

# ***The Impact of Corporate Leverage Ratio on Its Operating Performance: An Empirical Study Based on A-share Listed Companies on the Shanghai Stock Exchange***

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**Abstract:** Through studying the annual data of 11 years of financial statements of A-share listed companies on the Shanghai Stock Exchange from 2011 to 2021, it is found that there is a negative correlation between the leverage ratio of enterprises and the return on total assets. Furthermore, from different dimensions, changes in leverage ratio have a negative impact on the total asset return of enterprises, but the degree of impact varies. Among them, commercial credit leverage has a much smaller negative impact on the total asset return than other dimensions, while bank leverage has the greatest negative impact on the total asset return. Deep level surveys have shown that companies with better financial flexibility can generate positive feedback on their operational performance through the increase in short-term leverage and commercial credit leverage, thereby offsetting the negative effects of changes in leverage ratios to some extent. For high-tech enterprises, an increase in long-term leverage ratio will lead to a further decline in business performance. The policy implication of this paper is that while stabilizing the macro leverage ratio, the relevant departments need to expand the financing channels of enterprises, increase financing options, provide credit support, provide moderate leverage space, guide enterprises to choose appropriate debt financing methods based on their own development characteristics, financial flexibility and development prospects, so as to promote finance to better serve the real economy To empower economic development.

## **1. Introduction**

At present, the economic situation in China is becoming increasingly complex, and enterprises are constantly adjusting their capital structures in order to seek greater development in the fiercely competitive market. The focus on leverage ratio has also become one of the important issues in enterprise planning and national economic development. The report of the 19th National Congress of the Communist Party of China has identified the adjustment of economic structure as an important direction for future work. We need to actively promote real economic growth and maintain the stability of macro debt ratios. Therefore, the financial sector needs to provide strong support to the real economy, optimize the allocation of financial resources, and promote the stable

development of enterprises. Among them, the key link is to guide capital investment and maximize the efficiency of financial resources.

Leverage ratio refers to the ability of a company to use borrowed funds to expand its investment scale, meaning that the company relies on borrowing less of its own funds for investment activities. The role of leverage ratio is to improve the capital utilization rate of enterprises, in order to achieve higher returns by expanding investment scale. However, when the company's borrowing capacity exceeds its debt paying ability, it will face serious financial risks, which will have an adverse impact on the company's operating performance. From the perspective of financing leverage, analyze where the financing funds come from? What financing methods can maximize the company's profits? This has important practical significance for optimizing China's macroeconomic regulation and promoting high-quality development of the economy.

Most existing studies have linked leverage ratio to financial stability (Jiantang<sup>[1]</sup> Ma et al., 2016; Min Ji<sup>[2]</sup> et al., 2017), analyzing financial risks from the perspective of macro leverage ratio. However, to gain a deeper understanding of the problems currently encountered in China, we need to start from a micro perspective and reveal the leverage ratio of enterprises by analyzing their asset liability ratio, in order to further explore the impact of leverage ratio. After organizing relevant literature, we found that most of the research on the impact of leverage has focused on financial institutions, especially the banking sector (Haifeng Gu<sup>[3]</sup>, Shuying Xie, 2022; Xinqun Liu<sup>[4]</sup>, Jiangtao Liu, 2013), with a lack of corporate coverage.

Numerous studies have shown that leverage ratio is an important indicator of a company's growth level, and controlling the level of leverage ratio of a company plays a positive role in promoting its growth. Therefore, it is necessary to study the leverage ratio of enterprises. Based on existing research results and reference to relevant literature, this article selects financial data of A-share listed companies on the Shanghai Stock Exchange in China from 2011 to 2021 and constructs a panel data model. The aim is to analyze the correlation between leverage ratio and operational performance, provide a basis for enterprises to stabilize leverage and deleverage, and improve their operational performance. Research has found that the leverage ratio of a company has a negative impact on the return on total assets, but the degree of this negative impact will increase with the increase of leverage ratio. In addition, the changes in leverage ratio have a negative impact on the total asset return of enterprises in different dimensions, but the degree of impact varies.

## 2. Empirical design

### 2.1. Sample selection and data sources

This study used the annual financial data of Shanghai A-share listed companies from 2011 to 2021, which lasted for 11 years, as the research sample. However, given the significant differences in financial characteristics between the finance and real estate industries, in order to ensure the stability of research results, we excluded data from listed companies in these two industries and obtained 12336 valid samples. The regional economic status indicator data in this article was obtained from the National Bureau of Statistics, and the financial statement data used in this empirical study was obtained from the CSMAR Guotai An database. At the same time, the data was subjected to a 1% tail reduction.

