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The Analysis of the Impact of Monetary Policies on Chinese Stock Market and Foreign Exchange Market

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Abstract:

With the further advance in economic globalization and reform and opening up, macro-regulation has significant influences on China's financial market. China's stock market and foreign exchange market are important branches of the financial market. This paper explores the heterogeneous effects of expansionary and contractionary monetary policies on the A-share market through disparate transmission channels, including liquidity, interest rate, risk premium, and profit expectations. It analyzes how these policies influence market returns, volatility, and valuation levels across different industries, with highly leveraged and high-beta sectors being more responsive. Additionally, the paper examines the pathways and extents of monetary policy impacts on the RMB exchange rate level, volatility, and risk premium, highlighting the role of interest rate differentials, market expectations, and capital flows. Furthermore, it proposes corresponding policy recommendations and improvement methods to enhance the effectiveness of macro-regulation and maintain financial stability. The findings provide valuable insights for policymakers and investors in navigating China's complex financial environment.

Keywords: Monetary policy; transmission channel; stock market; foreign exchange market.

1. Introduction

1.1 Research Backgrounds

With the development of economic globalization and advancement of reform and opening-up, China has become the world's second-largest economy. China's financial market continues to open to the world, with the increase of vitality and steadily grow of trading volumes across various financial products. Meanwhile, China's financial market interacts more frequently and links more closely with the international financial market. However, take the 2008 subprime mortgage crisis in the United States as an example, economies worldwide have been impacted to different levels. This subprime mortgage crisis is a

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severe strike to economies worldwide. China actively uses expansionary monetary policy to overcome this crisis. This case shows monetary policy is the core mechanism for preventing cross-market transmission of financial risks. Nevertheless, predominant existing papers focus on individual markets, with paying insufficient attention to linkage mechanisms between stock and foreign exchange markets under identical policy shocks. Especially, there is an absence of heterogeneous research based on Chinese dual-anchor regulatory framework of "interest rate and exchange rate". This paper aims to fill this gap by recognizing policy transmission's structural discontinuities from a cross-market linkage perspective, thereby providing micro-level handle for macroprudential policy.

1.2 Research Purposes and Research Questions

Against the background of China's stock and foreign-exchange markets, this paper examines how monetary-policy shocks are transmitted to both markets through different channels. To the stock market, this paper mainly researches heterogeneous effects of expansionary and contractionary monetary policies on the A-share market's benefits, volatility and valuation levels. For instance, does the direction of A-share valuation movements depend on the net effect of simultaneous impacts on risk-free rates and risk premiums through expansionary (or contractionary) monetary policy? And does this further lead to asymmetric responses in returns and volatility? To the exchange rate market, this paper primarily investigates pathways and extents of the influence of expansionary and contractionary on the RMB exchange rate level, volatility, and risk premium. This includes whether expansionary policy will lead to depreciation of the RMB's nominal effective exchange rate and intensified volatility, and whether contractionary monetary policy will bring RMB appreciation but amplify short-term fluctuations due to a 'reversal of risk premium'.

2. Market and Policy Overview

2.1 Monetary Policy Analysis

The primary objective of monetary policy is to maintain currency stability. By regulating short-term interest rates and the money supply, among other channels, policymakers moderate aggregate demand so as to foster sustainable long-term growth.

2.1.1 Expansionary Monetary Policy

Expansionary monetary policy boosts aggregate demand by lowering market interest rates and increasing the money supply, thereby stimulating economic growth. Moreover, expansionary monetary policy such as reducing bank reserve requirements, lowering interest rates, and purchasing government bonds in the open market can counteract economic recession and reduce unemployment rate. For example, according to the People's Bank of China's official website, the central bank decreased interest rate for multiple times to counteract economic recession in 2015 [1]. Low interest rates, coupled with Securities Regulatory Commission's relaxation of margin trading regulations and a surge in retail investor accounts, have caused a remarkable rise in the stock market. Then, there comes a substantial bull market.

