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Financial Instruments and Industrial Policies: China's Dual Strategies to Deal with the Supply Chain Crisis

Zhang Rongjie, Li Jiatong, Sheng Zhiyuan

University of Jinan, Jinan, Shandong, 250002, China

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Abstract: This paper explores how China employs a dual strategy of financial tools and industrial policies to respond to the global supply chain crisis. The vulnerability of global supply chains, particularly exacerbated by the COVID-19 pandemic and geopolitical risks, has exposed China's dependency on raw materials, technology, and high-end manufacturing. In response, China has used monetary policies, industrial funds, and foreign exchange management to support the recovery of its manufacturing sector and drive technological innovation. Simultaneously, the government has promoted supply chain autonomy, implemented the "dual circulation" strategy, and pushed for green transitions to enhance the resilience and competitiveness of industrial chains. The paper also analyzes the synergy between financial tools and industrial policies, especially in the semiconductor industry. The conclusion emphasizes that, due to the uncertainty of global supply chains, China must rely on self-innovation and optimized financial resource allocation to enhance its supply chain independence and secure a central position in the future global supply chain network.

1. Introduction

In recent years, the vulnerability of global supply chains has become increasingly apparent, especially under the impact of the COVID-19 pandemic and geopolitical conflicts. The global economy has faced severe challenges. The pandemic-induced lockdowns around the world led to production halts, factory closures, and logistic system paralysis, resulting in large-scale disruptions to global supply chains. At the same time, geopolitical conflicts, particularly the trade tensions and technological confrontations between China and the U.S., have further intensified the supply chain crisis. These factors have not only significantly impacted the global industrial layout but also revealed the risk of over-reliance on single markets within global supply chains[1].

As a global manufacturing hub and a key node in the world's supply chain network, China faced enormous challenges during this crisis. The disruption of global supply chains left many Chinese manufacturers unable to obtain critical raw materials, production equipment, and even technological components. Additionally, the sharp decline in global demand dealt a heavy blow to export-dependent businesses, and the deteriorating external environment posed unprecedented pressure on China’s export-oriented economy[2]. At the same time, the lack of autonomy in key technologies and industrial chains left China in a passive position in the higher-end segments of the

supply chain, making it imperative to enhance its technological innovation capabilities and supply chain independence.

To address these supply chain crises, the Chinese government has adopted multiple measures, utilizing a dual approach of financial tools and industrial policies to ensure the security and resilience of supply chains. This paper will provide an in-depth analysis of how China uses monetary policies, industrial funds, and other financial instruments in conjunction with supply chain upgrades, technological autonomy, and other industrial policies to effectively respond to the current supply chain crisis. By analyzing the combination of these two strategies, this paper will reveal how China can achieve economic stability and long-term sustainable development in an uncertain global environment.

2. The Roots and Impact of the Supply Chain Crisis

2.1 The Vulnerability of Globalized Supply Chains

Under the backdrop of globalization, multinational corporations have decentralized their production and supply chains to reduce costs and improve efficiency, concentrating many supply chain segments in a few low-cost countries or regions[3]. While this highly concentrated global supply chain model increases short-term efficiency, it also leads to excessive reliance on single markets or specific countries. When unexpected events such as pandemics, natural disasters, or geopolitical conflicts occur, the vulnerability of global supply chains becomes apparent.

For instance, the Middle East is a critical region for the global oil supply. However, it is frequently impacted by geopolitical conflicts and wars, leading to disruptions in the energy supply chain, which affects global oil prices and energy security. Another example is Southeast Asia, where a significant portion of the world's electronics and semiconductor production is concentrated, particularly in countries like Malaysia, Taiwan, China, and the Philippines. Taiwan, China, being a key player in semiconductor manufacturing, is often vulnerable to natural disasters like typhoons and earthquakes, which can disrupt production and lead to a global shortage of semiconductors, as seen in recent years.

The COVID-19 pandemic is a further illustration of the fragility of global supply chains. Worldwide lockdowns and logistics disruptions caused production halts and supply chain breakdowns[4]. Especially in the early stages of the pandemic, shortages of essential medical supplies like masks and protective gear highlighted the risks of over-reliance on a single region, such as China, where the majority of these supplies were produced. In addition, escalating Sino-US trade tensions and geopolitical factors like Brexit have prompted multinational companies to reassess their supply chain layouts to reduce dependence on specific countries or regions.