### 2.2. Variable Definition

In this study, we adopted the return on total assets (ROA) as the evaluation standard for business performance, and used the return on net assets (ROE) as the benchmark for robust testing, which allows us to accurately measure the company's operational performance. This article calculates a

company's leverage ratio based on the ratio of total liabilities to total assets, denoted as Lev. During this process, we also considered and controlled factors that may affect the company's operational performance, such as Turnover, Size, TobinQ, Tangible, MANRatio, TAXratio, SOE-r, and regional economic conditions (GDP). The detailed definition is shown in Table 1.

When measuring the financial flexibility of enterprises, this study followed the method of Marchica and Mura<sup>[5]</sup> (2010), using a single indicator of industry differences to measure the financial flexibility of sample enterprises. We generated a dummy variable called Flex, and if a company's cash ratio exceeds its industry average, we record it as 1. Otherwise, we record it as 0.

In exploring the direction of the company's development, this research paper draws on a strategy categorized by industry category, and references the research approach of Yuze Wang<sup>[6]</sup> and his team (2019). Moreover, according to the "2018 Classification of High tech Industries (Service Industries)" published by the National Bureau of Statistics of China, the industries engaged by the sample companies are defined as nationally supported high-tech industries, and a dummy variable called Tech is created. The value of this variable is based on whether the company belongs to a high-tech industry. If so, its value is 1, otherwise it is 0.

Table 1: Definition and Descriptive Statistics of Main Variables.

variable	Variable Description	Variable Definition	sample size	standard deviation	median	mean value
Lev	Corporate leverage ratio	Total liabilities/total assets	12336	0.210	0.442	0.448
ROA	Return on total assets	Net profit/total asset balance	12336	0.065	0.038	0.037
ROE	Return on equity	Net profit/year-end shareholders' equity	12336	0.161	0.072	0.055
Size	company size	Natural logarithm of total assets	12336	1.417	22.240	22.409
TobinQ	Company Value	Market value/total assets	12336	3.341	1.532	2.174
Turnover	Total asset turnover rate	Operating income/total assets Closing balance	12336	0.563	0.543	0.661
Tangible	Proportion of physical assets	(Fixed assets+deposits)/Total assets	12336	0.182	0.353	0.366
MANRatio	Management expense ratio	Management expenses/operating income	12336	19.414	0.065	0.323
TAXratio	Tax burden proportion	Tax amount/sales amount paid	12336	0.120	0.022	0.036
SOE_R	State owned share ratio	Total number of state-owned shares/share capital	12336	0.135	0.000	0.044
GDP	Regional economic situation	Actual GDP logarithm at the provincial level in the region where the enterprise is located	12336	0.781	10.492	10.409

### 2.3. Model Settings

This article first examines the impact of corporate leverage on total asset return, using a regression equation:

$$ROA_{it} = \beta_0 + \beta_1 Lev_{it} + \beta_2 Lev_{it} \times Flex + \beta_3 + \gamma X_{it} + \mu_i + \delta_i + \varepsilon_{it} \quad (1)$$

Among them,  $ROA_{it}$  is the total asset return rate of enterprise  $i$  in period  $t$ ;  $Lev_{it}$  is the leverage ratio of enterprise  $i$  in period  $t$ ;  $X_{it}$  is a merged set of enterprise control variables. In this paper, a two-way fixed effect model is adopted, and both time fixed effects (in terms of years) and individual fixed effects (in terms of companies) are included, where  $\mu_i$  represents the individual fixed effect,  $\delta_i$  represents the time fixed effect, and  $\varepsilon_{it}$  represents the random error. In order to provide more insights into the impact of leverage ratio on the company's operational performance, we chose to conduct group regression analysis by dividing the leverage ratio into 0~0.25, 0.25~0.5, 0.5~0.75, and companies exceeding 0.75<sup>[7]</sup>.