2.1.2 Contractionary Monetary Policy

Contractionary monetary policy curbs aggregate demand by raising interest rates and reducing the money supply, thus heading off inflation and economic overheating. To be exact, contractionary monetary policy such as increasing bank reserve requirements, raising interest rates, and selling government bonds in the open market can inhibit inflation caused by overheated economic growth. For instance, after the August 11, 2015 exchange rate reform, the central bank restricted capital flows and increased flexible exchange rate in order to deter capital outflows and stabilize market expectations [2]. During this period, if there is no policy support, the RMB will be expected to depreciate by another 6% or more. This may cause more serious consequence.

2.2 Analysis of the Structure of the Stock Market and Foreign Exchange Market

China's stock and foreign exchange markets, having undergone sustained development over a persisting period and experienced numerous fluctuations, have a profound, extensive and enduring influence upon the nation's financial markets. By early 2024, the A-share market had become the world's second-largest by market capitalization, having established a tiered system comprising the Main Board, the Dual Innovation Board, the Beijing Stock Exchange, and the New Third Board. This structure exhibits pronounced sector-specific characteristics, exemplified by the new energy sector from 2019 to 2021 and artificial intelligence thereafter. China's foreign-exchange market has shifted from a centrally controlled system to a diversified one that now includes commercial banks, non-bank financial institutions, corporations and overseas investors. From 2015 to 2017, foreign exchange rate mechanism reform successfully broke the unilateral floating in the foreign exchange market, markedly enhancing exchange rate stability [3]. At present, the ever-changing monetary policies adopted by economies over the world present a considerable challenge to China's foreign exchange market, while simultaneously initiating a new chapter of greater maturity for China's domestic market.

3. The Impact of Monetary Policy on the Stock Market

3.1 The Impact of Expansionary Monetary Policy on the A-Share Market

Expansionary monetary policy affects the A-share market along three dimensions—returns, volatility and valuation. These effects operate through four main channels. First, the liquidity channel: an increase in banks' loanable funds flows indirectly into the stock market via corporate bills, margin financing and structured wealth-management products, pushing up asset prices. Secondly, the interest rate channel. It refers to the inverse relationship between stock valuations and the risk-free interest rate. In the case of the risk premium declines or remains stable, interest rate reduction raises the present value of stocks by lowering the risk-free interest rate. Conversely, if the risk premium rises, valuations may remain unchanged or even decrease; Thirdly, the risk premium channel. Expansionary monetary policy encourages investors to participate more readily in the stock market. These investors are full of confidence in the market and willing to take risks to gain profit. Therefore, capital flows from deposits and funds into stock market. Fourthly, the profit expectations channel. This mechanism stimulates aggregate demand by lowering interest rates and increasing loans, then reducing the financing costs of enterprises in order to increase projected earnings.

Sectors most significantly affected by expansionary monetary policy include securities firms and real estate, and these sectors have characteristics like high elasticity and high leverage. Specifically, industries whose debt-to-asset ratio exceeds 80 per cent and whose debt-to-EBITDA ratio is above 5 are classified as "high-leverage". Take the real estate as an example, this kind of industry exhibits exceptionally high debt-to-asset ratios and substantial interest-bearing debt. For example, the comprehensive rate cuts implemented during 2014-15 lowered financing costs for small and medium-sized enterprises and significantly accelerated the rate of loan growth. Through this liquidity transmission channel, the amount of funds available for lending in the open market and the number of borrowing enterprises in the open market both increased considerably. To that end, a mass of capital flowed into the stock market, and it drives up benefits on the A-shares [4]. That year, highly elastic sectors such as securities firms gained sizable profits. Their performances are far higher than the broader market, and they become the industry leaders. In comparison, traditional cyclical and consumer industries, such as machinery and automobiles, primarily rely more on the profit expectations channel. Consequently, for these sectors, expansionary monetary policy must stimulate aggregate demand recovery to increase earnings. Moreover, if the expansionary monetary policy fails to sufficiently stimulate demand recovery, then traditional cyclical and consumer industries earning growth rates will be far less than the high leveraged sectors. The growth will lag behind too.

