China' s Financial Strategy Choice (Post-print)

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Abstract

[Purpose/Significance] Addressing the disconnect among technology, finance, and industrial development in China, as well as the "three major cliffs" between financial development and the real economy, between RMB price and value, and between housing prices and residents' income, this study explores a systematic and effective financial strategic choice that can promote economic and financial development and facilitate the establishment of a China-led global financial and trade system. [Method/Process] Based on modern information technologies such as big data, cloud computing, and blockchain, and integrating supply chain finance, asset banking, and digital currency, this study develops modern financial technology, establishes a technology banking system, and promotes digital currency based on human value. [Results/Conclusion] The research demonstrates that financial strategic choices such as the Global Supply Chain Finance Alliance, National Technology Bank, and Libocoin hold significant practical importance and far-reaching strategic significance for resolving existing problems in national economic and financial development and promoting global economic and trade development.

Full Text

Preamble

China' s Financial Strategic Choice

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Abstract

[Purpose/Significance] To address the current disconnect between technology, finance, and industrial development in China, as well as the "three major cliffs" between financial development and the real economy, RMB price and value, and housing prices and residents' income, this paper explores a systematic and effective set of financial strategic choices that can promote economic

and financial development and facilitate the establishment of a global financial and trading system led by China. [**Method/Process**] Based on modern information technologies such as big data, cloud computing, and blockchain, and integrating supply chain finance, asset banking, and digital currency, we develop modern financial technology, establish a technology banking system, and promote digital currency based on human value. [**Result/Conclusion**] The research demonstrates that financial strategic choices such as the Global Supply Chain Financial Alliance, National Technology Bank, and Labor Coin hold significant practical importance and profound strategic significance for solving problems in national economic and financial development and promoting global economic and trade development.

Keywords: finance; technology; supply chain; blockchain; currency anchor

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The world economy has transitioned from a period of rapid growth before the international financial crisis to a phase of deep transformation and adjustment. The world is searching for new growth drivers and development engines, while global industrial transformation, structural adjustment, factor mobility, and even governance reforms have become a "new normal" in the cyclical changes of the world economy. Under this "new normal," an increasing number of countries have come to realize that with the rapid development of internet information technology today, taking financial innovation as the starting point to promote deep integration between finance and the economy and making correct financial strategic choices play a decisive role in global economic transformation.

1.1 Information-Driven Three-Dimensional and Intangible Economic Growth

A new round of technological and industrial revolution centered on the internet is poised to take off. New technologies such as artificial intelligence and virtual reality are changing with each passing day, while the virtual economy and real economy continue to integrate, profoundly transforming the global economic landscape, interest structure, and security architecture. Major countries in the world regard informatization as the focus of economic development and technological innovation, and view the internet as a strategic direction for seeking new competitive advantages. The level of internet development has become an important manifestation of a country' s comprehensive strength. In this regard, General Secretary Xi Jinping has made three important judgments: without cybersecurity, there is no national security; without informatization, there is no modernization; China must build itself into a cyber powerhouse. The inclusion of the cyber powerhouse strategy in China' s macro strategic layout for deepening reform and opening up under the new situation fully reflects the Party Central Committee' s profound understanding and grasp of informatization, networking, modernization, and globalization trends, and also demonstrates a firm will and determination to achieve the great rejuvenation of the Chinese nation

in the internet era.

China' s medium- and long-term growth needs to be driven by informatization. The "Internet Plus" model promotes the reshaping of development patterns across industries, sectors, regions, and technologies. By fully tapping the potential of domestic value depressions and combining technological progress with human capital growth, China can build a three-dimensional dynamic pattern for economic growth. We must firmly grasp the strategic opportunity period of the ongoing cross-industrial revolution worldwide, increase investment and R&D in technology fields represented by big data, intelligent manufacturing, and wireless network revolution, break through core technology bottlenecks, and strive to build a super industrial system that can become a new engine for China' s economic growth in the next decade, forming a three-dimensional economic growth model and launching a new round of growth cycles for the Chinese economy.

High-level informatization can promote the intangibility of economic growth. Since the maturity of internet technology in the early 1990s, the digitization and intangibility of wealth and assets have become a trend. The digital economy has become an important field driving China's economic growth. As a major internet country, China has a solid foundation, broad prospects, and huge potential for developing the digital economy. According to calculations by the China Academy of Information and Communications Technology, in 2015, the digital economies of major global countries including China, the United States, Japan, and the United Kingdom all showed vigorous development momentum, with an average growth rate of approximately 7.5%, significantly higher than the global GDP growth rate that year, and the digital economy' s contribution to GDP growth in various countries continued to rise. Among them, the integration and application of information technology with traditional industries became the main driver of digital economy growth. In 2015, within China' s total digital economy, the production portion of the digital economy reached 4.8 trillion yuan, representing year-on-year growth of 8.9% and accounting for 7.1% of GDP in the same period; while the application portion of the digital economy reached 13.8 trillion yuan, representing year-on-year growth of 20.7% and accounting for as much as 20.5% of GDP in the same period. The rapid development of modern information technologies such as big data and blockchain, along with internet finance, is forming a powerful driving force to advance the construction of "Digital China" and the intangibility of economic growth.

1.2 The Strategic Significance of Technology-Finance-Industry Linkage

Currently, China' s most prominent economic and financial problems and contradictions are concentrated in three aspects. First, China has a huge amount of intangible assets with unclear property rights, ambiguous value, and chaotic market transactions. In particular, scientific and technological achievements and intellectual property cannot bring effective value to their creators, resulting in market failure. China' s non-tradable intangible assets amount to as much

as 100 trillion yuan, including patents, copyrights, trademarks, copyrights, artwork property rights, and cultural property rights. It can be said that half of China' s economy has not been revitalized, lacks financial support, and cannot integrate with real industries, which has seriously affected the source of China' s independent innovation and, more profoundly, constrained China' s independent innovation and technological inventions, and even the education of the next generation.

