

The Relationship Between Debt Financing and Market Value of Company: Empirical Study of Listed Real Estate Company of China

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Abstract This paper explains the relationship between the debt financing and market value from about 272 Chinese real estate companies, which are all from Shanghai Stock Exchange and Shenzhen Stock Exchange between 2002 and 2007. We conduct an empirical study, the empirical results show that our country's real estate listing of corporate debt financing relatively large proportion of total assets, average by 55%. And generally improving the overall rate of debt financing can improve the company's market value. Further in-depth studying, we found that long-term borrowing and commercial credit financing have positive correlation with the company's market value, however, short-term borrowing and company's market value had a negative correlation.

Key words Debt financing; Firm value; Short-term borrowing; Long-term financing; Commercial financing

1 Introduction

In western first study on theory of the capital structure and company value is Modigliani and Miller in 1958, which was the famous MM theory, the company's capital structure has nothing to do with the company's market value in without regard to corporate income tax, having the same business risk and the only difference is the capital structure. In 1970's agency costs and asymmetric information theory is introduced. Generally, it is believed that managers or internal people have more private information than external people about the distribution of earnings for the company and investment opportunities. Their study found that it is positively correlated between company's value and its debt equity ratio. Myers studies the influence of asymmetric information on financing costs further, who finds that the proportion of corporate debt is signal tool which pass the internal information to the market.

In China there are many researches on debt financing and corporate performance, but almost no distinction between the different roles of debt structure. The research on the debt maturity structure and the performance, (Lu Yumei and Hu Baoguang 2005) argue that there is no significant regularity between short-term liabilities and the performance of the company, The study is a simple data comparison, without the inherent relationship between the data analysis, the conclusion has far-fetched. Yang Weidong and (Liu Jianguo 2009) establish a regression model using econometric analysis, and then have a empirical research on the relationship between the Listed Companies in the real estate industry and corporate performance from 2004 to 2008. The empirical results show that there is a significant positive correlation between the performance of listed companies in real estate industry and long-term bank credit financing rate, fiscal financing rate, and there is a negatively correlated between the performance and equity financing.

2 Advantages and Disadvantages of Debt Financing

Generally debt financing is divided into the following categories: 1) bank loans, business loans by repayment period will be divided into short-term borrowings and long term loans; 2) Corporate bonds, because very few real estate companies use bond financing, so this does not make consideration; 3) inter-enterprise loans, the data is difficult to collect, so this is also not for consideration; 4) commercial credit which includes the commercial credit into accounts payable, notes payable and accounts receivable in advance.

2.1 Advantages of debt financing

First, the agency costs of debt financing advantages. (Jensen & Meckling 1976) point out that the capital structure is decided by the agency cost. Debt managers need to reduce the opportunity for their own profit. Liabilities into equity capital will reduce the agency costs, although the agency cost of debt capital will rise, but the appropriate ratio of liabilities will lower cost of equity capital beyond the rising cost of debt capital and agent, thereby enabling cost reduction agent can achieve the purpose of improving firm performance.

Second, signal effect of debt financing. Generally it is believed that control of the business

operators and investment risks of future know more internal information than investors, increase the debt will increase the possibility of bankruptcy, so when enterprises to increase the debt, investors would think that the quality of enterprise assets and business is good the stock price will rise, so as to enhance firm value.

Third, the debt tax shield effect and financial leverage. The role of corporate debt tax shield is, enterprises pay interest to creditors of the costs, exemption from corporate income tax, while dividends paid to shareholders is deducted from the net profit after corporate income tax, so if interest rates are appropriate, and EBIT more than business interest, then improve the enterprise's debt ratio would increase the tax-free income, improve the enterprise's market value.

2.2 Disadvantages of debt financing

First is financial risk. After the need for regular business borrowing to pay interest on the cash flow will produce a lot of pressure, when the debt expires, a one-time payment of principal, which requires companies with ample cash flow. Once the poor business or not raise the necessary cash would be in financial difficulty, or even lead to bankruptcy (interest fixed, the principal focus on payments).

Second, moral hazard of creditors is more harm to the equity holders than to creditor. Moral risk manifests itself in corporate income to repay the loan in not more than choose not to repay the loan when the cost of the behavior, which will result in great loss of creditors.

3 Research Design

3.1 Sample selection

This research samples are selected from Shanghai Stock Exchange and the Shenzhen A-share listed companies in all real estate from 2002 to 2007 data, a total of 332 observations, of which B shares and H shares is based on accounting standards differ with the A shares, ST companies because of data anomalies should be removed. Excluding other income was a negative net asset value and part of the data anomalies, and finally a total of 272 samples. All financial data are from the CCER and the Eastern wealth network of financial databases, securities star, Shanghai Stock Exchange, Shenzhen Stock Exchange and other sites, in this paper we use EXCELL and SPSS17.0 for data processing.

