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The Impact of Monetary Policy Changes on the Efficiency of Corporate Investment—Based on Capital Goods and Consumer Goods Research Perspectives

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Abstract: *Credit expansion makes over-investment in capital goods in the upstream production chain, which reduces the efficiency of firm investment; credit expansion makes under-investment in consumer goods in the downstream production chain, which reduces the efficiency of firm investment. The impact of monetary policy changes on enterprise investment efficiency is temporal and sequential, and its intrinsic mechanism and transmission channels: credit expansion reduces enterprise financing costs, and funds will be concentrated in the long-cycle and capital-intensive upstream capital goods production link, leading to over-investment in capital goods and under-investment in consumer goods; large-scale investment in capital goods drives up the prices of its production factors, and the profit margin of capital goods production and sales becomes smaller, and The efficiency of investment in capital goods decreases; the credit crunch after the credit expansion, the rising cost of enterprise financing, the rising prices of production factors, the underinvestment in consumer goods, the oversupply of consumer goods, the subsequent rise in the price of consumer goods, and the decrease in the efficiency of investment in consumer goods.*

Keywords: *Monetary policy changes; Investment efficiency; Capital goods; Consumer goods*

1. Introduction

The financing activities of enterprises are for investment activities, and working capital activities are for investment efficiency. Investment is the starting point of enterprises, and the efficiency of investment (i.e., return on investment) is the landing point of enterprises. Macroeconomic policy is the general background of production and operation activities of Micro-subjects, which affects the financing, investment, and capital operation activities of enterprises. However, macroeconomic policy is an abstract overall, only the total amount of statistical analysis. The entry point of macroeconomic policy research is industry, regional and national economic aggregate, but regional and industry national economic aggregate is composed of micro individual economic activities summed up, the macroeconomic policy focuses on micro individual economic activities can discover the internal channels and mechanisms of macroeconomic policy to play a role in microeconomic activities. Monetary policy guides the financing, investment, and operating activities of enterprises by influencing the number of loans, interest rates, and loan conditions, which constitute macroeconomic aggregates. The central bank regulates the behavior of micro business agents by adjusting intermediary variables such as money supply and interest rate, and ultimately affects the total economic output (Rao, Pingui, and Jiang, 2011) [1]. What is the mechanism of the operation of credit expansion on the investment activities of micro-subjects? Why does the efficiency of corporate investment decline in a period of credit expansion, when bank loanable funds increase, financing costs fall, and corporate financing constraints are reduced? Why are the industries that overheat investment during credit expansion usually capital-intensive industries, such as real estate, transportation, steel, machinery, petrochemicals, and other basic and heavy industries? This paper links macro-level monetary policy with micro-level corporate investment decisions and focuses on the impact of credit expansion on corporate investment levels and investment efficiency.

2. Literature Review

Regarding the research on macro-level monetary policy and micro-level enterprise investment

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decisions, previous literature mainly studies the differences in investment and investment efficiency between state-owned enterprises and non-state-owned enterprises from the perspective of financing constraints in the context of monetary policy changes (Yu, Kun, Li, Zhiguo, Zhang, Xiaorong, and Xu, Jiangang, 2014) [2]; (Liu, Haiming, and Cao, Tingqiu, 2017) [3] argue that state-owned enterprises are more likely than non-state-owned enterprises under the tight monetary policy to obtain access to loans, but non-SOEs are more efficient in investing during monetary tightening. The demand for and sensitivity to credit funding varies across production link products in a changing monetary policy environment, with upstream production link capital goods being more sensitive to credit funding and interest rates compared to consumer goods near the consumption end. This paper investigates the impact of monetary policy changes on firms' investment efficiency based on different product segments of upstream capital goods and downstream consumer goods of products. The main innovations of this paper are as follows.

First, credit expansion makes the upstream production link capital goods over-invested and reduces the firm's investment efficiency; credit expansion will make the downstream production link consumer goods under-invested and reduces the firm's investment efficiency. Although credit expansion makes both upstream production of capital goods and downstream production of consumer goods investment less efficient, their intrinsic impact mechanisms are different.

Second, monetary policy instruments such as money supply and interest rate not only affect the financing cost of enterprises by influencing the amount, terms, and interest rate of loans, but also affect the investment efficiency of enterprises by influencing the cost of production factors and the price of goods sold as well as the profit margin of production and sales.

Third, the micro-subjects investment efficiency is studied in the context of monetary policy changes. Enterprise investment efficiency is not only affected by the external competitive environment, customers, suppliers, and other surrounding small environment, but also pay attention to the changes of macro policy in the big link. Macroeconomic policy affects the behavior of micro subjects, and the business activities of micro subjects are interrelated and mutually influenced, so enterprise investment decisions should not only consider macroenvironmental factors but also consider the impact of other economic activities on enterprise production and operation, which is of great practical guidance.

The structure of this paper is divided into three major parts: the first part is the research background, research significance, research questions, and innovation; the second part is a review of the literature related to monetary policy at the macro level and enterprise investment decisions at the micro level; the third part is the mechanism of the impact of under-investment in consumer goods and over-investment in capital goods under the background of loose monetary policy; the fourth part is the intrinsic mechanism of monetary policy changes to reduce the efficiency of investment in capital goods and consumer goods.