Second, there is a lack of integration in the supply chain system among China' s technology, finance, and industry. Domestic and international supply chain systems have broken down, and a global supply chain system has not been formed, which seriously restricts the development of China's real economy and the global expansion of "Made in China." In 2012, President Obama issued the Global Supply Chain Strategy as an important component of U.S. national security and development strategy. After the subprime crisis, especially in recent years, the United States has implemented quantitative easing policies to promote the global reconstruction of the U.S. economy and effectively prevent financial crises and inflation. Currently, China faces a slowdown in real economic development and a decline in export trade, making it urgent to establish a Global Supply Chain Financial Alliance and related internet operation systems.

Third, the integration of China's technology, finance, and industry is insufficient, channels for mutual support are lacking, and financial efficiency is low, which has seriously affected the development of China's productivity and real economy. The core of innovation-driven development is to organically connect technology, finance, and industry to achieve linkage and integrated development. However, at present, China' s financial industry is showing serious trends of bubble formation, speculation, and virtualization. China' s economy has formed "three major cliffs" : first, the disconnect between financial development and the real economy; second, the disconnect between RMB price and actual value; third, the disconnect between real estate prices and residents' income, with the gap showing a further widening trend. This bubble cannot be simply burst; instead, we should strengthen the linkage development of technology, finance, and industry, support the development and improvement of the real economy and social production, increase people' s effective income, thereby supporting the huge financial system and RMB supply system, and achieving stable and healthy development of the real estate industry.

Promoting the deep integration of technology, finance, and industry to form joint development is an urgent task for China. It will facilitate innovation-driven economic development, build China into a world technology powerhouse, and enhance China' s soft power and international competitiveness. Actively building a global supply chain financial system centered on China and creating a supranational international trade and financial organization to promote the integration of technology, finance, and industry within the supply chain system can not only prevent these resources from being integrated by the U.S. global supply chain system and break through trade barriers such as WTO, TIPP,

high tariffs, and anti-dumping measures set by Western developed countries, but also effectively solve the problems of difficult and expensive financing for the real economy, effectively bridge China' s "three major cliffs," and avoid the outbreak of financial, currency, and real estate crises.

1.3 International Financial Competition: Technology is King, and the "Belt and Road"Strategy Requires Important Global Institutional Arrangements like GSFU

To support the development of China' s real economy and the global expansion of "Made in China," establish a green channel between the real economy and finance, break through various barriers imposed by Western countries on Chinese manufacturing, and promote the implementation of the "Belt and Road" strategy, it is necessary to establish a "Global Supply Chain Financial Union (GSFU)" centered on China. This organization is a supranational global trade and financial organization.

[Figure 1: see original paper] General framework of the Global Supply Chain Financial Union

The Global Supply Chain Financial Union can be divided into two important components: one is the domestic supply chain financial alliance, which mainly includes "one line, three flows, six chains, and seven centers" ; the other is the cross-border supply chain financial alliance, which builds a cross-border supply chain financial operation system to support Chinese manufacturing in going global. These two platforms are both independent and organically unified.

The GSFU will establish a global operation platform based on the most advanced big data technology, cloud technology, and blockchain technology, fully utilizing various financial tools and technologies to integrate along the upstream and downstream of enterprise supply, production, and sales. With regional chains, industrial chains, sector chains, technology chains, product chains, and value chains as the main lines, it will construct global sub-alliances and establish the Global Supply Chain Financial Center (GSFC), connecting domestic supply chains internally and cross-border e-commerce externally, integrating global resources. This has important microeconomic value, with annual transaction volume reaching tens of trillions of yuan.

In 2012, the United States, under President Obama, issued the "Global Supply Chain Strategy" as an important component of U.S. national security and development strategy, aiming to construct a global supply chain system centered on the United States. This system is extending worldwide and has played a significant role in enhancing U.S. global competitiveness and core interests.

The GSFU aims to establish a supranational international trade and financial organization centered on China, using finance as the bond to combine, repair, and innovate the global supply chain. It will form an operation mechanism with enterprises as the main body and market laws as the dominant factor, formu-

late global supply chain financial rules, develop a global supply chain financial platform, and open up channels connecting Chinese manufacturing to the world. Its efficiency and effectiveness surpass international trade organizations such as the WTO and TTIP.

The GSFU is of great significance for resolving current contradictions in China' s economy and finance, enhancing national core competitiveness, and implementing the Party Central Committee and State Council' s strategies of supply-side structural reform, innovation-driven development, and the "Belt and Road" initiative.

The supply chain financial alliance can solve the problems of difficult and expensive financing for the real economy. In the current situation, supply chain finance can overcome issues such as information asymmetry and relationship-based financing because it constructs a financing model based on products as the main body and credit as the foundation according to market laws in the three links of supply, production, and sales. This not only ensures the interests of banks but also solves the problem of high financing costs for small and medium-sized enterprises. Supply chain finance can leverage the credit sharing function of state-owned and central enterprises, channeling this credit to private and small and medium-sized enterprises, achieving effects that ordinary financial tools simply cannot reach. For China' s current situation, making full use of first-class information technology and financial technology to transform traditional supply chains, supplemented by central bank capital injection and credit support, can effectively and quickly support the real economy.

