Empirical Study on the Impact of Monetary Policy on the Adjustment of Corporate Capital Structure under the Environment of Financial Development

Abstract:

Taking the listed companies at Shenzhen Stock Exchange as the research object, this paper selected relevant data from 2011 to 2021 to observe and investigate the impact of monetary policy on the adjustment of corporate capital structure under the environment of financial development. The results show that in recent years, in the general context of global finance, the change of monetary policy has a certain impact on the adjustment of corporate capital structure. In the market economy in China, the quantity-based monetary policy helps speed up the adjustment of corporate capital in China, but the financial development element will partly weaken the influence degree of the quantity-based monetary policy, while the price-based monetary policy has a positive impact on the adjustment of corporate capital structure in China.

Keyword: financial development; monetary policy; capital structure

Introduction

In the field of economics, the adjustment of corporate capital structure has always been a hot topic concerned about by experts and scholars of economics. The direct impact brought about by the development of financial industry and the shift in monetary policy is manifested in the adjustment of corporate capital structure. At the same time, the value and management orientation of enterprises will also change with the adjustment of corporate capital structure. In recent years, the global economy has fallen into a period of volatility and the development of financial industry has also entered a slow stage. To actively respond to the current global economic landscape, Chinese governments at all levels proactively adjust monetary policies, and help enterprises accelerate the adjustment of capital structure through macro and micro policy guidance, maximize the value of enterprises, and improve the competitiveness of enterprises in an all-round way.

The issues regarding financial development, monetary policy, and corporate capital structure have been paid attention earlier in foreign countries. Fisher, a classical economist, probed into them from the perspective of the transmission mechanism of monetary policy and put forward theory of “long-term neutrality of money” [1]. By analyzing historical data, he confirmed the effectiveness of monetary policy in the short run. One of the most important reasons for adjusting corporate capital structure was enterprise liabilities. Mayers et al. presented the “trade-off theory” [2] based on data related to enterprise liabilities. They found in their research that enterprises

enhanced their value by increasing liabilities, and achieved the purpose of increasing corporate value by combining with the tax shield effect in the field of economics. At the same time, in an effort to observe the adjustment of corporate capital structure through the liability behaviors of enterprises, Mayers et al. carefully summarized the tax saving benefits of enterprise liabilitiesand financial difficulties of enterprises [3], and ultimately derived the best solution for the adjustment of corporate capital structure.

Compared with foreign countries, the research on financial development, monetary policy and the adjustment of corporate capital structure in China started late, and the most representative viewpoints are a: from the perspective of monetary policy types, Yuan Chunsheng and Guo Jinru studied the types, categories and main functions of monetary policy and their relationship with the adjustment of corporate capital structure, believing that the adjustment of corporate capital structure needed to take into account changes in the financing cost of enterprise, firm size and other factors [4]. The smaller firm size, the greater financing constraint. Conversely, the larger firm size, the smaller financing constraint. For this reason, the adjustment degree of corporate capital structure had a great bearing on its sensitivity to monetary policy. Combined with the relationship between macro economic policies and micro corporate financial behaviors, Jiang Guohua and Rao Pin'gui deeply analyzed the features and causes of formation of micro corporate financial behaviors. By referring to the research findings of Sismondi and Keynes and analyzing their theories of economic crisis, Wei Yue and Xu Miao and believed that state intervention was a powerful way to help enterprises get out of the dilemma and crisis.

With the rapid development of the financial market in China, with a view to ensure the stable trading order of financial market, monetary policy, as a kind of economic lever, fully exerts the role of macro-control and speeds up the adjustment of corporate capital structure. Under the condition of market economy, it is quite essential to accurately understand and seize the relationship and impact among financial development, monetary policy, and the adjustment of corporate capital structure, and validate them in a scientific way [5].

I. Theories and Hypotheses

(I) The Impact of Quantity-based Monetary Policy on the Adjustment of Capital Structure Under the Environment of Financial Development

Finance is an economic activity related to currency, and the development of financial market may lead to the adjustment of monetary policy. The quantity-based monetary policy, as a price adjusting policy among monetary policy tools, is a macro-control means of the People's Bank of China [6], which observes the changes of business indicators of listed companies in China by adjusting macroeconomic variables [7]. The making and adjustment of the quantity-based monetary policy is targeted at the quantity of money, and can directly adjust macroeconomic indicators such as GDP and CPI and play a certain regulatory role in the field of macro financial market.