3.2 Research methods

If the various debt financing can really affect firm value, then this will test the following empirical analysis of debt financing on firm value in the end played a positive or negative role. China's real estate debt capital of listed companies mainly from financial institutions, loans, commercial credit transactions between businesses and the small amount of corporate bonds, because the listed real estate companies use the number of corporate bond financing is limited, this will not be an empirical analysis.

(1) The explanatory variables: return on equity (*ROE*), ratio of net profit to average equity, that is company's profit after tax divided by net assets are the percentage rates of the indicators reflect the level of equity return to measure the efficiency of the company using its own capital.

(2) variables: a) rate of debt financing (*RDF*), that amount of debt financing divided by total assets at the end of year, and amount of debt financing includes amount of debt financing bonds, bank loans and enterprises of the indirect financing of and exc. b) Rate of short-term borrowing financing (*SRDF*), is the ratio of the short-term borrowings to current total assets. c) Rate of long-term borrowing financing (*LRDF*) that is the ratio of the long-term borrowings to current total assets, long-term borrowings amounted to current long-term borrowing in the banking business. d) Rate of business credit financing (*CRDF*), that is the ratio of the year the amount of commercial credit financing to total assets, according to (Tan Xiaoping 2007), China's listed companies prefer short-term debt financing motive analysis, commercial credit from the notes payable, accounts payable and accounts in advance section of three parts.

(3) Control variables: a) size of company (*SIZE*), common logarithm of company's total assets at the end of the year. (Mock 1998) shows that size of company impact on its performance. b) Return on assets (*ROA*), the ratio of the company pre-tax income that year to total assets. Since the return on assets to the company's profitability reaction, the company's profitability on firm value has a significant impact, generally the higher the profitability, the greater the value of the company.

4 Empirical Study

4.1 China's real estate debt financing status of listed companies

Table 1 shows descriptive statistics data of the annual sub-listed real estate companies from 2002 to 2007, debt financing, from the data, we can see that compared with the equity financing, real estate

companies in China rely more on debt financing, in this six years average annual rate of debt financing up to 55%. We can see that commercial credit financing to total assets ratio of the highest, reaching 19.22%, followed by short-term bank borrowings, the financing accounted for 16.25% of total debt. This shows that commercial credit financing the greatest impact on the debt financing.

Table 1 Descriptive Statistics of Debt Financing of Listed Real Estate Companies

		2002 (N=36)	2003 (N=42)	2004 (N=46)	2005 (N=45)	2006 (N=47)	2007 (N=56)	The total sample (N=272)
The ratio of debt financing to total assets	Mean	0.5342	0.5439	0.5630	0.5666	0.5736	0.5438	0.5547
	Median	0.5342	0.5507	0.5950	0.5725	0.6085	0.5861	0.5741
	Standard deviation	0.1388	0.1646	0.1478	0.1471	0.1422	0.1589	0.1499

Table 2 Descriptive Statistics of Long-term Debt Financing of Listed Real Estate Companies

		2002 (N=36)	2003 (N=42)	2004 (N=46)	2005 (N=45)	2006 (N=47)	2007 (N=56)	The total sample (N=272)
The ratio of long-term borrowing financing to total assets	Mean	0.0636	0.0695	0.0809	0.0870	0.1210	0.1330	0.0955
	Median	0.0164	0.0403	0.0814	0.0814	0.1096	0.1308	0.0719
	Standard deviation	0.0996	0.0913	0.0750	0.0757	0.1111	0.1023	0.0965

Table 3 Descriptive Statistics of Short-term Debt Financing of Listed Real Estate Companies

		2002 (N=36)	2003 (N=42)	2004 (N=46)	2005 (N=45)	2006 (N=47)	2007 (N=56)	The total sample (N=272)
The ratio of short-term borrowing financing to total assets	Mean	0.1981	0.2044	0.1925	0.1722	0.1536	0.0834	0.1625
	Median	0.1969	0.1634	0.1847	0.1684	0.1188	0.0546	0.1394
	Standard deviation	0.1239	0.1915	0.1245	0.1220	0.1811	0.0881	0.1469

Table 4 Descriptive Statistics of Business Credit Financing of Listed Real Estate Companies

		2002 (N=36)	2003 (N=42)	2004 (N=46)	2005 (N=45)	2006 (N=47)	2007 (N=56)	The total sample (N=272)
The ratio of business credit financing to total assets	Mean	0.1710	0.1745	0.1764	0.1821	0.2626	0.1811	0.1922
	Median	0.1429	0.1615	0.1653	0.1489	0.1643	0.1654	0.1603
	Standard deviation	0.1190	0.1203	0.1026	0.1295	0.4039	0.1195	0.2003

4.2 Regression results and analysis

In model 1 we will analyze the relationship between the market value and the rate of debt financing, taking into account the return on assets and company size affect the market value of the company, which also include the two indicators of model 1 as a control variable, examine its impact on the company's market value.