Regarding imports and exports, the cross-border supply chain financial system can bypass Western countries' trade barriers and create new channels through supply-side innovation and reform. Through state capital injection, it can achieve benefits of more than five times the initial investment. Preliminary estimates suggest that through one trillion yuan of state capital injection, it can add approximately five trillion yuan to domestic GDP growth and drive import and export growth of about three trillion yuan.

The supply chain financial alliance as a national strategy is necessary and timely. The United States implemented the global supply chain alliance strategy in 2012. As the world' s largest trading nation, China must innovate in the international trade and financial system. Currently, international trade organizations such as the WTO and TTIP are dominated by Western developed countries. Years of experience have shown that the WTO is inefficient in resolving trade disputes, such as the Uruguay Round multilateral trade negotiations. TTIP is a U.S. measure to target and marginalize China. It is necessary for China to establish its own international trade and financial system, formulate trade rules, guide Chinese manufacturing to go global, and enhance China' s trade and global competitiveness. The GSFU is based on trade and enterprises, with finance as the 抓手, which can not only prevent some countries from maliciously interfering in international trade but also improve, repair, and innovate the international supply chain, providing strategic material support for China' s economic and

financial development.

The GSFU actively responds to the national "Internet Plus" strategy by adopting the "Internet Plus Finance" model, using big data, cloud computing, and other technologies to integrate global economic and financial platforms and accelerate the integration of logistics, information flow, and capital flow. Through conference marketing and exhibition marketing models, it combines product chains, regional chains, industrial chains, value chains, sector chains, and technology chains to achieve large-scale, agglomerated support for the real economy, thereby solving the problem of low financial efficiency in China. It can also solve the problem of inequality in international trade, promote the growth of import and export trade, and strengthen the international competitiveness of the RMB.

The GSFU platform is an important interface for implementing the central government's supply-side structural reform and national innovation-driven development strategy. Supply-side structural reform requires institutional reform cooperation. By adopting a market-based approach with global micro-enterprises as the main body, it can avoid interference from Western countries in China's trade, overcome many drawbacks of modern trade, and move toward a scientific and reasonable international trade governance model. The organic integration of supply chain finance on internet platforms enables the transition from Supply Chain Finance 1.0 to Supply Chain Finance 3.0. These reforms can solve enterprises' financing difficulties and high costs while extending globally, which is itself innovation-driven development. Supply chain finance is an important 抓手 for implementing supply-side structural reform in the financial industry. Currently, demand-oriented quantitative easing monetary policies cannot solve the various difficulties of SME financing. We must actively play the role of shared finance, optimize credit structure, improve the efficiency of bank credit fund utilization, support real economic development while preventing various risks, and create a "win-win" development environment.

The GSFU is conducive to the implementation of the "Belt and Road" strategy and enhances China's trade core competitiveness. The GSFU integrates the "logistics, information flow, and capital flow" of the "Belt and Road" initiative, becoming an important driver for the orderly and free flow of production factors, efficient allocation, and deep market integration. Without the support of a supply chain financial system, the "Belt and Road" initiative would lack important capital driving force. Therefore, the GSFU will play a pivotal role.

1.4 Currency Anchor

Over 100 years of evolution of the exchange rate system has proven one principle: a stable international exchange rate system requires a stable currency anchor. During the more than 30 years around the early 20th century (1880-1914), the exchange rate system choice of developed countries in the world was undoubtedly the international gold standard. Gold itself was both an international currency

and a currency anchor. The "gold anchor" limited international exchange rate fluctuations within a limited range, achieving exchange rate stability and automatic adjustment of international payments, while also providing an effective constraint mechanism for a country' s currency issuance and fiscal expenditure. Therefore, during the international gold standard period, the world economy exhibited high exchange rate stability, low inflation, and steady economic growth. During another 30 years of the Bretton Woods system period (1944-1973), the international exchange rate system was based on the dollar standard. The U.S. dollar replaced the British pound as the dominant world currency and became the global exchange rate "nominal anchor," while gold became the anchor for the dollar. Under this system, the dollar set the tone for the world' s monetary policy, while gold set the tone for U.S. monetary policy. During this period, the unshakable dominant position of the dollar and the rapid growth of the U.S. economy created a highly stable "dollar anchor," which in turn created a relatively stable international exchange rate system. After 1973, the international monetary system gradually showed a trend of diversification, and a unified international exchange rate system arrangement no longer existed. Developed countries' exchange rate systems moved toward floating rates, Europe launched the euro and established an optimal currency area, and the dollar' s status as a global currency anchor was continuously weakened by other world currencies such as the euro and yen. Today, the world' s financial environment lacks a global currency anchor.

1.4.2 World Currency

World currency refers to currency that plays the role of a general equivalent in international commodity circulation. In the current international monetary system, although the euro and yen are also part of world currency, the U.S. dollar is the most important world currency, constituting the main component of foreign exchange reserves of various countries and dominating international trade settlement.

[Figure 2: see original paper] Payment ratio of international currency of 2014

The foundation of the dollar as world currency is the credit of the U.S. government. However, in the long run, the United States will lose dollar credit because of the Triffin dilemma. Assuming the total amount of dollars remains unchanged, as other countries' economies develop, the increase in wealth denominated in dollars in other countries means a decrease in dollars issued by the United States. The Federal Reserve can only issue more dollars in the form of bonds for governments of various countries to purchase, making the United States the largest debtor country. Too little issuance of dollars cannot meet the needs of world economic development, while too much issuance will cause dollar devaluation and even inflation. Theoretically, there is a contradiction between the increasing international demand for dollars and the credit foundation of the dollar. If the United States wants to repay its debts, it requires U.S. domestic economic sectors—residents, enterprises, or the government—to continuously ex-

pand their own liabilities, and also requires the U.S. financial system to carry out a series of financial innovations around domestic liabilities. Completely solving the debt problem is impossible in reality; the United States can only issue more currency to transfer the dollar crisis, which will lead to the loss of dollar credit in the long run.

