Monetary Policy, Short-Term Loans Used as Long-term Investment by Corporation and Stock Price Crash Risk

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Abstract. In order to reduce the possibility of stock price collapse, scholars at home and abroad have done a lot of research on related issues including the risk factors of stock price collapse. But most of the existing literature studies from the micro perspective of enterprises, and this paper, based on the previous research, from the macro perspective of monetary policy, explore the impact of the macro policy factors of monetary policy on the risk of future stock price collapse. This paper selects A-share listed companies in China from 2005 to 2017 as the research object, and expounds the reasons and action paths of monetary policy affecting the risk of future stock price collapse. In addition, from the perspective of term mismatch of investment and financing, this paper tests the intermediary effect. In addition, considering the widespread phenomenon of "credit discrimination" in China's credit market, this paper also examines the role of the nature of equity in the impact of monetary policy on the risk of future stock price collapse by grouping test. The conclusions are as follows: (1) during the period of monetary policy tightening, the risk of stock price collapse is higher in the future; (2) The level of "short-term long-term investment" of an enterprise is an intermediary variable in which monetary policy affects the risk of a company's future stock price collapse. Compared with state-owned enterprises, non-state-owned enterprises are more at risk of stock market crashes during periods of tightening monetary policy.

1. Introduction

At present, most of the theoretical and empirical studies on the risk of stock price collapse start from the micro-level. However, the academic circles seldom study the causes of stock price collapse from the macro perspective. In view of the important role of monetary policy in economic regulation, it is obviously unscientific to completely ignore the role of macro policy factors including monetary policy in the study of the risk of stock price collapse. Any change of monetary policy will affect investors' expectations of future economic development and cause stock price fluctuation of listed companies. This paper hopes to explore whether monetary policy will affect the risk of the stock price collapse in the future through the empirical test. In addition, this paper also hopes to further investigate whether the impact of monetary policy on the risk of future stock price collapse will vary with the nature of equity [1].

2. Literature Review and Theoretical Hypothesis

When the central bank implements the tight monetary policy, the amount of money supply decreases. Enterprises face greater capital pressure and financing difficulties, and their business performance suffers from a negative impact. And investors tend to get money by selling stocks, and the amount of money invested in the stock market decreases, which is difficult to support the rise of the stock market [2].

H1: During the period of monetary policy tightening, the risk of stock price collapse in the future is greater.

During the period of monetary policy tightening, the amount of money that banks can lend is reduced and the cost of lending is increased. Therefore, compared with the period of monetary policy tightening, banks will tighten the total amount of lending, especially the number of long-term

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credit funds. Therefore, compared with the period of monetary policy easing, the level of "long-Term investment with short-term financing" of enterprises is higher in the period of monetary policy tightening.

H2: During the period of monetary policy tightening, the level of "long-Term investment with short-term financing" of enterprises is higher.

In order to meet the capital needs of long-term investment, enterprises must face the situation of refinancing after the maturity of short-term financial liabilities. Once suffering from the unexpected impact, the cash flow of operating income that enterprises can obtain is not enough to pay the loan interest amount, these negative effects will eventually be reflected in the stock price, leading to the collapse of the stock price[3].

H3: The higher the level of "long-Term investment with short-term financing" is, the higher the risk of stock price collapse in the future.

Although "long-Term investment with short-term financing " temporarily meets the financing needs of enterprises to a certain extent, it may lead to increase of capital cost, increase of liquidity risk, decrease of investment efficiency and other adverse consequences, which aggravate the enterprise's own business risks and have negative effects on the company's performance, and these negative effects will eventually be reflected in the stock price, which will eventually lead to the collapse of the stock price.

H4: The level of "long-Term investment with short-term financing" is the intermediary variable of monetary policy affecting the risk of future stock price collapse.

Most of Chinese enterprises take bank credit as their main financing source. In the period of monetary policy tightening, compared with the state-owned enterprises, non-state-owned enterprises face greater capital pressure. The shortage of capital will seriously affect normal operation of enterprises, and then affect the stock price[4].

