Science, Technology, and Social Sciences Procedia
2022; 2022(5): CiM06
https://wjst.wu.ac.th/index.php/stssp

The Impact of Capital Structure on Firm Performance in Real Estate Companies in China†

Xiaomin Peng[1,*], Trairong Swatdikun[2], Alisara Salamolee[2] and Krittaya Sangboon[3]

[1]*College of Graduate Studies, Walailak University, Nakhon Si Thammarat 80160, Thailand*
[2]*School of Accountancy and Finance, Walailak University, Nakhon Si Thammarat 80160, Thailand*
[3]*Mahasarakham Business School, Mahasarakham University, Maha Sarakham 44150, Thailand*

([*]Corresponding author's e-mail: xiaomin.pe@st.wu.ac.th)

Abstract

Capital structure has been in the focus of academic research ever since MM theory was put forward. With the rapid development of Chinese economy, thus this research explores the impact of capital structure on firm performance of listed companies. This research adopted Decision-making Theory as theoretical underpin which expected rational shareholder to seek for the most appropriate capital structure in their context. This archival research analyzed capital structure of real estate listed companies in Shanghai and Shenzhen Stock Exchange between 2017 and 2021 using Refinitiv Eikon database. The empirical multivariate regression evidences reveal that total asset-liability ratio, equity ratio, long-term debt ratio, has direct impact on ROA, at the significant level of 0.05. The finding reveals that higher debt during the period harm the performance of the firm in real estate industry.

Keywords: Capital Structure, Firm Performance, Real-Estate Listed Companies, China

Introduction

Financing is one of the common concerns in financial management theories, which capital structure occupies a very important position in those theory (Ungphakorn, 2022). Early evidence of capital structure research was introduced by Modiano and Miller. It indicates that a company's capital structure has no bearing on its market value. The theory asserts that market value is defined by the present value of expected future earnings. Since its conclusions are based on a series of strict assumptions, it is not feasible to explain the real situation. Follow, a considerable number of scholars began to not only explore the causes from other perspectives of capital structure (Myers & Majluf, 1984; Ross, 1977). It reveals that not only income tax factors, monetary policy, capital market, firm size and core competitiveness affect capital structure, but also, the governance structure, control, core competitiveness and the firm itself. The model was well accepted, and later improve better understanding among scholars and practitioners. This research is not only the current capital structure of Chinese listed companies, but also give particular attention into the performance consequences, which considerately innovative.

Literature review

According to the pecking order theory, businesses prioritize their financing options and reserve equity financing as a last resort. Priority is given to internal resources, and when they are exhausted, debt is issued. When it makes no sense to do so, equity is issued. Then, organizations follow a hierarchy of financing options and favor internal funding when it is available. If external financing is needed, debt is favored above equity. The financing sequence considerately true from listed companies to SME (Huang, 2013). The research pointed out that the financing sequence adopted by companies should be internal, debt, and equity financing. The signaling theory, however, suggested that managers will first issue debt and then, as a last option, stock if they think their companies are undervalued. In contrast, management will issue equity first

†Presented at the Conference in Management: Winter 2022 (December 17, 2022 at Walailak University, Thailand)

if they think their company is overpriced. The two theories stand on opposite standing points. Controversially, Numbers of ratios can use for measuring capital structure, however (Ungphakorn, 2022) suggests 2 most common views to represent capital structure of each firm as followed.

1) Shareholding structure can be measure through ownership structure which is the proportion of shares of different nature to the total share capital of the joint-stock firm and its relationship. The shareholding structure can be examined from 2 aspects: On the one hand, there are qualitative regulations, that is, to examine the type of the shareholding subject (shareholder), its composition and shareholding ratio; the concentration or dispersion of distribution. On the other hand, it can be considered that the shareholding structure is the distribution of equity composed of different shareholders and their shareholding ratios.