Horizontally speaking, the rapid development of financial industry can effectively stimulate governments at all levels to adjust monetary policy in a timely manner, thus accelerating the adjustment of corporate capital structure. Due to different resources in different regions of China, however, the development levels of financial industry are uneven. In recent years, financial institutions have proliferated and developed in China.The development of online financial institutions, in particular, has expanded the financing channels of listed companies in China. But this also poses risks to the adjustment of capital structure of listed companies in China, which requires the monetary policy to put the economic measure of macro control to good use and balance the relationship between financial institution and listed companies. Yue Chaoyun and Niu Linlin posited that the rules of the quantity-based monetary policy can explain the monetary policies in China more comprehensively. In the practice of financial development, the quantity-based monetary policy can accelerate the adjustment of corporate capital structure via effective macro control measures. On this basis, this paper put forward the following hypothesis:

H1: Financial development and the quantity-based monetary policy had a positive impact on the acceleration of the adjustment of corporate capital structure.

(II) Financial Development, Quantity-Based Monetary Policy and the Adjustment Degree of Corporate Capital Structure

In recent years, affected by the global economy, Chinese economy has gone through inflation, rising prices and currency depreciation, etc., which have brought about many unstable factors to the development of our financial market. On the one hand, from the perspective of monetary circulation, currently there are some risks in the development of financial market in China. Currency depreciation has raised the cost of corporate capital structure to a certain extent. In order to address this issue, governments at all levels and financial institutions need to timely adjust their monetary policies, so that they can better serve the adjustment of corporate capital structure. In reality, however, the quantity-based monetary policy can only monitor and regulate various economic indicators of financial development macroscopically and it is hard for it to manipulate with facility. As mentioned by Atkeson, although the quantity-based monetary policy tool was easy to operate, it can easily cause negative effects, for example, a sudden braking, which was detrimental to the optimization of corporate capital structure [8]. On the other hand, from the perspective of the quantity-based monetary policy, when it exercises macro control, the financial development environment tends to be stable, but the adjustment of corporate capital structure will be interfered and limited by many external factors. To maintain a state of stable development, financial market can’t do without innovation. Hu Xinzhi, the General Manager of the Strategic Planning Department of Agricultural Bank of China, discovered in his study on the financial market environment and monetary policy that financial innovation raised the difficulty in implementing quantity-based tools: firstly, financial innovation changed the channels through which the central bank controlled the base currency, making it more difficult to control base

currency; secondly, the instability of money multiplier was intensified; thirdly, the introduction of new financial elements made it difficult to define and measure the currency accurately; fourthly, the endogeneity of money supply was reinforced. He assumed that these four impacts brought about by financial innovation had partly weakened the implementation effect of the quantity-based monetary policy. To this end, this paper put forward the following hypothesis:

H2: Financial development and quantity-based monetary policy had a negative impact on the adjustment degree of corporate capital structure.

(III) The Impact of Price-based Monetary Policy on the Adjustment of Capital Structure Under the Environment of Financial Development

As a kind of monetary policy tool, the price-based monetary policy, like the quantity-based monetary policy, belongs to techniques taken by the Chinese government or central bank to influence economic activities, but what sets them apart is that from a microscopic perspective, the price-based monetary policy has an influence on the financial cost and income expectation of economic entity [10]. Generally speaking, the price-based monetary policy regulates the asset prices of enterprises by controlling the price variable, and the price-based monetary policy has an excessive impact on the expected economic behaviors of economic entity. Since the outbreak of financial crisis, there has been an increasing call for the price-based monetary policy from all walks of life in China. Xie Ping and Luo Xiong et al. conducted a comparative analysis on these two monetary policy tools [11]. Based on extensive empirical evidence, it was believed that the deviation between the standard and actual values of interest rate was exactly the time lag between policy operation and the development of economic landscape. Zhang Yishan and Zhang Daiqiang, et al. expanded the Taylor rule from different angles, and ultimately held that although the Taylor rule can describe the trend of interbank lending rates in China [12], destabilizing factors still existed. From this point of view, the price-based monetary policy tool was more capable of maximizing the effect of micro control in terms of microeconomics. The innovative development of financial market can just meet the implementation condition of the price-based monetary policy. The price-based monetary policy can help resolve and weaken external financing risks of enterprises and promote the ability of enterprises to adjust capital structure, by adjusting macroeconomic variables indirectly. On this basis, this paper put forward the following hypothesis:

H3: Under the environment of financial development, the price-based monetary policy played a positive part in the adjustment of corporate capital structure.