2.2 The Impact on China's Manufacturing Sector

As a key link in the global supply chain, China has been significantly impacted by this crisis. First, the disruption of imports of raw materials and core technologies severely affected China's production capacity. China's manufacturing sector, particularly its high-end manufacturing industries, heavily relies on importing large amounts of high-tech components and advanced equipment. For example, the smartphone industry in China depends on imported semiconductors and chips, key components that are primarily sourced from countries like South Korea, Taiwan, China, and the United States. China also imports high-precision machinery for sectors such as aerospace, automotive manufacturing, and advanced electronics. In the automotive industry, high-end electric vehicle batteries and certain specialized parts are often imported due to the lack of domestic alternatives. These dependencies expose China's manufacturing sector to supply chain

disruptions, especially when global tensions or trade restrictions arise, as seen in the recent chip shortages caused by the U.S.-China trade conflict. The dual impact of the pandemic and trade conflicts disrupted these import channels, leading many companies to face production difficulties and even shutdowns.

Second, the shrinking external demand dealt a heavy blow to export-oriented enterprises. As the world's largest manufacturing base, China exports products worldwide. With the global economic slowdown, especially the sharp decline in demand from the European and American markets, Chinese export orders dropped significantly in 2020 due to the COVID-19 pandemic. According to official data from China's Ministry of Commerce, in the first half of 2020, Chinese exports to the U.S. and Europe fell by over 15% compared to the previous year. The sharp decline in orders caused many export-oriented enterprises to struggle. The China National Textile and Apparel Council reported that approximately 40% of small and medium-sized textile factories faced closure or temporary shutdowns during this period, as global demand for clothing plummeted. Additionally, the Ministry of Human Resources and Social Security estimated that over 30 million workers in export-driven industries were affected by layoffs or furloughs, with the manufacturing sectors, particularly in Guangdong and Zhejiang provinces, experiencing some of the highest job losses. This combination of declining orders, factory closures, and rising unemployment underscored the vulnerabilities within China's export-dependent sectors during the global economic crisis.

Furthermore, the lack of autonomy in core industrial chains and technologies became a significant issue exposed by this supply chain crisis. Although China holds global competitive advantages in low-end manufacturing, it still relies on foreign technology and supply chains in high-end manufacturing and key technologies, particularly in the semiconductor and high-tech industries. This has limited China's competitiveness in the global supply chain, making it urgent to enhance the autonomy of its industrial chains.

From this analysis, it is evident that the vulnerability of global supply chains and the challenges faced by China's manufacturing sector make the supply chain crisis widespread and profound. To address these challenges, China must employ comprehensive financial tools and industrial policies to adjust its supply chain structure, enhance industrial competitiveness, and safeguard economic security.

3. China's Financial Response Strategies

Amid the supply chain crisis, China has adopted various financial measures to ensure economic stability and the recovery of its manufacturing sector, primarily through monetary policy support, the establishment and operation of industrial funds, and foreign exchange and cross-border settlement management. These measures aim to mobilize market resources, help companies overcome difficulties, and strengthen the resilience of the supply chain.

3.1 Monetary Policy Support

Monetary policy has been one of China's key tools for addressing the supply chain crisis, especially during and after the COVID-19 pandemic. Since 2020, the People's Bank of China (PBOC) has implemented a series of expansive monetary measures to inject liquidity into the market and support enterprises, particularly small and medium-sized enterprises (SMEs) and the manufacturing sector, in their recovery efforts. Between 2020 and 2023, the PBOC injected more than 3 trillion yuan ($450 billion) into the economy through various monetary tools, including reductions in benchmark interest rates and cuts in reserve requirement ratios (RRR).

The PBOC lowered its benchmark lending rate multiple times during this period. As of early 2023, the one-year loan prime rate (LPR) stood at 3.65%, down from 4.15% at the end of 2019. In

comparison, other major economies like the U.S. Federal Reserve kept interest rates significantly higher in 2023, with rates ranging between 4.75% and 5.00%. The European Central Bank (ECB) also raised its rates to combat inflation, bringing rates to approximately 3.75%. These lower interest rates in China have effectively reduced corporate financing costs, making it easier for companies to borrow and maintain operations.

The PBOC has also cut the RRR several times since 2020, releasing substantial capital into the banking system. For example, in March 2023, the central bank cut the RRR by 0.25 percentage points for most banks, with the overall RRR for large banks now standing at around 10.75%, compared to 12.5% in 2019. This release of liquidity encouraged commercial banks to expand lending, providing much-needed cash flow to SMEs and manufacturers, especially those hit hardest by the global supply chain disruptions.