Based on this premise, this study incorporates indicators used to evaluate the financial flexibility and development prospects of enterprises into equation (1), which involves inserting Flex and Tech into equation (1) to form equations (2) and (3), in order to investigate how changes in leverage affect the operational performance of enterprises when financial flexibility and development prospects differ. In addition, to further analyze the impact of changes in leverage ratios from different dimensions on corporate operational performance, this article decomposes total leverage into four types of leverage ratios. Respectively, short-term leverage calculated based on the ratio of liquid liabilities to total assets (Lev\_short); Long term leverage calculated as the ratio of non current liabilities to total assets (Lev\_long); Bank leverage calculated based on the ratio of the sum of short-term and long-term borrowings at the end of the period to total assets (Lev\_Bank); The commercial credit leverage (Lev\_comm) calculated based on the ratio of the sum of enterprise accounts payable, notes payable, and advance receipts to total assets. Replace the  $Lev_{it}$  in the equation with each of them.

$$ROA_{it} = \beta_0 + \beta_1 Lev_{it} + \beta_2 Lev_{it} \times Flex + \beta_3 Flex + \gamma X_{it} + \mu_i + \delta_i + \varepsilon_{it} \quad (2)$$

$$ROA_{it} = \beta_0 + \beta_1 Lev_{it} + \beta_2 Lev_{it} \times Tech + \beta_3 Tech + \gamma X_{it} + \mu_i + \delta_i + \varepsilon_{it} \quad (3)$$

### 2.4. Research Assumptions

Assumption 1: The leverage ratio of a company is negatively correlated with the return on total assets, and the greater the leverage ratio, the deeper the negative impact on the company's operating performance.

Assumption 2: The change in leverage ratio has a negative impact on the total asset return of the enterprise in different dimensions, but the degree of impact varies.

Assumption 3: For companies with high financial flexibility, an increase in leverage and commercial reputation leverage in the short term will partially have a positive impact on the company's operational results.

Assumption 4: For companies with better development prospects, an increase in long-term leverage will lead to a further decline in business performance.

### 3. Empirical results

#### 3.1. Benchmark regression

Table 2 presents the regression analysis results of leverage ratio and corporate operational performance. In the first regression analysis, this article selects the return on total assets (ROA) as the standard for evaluating the economic benefits of enterprises, and on this basis, regression calculations are performed on all samples to obtain a leverage ratio regression coefficient of -0.185, which is significant at the 1% statistical level, indicating that increasing leverage will lead to a decrease in total asset return, applicable to all samples. In the regression analysis from the second to the fifth time, the samples were divided according to the size of the leverage ratio for regression. For example, in the second regression, the sample leverage ratio is between 0 and 0.25, and the regression coefficient is -0.073, which is significant at the 10% statistical level; In the third regression analysis, the sample leverage ratio was within the range of 0.25~0.5, and the regression coefficient output was -0.129, which is significant at the 1% statistical level. Similarly, in the fourth and fifth regression analyses, the sample leverage ratios ranged from 0.5 to 0.75 and exceeded 0.75, respectively, with regression coefficients of -0.176 and -0.576, which were significant at the 1% statistical level. These data reveal that regardless of the level of leverage, it will have a negative effect on the total asset return, and this effect will amplify with the increase of leverage, further confirming the accuracy of hypothesis 1.

Table 2: Benchmark Regression Results

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ROA	ROA	ROA	ROA	ROA
	Full sample	$0 < \text{Lev} \leq 0.25$	$0.25 < \text{Lev} \leq 0.5$	$0.5 < \text{Lev} \leq 0.75$	$\text{Lev} \geq 0.75$
Lev	-0.185***	-0.073*	-0.129***	-0.176***	-0.576***
	(-19.27)	(-1.92)	(-8.51)	(-9.77)	(-8.08)
X	0.005***	0.004***	0.008***	0.006***	-0.005
	(5.24)	(3.86)	(7.61)	(3.03)	(-1.27)
Observations	12336	2488	4870	4008	nine hundred and seventy
R-squared	zero point one six two	zero point zero six four	zero point zero nine four	zero point zero eight five	zero point one eight two
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: \*\*\*, \*\*, \* respectively represent significant values at the 1%, 5%, and 10% statistical levels, with standard errors in parentheses, the same below.

#### 3.2. Changes in leverage ratio, debt structure, and total asset return

Next, our research focus is to explore how changes in different types of leverage ratios affect the profitability of total assets. In this paper, we mainly study the source and maturity of the company's debt, and consider short-term leverage, long-term leverage, bank leverage, and commercial credit leverage as variables to be solved for further regression analysis. The specific analysis results can be referred to in the second to fifth columns of the third row of the table below. The regression results show in Table 3. In the analysis results of regression (2), the regression coefficient of short-term leverage is -0.166, which has a significant impact at the 1% statistical level; Similarly, in the results of regression (3), the regression coefficient of long-term leverage reached -0.184, which also

showed a significant impact at the 1% statistical level; According to regression (4), the regression coefficient of bank leverage is -0.184, which also shows a significant impact at the 1% statistical level; In regression (5), the regression coefficient of commercial credit leverage is -0.70, which has a significant impact at the 1% statistical level. The above regression results indicate that the changes in leverage ratio have a negative impact on the total asset return of enterprises under different dimensions, but the degree of impact varies. Among them, commercial credit leverage has a much smaller negative impact on the total asset return than other dimensions, while bank leverage has the greatest negative impact on the total asset return. Short term and long-term leverage have weaker negative effects on the total asset return than bank leverage. Hypothesis 2 holds.