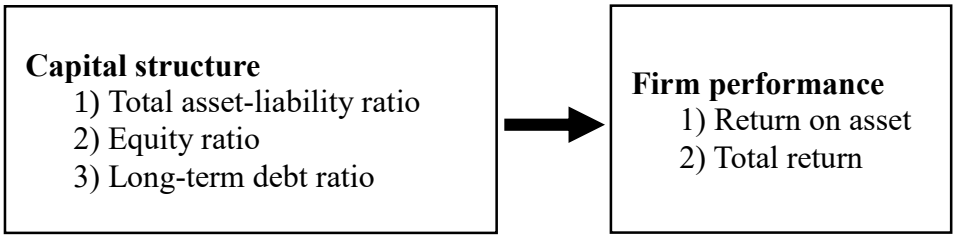
2) Debt structure can be measured through assets and liabilities. The debt-to-equity ratio is the level of debt and is usually expressed by the debt-to-asset ratio. Asset-liability ratio = total liabilities/total assets, that is, asset-liability ratio = total liabilities/total assets. In addition, the ratio of debt to shareholders' equity can also be directly expressed as the ratio of debt to equity, that is, the ratio of debt to equity = total debt/owner's equity. The asset-liability ratio of the research is expressed as the asset-liability ratio.

Previous studies on the impact of capital structure on firm performance

Performance consequences of capital structure is re-emerged in the recent years, the following research newly took place; Ma (2021), took 14 listed commercial banks to study the impact of firm capital structure on firm performance during 2004 and 2021. It concludes that: The increase of the leverage ratio of listed banks is conducive to the improvement of bank performance; the ownership structure, which represents the core capital structure, has little effect on bank performance, especially the ownership concentration. Wu (2021), moreover, took the manufacturing industry to study the impact of the capital structure of listed companies on firm performance. It draws the conclusion that there is a significant negative correlation between the capital structure of country's A-share manufacturing listed companies and firm performance. Furthermore, (Li & Zhao, 2020) analyzed the impact of debt structure on business performance. The results showed that high or low asset-liability ratio was not conducive to the improvement of performance, while moderate asset-liability ratio and diversified debt structure were conducive to the improvement of firm competitiveness. Zhang et al. (2021) conducted research on the impact of capital structure on firm performance in Zhejiang listed companies, they found that capital structure is positively correlated with firm performance. Thus, the trend is emerged while empirical evidence is considerately limited.

Conceptual framework

Base on theory and existing literature, the research framework is as follow:



Research methodology

This research is a survey using quantitative analysis on the basis of the above theory and related research. It draws lessons from the relevant theories and literatures about capital structure in China and other countries, analyze, and summarize the research results using theory guided.

Data collection

This research adopted available financial data from the Refinitiv Eikon database from 2017 to 2021.

Population

According to the stock list of listed companies published on the website of China Securities Regulatory

Commission, this research selects Shanghai and Shenzhen A-share (2017 - 2021) account for 260 listed companies as it can reflect the current situation of China's listed companies.

Research variables

The independent variable refers to capital structure and its measurement is consistent with the previous paper, that is, the total Asset-liability ratio, the equity ratio, and the long-term debt ratio.

The dependent variable refers to the firm's performance indicators. This research tends to use accounting performance indicators for the following reasons: 1) Total return, which can be used to calculate the dividend yield obtained and can also be used for forecast the possible future dividend yield. 2) Although there is accounting fraud in listed companies, ROA is the most easily manipulated target in the 2 indicators selected in this research.

The control variable comprises of size, and profits, were used to further the influence and degree of the fine capital structure on the firm's performance. After forming the dependent variable and independent variable, we plan to use the factors that may affect the capital structure to control the firm characteristics.

Research model

Based on the previous definition, a basic model is generated as:

$$\text{Firm Performance}_{I,,t} = \alpha + \beta 1 \text{ capital structure}_{I,,t} + \beta 2 \text{ control variables}_{I,t} + E_{I,t}$$

Where,

Performance$_{I,t}$ = ROA and R of firm performance of firm I in year t

Capital structure$_{I,t}$ = Asset-liability ratio, Equity ratio, and Long-term debt ratio of firm I in year t

Control vriable$_{I,t}$ = SIZE of firm I in year t

$$ROA_{I,t} = \alpha + \beta_1 \text{ asset liability ratio}_{I,t} + \beta_2 \text{ equity ratio}_{I,t} + \beta_3 \text{ long-term debt ratio}_{I,t} + t + \beta_4 SIZE_{I,t} + \varepsilon_{I,t} \quad (1)$$

$$R_{I,t} = \alpha + \beta_1 \text{ asset-liability ratio}_{I,t} + \beta_2 \text{ equity ratio}_{I,t} + \beta_3 \text{ long-term debt ratio}_{I,t} + \beta_4 SALE_{I,t} + \varepsilon_{I,t} \quad (2)$$

where: $ROA_{I,t}$ = return on assets of firm I in year t

$R_{I,t}$ = total return of firm I in year t

Asset-liability ratio = the ratio of total liabilities to total assets of firm I in year t