(IV) Financial Development, Monetary Policy and the Deviation Degree of Corporate Capital Structure

In the field of economics, the proportion of the absolute value of the difference between actual data and target data [13] in the target data can be termed as deviation. The deviation of corporate capital structure refers to the proportion represented by the absolute value of the difference between the actual capital structure and the target capital structure of an enterprise in

the target capital structure. Within the context of financial innovation and development, monetary policies tend to change and tune themselves up along with financial development, especially the price-based monetary policy. When faced with new risks and challenges, governments and financial institutions usually make an active response to each challenge by adjusting their price-based monetary policy. Influenced by financial development and monetary policy, when the actual adjustment of corporate capital structure fails to accomplish the expected adjustment towards target capital structure, there will be a deviation in corporate capital structure. Taking the deviation degree of corporate capital structure as the research object, Wang Hao and Zhao Jun made an analysis and found that firm size, growth rate and deviation degree of corporate capital structure were positively correlated with corporate capital structure[13]. In other words,when the financial development and adjustment of monetary policy were favorable for corporate development, the deviation degree of corporate capital structure would be closer to the target corporate capital structure. On this basis, this paper put forward the following hypothesis:

H4: The financial development environment can better help enterprises approach their target capital structure.

II. Research Methods

(I) Sample Selection and Data Source

Due to the considerable disparity in influence factors of the stock markets in China and the differences in the accounting standards of financial systems, our study only took A-share listed companies at Shenzhen Stock Exchange as the research object. Only companies listed before 2011 were selected as the research object. The financial data of these listed companies between 2011 and 2021 were taken as the source of sample data. Given that liability management was the core business of financial listed companies, and their capital structure and adjustment methods of capital structure were quite different from those of other listed companies, financial companies, as well as listed companies with abnormal financial conditions, those that ran a deficit for more than consecutive three years or with an asset-liability ratio of less than 0 or greater than 1 were excluded from sample selection. Based on these principles, finally 7,325 observed values from a total of 765 listed companies from 2011 to 2021 were sifted out. The financial data collected in this paper mainly derived from RESSET Industrial Financial Database, RESSET Industrial Enterprise Database, CCER Database, and CSMAR Database, etc. [14], while the data about monetary policies were sourced from the official website of the People's Bank of China and the statistical yearbooks published by the central bank, etc.

(II) Setting and Establishment of Model

To clearly show the structural differences between enterprises and further ensure the rigorousness of research, this paper selected the characteristic variables of the enterprises to fit the target capital structure of enterprises. The specific model is shown in Eq. (1):

$$LEV_{i,t}^{*} = \sum \alpha_{i,t} X_{i,t} \quad (1)$$

In Eq. (1),$LEV_{i,t}^{*}$represented the target capital structure of the enterprise, $X_{i,t}$ represented the characteristic variable of enterprise that can influence the capital structure of the enterprise, which covered business solvency, tangible assets (TANG), firm growth (SGROW), firm size (LNA) and business performance (ROA), etc. of the enterprise. The actual capital structure of the enterprise was fitted, and a model was obtained after further organization, as shown in Eq. (2):

$$LEV_{i,t} = \delta_{i,t} LEV_{i,t}^{*} + (1 - \delta_{i,t}) LEV_{i,t-1} + \varepsilon_{i,} \quad (2)$$

In Models (1) and (2), $LEV_{i,j}^{*}$ stood for the target capital structure of firm *i*in period *t*, $LEV_{i,j}$represented the actual capital structure of firm *i*in period *t* and $LEV_{i,j}$ represented the actual capital structure of firm *i*in period *t*-i. $\delta_{i,t}$ was the adjustment response coefficient. This coefficient explained the adjustment speed of the actual capital structure towards the target capital structure on the basis of the change of monetary policy. The smaller coefficient, the slower adjustment of corporate capital structure. $\varepsilon_{i,j}$was a random disturbance term.