Model 1 $ROE = a + \beta_1 RDF + \beta_2 ROA + \beta_3 SIZE + \gamma$, γ is the interference term

The regression results from Table 5 shows that the rate of debt financing real estate companies and between the market value of the company were highly significant positive correlation. The regression results from the table, you can see, debt financing rate at 99% confidence level is significantly ($t = 7.092$,

p = 0.000).

Although we can see from Table 5, the total real estate listing company's debt financing and the company's market value was a positive correlation, but the debt includes long-term liabilities Short-term debt and trade credit, which is most affected, so we will build the model 2.

Table 5 Regression Results of Total Debt Financing and the Market Value

The explanatory variables: market value of company (ROE)		
variables	Model 1	VIF
<i>RDF</i>	0.119*** (7.092)	1.075
<i>ROA</i>	1.169*** (15.793)	1.041
<i>SIZE</i>	0.011*** 4.133	1.036
R ²	0.528	-
ADJ- R ²	0.522	-
DW	1.337	-

Note: *** indicates 99% confidence level is significantly, ** indicates 95% confidence level significantly, * denotes 90% confidence level significantly.

Model 2 $ROE = a + \beta_1 LRDF + \beta_2 SRDF + \beta_3 CRDF + \beta_4 ROA_t + \beta_5 SIZE_t + \gamma$, γ is the interference term

Table 6 Regression Results of the Relationship between Debt Financing and the Market Value

The explanatory variables: market value of company (ROE)		
variables	Model 2	(VIF)
LRDF	0.107*** (3.765)	1.167
SRDF	-0.030* (-1.630)	1.150
CRDF	0.030** (2.363)	1.022
ROA	1.496*** (13.914)	1.057
SIZE	0.011*** (3.929)	1.061
R ²	0.492	-
ADJ- R ²	0.482	-
DW	1.695	-

Note: *** indicates 99% confidence level is significantly, ** indicates 95% confidence level, significantly, * denotes 90% confidence level, significantly.

First, the regression results from Table 6 we can see, real estate companies long-term debt financing rate and the company's market value has significant positive correlation, long-term debt financing rate of 99% confidence level is significantly (t = 3.765, p = 0.000). Because interest payments on long-term liabilities arising from pre-tax deduction, it can generate tax shield effect, and the cycle of long-term borrowing is long, so that enterprises have enough time to use the borrowed funds, do not rush to pay short-term repayment interest, which can enhance their market value.

Second, the real estate business credit finance companies and the market value of the company has a positive correlation, commercial credit financing rate at 95% confidence level was significantly (t = 2.363, p = 0.019). The general business credit financing free credit period can be used in this part of the funds, do not pay interest, which reduces financing costs, enhance the company's market value.

Finally, from Table 6 we can see it is negative correlation between short-term debt and value of the company, short-term debt financing rate at 90% confidence level significant (t = -1.630, p = 0.100). General real estate company working capital short-term borrowing from banks, and its working capital is difficult to upgrade to the company great value, especially when the company mismanagement, can not take full advantage of this part of the short-term borrowing, the value of the company will appear our empirical analysis of the results above, short-term borrowing increased, decreased value of the company.

5 Conclusion

According to regression analysis above, we can see real estate listed companies in the market value of its debt financing with a very important role, the long-term debt financing and commercial credit finance company's market value although positive correlation, but their correlation coefficient is relatively small, are 0.107,0.103. Real estate companies, long-term loans are used to purchase land for the construction of real estate development later, Land prices are rising from 2002 to 2007, so buy more land, real estate companies will get more profitable. so it can improve its corporate value. Commercial credit financing is generally obtained free of charge, without cost, it is generally enhance the value of the company, but The correlation coefficient is low as 0.103, real estate companies should make full use of these funds to enhance corporate value. Short-term debt financing and negatively related to firm market value, real estate companies short-term debt financing reduces the company's market value, indicating short-term borrowing to offset the benefits of real estate can not be the cost, real estate companies should strengthen corporate management of active use of short-term loans to the company benefits, so as to enhance the company's market value.

The analysis of the above, we can see, real estate companies relied more on debt financing, debt financing is main financing channels. Short-term borrowing and market value of the company is negative correlation. Therefore, real estate companies should appropriately lower the number of short-term borrowing, use long-term borrowing to make up for this part of the under-funded. And real estate companies should broaden the financing channels, active use of equity financing and the issuance of corporate bond financing. Finally, most real estate companies are state-controlled, resulting in low efficiency of its operations, the state should strengthen the supervision on the real estate company, and continuously improve its management efficiency, so as to enhance its firm value.

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