Equity ratio = the ratio of the firm's proportion to asset to all equity in year t

Long-term debt ratio = the ratio of firm I's long-term liabilities to total assets in year t

Size$_{I,t}$ = total assets of firm I in year t

Data analysis

This research uses descriptive analysis, correlation analysis and multiple regression analysis. Firstly, descriptive analysis can be carried out to determine characteristics of variables observed. Next, this research explores the correlation among asset-liability ratio, equity ratio, long-term debt ratio, return on assets, total return, debt, and total asset, Regression analysis is a practical and widely used statistical analysis method. Regression analysis is not only getting the mathematical expression of the relationship between variables, but also judge whether the empirical formula is valid; The empirical formula can also be used to predict and control the value of another variable according to the value of 1 or several variables.

Research finding

This section explains research finding. Which covers descriptive, correlation, and regression analysis.

Descriptive statistics

Descriptive statistics of capital structure and firm performance, sample data from 2017 to 2021. The data are collected from EIKON database,

Table 1 Descriptive statistic.

Variable	Minimum value	Maximum value	Mean value	Standard deviation
Asset-liability ratio	0.000	2.392	0.675	0.358
Equity ratio	0.000	43.060	2.351	3.809
Long-term debt ratio	0.000	0.636	0.330	0.151
Total assets(thousand)	396	351,225	40,059	14,273
Return on assets	−0.114	0.205	0.034	0.034
Total return	−0.876	1.780	−0.098	0.419

Table 1 shows that capital structure, the mean value of asset-liability ratio is 67.5 %, and the standard deviation is 0.3583. the main value of equity ratio is 2.351, and standard deviation is 3089The average long-term debt ratio is 0.3304 and the standard is 0.151, indicating that the debt scale of real estate companies is large and the overall debt level is relatively high. In terms of firm performance: The mean value of return on total assets is 0.034, the standard deviation is 0.034, and the total return is between −9.8 and 41.9 %, indicating that Shanghai and Shenzhen A-share real estate companies have A large difference in business performance. In case of control variables, the average value of total assets of the firm is 40,059.000USD, indicating that the development of the real estate industry is on the rise, but the maximum value is 351,225 and the minimum value is 396, indicating that there are great differences in the development level of each firm.

Correlation analysis

The correlation coefficient between capital structure and firm performance of China's real estate industry of the total sample 260 data from 2017 to 2021 are as followed.

Table 2 Correlation Analysis

	Asset-liability ratio	Equity ratio	Long-term debt ratio	Total assets	Return on assets	Total return
Asset-liability ratio	1					
Equity ratio	0.334	1				
Long-term debt ratio	0.672***	0.270***	1			
Total assets	0.129	0.127**	0.207***	1		
Return on assets	−0.523***	−0.431***	−0.453***	−0.118*	1	
Total return	−0.227	−0.029	−0.122*	−0.089	0.012	1

Denote * is significant at 10 %, ** significant at 5 %, and *** significant at 1 %

Table 2 reveals that the correlation coefficient between asset-liability ratio and equity ratio, total Asset-liability, return on total assets, and Asset-liability ratio is significant at the 1 % significance level; Thus, no saviors relation among capital structure proxies. This research chooses multiple linear regression analysis as the method to analyze the impact of capital structure on firm performance of listed real estate companies, because it can measure the influence degree of multiple independent variables on dependent variables, and find the factors that have significant influence on the explained variables.

Regression analysis

This section explores impact of capital structure on firm performance, regression analysis is conducted on the model established above, and the rate of return on total assets and total return on stock as explanatory variables are substituted into the model for testing.

Table 3 Multiple-regression analysis.