By bringing Model (1) into Model (2), we had:

$$LEV_{i,t} = \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (3)$$

As for the selection of monetary policy tools, in order to fully and accurately verify the relationship between dynamic adjustment speed of corporate capital structure, financial development and implementation of monetary policy, this paper took into account the impact of financial development background on this study when studying and analyzing the effectiveness of monetary policies on the adjustment of corporate capital structure. In addition to that, this paper also added a dummy variable for industrial characteristics of the enterprise and expressed it as Y_i, to make the model reflect the adjustment speed of capital structure more accurately. At the same time, the quantity-based monetary policy and the price-based monetary policy were incorporated respectively. Ultimately, a dynamic model was derived as follows:

(1) The quantity-based monetary policy:

$$LEV_{i,t} = \lambda FIR_{i,t-1} + \gamma FIR_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (4)$$

$$LEV_{i,t} = \lambda ML_{i,t-1} + \gamma ML_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (5)$$

$$LEV_{i,t} = \lambda_1 FIR_{i,t-1} LEV_{i,t-1} + \lambda_2 ML_{i,t-1} LEV_{i,t-1} + \lambda_3 FIR_{i,t-1} ML_{i,t-1} LEV_{i,t-1} + \gamma_1 FIR_{i,t-1} + \gamma_2 RATE_{i,t-1} + \gamma_3 FIR_{i,t-1} RATE_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (6)$$

(2) The price-based monetary policy:

$$LEV_{i,t} = \lambda FIR_{i,t-1} + \gamma FIR_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (7)$$

$$LEV_{i,t} = \lambda RATE_{i,t-1} + \gamma RATE_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (8)$$

$$LEV_{i,t} = \lambda_1 FIR_{i,t-1} LEV_{i,t-1} + \lambda_2 RATE_{i,t-1} LEV_{i,t-1} + \lambda_3 FIR_{i,t-1} RATE_{i,t-1} LEV_{i,t-1} + \gamma_1 FIR_{i,t-1} + \gamma_2 RATE_{i,t-1} + \gamma_3 FIR_{i,t-1} RATE_{i,t-1} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + (1 - \delta_{i,t}) LEV_{i,t-1} + Y_i + \varepsilon_{i,t} \quad (9)$$

In the above equations, $(1 - \delta_{i,t})$ was used as the coefficient of $LEV_{i,t-1}$. The adjustment speeds of corporate capital structure were $\delta_{i,t} - \lambda FIR_{i,t-1}, \delta_{i,t} - \lambda ML_{i,t-1}, \delta_{i,t} - \lambda FIR_{i,t-1} - \lambda_2 ML_{i,t-1} - \lambda_3 FIR_{i,t-1} ML_{i,t-1}$ respectively.

Based on the above establishment of models, when testing the impact of monetary policy on corporate capital structure in the general context of financial development, we needed to consider the deviation degree of corporate capital structure and understand the mitigating effect of financial development by testing the deviation degree of corporate capital structure. To this end, this paper establishes Model (10).

$$DIS_{i,t} = \eta FIR_{i,t} + \sum \delta_{i,t}\, a_{i,t} X_{i,t} + \varepsilon_{i,t} \quad (10)$$

In Model (10), η was the test coefficient. If the value of η was negative, financial development can partly reduce the deviation degree of corporate capital structure. If not, it meant that financial development had little effect on the deviation degree of corporate capital structure.

(III) Selection and Definition of Variables

Based on the above hypothesis, by taking financial development and monetary policies (the quantity-based monetary policy and the price-based monetary policy) as explanatory variables, and corporate income tax, non-debt tax shield, corporate profitability, liquidity of funds and firm size as control variables, this paper examined the significant relationship among monetary policy, financial development and adjustment of corporate capital structure.

1. Explanatory variable

The so-called explanatory variables, also known as descriptive variables, are independent variables in econometric models [15]. In this paper, based on existing research data, the measures in explanatory variables fall into three categories. The first category is financial development (FIR), and it is believed that the most appropriate measure for this variable is the balance ratio of all loans in financial Institutions [16]. The second category is the quantity-based monetary policy (ML), which is measured by the growth rate of the current purchasing power of enterprise. The third category is the price-based monetary policy (RATE), which is measured by the one-year loan prime rate set by the central bank of China.