In short-term borrowing, the reduction of debt duration often leads to an increase in debt repayment risk, which will have a negative impact on the financial stability and sustainability of the enterprise<sup>[8]</sup>. There will also be many limitations in the utilization of the company's existing resources, and various management and business cooperation issues caused by debt shocks will also be faced. For long-term loans, commercial banks have many constraints on this part of the loan and strict requirements for the investment direction of these funds<sup>[9]</sup>. This makes it necessary for enterprises to shrink their business space and carefully choose their business behavior in order to obtain debt funds with lower debt repayment risk.

Compared with bank leverage, commercial credit leverage has lower financing costs and is more flexible to use. The debt generated by commercial credit is often related to certain specialized transaction behaviors. The company does not need to pay interest on this type of debt and can recover and reuse it within the loan term. This is very beneficial for improving the financial constraints of the enterprise, which may enable the company to better handle debt repayment risks.

Table 3: Changes in leverage ratio, debt structure, and total asset return

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ROA	ROA	ROA	ROA	ROA
Lev	-0.185***				
	(-19.27)				
Lev_ Short		-0.166***			
		(-14.94)			
Lev_ Long			-0.142***		
			(-10.23)		
Lev_ Bank				-0.184***	
				(-14.87)	
Lev_ Comm					-0.070***
					(-4.17)
X	0.005***	0.005***	0.004***	0.004***	0.004***
	(5.24)	(5.27)	(3.76)	(4.05)	(3.92)
Observations	12336	12336	12336	12336	12336
R-squared	zero point one six two	zero point one one five	zero point zero five one	zero point zero nine one	zero point zero two six
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

### 3.3. Robustness testing

Firstly, this article further expands the scope of measuring company operating performance based on the standard of return on total assets. Therefore, the original return on total assets (ROA)

was abandoned and equation (1) was re analyzed using ROE (i.e. the ratio of net income to year-end shareholder equity). The regression results show in Table 4 that the regression coefficient for the debt ratio of the entire sample is -0.344, with a statistical significance of 1%. In regression (3), the debt ratio of the sample ranges from 0.25 to 0.5, with a regression coefficient of -0.095 and a statistical significance of 1%. In regression (4), the selected sample debt ratio ranges from 0.5 to 0.75, and its regression coefficient for debt ratio is -0.348, with a statistical significance of 1%. In regression (5), the leverage ratio of the sample is greater than 0.75, and the regression coefficient of leverage ratio is -1.231, which is significant at the 1% statistical level. The regression results indicate that the leverage ratio has the same impact on business performance as the original measurement index.

Table 4: ROE benchmark regression results

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ROE	ROE	ROE	ROE	ROE
	Full sample	$0 < \text{Lev} \leq 0.25$	$0.25 < \text{Lev} \leq 0.5$	$0.5 < \text{Lev} \leq 0.75$	$\text{Lev} \geq 0.75$
Lev	-0.344***	-0.063	-0.095***	-0.348***	-1.231***
	(-13.27)	(-0.99)	(-3.31)	(-6.27)	(-4.23)
X	0.013***	0.005**	0.014***	0.013**	zero
	(4.93)	(2.38)	(7.49)	(2.49)	(0.02)
Observations	12336	2488	4870	4008	nine hundred and seventy
R-squared	zero point zero seven five	zero point zero four two	zero point zero six five	zero point zero five one	zero point zero five one
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Given the possible bidirectional causal relationship between leverage ratio and total asset return, we borrowed the technique of Xiaofeng Quan and his colleagues (2015) to use the average industry leverage ratio as an instrumental variable for enterprise leverage ratio, and then re performed the regression using the two-stage instrumental variable method. Secondly, newly listed companies usually have sufficient equity fundraising, so their operating methods may be different from other companies. Therefore, we excluded the sample of companies with a listing cycle of less than three years and then re performed the regression of equation (1). All these robust conclusions are consistent with the previous discussion.

