

On the Financing Regulation of Stock Market and the Optimal Capital Structure of Listed Companies

Liu Nan

Zhuhai College of Jilin University, Zhuhai Guangdong 519041, China

ABSTRACT. *the “Supply side Effect” of Capital Structure and Enterprise Financing Caused by the Imperfection of Capital Market Has Been Paid More and More Attention by Financial Circles. At Present, China's Capital Market is in a Transitional Period. Compared with Western Countries, It Has Particularity. the Strict Regulation of Securities Issuance and Financial Innovation Restricts the Financing and Capital Structure of Enterprises. through the Research on the Listed Companies of Equity Refinancing, It is Found That the Important Factor Affecting the Capital Structure of Listed Companies is the Change of the Regulation Policy of Equity Refinancing, Not the “Market Opportunity” of Stock Market Valuation. in Order to Achieve the Optimal Capital Structure, the Company Itself Needs to Take Certain Measures, and the Government and the Stock Control Department Should Also Take Relevant Measures to Create a Better Environment for Listed Companies.*

KEYWORD: *Stock market; Financing regulation; Optimal capital structure of company*

1. Research on the theory of optimal capital structure of listed companies

Modigliani and Miller (1958) drew a conclusion that corporate financing decision has nothing to do with value, which is the origin of modern corporate finance theory. Since then, in order to investigate the main factors that affect the financing and capital structure of enterprises in real conditions, corporate finance scholars have constantly relaxed the premise hypothesis of MM theorem. In this process, the financing decision-making trade-off theory, Myers and Majluf (1984; Myers, 1984) and agency theory (Jensen and Meckling, 1976; Myers, 1977) and other theoretical hypotheses are supported by empirical evidence, and also recognized by corporate finance scholars from all walks of life. However, many financing behaviors and capital structure phenomena of enterprises in developing countries and regions are difficult to be explained by the above theories.

Later, Titman (2001) recombed MM theory and continued to put forward more realistic assumptions. He believes that MM hypothesis has two basic hypotheses: (1)

exogenous cash flow; (2) perfect market (an ideal financial market condition). As a result, financial scholars and all walks of life have a gap between the understanding of financing decision-making and capital structure and the reality, which lies in the assumption that the market is perfect. Academia has spent a lot of time and energy on the assumption of cash flow, but practitioners pay more attention to market conditions. In reality, the condition of financial market is not perfect, and it has an important influence on the company's financing decision and capital structure. Titman called capital market conditions the "supply side effect" of corporate financing and capital structure. Since then, the "supply side effect" has gradually attracted the attention of financial circles.

The first powerful theoretical hypothesis that affects the financing choice of enterprises is the market timing hypothesis. The main point is that in the non effective market, the company's management can use the market's ineffectiveness to arrange financing reasonably to create value. However, the "market conditions of capital supply" concerned by western scholars is only limited to the valuation effectiveness caused by the preferences of capital suppliers, mainly refers to the "market opportunity" caused by the preferences of institutional investors or individuals who provide capital. But for the emerging capital market like China, there is still a big gap with the mature capital market in the West. "Market conditions of capital supply" include not only market timing, but also some other friction factors when the market provides capital, such as more government regulation, less varieties of financial instruments and so on. Especially compared with the western countries, the stock market of our country is more special. The financing regulation of our country has a certain influence on the optimal capital structure of the company.

2. The current situation of financing regulation in China's stock market

The stock market supply conditions faced by Listed Companies in China's stock market mainly have the following two characteristics:

First, the regulation of stock issuance. China is in the process of transition from a planned economy to a market economy, and the capitalist market is not perfect. Under the guidance of the principle of "highly unified development, regulation and market tolerance", the Chinese government implements relatively strict securities issuance control. The government can play a role of macro-control in the stock market. When the stock market has some special needs or the stock market is in a downturn, relevant regulators have the right to suspend the issuance of shares. During the period of full circulation share reform, CSRC also stopped the issuance of shares. In the rising period of the stock market, the relevant regulatory agencies will relax the regulation of issuance rhythm. So in China, if the listed companies want to issue securities, they need to first meet the requirements of financial threshold indicators (return on net assets, cash dividend distribution, etc.); secondly, if the listed companies meet the conditions of issuing access, they will also face the regulation of issuing securities in terms of issuing price, issuing time, issuing rhythm,

issuing scale, etc.