3. Underinvestment in consumer goods and overinvestment in capital goods in the context of loose monetary policy

The accommodative monetary policy prompts firms to expand their investment in capital goods in upstream production. Both individuals and firms have time preferences and prefer current goods and services to future goods and services. Savers forego current consumption of goods to obtain more valuable goods and services in the future. The interest rate is the reward for the saver's delayed gratification and the price of the loan negotiated between the saver and the borrower. Borrowers receive loans from savers for productive operations, so savers are providers and sellers of capital, they are capitalists and loan providers. Borrowers are the buyers and consumers of capital, they are the owners of the means of production (labor owners, natural resource owners, capital owners). The interest rate coordinates the demand for funds between savers and borrowers, and the interest rate also coordinates the demand for present and future goods, and the credit market is only the external expression of the production market. When savings increase, borrowers have access to sufficient funds to purchase production materials to invest in production, purchase advanced technological equipment to improve production efficiency, develop and produce goods that better meet consumer demand, and produce long production cycles to produce future goods. Savers are also consumers, and when savers give up their current consumption of goods to obtain more valuable goods and services in the future, they will reduce their consumption of current goods. With constant consumer demand for goods and total money, the supply of goods is greater than the demand, and as the supply of present goods increases, the price of present goods decreases. Also when savings increase, borrowers have access to more money and interest rates fall accordingly. Now the commodity prices fall, the products and services near the consumer end of the link are the first to be affected by prices, in the case of the original production costs remain

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unchanged, as the price of goods now falls, near the consumer end of the link products and services profit margin becomes smaller. Market production and business activities are mobile changes, prices, and profits guide business production and investment. From the long-term development, the high-profit industry will attract other industry competitors to join, the market competition will become fierce, they will bid against each other, to attract consumers will continue to reduce the selling price, industry profits will gradually decline until tends to the cost of capital, until the market saturation, enterprises will be no profit and reduce or stop investment. With the continuous refinement of the division of labor and knowledge, consumer goods from design, and raw materials into production, processing, and assembly to sales may involve hundreds or even thousands of production links, different production links may not be the same profit. Differences in profits at different stages of product production regulate production activities at different stages, and prices and profits guide business activities at different production stages of the same product to achieve equilibrium. Capital will flow to the high-profit production stage, while capital will be withdrawn from the low-profit production stage, after a period of adjustment, the profit of each production stage of the same product will converge. In the long-term development of society as a whole, the profitability of the different stages of production activities in each industry sector will level off. So when the profit margin of the product service near the consumer end becomes smaller, the profit at the production end away from the consumer remains at the original level and capital will flow to the upstream production end of the product. The lower interest rate under credit expansion sends a signal to the market that savers give up the demand for present goods and services and prefer the demand for future goods and services to obtain higher returns in the future, so they prefer the demand for future goods relative to the demand for present goods. Interest rates are the basis for investment decisions by firms, which assume that more social savings are available for the production of capital goods with long production cycles and high capital requirements. (Wang, 2010) [4] pointed out that if the short-term interest rate is set too low, it will trigger an artificial over-expansion of credit, which will lead to excessive credit funds concentrated in long-cycle and capital-intensive asset investment projects, resulting in over-investment and hence asset price bubbles in the financial market.

4. Monetary policy changes to reduce the efficiency of capital goods and consumer goods investment mechanism

4.1 Easing monetary policy reduces the financing cost of upstream capital goods

(Ma, Y., Yang, D., and Chen, Y., 2009) [5] pointed out that during the economic boom, bank credit expands, money supply increases, loanable funds increase, and banks will lower loan terms and interest rates to attract more loans to meet performance targets and improve performance. (Ma, Y., Yang, D., and Chen, Y., 2009) [5]point out that in the short term, bank credit increases rapidly, the loanable funds of enterprises increase, the financing cost decreases, the capital goods capital demand in the upstream production chain is large and sensitive to interest rates, and the easy monetary environment further stimulates the enthusiasm of investment in the capital goods industry and triggers excessive investment in the capital goods industry. The improved credit supply conditions of banks lowered the external financing costs of enterprises, and enterprises were more motivated to increase their loans to obtain funds to expand their investments. During the economic boom, enterprises were overly optimistic about the market outlook and expanded their production investments. Behind the credit, expansion is often an increase in actual loans, and enterprises, stimulated by cheap loans at low-interest rates, increase loans and investments that would otherwise not be needed. Banks will lower loan qualification conditions to meet performance targets and find outlets for their funds, so credit expansion funds will flow to high-risk projects and insolvent firms. (Wang, 2010) [4] points out that driven by the economic boom and higher profits, financial institutions gradually loosen their lending conditions, while borrowing firms, encouraged by the relaxed credit environment, tend to adopt higher debt ratios. The mechanism of the effect of bank credit on asset prices is mainly reflected in the fact that changes in the supply of bank credit will change bank lending rates and loan conditions, which will affect the external financing costs of enterprises, which in turn will affect the ability of enterprises to demand assets and the level of asset prices. The credit expansion bank reserve ratio is reduced, the supply of loans increases, and the bank loanable funds increase, to lend new funds on the market to enterprises, banks reduce lending rates and lending standards, and enterprises are more likely to obtain loans at low financing costs. The relaxed credit environment and high profits in the upstream production stage stimulate enterprises to increase loans for expanding their business activities in the upstream production stage. The long production cycle of upstream capital goods, high capital demand and great sensitivity to interest rates, and low financing costs make enterprises expand their investments. Enterprises will compare the expected return on investment and the cost of capital in their investment decisions, and whether the cost of capital after