	ROA		R	
	Coefficients	**Standard error**	**Coefficients**	**Standard error**
Intercept	0.074***	0.004	0.072	0.063
Assets-liabilities	−0.031***	0.007	0.333***	0.098
Equity ratio	−0.003***	0.001	0.005	0.009
Long-term debt ratio	−0.035**	0.016	0.151	0.231
Total assets	0.000	0.000	0.000	0.000
	R^2 = 259.000, F-test = 28.920***		R^2 = 259.000, F-test = 3.879***	

Denote * is significant at 10 %, ** significant at 5 %, and *** significant at 1 %

Table 3 uses ROA model to test the regression, the F-value of the model is 28.920, and the corresponding t-value is 0.000, which indicates that the model is significant at 1 %. The constant coefficient is 0.074, the coefficient of Asset-liability ratio is −0.031, equity ratio is 0.003 and long-term debt ratio is at −0.035, The variable is significant at the significant level of 1 %. Every 1 % increase in the Asset-liability ratio will lead to a decrease in ROA by 4.607 %. The coefficient of long-term debt ratio is −0.035, and has passed the significance test. The variable is significant at the significant level of 1 %, which also indicates that the increase of long-term debt ratio will lead to the decrease of return on asset. The assets liabilities result is appeared when performance was measured through stock return.

Discussion of empirical conclusions

The Asset-liability ratio of listed real estate companies in China is negatively correlated with firm performance. In other words, it can generate more internal retained earnings and reduce debt, which can reduce the firm's asset-liability ratio to a certain extent. However, if the firm has a high asset-liability ratio, it will increase the firm's financial risk and the probability of bankruptcy, and creditors will take the opportunity to ask for an increase in the cost of debt financing, which will eventually lead to a decline in the firm's performance. It can be inferred that the reason why listed real estate companies in China have a high asset-liability ratio, but failed to reach the western capital structure theory describes the asset-liability ratio is higher, the better firm performance will be is mainly due to the bond market in China is still underdeveloped, listed companies do not have perfect bankruptcy mechanism as well as debt hard constraint's function failure and so on. Only by properly controlling their asset-liability ratio can listed companies in the real estate industry have good firm performance.

The impact of equity ratio on firm performance. Reveals that the higher the proportion of equity, the better the performance of the real estate listed firm. This indicates that when the controlling shareholder's equity is more concentrated, it is helpful to improve the decision-making efficiency of the firm, that is, the stronger the shareholder's control ability is, the more beneficial it is to improve the firm's performance, and vice versa, the stronger the ability to use the internal retained earnings to support the firm's operation, and the less need to obtain the operating capital through external financing. As a result, the risk of shares being dispersed is reduced, so the better the performance of the firm, the higher the concentration of shares.

The impact of long-term debt ratio and firm performance. shows that long-term debt ratio is negatively correlated with firm performance, the conclusion mainly as a result of long-term debt interest rates higher, when the long-term debt ratio rising trend, will make the firm continuously improve the cost of financing, the debt service pressure on the firm continues to increase, if the firm perennial high long-term debt ratio, make the firm's financial risk is increasing, likely to cause a financial crisis, In this case, creditors will demand a higher interest rate. In addition, the tax law clearly stipulates that the proportion standard of related party creditor's investment and equity investment accepted by Chinese firms is, the taxable amount shall be deducted and the excess of the prescribed in the standard of the interest payments, exceed the standards need to be adjusted, tax, in turn, weaken the tax effect of debt, debt interest rates increase the tax effect can offset the spending, which is not conducive to the firm to improve performance.

Research implications

Debt level of Chinese real estate firms is at a high level, and the average asset-liability ratio has reached more than 60 %. Considering that a high asset-liability ratio will have a negative impact on firm performance, it is suggested to reduce the debt level appropriately and expand financing channels to reduce business risks.

Develop bond financing and expand financing channels; High debt levels is a common phenomenon, the real estate industry to reduce the bank debt levels, must break relying only on the present situation of the Banks, mainly from the bank to get money, instead of on capital markets for funds, such as through bond financing, since such real estate firms not only get the money, and adjust the structure of the debt capital structure more robust. The main reasons for the single financing channel are various. First of all, it is easier for real estate firms to obtain bank loans than other financing methods, and the state-owned nature of many banks leads to poor debt supervision. Secondly, at present, China's bond market is not prosperous enough, and financing through bonds is not widespread, because of its high issuance cost and complicated approval procedures. The main reason for the strict control of bond issuance is that some companies have defaulted on the bond payment. It is very necessary to strengthen the construction of the bond market system.