H5: Compared with state-owned enterprises, non-state-owned enterprises have a higher risk of stock price collapse during the period of monetary policy tightening.

3. Research Design

3.1. Sample Selection and Data Source

This paper selects A-share listed companies in Shanghai and Shenzhen stock markets from 2004 to 2017 as the initial research sample, and processes the sample data as follows: (1) exclude the companies and belonging to the financial industry ST companies; (2) eliminate the company with unclear equity nature; (3) eliminate the companies with missing values of relevant variables. In this paper, macro data such as money supply and GDP data are from the website of the National Bureau of statistics, and other data are from the CSMAR database. Stata14.0 is used for data processing.

3.2. Variable Selection

Table 1 List of Variable Definition

Variable	Variable Abbreviation	Metrics for Variables
Risk of stock market crash	DUVOL	The fluctuation ratio of earnings indicates the risk of stock price collapse. The larger the index value is, the greater the risk of stock price collapse is.
	NCSKEW	The negative return skew coefficient indicates the risk of stock price collapse. The larger the index value is, the greater the risk of stock price collapse is.
Monetary policy tightening or not	MP	In the virtual variable, when the value of M2 growth rate GDP growth rate CPI growth rate is small, MP = 1, monetary policy is tight; otherwise, MP = 0, monetary policy is loose.
The level of Enterprise's "long-Term investment with short-term financing"	SFLI	[cash expenditure for investment activities such as purchase and construction of fixed assets - (increase in current period of long-term loan + increase in equity in current period + net cash flow from operating activities + cash inflow from sale of fixed assets] / total assets at the beginning of the year

Average monthly excess turnover rate of stock	Turnover	The difference between the monthly average turnover rate of stock i in year t and the monthly average turnover rate of stock i in year T-1
Standard deviation of weekly special yield of individual stocks	Sigma	Standard deviation of weekly special yield of stock i in year t
Average weekly special yield of individual stocks	Mreturn	Average weekly specific yield of stock i in year t
Book value ratio	BM	Ratio of book value of net assets to market value of equity at the end of the year
Return on total assets	ROA	Profit before tax divided by total assets at the end of the period
Company Size	Size	Natural logarithm of book value of total assets of the company
Asset-liability ratio	Lev	Book value of total liabilities divided by book value of total assets
Transparency of company information	AbsACC	Measured by the absolute value of the controllable accruals, which are calculated by the modified Jones model
Tobin Q Value	Q	Tobin Q Value

3.3. Empirical Model

3.3.1. Test Model for the Relationship between Monetary Policy and the Risk of Stock Price Collapse

In order to test whether H1 is tenable, this paper constructs the following econometric model 1:

CRASHi,t=a0+a1MPt+a2Turnoveri,t+a3Sigmai,t+a4Mreturni,t+a5BMi,t+a6ROAi,t+a7Sizei,t+a8Levi,t+a9AbsACCi,t+ei,t

3.3.2. Test Model of the Relationship between Monetary Policy and the Level of "Long-Term Investment with Short-Term Financing"

In order to test whether hypothesis H2 holds, the following econometric model 2 is constructed:

SELIi，t= a0+a1MPt +a2Levi,t + a3Qi,t +ei,t

3.3.3. Test Model of the Relationship between the Level of "Long-Term Investment with Short-Term Financing" and the Risk of Stock Price Collapse

In order to test the hypothesis H3, the following econometric model 3 is constructed:

CRASHi,t+1=a0+a1SELIit+a2Turnoveri,t+a3Sigmai,t+a4Mreturni,t+a5BMi,t+a6ROAi,t+a7Sizei,t+a8Levi,t+a9AbsACCi,t+ei,t

3.3.4. Path Test Model of the Impact of Monetary Policy on the Risk of Stock Price Collapse

The coefficients in the three path models (1), (2) and (3) are significantly positive, and the coefficients in the path model (3) are significantly positive. That is to test path model (1), (2) and (3) in turn. If the coefficients A1 of MP in (1), A1 of MP in path model (2) and A1 and A2 of MP and SFLI in path model (3) are all positive and significant, then intermediary effect exists, assuming H4 holds.