Therefore, countries around the world are calling for the birth of a world currency beyond sovereign states. Nash' s equilibrium theory holds that under floating exchange rates, through multi-party games, those currencies that maintain long-term stability will ultimately win. Robert Mundell, the "father of the euro," also believes that the global economy needs a global currency. The basic prerequisite for this future, ideal world currency is that it must exist independently of a single sovereign state, so that all sovereign states have the opportunity to participate in equal games and maintain exchange rates and interests among countries.

1.4.3 Human Value as Currency Anchor

Labor Coin is determined by objectively existing actual labor time and actual labor value. No government or institution can control the issuance of Labor Coin, which reflects the creation and improvement of labor value. Therefore, the average value of labor force serves as the currency anchor, which precisely embodies the direction of human pursuit of wealth value.

It is precisely because Labor Coin cannot be controlled by any government or institution in its issuance and reflects the characteristics of human pursuit of wealth value that it will assist in the internationalization of the RMB in the face of current chaos and restrictions in international trade and financial markets.

2 Strategic and Innovative National Technology Bank System and Technical Design

2.1 Strategic Significance of the National Technology Bank

The National Technology Bank aligns with national policy orientation and can bring enormous benefits to the country and its people. Currently, China' s economy has entered a new normal. To maintain medium-to-high-speed economic growth, it is necessary to promote mass entrepreneurship and innovation and implement supply-side structural reform. All these urgently require financial support for independent innovation and supply chain management, and the National Technology Bank is planned and designed in response to these major decisions of the Party and the state.

The National Technology Bank helps promote the linkage and integrated development of technology, finance, and industry. By revitalizing China' s huge intangible asset market, providing financial support, promoting the combination of finance and industry, fully tapping the source of China' s independent innovation, and more profoundly promoting the vigorous development of China'

s independent innovation and technological inventions, China can be built into a world technology powerhouse, enhancing China' s soft power and international competitiveness. The core of innovation-driven development is to organically connect technology, finance, and industry to achieve linkage and integrated development. Based on this, the National Technology Bank effectively strengthens the integration of technology, finance, and industry, supports the development and improvement of the real economy and social production, effectively bridges the "three major cliffs" in China' s economy, increases people' s effective income, thereby supporting the huge financial system and RMB supply system, and achieving stable and healthy development of the real estate industry.

2.2 System Design of the National Technology Bank

To promote innovation-driven economic development in China, build China into a world technology powerhouse, and enhance China' s core international competitiveness, the National Technology Bank is designed with an "one body, two wings"overall institutional framework. The "one body"refers to "modern technology bank" + "intangible asset bank"; the "two wings"refer to the "Global Supply Chain Financial Trading Center" and the "Internet Patent Bank." The main design significance lies in achieving the linkage and integrated development of technology, finance, and industry, constructing an international strategy for the integration of technology, finance, and industry, overcoming the serious disconnect among finance, technology, and industry, solving the "three major cliffs" between finance and the real economy, RMB and productivity, and housing prices and people' s income, and effectively preventing economic and financial risks and crises.

[Figure 3: see original paper] System design of National Technology Bank

The "one body" refers to the modern technology bank and intangible asset bank. The modern technology bank mainly consists of internet finance + modern commercial bank + investment bank + international technology bank. The intangible asset bank fully absorbs the successful experience of foreign asset banks and China' s own asset banks such as Cinda, Huarong, Great Wall, and Orient. Through rights confirmation (usage rights, ownership, collection rights, operation rights), rating, evaluation, assessment, credit investigation, and credit granting, it further carries out credit reconstruction and financial reconstruction, followed by unified "large custody." It first deals with assets, then liabilities, to revitalize China' s intangible assets worth over 100 trillion yuan. By utilizing advanced internet technology, IoT technology, and financial technology, it establishes a modern intangible asset market and trading system in China, which can effectively boost China' s economic growth by 3 percentage points. It establishes world technology finance organizations and standards, enhances the source of China' s independent innovation, and makes the National Technology Bank the engine of China' s innovation-driven development.

The "two wings"are the "Global Supply Chain Financial Trading Center"and the

"Internet Patent Bank." The Global Supply Chain Financial Trading Center is built on the foundation of the "Global Supply Chain Financial Union" (GSFU). GSFU is positioned as a supranational international trade and financial organization that overcomes the power struggles and adverse geopolitical influences of sovereign international trade organizations such as the WTO and TIPP. With core enterprises as the main body and market laws as the dominant factor, it sets up sub-alliances along industrial chains, sector chains, product chains, regional chains, technology chains, and value chains. This will be superior to the WTO and overcome TIPP' s constraints on China' s trade, strengthening China' s dominance and global trade leadership. Using modern internet technology and financial technology to repair, expand, and create an international supply chain financial system led by China is of great strategic significance for China' s competitiveness in world trade and finance. Based on the internet and cross-border e-commerce platforms, implementing a high-tech, large-platform, big-data, and large-integration strategy to integrate various sub-alliances for exhibition and aggregation marketing will integrate global resources, achieve an annual transaction volume of over 50 trillion yuan, drive China' s endogenous growth momentum, reverse the unfavorable situation of China' s current foreign trade growth decline, and increase GDP growth rate by 2 percentage points. It can effectively prevent the risk of the U.S. global supply chain strategy besieging and integrating China, support the real economy internally, support Chinese manufacturing and Chinese creation in going global externally, comprehensively enhance China' s internationalization dividends and science and technology dividends, strengthen the competitiveness of the RMB, and make it a major world currency. It can effectively bridge the gaps between finance and the real economy, RMB price and value, and housing prices and people's income, and prevent economic and financial crises.

