.0228	-3.3213	0.0010	0.363	2.755
R-squared 0.536						
F-statistic 33.789						
Adjusted R-squared 0.523						

The quadratic standard coefficient is negative, indicating that LEV and PER have quadratic function relationship, and the quadratic curve shows inverted U-type, which verifies H1, and the optimal asset-liability ratio is 51.9%. CDR was negatively correlated with PER, which verifies H2, indicating that too many short-term liabilities would bring negative effects, which affects the corporate performance. CR10 and PER were positively correlated, verifying the H3, indicating that the higher the degree of ownership, the greater the relative rights of shareholders, the stronger its execution, thereby improving corporate performance.

5. Conclusion

In this paper, we find that the listed companies in China's information technology industry have obvious financing preferences, the proportion of debt financing is generally low, asset-liability ratio and corporate performance have inverted "U" type relationship, and the optimal asset-liability ratio is 51.9%, most companies of technology industry should increase their debt proportion. In addition, from the debt structure, the information technology industry listed companies prefer short-term debt financing, the average value fluctuates around 90% in the past three years, much current liabilities will bring liquidity risk and credit risk, resulting in reduced corporate performance, from the ownership structure, the concentration proportion of shareholders will have a positive effect on the performance, major shareholders will pay more attention to their own interests in the corporate performance, effectively supervising managers, taking timely actions to avoid bad behaviors. Therefore, the greater proportion controlling shareholder has, the more significant effect it does.

Reference

[1]Bandyopadhyay A, Barua N M. Factors determining capital structure and corporate performance in India: Studying the business cycle effects[J]. Quarterly Review of Economics & Finance, 2016, 61:160-172.

[2] Xiong J. Capital structure on the impact of corporate performance research [D]. Jinan University, 2014.

[3]Kakanda M M, Bello A B, Abba M. Effect of Capital Structure on the Performance of Listed Consumer Goods Companies in Nigeria[J]. Social Science Electronic Publishing, 2016.

[4]Klimenko N, Morenobromberg S. Short Term Debt and Bank Liability Structure[J]. Social Science Electronic Publishing, 2015.

[5]Hastori H, Siregar H, Sembel R, et al. Agency Costs, Corporate

Governance and Ownership Concentration: The Case of Agro-industrial Companies in Indonesia[J]. Asian Social Science, 2015, 11(18).

[6] Pu Z F, Xiao Z H.A Study on the Dynamic Interaction between Growth and Profitability of Small and Medium-sized Listed Companies - Based on the Change of Capital Structure [J]. Management World, 2015 (5): 184-185.

[7] LI L. Study on the inverted U-shaped relationship between capital structure and firm value - based on the intermediary effect of corporate risk-taking [J]. Jiangsu Social Sciences, 2016 (3): 109-115.

[8] Tao H X. Capital Structure Fluctuation and Equity Capital Cost [D]. Anhui University of Technology, 2016.

