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The Impact of Loose Monetary Policies in China and the United States on enterprise investment

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Abstract: In response to the economic impact brought about by the COVID-19 pandemic, the two major countries, China and the United States, have respectively adopted relatively loose monetary policies. This paper mainly adopts the differin-differences model to evaluate the impact of loose monetary policies on the changes in the investment levels of enterprises in the two countries under the background of economic shocks. By comparing the impact of the loose monetary policies of China and the United States on the investment level of enterprises, the research shows that due to the differences in national conditions and policies between China and the United States, the loose monetary policy of the United States mainly affects the capital expenditure of large enterprises. China's loose monetary policy has also significantly affected corporate investment, but its effects vary in terms of different enterprise scales, geographical locations and equity natures. Further analysis reveals that China's loose monetary policy has been more effective in promoting investment by small and medium-sized enterprises, enterprises in the eastern region and state-owned enterprises. China's loose monetary policy still needs to be further improved in the future to ensure the stable development of the national economy.

Keywords: Loose monetary policy; Enterprise investment; Difference-in-differences model

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1. Introduction

This study, through a cross-national comparison approach, deeply analyzes the impact of the loose monetary policies of China and the United States[1] on the investment activities of their respective listed enterprises, providing a new perspective for understanding the relationship between loose monetary policies and enterprise investment behaviors, and then further analyzes the multiple impacts of China's loose monetary policies. This paper hopes that through this research, it can provide useful insights for understanding the influence mechanism of the loose monetary policy on the investment behavior of enterprises[2-4]]during the epidemic[5-6], and contribute a humble effort to the formulation and implementation of China's loose monetary policy[7].

2. Construction of difference-in-differences model

A reasonable treatment group and control group were established by using the difference-in-differences model. In this paper, following the practice of Michael Zheng(2021), the treatment group and the control group were distinguished by the proportion of cash holdings to assets. To avoid the impact of the epidemic on the characteristics of enterprises,

the proportion of cash holdings to assets of enterprises was measured only once in the year before the crisis: the fourth quarter of 2018. And taking the average of the ratio as the dividing line, the samples were divided into two groups: above the average value and below the average value. Based on this, the groups above the average value were defined as the treatment group, and the groups below the average value were defined as the control group. The model is constructed as follows:

$$Invest_{i,t} = \alpha_0 + \alpha_1 treat * post + \beta_1 controls_{i,t-1} + \lambda_t + \mu_i + \varepsilon_{i,t}$$

In this model, the subscript i represents the enterprise, the subscript t represents the time, and controls represent the control variables with a lag of one period, including company size, financial leverage, proportion of tangible assets, research and development expenditure, book-to-market ratio, and EBIT ratio. λ represents the time fixed effect, μ represents the individual fixed effect, and ε is the random disturbance term.

3. Data selection and explanation

Core explanatory variable: Treat group dummy variable, used to identify the impact of loose monetary policy on the investment of listed enterprises in China or the United States; Post is used to identify the time when unconventional monetary policies are implemented; Treat×Post serves as the interaction item between the group dummy variable and the time dummy variable

In the difference-in-differences model of this paper, in order to control other variables that may have an impact on the model, the following control variables are selected: Company size, earnings before interest, taxes, depreciation and amortization (EBITDA), Market To Book, financial Leverage, Tangibility and research and development. Drawing on the practice of (Bernard Kwame Tawiah,2022), if the R&D expenditure is missing, this paper replaces the missing value with zero. Since the research and development expense variable was introduced in the CSMAR database only in 2018, the starting point of the sample interval in this paper is selected as the first quarter of 2018 to improve the accuracy of the empirical results. Furthermore, in order to control the influence of time and the heterogeneity of enterprises themselves on the regression results, two virtual control variables, individual and time, are introduced.

4. Analysis of Empirical Results

4.1. Analysis of difference-in-differences regression results

The regression results are shown in Appendix Table 3-1. Among these indicators, Size1, Leverage1, Mtb1, R&D1, EBITDA1 and Tangibility1 They respectively correspond to the lagging period data of the company's size, the lagging period data of financial leverage, the lagging period data of market book value, the lagging period data of research and development, the lagging period data of EBIT ratio, and the lagging period proportion of tangible assets. Column (1) presents the results of the regression analysis of the investment activities of Chinese A-share enterprises through the OLS model. Among them, the coefficient of Treat×Post is significantly positive, with A specific value of 0.0019, and this result is statistically significant at the 5% confidence level. Further, when we controlled for sample companies and seasonal dummy variables in column (2), the coefficient of the interaction term remained positive and was still significant at the 5% significance level. It strongly indicates that after the implementation of the loose monetary policy, the proportion of investment activities of listed enterprises in China's total assets has shown a significant growth trend. This result strongly indicates that under the background of the implementation of loose monetary policy, the proportion of investment activities of listed companies in the United States in total assets has also shown a significant increase, further confirming the positive impact of monetary policy on the investment activities of enterprises[8].

