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The Impact of RMB Internationalization on Total Factor Productivity in China: A Study Based on Provincial and Municipal Level

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Abstract. In order to explore the impact of RMB internalization on China's provincial and municipal TFP, this paper divides the sample into eastern, central and western regions based on the annual data from 2011 to 2022 at the macro level of China's provincial and municipal levels, and takes 2015 as the time segmentation point. Using the fixed effect and PVAR model, this paper analyses the influence of RMB internationalization on TFP in different periods and regions and its dynamic characteristics. It is found that the degree of internationalization of RMB generally shows an upward trend of fluctuation, and the fluctuation of the degree of internationalization of RMB has a significant impact on the TFP of the eastern and central regions, but the impact on the western region is not obvious. From a regional perspective, RMB internationalization has a positive impact on TFP in the eastern and western regions, and the eastern region has the largest impact, but the impact on the central region is not significant. From the perspective of time, whether from overall or region perspective, the impact of RMB internationalization on TFP of provinces and cities in China mainly emerged gradually after 2015. Therefore, in the increasingly complex internal and external environment, it is necessary to promote the deepening of RMB internationalization timely and effectively, and strengthen the positive impact of RMB internationalization on China's TFP.

Keywords: RMB Internationalization; TFP; Fixed Effect; PVAR.

1. Introduction

Since the promulgation of the Administrative Measures for Cross-border RMB Settlement Pilot in 2009, the process of RMB internationalization has officially started. After more than ten years of international development, RMB has significantly improved its status in international currency functions such as trade settlement, cross-border investment and financing, and international reserves. In 2021, the overall cross-border revenue and expenditure of RMB were balanced, and the cross-border receipts and payments will continue to grow. According to the data, the RMB has surpassed the Japanese yen to become the fourth payment currency in the world, the fifth payment currency among the major reserve currencies in the SDR basket and the eighth currency in global foreign exchange transactions.

At the same time, the internationalization of RMB and the opening up of China's financial market are complementary and mutually reinforcing. In addition, China's financial market continues to open up, RMB assets remain highly attractive to global investors, and cross-border RMB receipts and payments under securities investment generally show a net inflow trend.

At present, China's economic and social development has steadily entered a stage of high-quality development from a stage of high-speed growth. In the new era, China has put forward higher requirements for development of total factor productivity.

Under the current international situation, the development of China's total factor productivity must put innovation in the core position of overall development, and promote the deep integration of scientific and technological innovation and economic development. Encourage enterprises to increase investment in R&D, train and attract innovative talents, and promote the transformation of scientific and technological achievements and development of innovative enterprises. At the same time, we should also pay more attention to both the quality and quantity of foreign investment, deepen

international cooperation, and strengthen supervision and evaluation. Seize the development trend of RMB internationalization, continue to deepen reform, break administrative barriers, lower market access barriers, and optimize the business environment. Accelerate supply-side structural reform and promote the optimization of resource allocation and industrial upgrading. Strengthen reform of the financial system and improve its ability to serve the real economy. Guide capital to flow into areas with high added value, high efficiency and high-tech content, and support the development of innovative enterprises and emerging industries.

In the process of high-quality economic development in China, with the in-depth development of RMB internationalization, the scale and structure of cross-border capital flow in China are also constantly changing, which is conducive to further optimizing the efficiency of resource allocation and promoting the development of total factor productivity in China. Furthermore, it will have a more far-reaching impact on macro factors such as the quality of China's economic development, national scientific and technological innovation capacity, and resource utilization efficiency. Therefore, it is of great practical significance to clarify the impact of RMB internationalization on the development of China's total factor productivity in order to better realize the optimal allocation of resources and enhance the national competitive advantage.

In the investigation of RMB internationalization and total factor productivity development in China, existing studies mainly focus on the impact of RMB internationalization on cross-border capital flow, and the impact of cross-border capital flow, especially direct investment, on total factor productivity development in China. However, there is no literature that directly links RMB internationalization with the development of China's total factor productivity and studies its mechanism.

2. Literature Review and Mechanism Analysis

2.1. Literature Review

Regarding the development of RMB internationalization, the existing researches mainly focus on the factors affecting RMB internationalization and the impact of RMB internationalization on the development of China’s macro economy and micro enterprises. Based on the perspective of exchange rate connectivity between RMB and other currencies, Xu Yang et al. (2023) found that with the gradual marketization of RMB exchange rate quotation mechanism, the degree of linkage between RMB and other currencies significantly increased over time, which enhanced the function of RMB as an international currency. Further research shows that foreign trade, FDI and the exchange rate system of currency issuing countries have an important impact on the internationalization of RMB. Li Jingping et al. (2022) found that systemic financial risks may arise in the process of RMB internationalization, and the impact will be strengthened with the process of RMB internationalization. According to Que Chengyu et al. (2022), the internationalization of RMB promotes the large-scale inflow of securities investment while crowding out the inflow of other types of assets, and promotes the inflow of direct investment while enhancing the local preference of domestic securities investment. Ding Jianping et al. (2023) pointed out that the internationalization of RMB will promote the short-term appreciation of RMB and lead to the expansion of short-term fluctuations of cross-border capital inflows, which is not conducive to the stability of RMB currency value and RMB internationalization.