The influence of expansionary monetary policy on the market volatility varies across different industries. Under the expansionary monetary policy, growth stocks and thematic stocks experience remarkably heightened volatility, with their share prices driven by market expectations. Under this condition, the risk premium channel dominates stock markets; when expansionary monetary policy is proclaimed, investors flood into the market. Accordingly, investors have strong market confidence and willing to take risk to pursuit profit. Against this backdrop, capital rapidly enters the market and substantial trading financial commodities with highly elastic characteristic, leading to significant price fluctuations of these commodities. Conversely, large-cap blue-chip and high-dividend sectors show stable volatility under expansionary monetary policy. Funds in these industries are predominantly allocated to insurance and social security. These terms are characterized by long holding periods and low trading activity. Thus, the impact of expansionary monetary policy on them is relatively stable compares to growth stocks and thematic stocks. Their growth rate is far less pronounced than on growth stocks and thematic stocks.

The influence of expansionary monetary policy on market valuations level also varies across different industries. Under such conditions, risk appetite increases as investors become more willing to pursue higher profits through making riskier investments. This surging demand for risk assets drives up prices while suppressing expected returns, leading to a decline in the overall market risk premium. High-beta sectors refer to industries where stock prices or industry indices reveal volatility apparently exceeding the broader market average. Beta value greater than 1 indicates that sector's volatility surpasses the whole market's volatility. As a result, high-beta sectors are more acutely sensitive to reductions in perceived risk, leading to valuation levels generally above the market average. For instance, in a high-beta industry such as new energy vehicle sector, their leading companies underwent greatly growth in price-to-earnings ratios from 2019 to 2021 under expansionary monetary policy [5]. Conversely, low-beta sectors like Kweichow Moutai also experienced index gains under similar conditions, though these increases were smaller than those in high-beta sectors [6].

3.2 The Impact of Contractionary Monetary Policy on the A-Share Market

Similar to expansionary monetary policy, contractionary

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monetary policy also exerts its influence on the A-share market through four core transmission channels: the liquidity channel, the interest rate channel, the risk premium channel and the profit expectations channel. The transmission pathways and degrees of impact are largely consistent, yet the effects are precisely the opposite of those produced by expansionary monetary policy.

Contractionary monetary policy has the most negative impact on the benefits of highly leveraged sectors such as technology growth stocks and real estate. Through liquidity channels, trading volumes in the A-share market have dramatically diminished, leading to an extensively contraction in sector valuations. For example, in late 2021 and 2022, the Federal Reserve implemented aggressive interest rate hikes. The increase in interest rates has led to a tightening of global capital flows, so the ChiNext Index and STAR Market 50 experienced far greater declines than the Shanghai Composite Index, with such sectors suffering massive losses [7]. Oppositely, essential consumer goods sectors remained relatively stable. Owing to their essential nature, these industries are less vulnerable to economic policy affects, yielding more consistent profits. Take companies such as Kweichow Moutai and China Yangtze Power as example, in 2022, their share price declines were far less comparing to technology growth stocks. This is attributed to their stable earnings streams.

Market volatility is affected differently by contractionary monetary policy. Growth stocks exhibit enormous volatility, with risk appetite channels dominating the market. Subsequently, a tightening market fosters pessimistic market expectations, leading to a good deal of sell-offs of such stocks and share price declines finally. For instance, during the 2015 stock market turbulence, the ChiNext Index experienced multiple occasions of extreme situations in which single-day declines exceeding 7%, with volatility soaring dramatically and far surpassing the main board [8]. In contrast, large-cap blue-chips and high-dividend sectors show relatively stable volatility. These stocks are less frequently traded, typically held by long-term investors, and thus will not be easily sold off in large quantities, resulting in relatively lower volatility.

Contractionary monetary policy also has diverse effects on market valuations. Through the interest rate channel, long-duration assets experience the most intense shrinkage in valuation levels. When an industry relies greater on future cash flows, then it will become more sensitive to interest rate fluctuations. The higher the discount rate, the lower the projected future earnings and valuation levels. In turn, during periods of interest rate hikes, sectors depend on future profitability such as biotechnology companies experience severe valuation contraction. Still, industries with stable cash flows, which depend on short-term stable funding, exhibit low sensitivity to interest rate fluctuations, resulting in minimal impact on their valuations.