CRASHi,t=a0+a1MPt+a2Turnoveri,t+a3Sigmai,t+a4Mreturni,t+a5BMi,t+a6ROAi,t+a7Sizei,t+a8Levi,t+a9AbsACCi,t+ei,t

SELIi，t= a0+a1MPt +a2Levi,t + a3Qi,t +ei,t

CRASHi,t+1=a0++a1MPt+a2SELIit+a3Turnoveri,t+a4Sigmai,t+a5Mreturni,t+a6BMi,t+a7ROAi,t+a8Sizei,t+a9Levi,t+a10AbsACCi,t+ a11Qi,t ei,t

3.3.5. Test Model of Regulatory Effect of Enterprise Equity Nature

By comparing the coefficient a1 of the monetary policy variable MP in the group regression, can judge whether equity nature plays a regulatory role in impact of monetary policy on the risk of future stock price collapse. If the value of a 1 in the group of non-state-owned enterprises is greater than that of a 1 in the group of state-owned enterprises, it means that compared with the state-owned enterprises, the risk of stock price collapse of non-state-owned enterprises is higher in the period of monetary policy tightening, assuming H5 is established.

4. Analyses of Results

4.1. Regression Results of Monetary Policy and Risk of Stock Price Collapse

When DUVOL is used as the dependent variable, the coefficient of MP is positive and significant at the level of 1%; when NCSKEW is used as the dependent variable, the coefficient of MP is also significant at the level of 1%. This shows that during the period of monetary policy tightening, the risk of the future stock price collapse is higher. The empirical results support hypothesis H1.

4.2. Regression Results of Monetary Policy and the Level of "Long-Term Investment with Short-Term Financing"

When the level of "long-term investment with short-term financing" is the explained variable, the coefficient of MP is significantly positive at the level of 1%. This shows that during the period of monetary policy tightening, the level of "short loan and long investment" of enterprises is higher. The empirical results support the hypothesis H2.

4.3. Regressions Results Between the Level of "Long-Term Investment with Short-Term Financing" and the Risk of Stock Price Collapse

When DUVOL is taken as the explanatory variable, the coefficient of SFLI, the indicator to measure the level, is positive and significant at the level of 5%; when NCSKEW is taken as the explanatory variable; the coefficient of SFLI, the indicator to measure the level is also significant at the level of 5%. This shows that the higher the level is, the higher the risk of stock price collapse in the future. The empirical results support hypothesis H3.

4.4. Regression Results of Monetary Policy, "Long-Term Investment with Short-Term Financing" Level and Risk of Stock Price Collapse

The regression results verify the hypothesis H4, which shows that the level of "long-term investment with short-term financing" is the intermediary variable of monetary policy affecting the risk of future stock price collapse.

4.5. Regression Results of Regulatory Role of Enterprise Equity Nature

Whether DUVOL or NCSKEW is used to measure the risk of stock price collapse, the coefficients of monetary policy variables (MP) are all positive and significant at the level of 1%, which shows that the basic conclusions of this paper are valid for both state-owned and non-state-owned enterprises. Compared with the state-owned enterprise group, the risk of stock price collapse in the period of monetary policy tightening is higher in the non-state-owned enterprise group.

5. Conclusion

Through the research, get the conclusion that "in the period of monetary policy tightening, the risk of stock price collapse in the future is greater". On this basis, this paper further explores the impact path of monetary policy on the risk of future stock price collapse. The empirical results show that the level of "long-term investment with short-term financing" plays an intermediary role in the process of monetary policy affecting the risk of future stock price collapse. The tightening monetary policy will lead to the rise of the level of "long-term investment with short-term financing" and increase the risk of future stock price collapse [5]. In addition, the empirical results show that compared with state-owned enterprises, non-state-owned enterprises have higher risk of stock price collapse in the period of monetary policy tightening.

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