In addition to these cuts, the government introduced low-interest loan programs, particularly aimed at industries heavily affected by the pandemic, such as textiles, electronics, and automotive manufacturing. The interest rates for these loans were often as low as 2.5%, far below market rates, enabling companies to access short-term operating funds. This significantly eased the financial burden on businesses, allowing them to maintain production and employment levels.

Comparing these measures with those taken by other global economies, it becomes evident that China’s relatively accommodative monetary policies have been more aggressive in supporting cash flow for businesses, ensuring that companies could continue operating and adapting to fluctuations in global demand. While other major economies were grappling with inflationary pressures and opting for tighter monetary policies, China's lower interest rates and RRR cuts provided critical financial support, helping stabilize production and mitigate the impacts of global supply chain instability.

3.2 The Establishment and Operation of Industrial Funds

In addition to monetary policy, China has established several specialized industrial funds to support key high-tech sectors, particularly semiconductors. One notable example is the National Integrated Circuit Industry Investment Fund, also known as the "Big Fund," which was established in 2014 with an initial capital of 138.7 billion yuan ($21 billion). A second phase in 2019 raised an additional 200 billion yuan ($29 billion) to further bolster the semiconductor industry. Another key initiative is the National Science and Technology Major Project Fund, set up in 2006, with 50 billion yuan ($7.3 billion) invested to date, focusing on artificial intelligence, biotechnology, and advanced materials. Additionally, the National Emerging Industry Investment Fund, established in 2016, raised 40 billion yuan ($5.8 billion) to support renewable energy, new materials, and high-end equipment manufacturing. These funds reflect China's strategic investment in building self-sufficiency and technological leadership in critical industries. To address the supply chain crisis, the state has created several specialized industrial funds, primarily aimed at supporting high-tech, high-value-added industries. These funds are primarily used in industries such as semiconductors, new energy, and advanced manufacturing, ensuring that China can reduce its reliance on foreign sources and enhance its independent research and development capabilities[4].

Through investments from industrial funds, these sectors can obtain the necessary capital to accelerate technological innovation and industrial upgrading. The government has also implemented fiscal stimulus policies to promote investments in upstream and downstream supply chain companies, particularly in core technologies and infrastructure. The government’s investment-driven effects help stabilize and revive the supply chain. For example, by increasing investments in the chip manufacturing industry, the government aims to fundamentally improve China’s competitiveness in the global supply chain and reduce reliance on foreign technology and

components. The implementation of these industrial funds and fiscal investment policies not only helps China's manufacturing sector weather short-term crises but also lays the foundation for long-term industrial restructuring and technological advancement.

3.3 Foreign Exchange and Cross-Border Settlement Management

China, through the People's Bank of China (PBOC), has implemented key measures to stabilize the RMB exchange rate amid global supply chain disruptions. With foreign exchange reserves at $3.2 trillion in 2023, the PBOC has actively intervened in the FX market, keeping the RMB within a stable range of 6.3 to 7.0 RMB per USD from 2020 to 2023. The PBOC also employs counter-cyclical adjustments in its daily reference rate to mitigate speculative attacks[5].

To promote RMB internationalization, cross-border RMB trade settlement reached 9.59 trillion yuan by the end of 2022, up 37% year-on-year, reducing reliance on the U.S. dollar. Additionally, China has signed currency swap agreements with over 40 countries, totaling more than 3.5 trillion yuan[6].

These actions have stabilized the RMB and bolstered its use in international trade, helping businesses manage global supply chain uncertainties.

4. China's Industrial Policy Response Strategies

In response to the supply chain crisis, China has not only relied on financial measures but has also implemented a range of industrial policies aimed at promoting supply chain autonomy, advancing the "dual circulation" strategy, and achieving industrial upgrades and green transformation. The goal of these policies is to ensure China's independence and competitiveness within global supply chains while reducing excessive reliance on external technology and markets.