4. The Impact of Monetary Policy on the Foreign Exchange Market

4.1 The Impact of Expansionary Monetary Policy on the Foreign Exchange Market

Expansionary monetary policy influences the level of the renminbi exchange rate through the interest rate channel. Decreasing interest rates will reduce the yields on the renminbi and government bonds, while investors are prompted to sell off the renminbi and purchase currencies offering higher interest rates and greater yields at the same time. This triggers capital outflows, thereby increasing the supply of renminbi in the foreign exchange market and exposing the currency to depreciation pressure. For instance, during the pandemic, China promptly reduced interest rates to bolster its national economy, whereas the Federal Reserve had yet to implement any policy measures. At this stage, the renminbi exchange rate (USD/CNY) rose, facing depreciation pressure [9]. However, the magnitude of the depreciation pressure is not absolute, as it hinges on numerous factors. Different policy intensities in different countries will influence the extent of depreciation. For example, when both China and the United States reduce interest rates, but the US reduces the rate more aggressively, then renminbi may actually appreciate. When the renminbi faces depreciation pressure in the market, the central bank can lower the foreign exchange reserve requirement ratio to increase the supply of foreign exchange, in order to alleviate this pressure.

Short-term expansionary monetary policies tend to intensify the volatility of the renminbi. The primary transmission channel operates through divergent market expectations: when such an expansionary policy is published, capital providers in the market engage in multifaceted negotiations regarding its intensity, effectiveness, and subsequent intentions. This will lead to a boost in short-term trading volumes and a marked increase in exchange rate fluctuations, creating significant influence on the foreign exchange market. In 2015, when the renminbi depreciated, the central bank conducted a series of interest rate cut policies. During this period, market opinions on the policy were highly divided, leading to intraday fluctuations in the renminbi often reaching hundreds-of or even thousands-of-points, with volatility surging to historically extreme levels [10]. To address this phenomenon, the central bank needed to regulate the market and mitigate excessive volatility. The central bank can employ counter-cyclical factors to maintain exchange rates within a reasonable range. In addition, government can simultaneously provide multilateral management. This involves issuing compre-

hensive statements to all parties to prevent investors from disrupting the market.

The impact of expansionary monetary policy on the renminbi risk premium will proceed in two continuous phases. The risk premium refers to the additional compensation exceeding the risk-free interest rate demanded by investors for bearing extra risk. When the country enters a recession cyclical, government typically enact expansionary monetary policies. International investors and other countries will concern China's profitability levels and investment risks, so this kind of concerns will elevate risk premiums as investors demanding greater compensation. However, in the later stages, when this monetary policy successfully alleviates domestic economic pressures, external confidence in investing in China is improved, then the risk premium will decrease at this moment. The magnitude of risk premiums depends on the degree of policy intervention rather than the policies themselves, and thus remains relatively modest compared to exchange rate levels and volatility. Central bank can resolve this phenomenon through enhancing confidence in the currencies.

Take 2016–2017 as an example, at that time, China was facing pressure from renminbi depreciation and economic slowdown, the central bank took a series of strong stabilization strategies. As a result, the level of risk premiums showed no evident change [11].

4.2 The Impact of Contractionary Monetary Policy on the Foreign Exchange Market

Compared to expansionary monetary policy, contractionary monetary policy causes relatively opposite effects on exchange rate levels, volatility and risk premiums through identical transmission channels. Instead, markets typically react more intensely to bad news like expansionary monetary policies, manifesting in events such as leveraged unwinding and liquidity vacuums. On the other hand, the impact of contractionary monetary policy tends to be more positive and orderly, with milder intensity.

The interest rate channel can enhance the return on the renminbi, thereby influencing its exchange rate level. When Chinese central bank takes contractionary monetary policy like increasing the interest rate, substantial capital inflows into the Chinese market. They usually sell other countries' currencies to purchase renminbi, and this interaction will increase demand for the renminbi in the foreign exchange market. Hence, the renminbi will face appreciation pressure. The extent of the policy's impact is equally determined by the monetary policies from other countries, rendering it relative in nature. For example, during 2017-2018, while the Federal Reserve raised interest rates, the People's Bank of China launched 'financial deleveraging' through vigorous contractionary measures. This led an increase in demand for the renminbi, causing its exchange rate against the US dollar to appreciate steadily from 6.96 to 6.25 [12]. In response to pressure for the renminbi to appreciate, the central bank may alleviate the situation by raising the foreign exchange reserve requirement ratio.