2. Explained variable

The explained variables, also known as predicted variables, are often used in regression analysis and are dependent variables in econometric models. In this study, the adjustment of corporate capital structure (LEV) can be deemed as an explained variable. To optimize the adjustment of corporate capital structure, we need to make adjustments to the stock, increment and decrement of enterprise, so as to realize the adjustment of corporate capital structure.

3. Control variable

The concept of control variable belongs to the realm of scientific experiment and refers to all variables that can influence experimental results, except independent variables. Control variables are also known as irrelevant variables. In this study, there are mainly five control variables:

Industry factor (Y): The overall rating given by securities companies to an enterprise in terms of economic business, investment banking business, asset management business, overall strength and innovation ability;

Business solvency: The ability of an enterprise to repay debts as they come due;

Tangible assets (TANG): The sum of fixed net assets and inventory assets of an enterprise, which was also compared with the total assets of the enterprise.

Firm growth (SGROW): The increase of an enterprise's current business income compared with its previous business income.

Firm size (LNA): The natural number of the total assets of an enterprise.

Business performance (ROA): The overall assessment of an enterprise's management ability for various production and operation activities.

Table 1 Selection and Definition of Variables

Type	Variable	Symbol	Explanation
Explained variable	Corporate capital structure	LEV	The sum of the stock, increment and decrement of an enterprise
Explanatory variables	Financial development	FIR	The ratio of the loan balance of financial institutions to GDP at the end of the year
	Quantity-based monetary policy	ML	The growth rate of the current purchasing power of an enterprise
	Price-based monetary policy	RATE	The one-year loan prime rate of the central bank
Control variables	Industry factor	Y	The economic business, investment banking business, asset management business, overall strength and innovation ability of securities companies
	Business solvency	Business solvency	The ability of an enterprise to repay debts as they come due
	Tangible assets	TANG	(Fixed net assets +inventory assets)/total assets
	Growth	SGROW	(Current business income-previous business income) previous business income
	Firm size	LNA	The natural number of the total assets of an enterprise
	Business performance	ROA	The overall assessment of an enterprise's management ability for various production and operation activities.

III. Empirical Analysis

(I) Statistical Description

To get the whole picture of the relationship between financial development, monetary policy, and the adjustment of corporate capital structure, we selected data samples from listed companies

from 2011 to 2021 for descriptive analysis. It was found that during the period from 2011 to 2021, the maximum of the adjustment of corporate capital structure was 0.891, while the minimum was 0.142. From the data, it can be seen that the listed companies in different regions of China differed in financing ability. During the period from 2011 to 2021, the maximum level of financial development in China was 2.196, while the minimum was 0.595. The data showed uneven financial development levels across different regions in China in the last decade. Different results were obtained in the statistical analysis of the monetary policy in China. The maximum for the quantity-based monetary policy was 0.287, the minimum was 0.025, and the standard deviation was 0.077. While the maximum for the price-based monetary policy was 5.983, the minimum was 0.611, and the standard deviation was 1.184. According to two groups of data, it can be inferred that in the last decade, the quantity-based monetary policy was relatively stable compared with the price-based monetary policy. The price-based monetary policy had experienced a period of instability.

Table 2 Statistical Description

Variable	N	Maximum	Minimum	Mean	Standard Deviation
LEV	7987	0.891	0.142	0.497	0.158
FIR	7987	2.196	0.595	1.165	0.399
ML	7987	0.287	0.025	0.176	0.077
RATE	7987	5.983	0.611	3.018	1.184
TANG	7987	0.598	0.003	0.139	0.116
LNA	7987	0.051	0.002	0.012	0.007
SGROW	7987	0.997	0.512	0.919	0.069
ROA	7987	0.894	−0.712 -0.712	0.168	0.184
Business solvency	7987	0.106	0.067	0.079	0.012

(II) The Impact of Monetary Policy on the Adjustment of Corporate Capital Structureunder the environment of financial development

1. Regression Analysis of the Relationship among Financial Development, Quantity-based Monetary Policy and Adjustment of Corporate Capital Structure