Second, based on the needs of industrial development and macro-control in China, it is normal for the government to restrict or even interrupt the supply of financial products. In other words, even if the conditions of listed companies can meet the conditions of stock issuance, it can not guarantee that the company can obtain equity capital when it needs equity financing. Under the guidance of the government's macro-control and industrial policies, the CSRC correspondingly restricts the IPO and refinancing of some industries, and restricts the listing and refinancing of enterprises in industries with excess capacity (such as real estate enterprises).

From the macro point of view, combined with China's national conditions and the situation of the capital market, the implementation of the regulation and restriction of stock issuance in China is beneficial to the sustainable and stable development of the emerging securities market, and can enhance the effectiveness of macroeconomic regulation and control. But for the listed companies, the product market competition is very fierce. The regulation and restriction of stock financing in China make the equity financing of the companies face great uncertainty, which has a great impact on the financing behavior and capital structure of the listed companies.

3. Stock market financing regulation and optimal capital structure of the company

The optimal capital structure means that the weighted average cost of capital raised by a company is the lowest in a certain period of time, which can maximize the value of the company. For all companies, the optimal capital structure is the target capital structure. Because if all companies choose mixed financing including debt financing and equity financing, the benefit will be better than single financing only including debt financing or equity financing. So for these companies, the optimal capital structure should be the combination of equity and debt, short-term and long-term debt. In reality, the capital structure of Companies in different industries is very different. Because the capital structure of different industries is not randomly distributed, there are also differences in the capital structure of enterprises in different industries, indicating that the optimal capital structure exists, and different industries have their own optimal capital structure.

The optimal capital structure is not fixed but dynamic. It always varies from time to time and from place to place. Influenced by many variable factors, it studies the capital structure of our country by referring to the research methods of western scholars before, and concludes agency cost, financing sequence, holding right struggle, industry characteristic profitability, growth variability, equity liquidity, company size and company's Market strategy and other factors may affect the capital structure of the company. Therefore, even if the total amount of capital remains unchanged, enterprises cannot cope with all changes with a fixed capital

structure. The pursuit of the optimal capital structure is a long-term, continuous, continuous optimization and improvement process. It is a better way to find out the broken state of the company's equity financing constraint. In order to study the relationship between China's stock financing regulation and the company's optimal capital structure, it is necessary to find out the broken state of the company's equity financing constraint under China's stock financing regulation. It is a better way to find out the optimal capital structure when the company can freely finance. At this time, the company can freely choose financing without the restriction of equity financing. In this case, the capital structure of the company is in the optimal state. Based on the investigation of the capital structure of listed companies, it is concluded that China's stock financing regulation policy has a significant impact on the refinancing scale and capital structure of listed companies, while the "market timing" based on stock market valuation has no significant impact on the capital structure of listed companies.

4. An Empirical Study on the financing regulation of the stock market and the optimal capital structure of the company

4.1 Sample data

Through the above analysis, in the process of empirical research, the sample is defined as A-share market in 2003-2017 is a listed company from ownership to refinancing, because although some convertible bonds have equity nature, their equity nature is more obvious when the convertible bonds mature, but they tend to be debt nature when they are issued, and the company's use of convertible bonds refinancing cannot be considered as equity financing is constrained, so this is the place. Equity refinancing refers to the issuance and allotment of additional shares, excluding convertible bonds. During the sample period, there were 1078 refinancings, 343 additional issues and 946 allotments. The refinancing of financial listed companies was put forward. After the variable demand of this paper was put forward, the refinancing was 1024, 314 and 890 allotments.