## 4. Further Discussion: Business Performance, Financial Flexibility, and Development Prospects

### 4.1. Changes in leverage ratio, financial flexibility, and return on total assets

Companies with higher financial flexibility are more likely to capture opportunities for external investment and further improve their operational results<sup>[10]</sup>. This article uses the industry difference method to estimate the financial flexibility of sample enterprises, and multiplies this by the leverage ratio to perform regression analysis on equation (2). As shown in Table 5, the regression coefficient of the product of financial flexibility and leverage ratio (LevFlex) is 0.064, which is significant at the 1% statistical level. This means that for enterprises with better financial flexibility, changes in leverage ratio can bring some positive effects, that is, due to their high financial stability, an increase in corporate debt can improve operational efficiency to some extent or in specific projects.



From the perspective of leverage term structure and source structure, the regression coefficient between financial flexibility and the product of long-term leverage and bank leverage is not significant. However, the regression coefficient between financial flexibility and the product of short-term leverage is 0.085, which is significant at the 1% statistical level. The regression coefficient between financial flexibility and the product of commercial credit leverage is 0.028, which is significant at the 10% statistical level. These indicate that for enterprises with better financial flexibility, an increase in short-term leverage and commercial credit leverage will have a partial positive impact on the operational results of the enterprise, which supports hypothesis 3. The increase in short-term leverage and commercial credit leverage also indicates that the enterprise has obtained more liquidity, debt, and commercial credit. These two tools are more flexible to use and do not have too many constraints on specific projects, allowing the company to have more autonomy and operational space to choose the most suitable strategy for its own operation.

Table 5: Changes in leverage ratio, financial flexibility, and return on total assets

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
Lev_Flex	0.064*** (4.82)				
Lev_Short_Flex		0.085*** (5.16)			
Lev_Long_Flex			-0.005 (-0.32)		
Lev_Bank_Flex				zero (0.03)	
Lev_Comm_Flex					0.028* (1.75)
X	0.005*** (5.28)	0.005*** (5.25)	0.004*** (4.01)	0.004*** (4.19)	0.004*** (4.13)
Observations	12336	12336	12336	12336	12336
R-squared	zero point one six seven	zero point one two two	zero point zero six seven	zero point zero nine seven	zero point zero four two
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

#### 4.2. Changes in leverage ratio, development prospects, and total asset return

In the process of elaborating on the future development of the company, the sample enterprises we collected are divided into high-tech and non high-tech enterprises according to their industry types. We constructed a dummy variable named 'Tech' and calculated it in conjunction with the leverage ratio, followed by regression analysis in formula (3). Please refer to Table 6 for specific results. According to regression calculations, the regression coefficient of the interaction term between high-tech enterprises and their long-term leverage ratio is calculated to be -0.076, which has a significant coefficient at the 10% statistical level. This indicates that as the long-term leverage ratio of high-tech enterprises increases, their operating performance will continue to decline, which is sufficient to prove hypothesis 4. The reason is that companies often use the long-term loans they receive for specific projects with determined returns, while high-tech enterprises require more flexibility and uncertainty in their projects. The significant increase in long-term loans will reduce



the flexibility of the company<sup>[11]</sup>, guiding it from innovative projects that can bring more profits to stable traditional projects, leading to the company missing out on opportunities to obtain higher returns.

Table 6: Changes in leverage ratio, development prospects, and total asset return

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ROA	ROA	ROA	ROA	ROA
Lev_ Tech	-0.040 (-1.37)				
Lev_ Short_ Tech		-0.052 (-1.46)			
Lev_ Long_ Tech			-0.076* (-1.93)		
Lev_ Bank_ Tech				-0.034 (-0.72)	
Lev_ Comm_ Tech					-0.009 (-0.21)
X	0.005*** (5.32)	0.005*** (5.31)	0.004*** (3.86)	0.004*** (4.05)	0.004*** (3.92)
Observations	12336	12336	12336	12336	12336
R-squared	zero point one six three	zero point one one six	zero point zero five two	zero point zero nine one	zero point zero two six
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

## 5. Conclusion and policy recommendations

By studying the financial situation of A-share listed companies in the Shanghai Stock Exchange of China in 2011-2021, this paper explores the relationship between the evolution of corporate leverage and its operating performance. Research has revealed the negative impact of leverage on the return on total assets of enterprises, and this negative effect will worsen with the increase of leverage. In addition, the changes in leverage ratios under different dimensions have a negative impact on the total asset return of enterprises, but the degree of impact varies. Among them, commercial credit leverage has a much smaller negative impact on the total asset return than other dimensions, while bank leverage has the greatest negative impact on the total asset return. A thorough investigation has found that companies with good financial flexibility can have some positive effects on their operational results through the increase in short-term debt and commercial credit liabilities, partially offsetting the negative effects of changes in leverage ratios. For high-tech enterprises, an increase in long-term leverage ratio will lead to a further decline in business performance.