2.3.1 Blockchain Technology

Blockchain technology is essentially a decentralized data storage, transmission, and proof method embedded in a distributed structure, using data blocks to replace the current internet' s dependence on central servers. This makes all data changes or transaction items recorded on a cloud system, theoretically achieving self-proof of data during transmission. Blockchain can provide a new concept of "Internet Plus," making it more convenient to provide access to various services and upgrade various services to a new level of decentralization. Blockchain technology is also a new form of artificial intelligence, achieving the combination of human (and even machine) wisdom through peer-to-peer interconnection.

Blockchain holds great promise for alleviating China' s current social pain point of scarce credibility, with extensive and in-depth application scenarios in global market integration, intellectual property protection, property micro-justice, IoT finance, smart agreements, and many other fields. It can improve the efficiency of global market transactions and reduce costs, while also alleviating the infor-

mation asymmetry and corruption space problems of credit centralization.

The application of blockchain technology in the National Technology Bank is an upgrade of modern internet information technology. In modern technology banking business, an intangible asset banking system is created, and blockchain technology is applied to all aspects of intangible assets, including rights confirmation, rating, evaluation, custody, credit reconstruction, and financial reconstruction. It draws the gene map of intangible assets, making item information completely public and information changes more transparent and trustworthy, effectively safeguarding the legitimate rights and interests of asset owners. In the construction of the Global Supply Chain Financial Trading Center system, combining blockchain technology with supply chain finance to create a blockchain supply chain financial trading center helps overcome problems such as insufficient and asymmetric credit, achieving direct connection and financial revenue and expenditure among the three points of supply, production, and sales on the supply chain.

2.3.2 Big Data Technology

Big data refers to a dataset with particularly large volume and data types that cannot be captured, managed, and processed by traditional database tools. Big data has four characteristics: large volume, large data categories, fast processing speed, and high data authenticity. Large data volume refers to large datasets, generally around 10TB. Large data categories mean that data comes from multiple sources, with increasingly rich data types and formats, breaking through the previously limited scope of structured data to include semi-structured and unstructured data. Fast processing speed means that real-time data processing can be achieved even with very large data volumes. High data authenticity means that with the rise of new data sources such as social data, enterprise content, transaction and application data, the limitations of traditional data sources are broken, and enterprises increasingly need effective information governance to ensure authenticity and security.

Big data technology is a technical foundation of the National Technology Bank. The National Technology Bank makes full use of big data technology, practices big data thinking, and promotes the transformation of traditional banking development models, financial innovation, management upgrading, and risk control upgrading.

2.3.3 Supply Chain Finance Technology

[Figure 4: see original paper] System of the supply chain finance

With the rapid development of internet technology and financial technology, financial innovations continue to emerge, and supply chain finance technology has gradually evolved from Supply Chain Finance 1.0 to Supply Chain Finance 2.0 and 3.0 based on traditional financial technology.

Supply Chain Finance 1.0 refers to "Internet Plus Traditional Supply Chain Finance Plus Financial Innovation," mainly including traditional supply chain financial products and technologies such as factoring, warehouse receipts, letters of credit, discount financing, buyer' s credit, seller' s credit, accounts receivable pledge financing, order financing, securitization, and funds.

Supply Chain Finance 2.0 is based on traditional supply chain finance, using credit reconstruction and financial reconstruction technology to form a super financial market supply chain system. In the super financial market, financial institutions can obtain excess profits by outsourcing and reverse outsourcing financial businesses. The main products include asset securitization centers, intelligent IoT confirmed warehouses (mobile asset banks), and cross-border supply chains.

Supply Chain Finance 3.0 refers to "Internet Plus Finance (disintermediation)," which means that on the basis of fully developed internet financial technologies such as big data technology and blockchain technology, upstream, midstream, and downstream enterprises in the supply chain can directly create supply chain financial products at the financial end. The supply chain financial products and technologies formed in Supply Chain Finance 3.0 mainly include big data supply chain financial centers, blockchain supply chain financial centers, consumer supply chain financial centers, and shared supply chain financial centers.

In the process of developing toward the Supply Chain Finance 3.0 system, the GSFU operation platform fully utilizes big data supply chain finance systems and blockchain supply chain finance systems technologically. Big data supply chain finance means that GSFU conducts big data analysis on various industries and directly designs and creates financial products in the financial system according to the transaction volume of enterprises and industries. Blockchain supply chain finance combines blockchain technology with supply chain finance, helping to overcome problems such as insufficient and asymmetric credit, achieving direct connection and financial revenue and expenditure among the three points of supply, production, and sales on the supply chain, and actually realizing peer-to-peer barter exchange, with the entire process completed through intelligent electronic contracts.

With the development of information technology and financial reconstruction technology, changes in financial models will inevitably and have already shown a trend of disintermediation. Traditional commercial banks will transform into asset banks and financial trading centers. In this wave, the big data supply chain finance system and blockchain supply chain finance system of GSFU will create disruptive value.

3.1 Global Currency Crisis and Currency Anchor

In the past 30 years, global economic imbalances and financial crises have been plaguing world economic development. Especially since the 2008 financial crisis, the problem of global economic imbalances has become increasingly serious. The

fundamental reason for current severe global economic imbalances and frequent financial crises is the currency crisis.