From the perspective of micro enterprises, He Qing et al. (2023) found that RMB internationalization can help enterprises avoid exchange rate risks to a certain extent through non-commodity pricing and financial instruments hedging, and this effect is more significant in industries with strong product heterogeneity, low market discourse power and high international competition. Han Fengze et al. (2022) believes that RMB internationalization can effectively improve the exchange rate elasticity of export product prices of enterprises through product quality effect and import intermediate cost effect, and the promoting effect is more obvious in the heterogeneity of enterprises in areas with low import intensity, small-scale, monopoly industries and low marketization. The research of Dai et al. (2022) shows that RMB internationalization can prolong the time of enterprise technological innovation and

has a positive impact and an inverted U relationship on enterprise technological innovation through the financing constraint effect, trade promotion effect and industry competition effect respectively.

On the development of China's total factor productivity, the existing research mainly focuses on the factors affecting total factor productivity. Hu Baiyang et al. (2023) showed that to a certain extent, financial mismatch and fiscal efficiency showed a negative and positive correlation with total factor productivity, and fiscal efficiency could smooth the negative impact of financial mismatch. Based on the data of A-share listed manufacturing companies, Zhang Jingxiao et al. (2023) found that digital empowerment improves total factor productivity by improving the level of enterprise specialization and supply chain efficiency, and this effect has significant heterogeneity under the factors of enterprise nature, industry characteristics, business environment and so on. Shi Xiaokun et al. (2023) pointed out that financial frictions have a significant negative impact on the total factor productivity of enterprises, and the development of financial digitalization can effectively alleviate the impact of financial frictions by easing financing costs and capital misallocation. Xie Weimin et al. (2023) found that corporate convertible bonds can improve total factor productivity by alleviating corporate financing constraints and optimizing resource allocation, and the effect is significantly heterogeneous in terms of the emphasis on convertible bonds, financial regulation and regional financial development level. The study of Sun Peng et al. (2023) shows that digital economic policies can promote the total factor productivity of enterprises through the digital transformation of industries and the alleviation of financing constraints. At the same time, the impact of digital economy on total productivity is heterogeneous in terms of enterprise nature, enterprise size, governance level, factor intensity and other factors. In addition, Zhang Ming et al. (2023), Chen Jiayou et al. (2023), by taking green development, scientific and technological innovation and other related policies as quasi-natural experiments, found that such macro policies had a significant effect on regional total factor productivity development and had a spatial spillover effect.

There are three main shortcomings in the existing research: first, the existing literature mainly constructs a qualitative theoretical analysis framework for promoting the internationalization of RMB. Second, among the existing major studies on total factor productivity, few papers have examined the impact of RMB internationalization on it and the heterogeneity of different ways.

2.2. Mechanism Analysis

The continuous promotion of RMB internationalization has increased the international demand for RMB, broadened the appreciation range of RMB and formed appreciation expectations. At the same time, with the rapid increase in the demand for RMB cross-border settlement and financial transactions, the financial infrastructure with RMB settlement as the core will be constantly improved, which will have an important impact on the cross-border capital structure and further affect the development of China's total factor productivity. Therefore, the impact of RMB internationalization on China's total factor productivity can be summarized into the following three ways.

First, the exchange rate channel. Cross-border capital can be mainly divided into two categories, one is foreign direct investment related to the real economy and foreign direct investment; The other category is investments related to the virtual economy or portfolio investments and other investments for speculation. As a bridge connecting domestic and foreign currencies, exchange rate is vulnerable to the direct impact of currency internationalization. For direct investment, the appreciation expectation caused by RMB appreciation will have two effects on it: wealth effect and relative cost effect.

From the perspective of wealth effect, the appreciation of RMB will reduce the relative value of the wealth stock of foreign investors in China, make domestic assets more expensive, increase the exchange cost of foreign investors buying domestic assets, and lead to the reduction of foreign direct investment and the actual utilization of foreign capital flow.