Essentially, the micro leverage ratio reflects a company's ability to utilize external resources. Although leverage has a negative impact, the development of enterprises is related to a variety of factors. Enterprises need leverage, and they can also use leverage to play a positive role. Moderate leverage can not only maximize profits for enterprises, but also better allocate social resources<sup>[12]</sup>. Maintaining a reasonable proportion of liabilities can stabilize the overall capital structure of the enterprise, which is beneficial for providing financial support for expanding scale production,

thereby improving the flexibility of enterprise capital turnover to a certain extent. However, an excessively high leverage ratio can increase the financing cost of the enterprise, thereby increasing its financial risk, which is detrimental to the healthy development of the enterprise. Therefore, enterprises should carefully control their leverage ratio. Enterprises should choose appropriate debt financing methods based on their own development characteristics. Enterprises should consider their own financial flexibility and development prospects, starting from their financial stability and sustainability, and make reasonable plans for the development prospects of the enterprise. Enterprises with good financial flexibility should choose short-term loans and commercial credit loans, while companies with good development prospects should try to reduce long-term loans. At the social level, the relevant departments should expand the company's financing channels, increase the company's debt financing options, and expand the company's financing channels. For those companies that maintain the right debt ratio, have some financial flexibility, and have good growth expectations, we should provide credit assistance and appropriate debt scope as far as possible, so that these companies have more financing channels. We should guide the company to carry out lean operation and optimize the industrial chain, so that the company can focus more on its main business, so as to provide more development space for the company, so that the finance can better serve the real economy.

## References

- [1] Jiantang Ma et al.(2016) *China's leverage ratio and systemic financial risk prevention*, *Finance, Trade and Economics*, 37, 5-21.
- [2] Min Ji, Baoyu Yan, and Hongjin Li.(2017) *Leveraged Ratio Structure, Level, and Financial Stability - Theoretical Analysis Framework and China's Experience*. *Financial Research*, 2, 11-25.
- [3] Haifeng Gu and Shuying Xie. (2022) *Cross border Capital Flow, Debt Leverage, and Banking Performance*, *Journal of Hunan University (Social Sciences Edition)*, 3, 40-50.
- [4] Xinqun Liu and Jiangtao Liu.(2013) *Leverage Ratio, Liquidity, and Operating Performance - Panel Data Analysis of Chinese Listed Commercial Banks from 2004 to 2011*, *International Finance Research*, 3, 88-95.
- [5] Marchica, M T. And R. Mura. (2010) *Flexibility, Investment Ability, and Firm Value: Evidence from Firms with Spare Debt Capacity*, *Financial Management*, 39 (4): 1339-1365
- [6] Yuze Wang, Nengsheng Luo, and Wenbin Liu. (2019) *What kind of leverage ratio is conducive to enterprise innovation*, *China Industrial Economy*, 3, 138-155.
- [7] Sichao Ma, Ji Shen, Yuchao Peng. (2022) *Changes in leverage ratio, fixed assets investment and R&D activities - also on high-quality development of financial empowerment*, *Financial Research*, 5, 2-15.
- [8] Xiaoguang Liu and Yuanchun Liu. (2019) *Leverage Ratio, Short term Debt Long term Use, and Corporate Performance*, *Economic Research*, 7, 127-141.
- [9] Zhengfei Lu, Xia Han, and Qi Chang. (2006) *Research on the Relationship between Long term Debt and Investment Behavior of Companies: An Empirical Analysis Based on Chinese Listed Companies*. *Management World* 1, 120-128.
- [10] Pan Tong. (2015) *Debt Maturity Structure and Enterprise Investment Scale - Empirical Research from Chinese A-share Listed Companies*, *Economic Science*, 5, 93-101.
- [11] Xiaoguang Liu and Yuanchun Liu. (2019) *Leverage Ratio, Short term Debt Long term Use, and Corporate Performance*, *Economic Research*, 7, 127-141.
- [12] Weixing Cai, Feng Zhao, and Cheng Zeng. (2011) *Political Relations, Regional Economic Growth, and Corporate Investment Behavior*. *Financial Research*, 4, 100-112.