4.2 Variable selection

Capital structure is the main explanatory variable in this paper, taking full account of data stability. This paper uses the book capital structure of Listed Companies in China as the research object, which is defined as $BDR = \text{Book Liabilities} / (\text{Book Liabilities} + \text{Book shareholders' equity})$, and Book liabilities are the company's interest bearing accounts. In the supervision of stock refinancing, when the company needs stock refinancing, the difficulty of entering the stock market will affect the company's financing, and the difficulty of entering the stock market will change. Therefore, dummy variables are set during the policy period as stock refinancing, and the agent variables of regulatory policy change are set as

follows:

From December 2003 to September 2004, the dummy variable $P1 = 1$, otherwise it is 0; from October 2004 to January 2006, the dummy variable $P2 = 1$, otherwise it is 0; from February 2006 to May 2008, the dummy variable $P3 = 1$, otherwise it is 0; from June 2008 to March 2009, the dummy variable $P4 = 1$, otherwise it is 0; from April 2009 to May 2010, the dummy variable $P5 = 1$, otherwise it is 0; from June 2010 to March 2011, the dummy variable $P6 = 1$, otherwise it is 0; from April 2011 to July 2012, the dummy variable $P7 = 1$, otherwise it is 0; from December 2012 to September 2016, the dummy variable $P8 = 1$, otherwise it is 0; from May 2016, it is 0 After month, policy variable $P9 = 1$, otherwise 0. If this paper is expected to meet the actual needs, the expected dummy variables can have significant explanatory significance for financing decision-making.

In income volatility, the definition of volatility = STD (EBIT / gross profit), STD refers to the standard deviation of the company within three years.

In the market profitability, EBIT / A is used as the proxy variable of corporate profitability, which is defined as the division of EBIT and total assets.

Company size = natural logarithm of total assets of the company.

Fixed assets scale (FA / a) = total specified assets / total assets.

DEP / a = depreciation amount / total assets.

In the growth period of the company, market timing is used as an agent variable. The market value book value ratio is defined as $M / b = \text{market value of total assets} / \text{book value of total assets}$, and the book value is the book value of assets.

In the market timing, the stock market index Mktidx in the process of corporate stock refinancing is used as the market timing measurement.

4.3 Simple statistical properties of variables

Table 1 is variable descriptive statistics. Except 914 observations in DFP / A, there are 1204 observations. Table 2 is the sample variance analysis. According to the time sequence, the total sample is divided into 10 sub samples. The table has the mean value and variance of each asset structure, and the sample structure mean value of different sub samples has great changes. ANOVA analysis of capital structure shows that the F-test value is 7.94, which is significant at the level of 1%, indicating that the sub samples have some differences in the mean value of capital structure. This result preliminarily shows that the change of stock refinancing policy has a certain impact on the capital structure of the company, which is the result of variance analysis.

Table 1 Descriptive statistics of variables

variable	Observation number	mean value	standard deviation	minimum value	Maximum value	median
BOR	1204	0.2814	0.1725	0.0000	1.0000	0.2821
M/B	1204	1.6211	0.5715	0.9525	7.5258	1.4251
Volatilitv	1204	0.0251	0.0452	0.0002	0.2024	0.0182
Mktidx	1204	1868.52	1232.25	333.52	5954.52	1534.00
EBIT/A	1204	0.0625	0.0714	-0.2152	2.0325	0.0625
Size	1204	5.0521	1.0715	1.6251	9.5824	4.9782
FA/A	1204	0.3325	0.1815	0.0004	0.9312	0.3152
DEP/A	914	0.0215	0.0142	0.0000	0.1252	0.0174
GYG	1204	0.2425	0.2452	0.0000	0.8851	0.2112