From the perspective of relative cost effect, RMB appreciation reduces the cost and benefit of Chinese enterprises' purchase and disposal of overseas assets, which is more conducive to enterprises' OFDI,

so as to rationally allocate resources and optimize production efficiency. For securities investment, the currency appreciation brought by RMB internationalization will strengthen market expectations and enhance market confidence. At the same time, the continuous improvement of RMB internationalization level makes the market enhance the expectation of further stable appreciation of RMB, which is conducive to alleviating the fluctuation of asset value in China's securities market and thus stabilizing the inflow of securities capital.

Second, financing channels. Compared with domestic investment, foreign investment will involve the pricing and settlement business between multiple currencies, and the volatility of the foreign exchange market increases the risk of using other currencies for foreign investment. With the continuous improvement of the internationalization level of RMB, more and more countries and regions are willing to use RMB for pricing and settlement, which to some extent alleviates the monetary constraints on foreign investment and reduces financing constraints and financing costs. Currency internationalization will force the financial market to open up and develop further.

At present, China's capital account opening has ushered in a new stage, the level of RMB internationalization has been constantly improved, China has gradually accelerated the opening process of onshore financial market and the organic combination of onshore and offshore markets, and RMB internationalization has gained more institutional and policy support. As the overall yield level of the domestic bond market is high, the stock market has great development potential and good yield prospect, and the continuous opening of the financial market has cleared institutional and policy obstacles for foreign investors to allocate securities assets. With the further opening of China's capital account, it will not only provide a new opportunity to promote the internationalization of RMB, but also help enterprises to solve various financing problems.

Third, the cost channel. With the rapid increase in the demand for cross-border RMB payment and settlement, the financial infrastructure with the RMB payment and settlement system as the core has been improved, domestic financial reform and the opening up of the financial industry have been promoted in an orderly manner, domestic and foreign investors have been able to receive better support in terms of transaction time, language, risk and liquidity management, and the efficiency, convenience and security of cross-border investment have been continuously improved. Because different types and directions of cross-border capital flows face different degrees of monetary constraints and capital control, the impact of RMB internationalization on them is different.

3. Model Setting and Variable Selection

3.1. Model Setting

In order to more comprehensively investigate the impact of RMB internationalization on China's total factor productivity, based on the panel data of provincial and municipal administrative regions from 2011 to 2022, this paper uses fixed effects to study the overall relationship between RMB internationalization and China's provincial and municipal total factor productivity at the macro level.

First, the following measurement model is constructed to investigate the impact of RMB internationalization on China's total factor productivity:

$$tfp_{it} = \beta_0 + \beta_1 rii_t + \beta_{it} W_{it} + \lambda_i + \lambda_t + \varepsilon_{it}$$

Second, this paper uses the PVAR model to further explore the dynamic changes of the impact of RMB internationalization on China's total factor productivity. The following measurement model is constructed:

$$y_t = X_t \beta_t + A_t^{-1} \sum_t \varepsilon_t , t = s + 1, \ldots, T$$

Among them, $y_t=(tfp_{it}, rii_t)$, $X_t=I_k\otimes(y_{t-1}, y_{t-2}, y_{t-3}, \ldots, y_{t-s})$, the matrices β_t and A_t are the time-varying coefficients of the model, and the structural shocks are independent of each other, that is, $\sum_t diag(\sigma_{1t}, \ldots, \sigma_{kt})$, $\varepsilon_t \sim N(0, I_k)$

3.2. Variable Selection

Explained variable: Total Factor Productivity(tfp_{it})

tfp_{it} represents the total factor productivity of province i in year t. The TFP index takes into account the contributions of factors such as technological progress, management efficiency and innovation ability in addition to the traditional labor and capital. This paper uses the generalized method of moments estimation, which extends the consideration of heterogeneity and endogeneity on the basis of the traditional OLS method. The data come from the China Statistical Yearbook and the statistical yearbooks of various provinces and cities.

Core explanatory variable: RMB internationalization (rii_t)

rii_t represents the degree of RMB internationalization in year t. In order to measure the internationalization of RMB more comprehensively and comprehensively, this paper selects the RMB internationalization index compiled by the International Monetary Institute of Renmin University of China as the proxy variable to measure the role of RMB as an international currency in international economic activities. This index builds an index system from the main aspects such as international pricing and payment and international reserve functions that an international currency must have.

Table 1. Indicator System of RMB Internationalization Index

Level 1	Level 2	Levle 3
International Pricing Function International Settlement function	Trade	Proportion of RMB Settlement in Total World Trade
	Financing	Proportion of RMB Credit in Total Global Foreign Credit
		Proportion of RMB Bonds and Notes in the Global Issuance of International Bonds and Notes
		Proportion of RMB Bonds and Notes in the Balance of Global International Bonds and Notes
		Proportion of RMB Direct Investment in Global Direct Investment
International Reserve Function	Official Reserve	Proportion of RMB Reserves in Global Foreign Exchange Reserves

Source: RMB Internationalization Report.