The current international monetary system—the U.S. dollar-based reserve currency system—is not only an important cause of global economic imbalances but also one of the reasons for the numerous financial crises that have occurred frequently over the past 30 years. Under the current monetary system, regardless of whether the reserve currency country chooses policies of balance of payments surplus, deficit, or balance, it is difficult to avoid triggering global financial crises and instability.

The current international monetary system is dominated by the currencies of developed countries, primarily the U.S. dollar. The monetary policies of developed countries are mainly adjusted according to their own interests and macroeconomic conditions. However, objectively speaking, the monetary policies of developed countries also affect the economies of other countries, while the economic conditions and even economic interests of other countries cannot be 100% reflected in the monetary policies of developed countries. This creates an asymmetry between the subject of monetary policy formulation and the recipient of monetary policy effects—the subject is the monetary authorities of developed countries, while the recipients are not only developed countries.

Today' s international commodity trade and capital flows are mainly denominated in U.S. dollars, which allows the United States to borrow indefinitely from other countries in its own currency to cover its relatively low savings level without having to correct its current account deficit. If the United States adopts some stable money supply or deflationary policies to curb domestic inflation, this will lead to an inability to meet the growing needs of the global economy; if the United States adopts quantitative easing policies to stimulate its own economy, this will lead to a flood of global liquidity. However, under the system where the U.S. dollar serves as the international reserve currency, it is impossible to long-term meet the growing international reserve needs of non-reserve currency countries through net outflow of U.S. dollars, because the supply of U.S. dollars cannot be provided free of charge in the long run and requires principal and interest repayment.

In general, the U.S. current account deficit is a long-term inevitable result. The essence of today' s financial crisis is a currency crisis, and the most fundamental cause of global economic imbalance is the instability of the current international monetary system, which lacks a global currency anchor.

3.2.1 Marx' s Value Theory

The labor theory of value is a theory that commodity value is created by undifferentiated general human labor, i.e., abstract labor. Labor has a dual nature: the dual character of labor refers to the two attributes of concrete labor and abstract labor in the production of commodities. Concrete labor refers to labor with different production purposes, labor objects, tools used, operation methods,

and production results. Concrete labor produces the use value of commodities. Abstract labor refers to undifferentiated general human labor. Abstract labor produces the value of commodities. Concrete labor and abstract labor are two interrelated and opposite aspects formed in the same labor process. Use value is the natural attribute of commodities and is incomparable. Value is the condensation of general human labor, is the social attribute of commodities, and is the basis of commodity exchange. In the final analysis, Marx' s labor theory of value can be summarized as···

3.2.2 Western Economics

In Western economics, production factors are generally divided into four types: labor, land, capital, and entrepreneurial ability. Labor refers to the sum of physical and mental efforts provided by humans in the production process. Land refers not only to land itself but also to all natural resources above and below ground. Capital can be expressed in physical or monetary form. Entrepreneurial ability refers to the entrepreneur' s ability to organize, establish, and manage enterprises. The relationship between the input of production factors and the output of products in the production process can be expressed by a production function. The production function represents the relationship between the quantities of various production factors used in production and the maximum output that can be produced within a certain period, assuming unchanged technology levels.

Assume $X_1, X_2, ..., X_n$ sequentially represent the input quantities of n types of production factors used in the production process of a certain product, and Q represents the maximum output that can be produced. Then the production function can be written in the following form:

$$Q = f(X_1, X_2, ..., X_n)$$

In economic analysis, to simplify analysis, it is usually assumed that only labor and capital are used as production factors in production. Using L to represent labor input quantity and K to represent capital input quantity, the production function is:

$$Q = f(L, K)$$

Short-term production function: In the short term, because producers do not have time to adjust the quantities of all production factors, at least one factor quantity is fixed. Starting from the production function, assuming capital input is fixed, denoted by $\bar{K}$, then labor input L is the only variable, and the production function is:

$$Q = f(L, \bar{K})$$

Then labor L becomes the only factor determining Q, and the production function can be expressed as:

$$Q = f(L)$$

Long-term production function: In the long term, the input quantities of all production factors are variable, so the production function is:

$$Q = f(L, K)$$

Then both labor L and capital K determine Q. We can construct a composite function, and the production function can be expressed as:

$$Q = f(L, K)$$

Then labor L is still the only factor determining Q. Therefore, it can be concluded that human labor and human value are the sole pricing foundation of currency.

3.3 Value Management Design of Labor Coin on YouValue Platform

[Figure 5: see original paper] Value management of labor coin on Your Value

YouValue is the platform for issuing and purchasing Labor Coin. On YouValue, Labor Coin serves as the sole unit of measurement, enabling one-way transactions of Labor Coin to labor time and RMB to Labor Coin. That is, on YouValue, Labor Coin can be used to purchase labor time, and RMB can be exchanged for an equivalent amount of Labor Coin.

Step 1: The investor signs an electronic contract with YouValue, agreeing to exchange RMB for a certain amount of Labor Coin (the Labor Coin obtained by the investor cannot exceed the investor' s own value), and simultaneously agreeing to entrust their surplus labor time to YouValue and consent to the disposable use of labor time.

Step 2: YouValue conducts customized matching based on the investor' s industry category, work experience, and personal advantages with market demand, enabling the investor' s surplus labor time to be fully utilized and creating more employment opportunities and labor income for the investor. At the same time, investors can purchase others' labor. At this point, investors have two choices: one is to use their own Labor Coin for payment; the other is to purchase Labor Coin on YouValue with RMB for labor payment after an order is formed.

Step 3: As data accumulates on YouValue, the platform will use big data technology to conduct data analysis on YouValue, investors, and Labor Coin, forming personal value waves, personal credit waves, and market return waves.