Attach importance to equity financing, which can not only reduce the current situation of high asset-liability ratio, but also obtain the development of firms. To stabilize funds. There are many ways of equity financing. For the real estate industry, capital and share expansion can be used to finance. Whether it is the introduction of new shareholders or old shareholders to subscribe, it can increase firm capital, reduce the level of debt and control business risks, but also can obtain more cash flow and promote firm development. Listed real estate companies attach importance to equity financing and can obtain funds through rights offering. Rights offering is often issued at a discount according to the market price. In addition, old shareholders understand the firm, so it is easier to obtain funds. They can also take out advantageous projects and directly obtain financing from real estate trust and other institutions, so as to improve the financial structure of China's real estate and reduce the excessive dependence on banks.

Matching the use of funds and improving the efficiency of capital utilization Real estate firms should comprehensively consider the capital needs of firms, formulate the access to funds according to the capital needs, make reasonable use of the obtained funds, and improve the utilization efficiency of funds. At present, China's real estate industry companies due to the lack of financing channels, the focus of attention in how to obtain capital, the access to capital and the use of insufficient attention. To minimize the cost of capital and can reduce the risk of the use of capital, industry companies in the acquisition of funds, choose the appropriate financing method into finance method ng, because only in this to ensure that the use of capital cost is lower, due to be able to repay on schedule. In addition, if real estate firms want to obtain abundant sources of funds, the key is to improve their own performance.

References

Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance, 6*(5), 438-445.

Berger, A. N., & Patti, E. B. D. (2006). Capital structure and firm performance: A new approach to the banking industry. *Journal of Banking and Finance, 30*, 1065-1102.

Booth, A. V., Demirgur-Kunt, A., & Maksimovie, V. (2001). Capital structures in developing countries. *Journal of Financial Economics, 56*, 87-130.

Frank, M. Z., & Goya1, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics, 67*, 217-248

Gao, H. (2021). *The determinants and dynamic adjustment of the capital structure of listed companies in my country*. Shanghai, China: Fudan University.

Harold, D. K. L. (1985). The structure of firm ownership: Causes and consequences. *Journal of Political Economy, 93*(6), 1155-1177.

Hatfield, L.C. (1994). The determination of optimal capital structure: the effect of firm and industry debt ratios on market value. *Journal of Financial, 35*, 213-223.

Huang, J. D. (2013). *Empirical study on financing sequence of listed companies on SME board*. Abu Dhabi, Arab: World of Labor Security.

Jensen, M. C., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Jensen, M. C., & Wu, M. (1992). Theory of the firm: Managerial behavior, costs and ownership structure. *Journal Financial of Economics, 43*, 305-360.

Kong, Q. (2021). *An empirical study on the impact of macroeconomic fluctuations on the capital structure of Chinese listed companies*. Dalian, China: Dongbei University of Finance and Economics.

Li, L. (2021). *Research on the influence of capital structure of listed commercial banks on operational performance*. Chongqing, China: Southwest University.

Li, Z. (2020). A study on the relationship between debt structure and corporate performance of private listed companies - empirical test based on debt diversification. *Friends of Accounting, 4*, 93-97.

Liu, C., & Song, J. (2021). Research on the relationship between macroeconomic factors and changes in firm capital structure. *Business Must Read, 3*, 130-131.

Ma. (2021). *Research on the influence of capital structure of listed banks on performance*. Nanjing, China: Nanjing Normal University.

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

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

Ross, T. (1977). Determination of financial structure: The incentive signaling approach. *Bell Journal of Economics, 8*, 58-69.

Ungphakorn, T. (2022). *Financial management*. Mahasarakham, Thailand: Apicart Printing.

Wong, K. P. (2021). A regret theory of capital structure. *Finance Research Letters, 12*, 48-57.

Wu, X. (2021). *Research on the impact of capital structure of listed companies on corporate performance*. Chengdu, China: Southwestern University of Finance and Economics.

Zhang, S., Jin, Y., & Fan, Z. (2021). Research on the influence of capital structure of Zhejiang listed companies on business performance. *Journal of Hangzhou Dianzi University, 11*(5), 13-19.

Zhao, S. (2006). *Research on the capital structure of Chinese listed companies*. Hefei, China: University of Science and Technology of China.