Contractionary monetary policy will considerably impact the volatility of the renminbi exchange rate in the short term. The introduction of such policies will face diverse market expectations and intense strategic competitions, resulting in persistently elevated volatility. Meanwhile, its impact is less extensive than that of expansionary monetary policies, as the appreciation of currency brought by contractionary monetary policy results the market more orderly. For instance, during 2006-2007, the central bank raised interest rates for multiple times, leading to a remarkable rise in the volatility of the renminbi exchange rate. Faced with the appreciation pressure resulting from this policy, the central bank could similarly employ counter-cyclical factors and market management to regulate the situation.

Contractionary monetary policy imposes a restraining influence on the renminbi risk premium. Contractionary monetary policy is usually employed to combat inflation and regulate markets. When such policies successfully alleviate market conditions, they strengthen foreign investors' confidence in the currency and markets, thereby reducing the renminbi risk premium. Concurrently, the level of risk premium also depends on the degree of policy application. For example, in 2017, the central bank proactively tightened liquidity to prevent financial risks, therefore stabilizing the exchange rate and increasing other investors' confidence in China. In doing so, contractionary monetary policy stabilizes the risk premium [13].

5. Conclusion

In summary, this paper first outlines China's macro-monetary policy, subsequently discusses the structure of China's stock and foreign exchange markets, and then analyses the impact of expansionary versus contractionary monetary policies on China's stock and foreign exchange markets. Monetary policy has various effects on benefits, volatility and valuation levels within the A-share market. Under expansionary monetary policy, verified through the liquidity channel indicates that highly leveraged sectors such as securities and real estate achieve high returns, while traditional cyclical and consumer sectors experience delayed growth; validation through the risk premium channel reveals marked increasing volatility in growth and thematic stocks, whereas large-cap blue-chips and high-dividend stocks exhibit relatively stable volatility; similarly, through the risk premium channel, high-beta sectors like new energy vehicles demonstrate remarkable valuation increases, whereas low-beta sectors such

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as Kweichow Moutai grow more modestly. Conversely, under contractionary monetary policy, through liquidity channel, returns decline in highly leveraged sectors such as technology growth stocks and real estate, while essential consumer goods sectors show relatively stable returns; through the risk appetite channel, growth stocks experience substantial volatility, whereas large-cap blue-chips and high-dividend sectors maintain more stable volatility; by interest rate channel, long-duration assets suffer the most severe contraction in valuation levels, while sectors with stable cash flows remain unaffected.

In the foreign exchange market, monetary policy influences exchange rate levels, volatility, and risk premiums. Under expansionary monetary policy, exchange rates tend to depreciate. Central banks may mitigate this effect by reducing reserve requirement ratios for foreign exchange deposits; the level of exchange rate volatility has increased notably, and the central bank may employ counter-cyclical factors to regulate it; the currency risk premium first rises and then declines, and the central bank may adopt a series of firm policies to stabilize the risk premium. Under contractionary monetary policy, as the exchange rate appreciates, the central bank may raise foreign exchange reserve requirements; when volatility increases in an orderly manner, the central bank may employ counter-cyclical factors and market management to regulate; and when risk premium declines, the central bank may restrict liquidity.

While elaborating on the above points, this paper also contains certain shortcomings. It identifies only core transmission channels, yet it overlooks others such as the exchange rate transmission channel and the credit rationing channel. The exchange rate transmission channel influences currency exchange rates by adjusting interest rates. The credit rationing channel affects aggregate demand by regulating the quantity of loanable funds and risk preferences. The future research may yield results through the following verification methods: (1) Exchange rate transmission channels. Expansionary monetary policy leads to RMB depreciation, thus substantially boosting exporters' profits and subsequently driving stock prices upwards. Hence, the proportion of export revenue within an industry may be employed as a three-way interaction term. (2) Credit rationing channel. Expansionary monetary policy does not mean SMEs can obtain funds directly and effectively. Further research may construct an interaction term between industry reliance on trust loans and monetary policy shocks to examine policy differentiation between private and state-owned enterprises.

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