According to the economic development level of each region in China, the regions in China can be divided into highly developed areas, developed areas and underdeveloped areas. In Table 3, a regression analysis was done by group on the relationship among financial development, quantity-based monetary policy, and corporate capital structure to verify the conclusions of Hypotheses 1 and 2. From the perspective of highly developed areas, the cross term FIR*ML between the quantity-based monetary policy and financial development reached a significant level, and the cross term FIR*LEV between financial development and corporate capital structure also

reached a significant level. However, this group of data were negative, indicating that financial development had a significant positive impact on accelerating the adjustment of corporate capital structure. As a matter of fact, financial development can partly alleviate the constraint on corporate financing. From the perspective of developed areas, there was a significant correlation among financial development, quantity-based monetary policy and the adjustment of corporate capital structure. The coefficients of two cross terms FIR*LEV and FIR*ML were both negative, indicating that financial development had a negative impact on the quantity-based monetary policy and adjustment degree of corporate capital structure. Underdeveloped areas were similar to highly developed areas and developed areas on the results shown by this group of data. However, in these full sample data, it can be easily seen that in the cross terms between financial development, quantity-based monetary policy and corporate capital structure, the coefficients were positive. This showed that the functionality of financial development and quantity-based monetary policy was weakened, which had a negatively impact on the adjustment of corporate capital structure. Thus, Hypotheses 1 and 2 of this study held true.

Table 3 Regression Analysis of the Relationship among Financial Development, Quantity-based Monetary Policy and Adjustment of Corporate Capital Structure

Dependent Variable (LEV)				
	Highly Developed Areas	Developed Areas	Underdeveloped Areas	Full Sample
One-period lagged				
LEV	1.147***	1.285***	1.280***	0.641***
	(0.000)	(0.001)	(0.001)	(0.000)
FIR	0.374***	1.112***	0.528***	0.273***
	(0.000)	(0.000)	(0.001)	(0.000)
FIR*LEV	-0.898***	-1.724***	-1.187***	－0.657***
	(0.000)	(0.000)	(0.000)	(0.000)
ML	0.007***	0.011*	0.010	0.003
	(0.005)	(0.065)	(0.148)	(0.142)
ML*LEV	-0.013***	-0.017	-0.024*	-0.004
	(0.003)	(0.124)	(0.076)	(0.108)
FIR*ML	-0.004***	-0.017**	-0.011*	-0.002**
	(0.001)	(0.028)	(0.064)	(0.023)
FIR*ML*LEV	0.011***	0.027*	0.024**	0.006**
	(0.000)	(0.068)	(0.043)	(0.023)
Business solvency	0.016***	-0.007	0.012	0.011**

	(0.003)	(0.248)	(0.169)	(0.014)
TANG	0.003	0.147	-0.118	-0.032
	(0.912)	(0.128)	(0.149)	(0.497)
SGROW	-0.006**	0.001	-0.011***	-0.005**
	(0.029)	(0.773)	(0.004)	(0.039)
LNA	-0.251***	-0.148	0.000	-0.216***
	(0.000)	(0.109)	(0.987)	(0.000)
ROA	-0.001	-0.021	0.019	0.014
	(0.964)	(0.701)	(0.803)	(0.694)
Interceptterm	-0.895***	-1.174***	-0.705**	-0.467**
	(0.002)	(0.006)	(0.011)	(0.031)
N	4962	1648	1364	8198
Time /Industry control	Y	Y	Y	Y
Estimation method	Generalized method of moments	Generalized method of moments	Generalized method of moments	Generalized method of moments
AR(2)_p	0.124	0.854	0.147	0.135
Hansen_p	0.179	0.609	0.108	0.172
Robust standard error	Y	Y	Y	Y

Note: Asterisks indicated the significant features presented by different coefficients, *, ** and *** were 0.1, 0.05 and 0.01 respectively, AR(2) indicated that there was no second-order autocorrelation in the disturbance term, and the test of *P* value corresponding to hansen indicated that the instrumental variable was free from over-identification.