Table 2 Sample variance analysis

Explained variable	BDR		
	Observation number	Mean value	Standard deviation
Sample 1	27	0.2632	0.1886
Sample 2	32	0.2025	0.1524
Sample 3	84	0.2862	0.1751
Sample 4	191	0.2714	0.1625
Sample 5	132	0.2671	0.1811
Sample 6	150	0.2415	0.1415
Sample 7	208	0.2665	0.1525
Sample 8	73	0.2625	0.1625
Sample 9	101	0.3025	0.1582
Sample 10	206	0.3652	0.1911
Analysis of variance among samples		F value:7.94	

4.4 Empirical verification results

In order to investigate the influencing factors of capital structure, a regression analysis model is first created according to the description of variable selection

$$\begin{aligned}
 BDR_t = & c_0 + c_1 M / B_t + c_2 Volatility_t + c_3 Mktidx \\
 & + c_4 EBIT / A_t + c_5 Size_t + c_6 FA / A_t + c_7 DEP / A_t \\
 & + c_8 GYG_t + \varepsilon_t
 \end{aligned}
 \quad \text{Formula 1}$$

Because of the year-end capital structure of the company's refinancing, the year-end corresponding variable is used as the explanatory variable, which is expressed as the subscript t. Mktidx as the comprehensive index of the refinancing A-share market.

In addition, this paper indicates that the degree of stock refinancing regulation has an impact on the main factors of the company's capital structure. In order to analyze them, an extended model is created:

$$BDR_t = c_0 + c_1M / B_t + c_2Volatility_t + c_3Mktidx_t + c_4EBIT / A_t + c_5Size_t + c_6FA / A_t + c_7DEP / A_t + c_8GYG_t + \beta P + \varepsilon_t \quad \text{Formula 2}$$

β refers to the coefficient vector, P refers to the dummy variable vector of policy interval.

Table 3 shows the regression results of model 1 and model 2. Through the regression results of model 1, the adjusted model R^2 is 26.94%, indicating that this model has a good fit. Mktidx coefficient is positive but not significant, but it represents market timing, so market timing has no significant impact on capital structure. The M / B coefficient represents the normality of the company, which is significantly negative, consistent with the results of the company growth analysis. Other variables also belong to the factors that affect the significance of the capital structure of the company, but the impact of the nature of the ownership of the company is not significant.

Model 2 regression results analysis, after the introduction of policy interval dummy variables, the model adjusted R^2 to 31.33%, with the exception of variable P_2 , other variables are significant, indicating that different policy intervals, changes in the level of stock refinancing regulation will affect the capital structure of listed companies. Mktidx coefficient is not significant, indicating that in the samples and models, the market timing factor is not the factor affecting the capital structure of the company. M / B coefficient is no longer significant, even if it is used as a measure of market timing, market timing is not the main factor affecting the capital structure of listed companies. In addition, other variables also belong to the factors that affect the significance of the capital structure of the company, and the impact of the nature of the ownership of the company is not significant.

Table 3 Regression results of model 1 and model 2

	model 1	model 2
Intercept	0.18(5.72)	0.21(4.81)
M/B _t	-0.02(-2.02)	-0.00(-0.00)
Volatility _t	-0.45(-2.52)	-0.55(-2.82)
Mktidx _t	0.00(1.04)	-0.00(-0.45)
EBIT/A _t	-1.50(-14.2)	-1.72(-16.5)
Size _t	0.04(8.81)	0.06(10.25)
FA/A _t	0.05(2.31)	0.07(2.91)
DEP/A _t	/	/
GYG _t	-0.01(-0.34)	0.01(0.41)
Sample 1	/	-0.07(-1.81)
Sample 2	/	-0.02(-0.45)

Sample 3	/	-0.07(-2.21)
Sample 4	/	-0.08(-2.52)
Sample 5	/	-0.12(-4.02)
Sample 6	/	-0.13(-4.21)
Sample 7	/	-0.15(-4.52)
Sample 8	/	-0.13(-3.52)
Sample 9	/	-0.15(-1.41)
AdjustedR ₂	0.262	0.3121
SSE	25.255	24.182
Sample size	1204	1204