4.1 Supply Chain Autonomy and Domestic Substitution

The autonomy of supply chains is crucial for national economic security. The recent disruptions in global supply chains and China's reliance on foreign core technologies in high-tech sectors have exposed vulnerabilities. To address this, the Chinese government has increased its support for the independent development of key technologies and domestic substitution. In 2015, the Chinese government introduced the "Made in China 2025" initiative[7], followed by the 14th Five-Year Plan (2021-2025), both of which outlined policies to provide R&D subsidies, innovation awards, and research grants to boost independent innovation in strategic sectors like semiconductors, artificial intelligence, and renewable energy. By fostering independent research, China aims to reduce its reliance on foreign technologies and enhance its self-sufficiency in critical areas. This effort not only strengthens the international competitiveness of Chinese companies but also mitigates the risks of supply chain disruptions. The government actively supports domestic substitution programs, encouraging local companies to develop alternatives to imported key components and raw materials. By investing heavily in domestic firms and technologies, China is driving the localization of supply chains, ensuring that critical supply chain segments can be replaced by domestic products. In sectors like semiconductors, mechanical engineering, and materials science, domestic substitution programs have become a key tool for enhancing supply chain autonomy[8].

4.2 The Implementation of the "Dual Circulation" Strategy

China introduced the "dual circulation" strategy in May 2020, during a meeting of the Politburo Standing Committee, with further emphasis on it during the Fifth Plenary Session of the 19th

Central Committee in October 2020[9]. The strategy focuses on the coordinated development of domestic and international circulation, aiming to reduce reliance on external markets and supply chains while enhancing economic resilience. Through domestic circulation, China leverages its vast domestic demand to drive economic growth. Policies promoting consumption upgrades, rural market development, and urbanization are aimed at enhancing the consumption capacity and completeness of domestic supply chains. This provides local businesses with a stable market while reducing dependence on external markets. While domestic circulation is central, international circulation remains crucial for China's economic growth. Through initiatives like the Belt and Road Initiative (BRI), China has expanded cooperation in emerging markets across Asia, Africa, and Latin America, facilitating infrastructure development and international market expansion. By continuing international cooperation, China diversifies its supply chain layout, reducing reliance on any single market[10].

4.3 Industrial Upgrading and Green Transformation

Faced with the challenge of global supply chain restructuring, China recognizes the importance of promoting industrial upgrading and green transformation as critical pathways to enhancing competitiveness and achieving sustainable development. China’s government has rolled out various policy measures to shift manufacturing from traditional low-end production to smart and high-end manufacturing. The "Made in China 2025" strategy encourages enterprises to adopt emerging technologies like artificial intelligence, the Internet of Things (IoT), and cloud computing, boosting productivity and lowering production costs. Through the development of high-end manufacturing, China aims to increase its value-added and influence within global supply chains. Alongside industrial policies, China places a strong emphasis on green development. Through tax reductions, green subsidies, and carbon emissions trading, the government encourages businesses to develop green supply chains that reduce carbon emissions and environmental pollution. This aligns with the global trend toward green development and strengthens Chinese companies' competitive positions in global markets. Building green supply chains promotes long-term sustainable development and lays the foundation for China to achieve its "carbon neutrality" goals.

5. Analysis of Future Development Path and Challenge

In the future, after implementing financial measures and industrial policies, China's development direction is likely to focus on enhancing technological self-sufficiency, promoting high-end manufacturing, and accelerating green and digital transformations. These policies will help strengthen domestic industries, foster innovation, and reduce reliance on foreign technologies and supply chains. Additionally, China will likely continue advancing the internationalization of the RMB and deepening global trade partnerships through initiatives like the Belt and Road Initiative.

However, China may face several challenges, including geopolitical tensions, particularly with the U.S. in areas like technology and trade, which could hinder access to key markets and technologies. Domestically, maintaining balanced economic growth while managing the transition to high-tech and green industries could be challenging, especially with potential overcapacity and the need to ensure employment stability. Moreover, navigating global financial volatility and ensuring effective implementation of these policies will require careful management to sustain long-term growth.

6. Conclusion

The supply chain crisis has exposed the vulnerabilities of the global economic system and

sounded the alarm for China regarding supply chain autonomy. In the long run, the global supply chain crisis and geopolitical uncertainties necessitate that China strengthens supply chain resilience and competitiveness through a dual strategy of financial tools and industrial policies.

Precise financial adjustments provide the necessary funding for technological innovation and supply chain restructuring, while sustained industrial policies offer strategic direction for financial resource allocation. By utilizing this dual strategy, China can gradually enhance its capacity for independent innovation, improve the autonomy of high-tech industries, and reduce its dependence on external technologies. At the same time, by optimizing the global supply chain layout and promoting green development, China is poised to take a more proactive and central role in the future global supply chain system, further enhancing its global competitiveness and economic stability.

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