1．Regression Analysis of the Relationship among Financial Development, Price-based Monetary Policy and Adjustment of Corporate Capital Structure

At the current stage, the monetary policies in China were composed of two parts, the quantity-based monetary policy and the price-based monetary policy. From the overall data in Table 4, the financial development highlighted that the better interest rate, the greater impact the price-based monetary policy had on the adjustment of corporate capital structure. With a view to fully verify Hypothesis 3, three groups of cross terms were available for regression analysis in this paper, that is, financial development and corporate capital structure, financial development and price-based monetary policy, and financial development, price-based monetary policy and corporate capital structure. To begin with, in the regression analysis, whether for highly developed areas, developed areas or underdeveloped areas, the variables of financial development and corporate capital structure were all negative, while the coefficients of cross terms were all positive. This suggested that under the environment of financial development, the price-based monetary policy exerted an impact on corporate capital structure through value and other means, and this effect was impact. Secondly, from the cross term between financial development and price-based

monetary policy, financial development promoted the adjustment and perfection of price-based monetary policy, which coincided with the previous analysis result of cross term, Finally, the cross terms between financial development, price-based monetary policy and adjustment of corporate capital structure were all positive, indicating that under financial development, the adjustment of corporate capital structure was positively and effectively influenced by the price-based monetary policy. Thus, Hypothesis 3 held true.

Table 4Regression Analysis of the Relationship among Financial Development, Price-based Monetary Policy and Adjustment of Corporate Capital Structure

Dependent Variable (LEV)				
	Highly Developed Areas	Developed Areas	Underdeveloped Areas	Full Sample
One-period lagged				
LEV	0.629***	1.714***	2.043***	0.459***
	(0.000)	(0.000)	(0.000)	(0.000)
FIR	0.338***	1.305***	0.898***	0.294***
	(0.000)	(0.000)	(0.000)	(0.000)
FIR*LEV	−0.497***	−2.046***	−1.621***	−0.385***
	(0.000)	(0.000)	(0.000)	(0.000)
RATE	0.025***	0.124***	0.136***	0.016**
	(0.003)	(0.001)	(0.000)	(0.049)
RATE*LEV	−0.025***	−0.196***	−0.214***	−0.028*
	(0.006)	(0.002)	(0.000)	(0.079)
FIR*RATE	−0.024***	−0.138***	−0.129***	−0.014**
	(0.001)	(0.002)	(0.000)	(0.014)
FIE*RATE*LEV	0.034***	0.299***	0.267***	0.028**
	(0.000)	(0.002)	(0.000)	(0.021)
Business solvency	0.013***	−0.009	0.009	0.011**
	(0.002)	(0.207)	(0.293)	(0.028)
TANG	0.008	0.177*	−0.147	0.018
	(0.778)	(0.068)	(0.109)	(0.714)
SGROW	−0.011***	0.001	−0.004	−0.005*
	(0.001)	(0.728)	(0.307)	(0.041)
LNA	−0.258***	−0.117	0.039	−0.216***
	(0.000)	(0.173)	(0.626)	(0.000)
ROA	0.004	0.000	−0.008	0.008

	(0.757)	(0.883)	(0.788)	(0.659)
Intercept term	−0.671***	−1.166***	−0.765**	−0.366*
	(0.002)	(0.003)	(0.007)	(0.058)
N	4691	1572	1681	7863
Time /Industry control	Y	Y	Y	Y
Estimation method	Generalized method of moments	Generalized method of moments	Generalized method of moments	Generalized method of moments
AR(2)_p	0.456	0.587	0.587	0.171
Hansen_p	0.631	0.186	0.186	0.815
Robust standard error	Y	Y	Y	Y

Note: Asterisks indicated the significant features presented by different coefficients, *, ** and *** were 0.1, 0.05 and 0.01 respectively, AR(2) indicated that there was no second-order autocorrelation in the disturbance term, and the test of *P* value corresponding to hansen indicated that the instrumental variable was free from over-identification.

(III) Regression Analysis of Financial Development and Deviation Degree of Adjustment of Corporate Capital Structure

In order to further analyze the relationship between financial development and deviation degree of adjustment of corporate capital structure, we divided the selected enterprises into state-owned enterprises and non-state-owned enterprises, according to their nature [21]. It was universally known that enterprises of different natures differed in the external financing mode and financing channel, etc. The rapid development of market economy urged enterprises to accelerate the adjustment of capital structure. Through a regression analysis of financial development and deviation degree of adjustment of corporate capital structure, it was found that all of the coefficients of one-period lagged full sample were negative at the significance level. This suggested that during the development of state-owned enterprises and non-state-owned enterprises, financial development was beneficial to the reduction of deviation degree of corporate capital structure. It can better help enterprises approach the target capital structure and minimize the contradictions in market economy. Thus, Hypothesis 4 held true.