Personal Value Wave: When workers entrust their surplus labor time to YouValue, the platform will price workers' labor time based on data such as their location, industry, and age. As labor value constantly changes due to external social factors and internal factors such as changes in the quality of labor provided by workers, YouValue will use big data analysis to depict changes in workers' value anytime and anywhere, thereby forming workers' value waves.

Personal Credit Wave: As the number of workers entrusted to YouValue increases and transaction data accumulates, big data analysis can obtain each person' s credit wave, quantitatively depicting people' s credit levels like Sesame Credit on Alipay, which can solve the current problem of credit asymmetry.

Market Return Wave: Since Labor Coin also has investment (speculation) functions, each investor can watch the value fluctuation of Labor Coin at any time, i.e., the market return wave. Investors can pay attention to the rise and fall of Labor Coin through the market return wave.

Step 4: Appreciation of Labor Coin. Assume a worker' s labor value P is 100 yuan/hour, and he entrusts his surplus labor time to YouValue. Assuming he trades 720 hours of labor time on the platform in one year, and YouValue extracts 2% of the total labor value, then YouValue' s revenue V is $V = P \times T \times 2\%$, i.e., 100 yuan/h $\times$ 720h $\times$ 2% = 1,440 yuan. The revenue obtained by YouValue will reserve a portion for investor dividends, which is the increase in Labor Coin value.

The core of YouValue is human value management, which is the management of surplus labor force. As the only recognized currency on YouValue, the total issuance of Labor Coin is also based on labor force L, with total currency issuance M = total tradable labor force $\times$ weighted average of labor force $\times$ adjustment coefficient. Therefore, there is no possibility of over-issuance of Labor Coin. The core difference between Labor Coin and general virtual currency is that Labor Coin has physical support, unlike virtual currencies such as Bitcoin that are merely algorithms without physical support.

3.4.1 Theoretical Foundation

Composition of product value: Producing commodities requires input of labor and means of production. Assume the input of labor is denoted as $W = L\omega$, where L is the number of workers and ω is the average wage of individual workers; and assume the input of means of production is denoted as I. Then, the total output Y obtained from the input of production factors into the production process is as follows:

$$Y = A \cdot F(W, I)$$

where A is the additional value generated during the production process, derived from the product added value generated by workers' effective use of equipment,

technology, and production methods during production.

Labor productivity: A country' s improvement in labor productivity can be measured by labor productivity. There are three ways to measure labor productivity.

The first expression:

$$R = \frac{Y}{L}$$

The second expression:

$$R = \frac{Y}{\omega}$$

The third expression:

$$R = \frac{Y}{L\omega}$$

The third method is an accounting-significant calculation method that is closer to reality and more convenient for data processing. The following model construction is based on this expression.

The relationship between labor productivity and price: In the long term, excluding pure monetary factors and supply-demand influences, the price level of commodities mainly depends on the level of labor productivity. When labor productivity improves, the production cost per unit product decreases. Therefore, in the long term, product price levels decrease as labor productivity improves. Under the assumption that labor costs determine prices, the product price level P and labor productivity R have an inverse relationship, expressed as:

$$P = \frac{1}{R}$$

3.4.2 Exchange Rate Model Construction

According to the purchasing power parity hypothesis, the nominal exchange rate e should equal the ratio of price levels between two countries:

$$e = \frac{P_d}{P_f}$$

where P_d and P_f are the general price levels of the home country and foreign country, respectively. Based on the above, we know that labor productivity efficiency and general price levels have an inverse relationship. Therefore, we

can provide a new definition of exchange rate e based on labor productivity parity:

$$e = \frac{R_f}{R_d}$$

This equation shows that when foreign labor productivity increases or domestic labor productivity R_d decreases, the domestic currency will depreciate; when domestic labor productivity increases, the domestic currency will appreciate. The exchange rate between two countries mainly depends on the relative international competitiveness of the two countries' goods, which in turn depends on the ratio of production efficiency between the two countries. Therefore, labor productivity parity provides a new definition of exchange rate from the perspective of the relative international competitiveness of labor.

Given $W = L\omega$, we can further simplify the above equation:

$$e = \frac{G_d/\omega_d}{G_f/\omega_f}$$

where G_d and G_f are the per capita GDP of the home country and foreign country, respectively. Thus, the data needed to calculate exchange rate e can be simplified to each country' s per capita GDP and per capita income.

3.4.3 Data Processing

In specific data processing, one point to note is that per capita GDP can be uniformly expressed in U.S. dollars, while per capita wage levels need to be expressed in each country' s local currency.

Data source: The World Bank. Existing problem: Since per capita income data is only updated to 2013, we only compared the official exchange rate and model calculation results for 2013.

3.4.4 Model Calculation Results

The errors between official exchange rates and model-calculated exchange rates are arranged as follows (selected):

Difference between the official exchange rate and the result of models

3.4.5 Results Analysis

In the exchange rate model, we mainly compared the labor productivity of various countries. In the model construction process, we also attempted to compare the unit time labor value of various countries, but the results obtained through direct calculation of labor value differed significantly from actual exchange rates.

Through analysis of the results, we believe that direct comparison of each country' s labor value cannot be made because although labor value is undifferentiated, each country gives different remuneration for unit time labor. For example, the United States and Hong Kong give higher remuneration for unit time labor than India, which is reflected in actual data as per capita wage levels. The evaluation differences of unit time labor value among countries directly affect the data. Therefore, we must add per capita wages or per capita income to the model to eliminate evaluation differences of unit labor value among different countries.

Per capita GDP data can be uniformly expressed in U.S. dollars, while per capita income must be expressed in local currency. Because each country' s per capita wage formulation is based on local currency, and from a data perspective, this approach better reflects the value of the local currency. Per capita GDP is more for comparing with other countries to reflect its international competitiveness, so its unit can be unified as U.S. dollars.