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lower interest rates is profitable in the foreseeable future.

4.2 Bank credit expansion drives up the price of basic factors of production

During the period of bank credit expansion, the profit margin between the price of factors of production and the selling price of products increases, and companies perform well. Under the stimulation of profits, enterprises expand production, and enterprises bid against each other to buy factors of production, and the prices of factors of production rise. Inflation does not affect consumer prices to the same extent as factor prices. Consumer goods prices are relatively flexible and can respond quickly to changes in market demand. When the money supply increases, the purchasing power of money relative to consumer goods decreases, the exchange ratio between money and consumer goods decreases, and the price of consumer goods rises. Therefore, consumer goods prices rise before factor prices, and consumer goods prices rise more than factor prices. Factor prices rise relatively slowly because enterprises generally sign long-term contracts with owners of factors of production such as employees of enterprises and suppliers of raw materials, and factor prices generally remain stable in the short term, and even if they rise, the rise is relatively slow. This will appear that the price of consumer goods has risen, but the price of production factors rose, and the profit margin between the price of consumer goods and the price of production factors becomes larger, under the stimulation of profit, enterprises will expand the scale of production, enterprises bid against each other to buy production factors, and the price of production factors rise. (Wang, 2010) [4] points out that during the economic boom, bank credit expands, which improves the conditions of bank credit supply and lowers the external financing cost of enterprises, stimulating the demand for assets and leading to the rise of asset prices. The demand for production factors exceeds the supply, and enterprises bid against each other to push up the prices of production factors. At the same time, with the increase of money supply in the market, the purchasing power of money relative to the prices of production factors decreases, and the prices of production factors rise. The bidding of enterprises and the purchasing power of money jointly push up the prices of production factors. With the expansion of production scale and mutual bidding among enterprises, after a while, the prices of production factors have risen, and the profit margin of enterprises compressed, to recover the initial input costs, enterprises have to invest in higher prices of raw materials and labor costs. In the end, raw materials and labor costs have been much higher than the expected production costs, enterprises from the expected profit into a loss.

4.3 Credit expansion after the credit crunch, enterprise financing costs rise

Credit expansion will trigger the expansion of enterprise investment, and the price of production factors rise. to prevent the economy from overheating, banks will implement a tight monetary policy after the credit expansion. Banks tighten credit, the money supply decreases, loan interest rates rise and loan conditions become stricter. At the same time, within the limited available loan funds, the effective interest rate on loans increases, and the cost of financing for enterprises rises. Banks have stricter requirements for corporate loan qualifications and will select companies with strong qualifications and debt servicing capabilities, making it more difficult for companies in the market to obtain loans. In the case of credit tightening, the production of capital goods in the upstream production chain requires a large number of loans, but the difficulty of loans has increased and the cost of financing is high. Enterprises have invested a lot of resources and costs in the early stage, not willing to stop the project in the middle of the project due to lack of funds, to continue the operation of the project, enterprises to the end of the high-interest rates to obtain loans, enterprises high financing costs, much higher than the original expected cost of capital. But on the other hand, with the mass production of products, the product selling price fell, but the price of raw materials, labor, financing costs, and other factors of production rose, and the input costs of production factors and the profit margin between the selling price of the product continue to shrink, enterprises become unprofitable, or even losses, investment failure.

4.4 After the increase in production factor prices, the prices of consumer goods subsequently rose

On the one hand, due to the expansion of credit, the money supply in the market increases, the currency depreciates compared to the price of consumer goods, the purchasing power of money decreases, and the price of consumer goods rises relatively. The production of consumer goods requires a long-term process and goes through numerous production stages, which may last several years from the input of raw materials to their sale. At the beginning of credit expansion, upstream capital goods production takes a long time and goes through numerous production stages before the final consumer goods and services can be produced. It is difficult to sustain the first stages of product production before they reach the sales

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stage. With the demand for consumer goods remaining unchanged, the supply of goods on the market decreases, consumer goods are unable to meet market demand, and consumer goods prices subsequently rise.

Although credit expansion reduces the efficiency of investment in both capital goods and consumer goods firms, the mechanisms by which credit expansion affects the efficiency of investment in capital goods and consumer goods are quite different. Credit expansion will make the upstream production chain over-invest in capital goods and reduce firm investment efficiency; credit expansion will make the downstream production chain under-invest in consumer goods and reduce firm investment efficiency.

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