Table 5Regression Analysis of Financial Development and Deviation Degree of Adjustment of Corporate Capital Structure

	State-owned Enterprises	Non-State-owned Enterprises	Full Sample
FIR	−0.008***	0.002	−0.003***
	(0.000)	(0.119)	(0.000)
(One-period lagged)			
Business solvency	−0.009***	0.012**	−0.007***
	(0.005)	(0.028)	(0.001)
TANG	0.011*	−0.036***	−0.009***

	(0.087)	(0.000)	(0.001)
SGROW	−0.018***	0.000	−0.007***
	(0.000)	(0.697)	(0.000)
LNA	−0.117***	−0.202***	−0.189***
	(0.000)	(0.000)	(0.000)
ROA	0.022	−0.068**	0.026
	(0.297)	(0.021)	(0.107)
Intercept term	0.107***	0.298***	0.103***
	(0.000)	(0.000)	(0.000)
Estimation method	Least square method	Least square method	Least square method
N	4371	2712	7628
Wald_p value	0.000	0.000	0.000

Note: Asterisks indicated the significant features presented by different coefficients, *, ** and *** were 0.1, 0.05 and 0.01 respectively. *P* value represented the overall regression effect.

IV. Conclusion and Prospect

(I) Conclusion

Under the market economy, today the relationship among financial development, monetary policy and the adjustment of corporate capital structure has become a key issue of concern. In this paper, listed companies from 2011 to 2021 were taken as the research object, and the relationship among three factors were analyzed from the quantity-based monetary policy and price-based monetary policy, etc. The empirical results showed that all of the four hypotheses in this study held true. In the general context of financial development, both the quantity-based monetary policy and price-based monetary policy had a significant effect on the adjustment of corporate capital structure. However, in complex and ever-changing financial market environments, the impact of quantity-based monetary policy on the adjustment of corporate capital structure will be weakened [23]. In addition, this study conducted a regression analysis on the relationship between financial development and the deviation degree of adjustment of corporate capital. As manifested by the results, when the impact coefficient of financial development on the adjustment of corporate capital structure was negative, financial development contributed to the decrease of the deviation degree of adjustment of corporate capital, and the stabilization of a progressive environment in the enterprise and help the enterprise achieve the adjustment of capital structure quickly.

(II) Prospect

Taken together, the future development of financial development, monetary policy, and corporate capital structure can be envisioned as follows:

1．To innovate financial development and perfect relevant mechanism

With the development of information technology in China, the financial industry can leverage the power of big data in the information era, keep innovating and developing the financial management mode, perfecting the regulatory mechanism to maximize the functions of financial development. On the one hand, through big data, the financial industry can access a vast amount of financial data[24], grasp the basic situations of each enterprise in the society, such as financing and operation and provide financial products and services in a targeted manner. On the other hand, it is necessary to improve financial regulation, monetary policy regulation, and market economy regulatory mechanisms to ensure the stable and sustainable development of market economy in China.

2．To strengthen information management and lower the risk of market economy

Although the era of rapid development and wide popularization of big data does extend fundamental information support for the development of Chinese enterprises, it also brings the hazard of information leakage. Based on the research findings of this article, on the one hand, whether for developing quantity-based monetary policy or quoting price-based monetary policy, it is necessary to check the authenticity of information macroscopically and microscopically [25], so as to purify corporate information. On the other hand, to strengthen information management, we need to approach from two aspects, that is, institution and measure, and effectively monitor unstable factors in the financial market to lower the risk of market economy.

In the future era of big data, financial development will continue to be of major concern in the economic field. Information transparency can help more experts and scholars analyze the relationship among financial development, monetary policy and adjustment of corporate capital structure in a more realistic and effective way, evaluate financial risks and unstable factors in market economy scientifically, so as to further accelerate the adjustment of corporate capital structure.

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