4.2. Heterogeneity test based on classification by size

As shown in the results of Appendix Table 3-2, before and after the addition of the control variables, the investment

regression coefficients of the interaction term Treat*Post for small enterprises were 0.0022 and 0.019 respectively. Before the addition of the control variables, it was significant at the 10% statistical level, but the result was not significant after the addition of the control variables. On the contrary, for large enterprises, the investment regression coefficients of the interaction term Treat *Post for large enterprises were 0.0013 and 0.0020 respectively. They were not significant before the addition of control variables, but significant at the 5% statistical level after the addition. This indicates that for large enterprises in the United States, the loose monetary policy implemented during the epidemic[9] significantly increased their investment expenditure, while the loose monetary policy implemented during the epidemic had little impact on the investment activities of small and medium-sized enterprises in the United States. Taking advantage of its unique status as the global reserve currency, combined with its rich experience in responding to the 2008 financial crisis and supplemented by the active coordination of fiscal policies, the Federal Reserve adopted an implementation strategy that was almost like “helicopter money dropping”. This strategy has significantly benefited large American enterprises in practical operation, enabling them to fully leverage the advantages of the loose monetary policy and further promote their business development and economic recovery. Compared with large enterprises in China, the loose monetary policy during the epidemic significantly increased the investment activities of small enterprises. In response to China’s loose policy, the People’s Bank of China actively utilized methods such as special preferential re-lending, inclusive re-lending and re-discounting in the loose monetary policy implemented during the epidemic. A series of precise structural monetary policies have been formulated for small enterprises in a scalpel manner.

4.3. Heterogeneity analysis based on the regional classification of Chinese enterprises

As shown in the results of Appendix Table 3-3, before and after adding the control variables, the investment regression coefficients of the interaction term Treat*Post for enterprises in the eastern region were 0.0023 and 0.0019 respectively, both significant at the 5% statistical level. Whether or not control variables are added, the investment regression coefficient of the interaction term Treat *Post for enterprises in the central and western regions is not significant. This indicates that, compared with enterprises in the central and western regions, the loose monetary policy has significantly increased the investment activities of enterprises in the eastern region. Generally speaking, compared with regions with a higher level of development, those regions with relatively advanced economic levels tend to achieve more remarkable results in policy[10] implementation. Ultimately, the economic development of the eastern region benefits from its advantages in terms of capital, technology, talents, educational resources, etc., and it has reaped much higher returns than enterprises in the central and western regions during the implementation of loose monetary policies.

4.4. Heterogeneity analysis Based on the Classification of Equity Nature of Chinese enterprises[11]

Appendix Tables 3-4 present the results of grouped regression for Chinese state-owned enterprises and non-state-owned enterprises respectively. As shown in Columns (1) and (2), in the sample of state-owned enterprises, regardless of whether control variables are added or not, the estimated coefficient of the interaction term Treat*Post for investment is significantly positive at the 5% level. Correspondingly, as shown in column (3) and column (4) of Table 9, in the sample of non-state-owned enterprises, regardless of whether control variables are added or not, the estimation coefficient of the interaction term Treat*Post for investment is positive but not significant. From this, it can be seen that the impact of loose monetary policy on increasing the investment degree of state-owned enterprises is greater than that of non-state-owned enterprises.

5. Conclusion

Studies show that the differences in national conditions and policies are the fundamental reasons why the loose monetary policies of the two countries have different impacts on enterprise investment[12], which are reflected in several aspects such as the economic environment, policy tools and policy effects. The relationship between loose monetary policies and enterprise investment activities is intertwined and profound. Especially in the two important economies of China and

the United States. The loose monetary policy has significantly stimulated the vitality of enterprises' investment activities by means of reducing financing costs and expanding investment channels. The following conclusions are drawn on the different impacts of loose monetary policy[13-14] on the scale of enterprises. After the COVID-19 pandemic, the loose monetary policy implemented by the People's Bank of China has supported the investment activities of small and micro enterprises by reducing financing costs and increasing credit supply. The loose monetary policy of the Federal Reserve mainly benefits large enterprises. By expanding their financing channels and reducing financing costs, it promotes the investment activities of large American enterprises. Compared with enterprises in the central and western regions, the loose monetary policy implemented by the People's Bank of China during the COVID-19 pandemic has achieved remarkable results in the eastern region. In order to achieve balanced regional development, in the future, financial support and policy inclination for the central and western regions should be further increased, so as to achieve the strategic goal of the rich leading the less prosperous. China's loose monetary policy[15] has a positive impact on the investment of state-owned enterprises, mainly influenced by the following factors. First, state-owned enterprises have significant advantages in financing. Second, state-owned enterprises also enjoy certain advantages in terms of credit supply. Thirdly, the operation of state-owned enterprises is closely related to the national strategy.

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