5. Suggestions on optimizing the capital structure of the company

5.1 The government should strengthen the construction of diversified capital market system

The decision of the Third Plenary Session of the 18th Central Committee of the Communist Party of China proposes to improve the multi-level capital market system, which is an important content of improving the modern market system, and also a strategic task of promoting China's economic transformation and upgrading. In the past, the level of our stock market is single, which is difficult to meet the needs of financing enterprises. Now, the multi-level market system is gradually revealed, and the stock market is booming. A sound multi-level capital market system can play a decisive role in the allocation of resources by the market, and can also effectively promote economic transformation and upgrading. In this context, enterprises need to seize the opportunity, optimize the capital structure, let the company develop towards diversified capital structure, and strengthen the construction of diversified capital market system. Although the state has financial control over the stock market, the diversified capitalist market is the trend of development. To stand out from many competitors, the leaders of enterprises need to have advanced and unique vision, seize the opportunity to optimize the capital structure of enterprises, contribute to the construction of the diversified capital market system, and seek a foothold for their own enterprises Means.

5.2 Listed companies should adjust the balance relationship to improve the capital structure of the company

The optimal capital structure can bring higher profitability. Through the reasonable distribution of assets, the appropriate acceleration of capital flow, innovation of new technology for product content development, reduction of product cost, improvement of product quality and other ways can bring more profits. If the listed companies are faced with large financial risks and more debt capital, they can improve the capital structure by issuing shares, otherwise, they can increase debt capital by adding debt, so as to optimize the capital structure. If the equity capital is too high, the total amount of shares can be reduced, the debt capital is too high, the

debt can be paid off, the debt ratio of enterprises can be reduced, and the capital structure of enterprises can be optimized by reducing the total amount of capital of enterprises.

The capital structure of an enterprise is not immutable. It changes with the times, as well as with the policies and the company's development strategies. In order to adapt to the economic environment and be more competitive in many enterprises, an enterprise should adjust its capital structure according to its own growth cycle and different policies to optimize its capital structure.

5.3 The company should establish an effective market financing risk prediction and rescue mechanism

Capital is one of the key factors that affect the quality of economic activities of enterprises. High quality early warning mechanism of financial financing risk is an important part of enterprise financial early warning system. Monitor the financing process of the enterprise, make a warning in time when finding problems, analyze the results of diagnosis and monitoring, find out the causes of the problems and solve them in time. It is very necessary for enterprises to make emergency plans and rescue measures to ensure the optimal capital structure.

6. Conclusion

China's current economic situation is in the process of transition from planned economy to market economy. In this period, there is a special institutional environment, which has a different impact on the formation of the capital structure of listed companies from the western capital market. For nearly half a century, MM theory has a great influence on the study of capital structure. With the continuous improvement of the theory, the factors influencing the capital structure of the company, such as agency cost, financing order, control over equity, industry characteristics and the company's market strategy, gradually show up. However, in view of the particularity of China's capital market, the choice of capital structure of Chinese listed companies can only be used for reference. China has a strict regulation of securities issuance in the stock market. Based on the needs of industrial development and macro-control, it is normal for the government to restrict or even interrupt the supply of financial products. From the macro point of view, the implementation of stock issuance control and restriction in China can enhance the effectiveness of macroeconomic regulation and control, which is beneficial to the sustainable and stable development of emerging securities market, but it is a pressure for listed companies. Based on the investigation of the capital structure of listed companies, it is concluded that China's stock financing regulation policy has a significant impact on the refinancing scale and capital structure of listed companies, while the "market timing" based on stock market valuation has no significant impact on the capital structure of listed companies. Finally, some suggestions are put forward to optimize the structure of listed companies: strengthen the construction of

diversified capital market system; adjust the balance relationship to improve the capital structure of listed companies; establish an effective market financing risk prediction and rescue mechanism.

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