In the model results, the official exchange rates and model results are relatively close for common countries, while the errors are larger for some small countries. Below, we will strive to obtain the latest data to optimize the results or further improve the model.

3.5.1 Global Operation of Labor Coin Can Eliminate the Triffin Dilemma of the Dollar

Labor Coin is different from traditional virtual currencies. It is not controlled by issuing institutions, is determined by objectively existing actual labor time and actual labor value, and no government or institution can control the issuance of Labor Coin. Therefore, Labor Coin can avoid being affected by poor decisions of the People' s Bank of China and can avoid currency crises caused by human factors.

3.5.2 Labor Coin as a Financial Instrument Has a Wider Circulation Range

As a network-based virtual currency, and with the continuous development of the information technology revolution, the internet has spread to every corner of the world. Theoretically, Labor Coin can circulate anywhere in the world with network access. Based on blockchain and other technologies, all transactions of Labor Coin can be independently verified. No matter where you are, you can purchase, trade, and exchange through the network.

3.5.3 Low Transaction Costs of Labor Coin

When users conduct transactions using Labor Coin, they do not need to go through clearing and settlement institutions such as central clearing houses or financial institutions. Through peer-to-peer connections, they can avoid various

inconveniences brought by exchange rate controls. The Labor Coin trading platform provides a new payment method for users without credit cards, stored-value cards, or other electronic payment methods. This low-cost transaction model can greatly reduce transaction costs and promote economic globalization.

3.5.4 Labor Coin as a Global Currency Anchor

Labor Coin is issued based on actual labor time and labor value, is not affected by the monetary policies of various countries, and can always reflect actual currency demand. Moreover, Labor Coin uses blockchain technology to achieve decentralization, enabling it to avoid the adverse effects of inflation. Therefore, currencies of various countries can use Labor Coin as a currency anchor to achieve exchange rate stability and automatic adjustment of international payments, while also providing an effective constraint mechanism for a country' s currency issuance and fiscal expenditure.

3.6 Central Bank' s Digital Currency Strategy

On January 20, 2016, the People's Bank of China held a digital currency seminar in Beijing and released a meeting announcement on its official website. With the development of information technology and the evolution of technologies such as mobile internet, trusted and controllable cloud computing, terminal secure storage, and blockchain, payment methods worldwide have undergone tremendous changes. The development of digital currency is bringing new opportunities and challenges to central banks' currency issuance and monetary policy. The central bank highly affirmed blockchain and other digital currency technologies and expressed its intention to actively explore the possibility of issuing digital currency, marking the first time that issuing digital currency has been established as a strategic goal of the central bank.

The central bank' s establishment of digital currency issuance as a strategic goal also reflects its recognition that under the existing world monetary system, it will be a very long and arduous process for the RMB to break through. Because the existing international monetary system is based on the current economic pattern, which has evolved from the capitalist market economic system over hundreds of years, breaking the U.S. dollar hegemony with the RMB is currently an impossible task. Launching Labor Coin, which takes human labor value as the sole pricing factor, is precisely the trend of the times. It aligns with national and people' s interests and can serve as an important national currency strategy to promote RMB internationalization.

3.7 Integrated Strategy of Labor Coin Value Management and National Technology Bank—Promoting a Global Financial Strategy for the Linkage Development of Technology, Industry, and Finance with Human Value as the Goal of Economic and Financial Growth

Labor Coin will operate in integration with the National Technology Bank. Labor Coin value management relies on the operation system, information technology platform, and risk control system of the National Technology Bank. Labor Coin will be one of the core competencies of the National Technology Bank, with blockchain technology behind it. The National Technology Bank has specially designed the Labor Coin trading platform and YouValue platform to support the operation of Labor Coin, providing complete services for Labor Coin transactions and payments.

Labor Coin itself is also a financial product because it represents the average value of labor force, so its value continuously appreciates with the value of labor force per unit time and the input of labor time. Through Labor Coin, the National Technology Bank establishes five major models: exchange rate management model, personal value management model, personal credit management model, enterprise management model, and patent management model. Based on this, it can evaluate patent value by measuring the labor time value of patent inventors, making the intangible asset evaluation results of the National Technology Bank more scientific; it can establish value models and credit models for individuals to manage people' s labor value, allowing customers to purchase entrusted leisure labor time; it can provide scientific employee salary management strategies for enterprise customers; and it can manage customers' credit, allowing customers to lease credit for financing and other financial activities.

Based on this, the integrated development strategy of Labor Coin and the National Technology Bank will deeply tap human value, promote the integration of technology, industry, and finance, form linkage development, and ultimately form a global economic and financial development strategy based on the creation and appreciation of all humanity' s own labor value.

4 Summary of Important Research Conclusions and Achievements

The construction of the Global Supply Chain Financial Alliance, the design of the National Technology Bank system, and the promotion of digital currency represented by Labor Coin are all financial strategic choices made to address existing problems in China' s current economy, promote deep integration between finance and the real economy, achieve integrated and linkage development of technology, finance, and industry, drive innovation-driven development, and build a future world economic and trade system centered on China. After years of exploration, research, and practice, the theoretical foundation, institutional

foundation, and technical foundation of this series of financial strategic arrangements have matured, forming a systematic strategic plan. Currently, making these financial strategic choices is not only the general trend of domestic and international economic development but also of great strategic significance for China to integrate global resources, build a future world trade and financial system centered on China, and promote innovative changes and development in world trade and economy.

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Note: Figure translations are in progress. See original paper for figures.