Control Variable: W

In this paper, the exchange rate of RMB against US dollar (rate), global risk (risk), provincial and municipal GDP (gdp), permanent resident population (pop), unemployment rate (unem), total import of provincial and municipal regions (imp) and provincial and municipal general public budget expenditure (fiscal) are selected as control variables.

Among them, the logarithm of the S&P 500 volatility index is used as the proxy variable for global risk. The provincial and municipal GDP, total regional import and local general public budget expenditure are nominal data.

The control variable data are from the Prospective database and *1* is used to represent one period lag.

4. Empirical Analysis

4.1. Benchmark Regression

Table 2 shows the regression results of the impact of RMB internationalization on the development of total factor productivity. The process of RMB internationalization was relatively slow in the early stage, but after the "811" exchange rate reform in 2015 and the RMB joining the SDR in 2016, the process of RMB internationalization entered the fast track. Thus, there may be a threshold effect in time. In the benchmark regression part, this paper conducts regression analysis on the samples according to the overall time span, 2011-2015 and 2016-2022.

It can be seen that the coefficient of RMB internationalization in Column (1) is positive but insignificant, indicating that RMB internationalization has a positive effect on China's total factor productivity during the observation period, but the effect is not significant.

Columns (2) and (3) respectively show the regression results of the impact of RMB internationalization on China's total factor productivity before and after 2015. The above results show that with the continuous progress of RMB internationalization, the function of RMB as an international currency has gradually emerged, which has a positive impact on China's total factor productivity to a certain extent, especially after 2015.

Table 2. Impact of RMB Internationalization on provincial-level TFP

	(1)	(2)	(3)
	Total factor productivity		
	2011-2022	2011-2015	2016-2022
lnrii1	0.0125 (0.0531)	−0.1253 (0.2372)	0.4098*** (0.7677)
lnpopulation	0.0229** (0.0088)	0.0212* (0.1077)	0.0226** (0.0106)
lngdp	−0.1788 (0.0571)	−0.1346 (0.3579)	−0.1207*** (0.0300)
lnimp	0.0186 (0.0360)	0.0373 (0.0304)	0.0315 (0.0347)
lnfiscal	−0.1228 (0.1087)	−0.1746 (0.1396)	−0.1348 (0.1366)
unem	−0.0463 (0.0246)	−0.0163 (0.2451)	−0.1223 (0.0228)
rate	−0.0422 (0.0625)	−0.0915 (0.1216)	0.1757 (0.2435)
rate1	−0.0264 (0.0767)	−0.0609 (0.2921)	0.8812*** (0.2641)
risk1	−0.0009 (0.0031)	0.0010 (0.0039)	0.0076 (0.1292)
Constant	3.1089** (1.2893)	2.9953 (2.5509)	−5.5421* (2.7583)

Note: () is robust standard error; ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. The same below.

4.2. Heterogeneity Test

The development of total factor productivity in different regions will show heterogeneity under the influence of RMB internationalization.

Therefore, in this part, the provincial and municipal administrative regions are divided into eastern, central and western regions according to the administrative distribution for regression analysis. The regression results of the impact of RMB internationalization on the total factor productivity of provinces and administrative regions in different regions are shown in Table 3.

Through the regression of the eastern, central and western regions in different time periods, this paper finds that the positive impact of RMB internationalization on the total factor productivity of the three regions is not significant in general. However, if we divide 2015 as the time node, we can find that the positive impact of RMB internationalization is not significant in the early stage, but mainly occurs after 2015.

Table 3. Impact of RMB Internationalization on Provincial and Municipal TFP after 2015

	(1)	(2)	(3)
	Administrative Division		
	Eastern Region	Central Region	Western Region
lnrii1	0.6481**	0.3412	0.2901**
	(0.2705)	(0.2596)	(0.1226)
lnpopulation	0.0136	−0.0898	−0.2748***
	(0.0225)	(0.4605)	(0.0571)
lngdp	1.7478	0.4256	−0.0841**
	(01.4852)	(0.5144)	(0.0313)
lnimp	−0.0533	−0.0657	0.0432
	(0.9423)	(0.2456)	(0.0468)
lnfiscal	−0.5619**	−0.8929	0.0987
	(0.1087)	(0.6748)	(0.0609)
unem	−0.1464	−0.0622	−0.0917**
	(0.0599)	(0.0389)	(0.0347)
rate	1.3486**	0.8453	−0.1157
	(0.0625)	(0.6432)	(0.2024)
rate1	2.3369***	0.3157	0.5772*
	(0.7260)	(0.3249)	(0.2641)
risk1	−0.0324	−0.0015	0.0118
	(0.0278)	(0.0129)	(0.0161)
Constant	−17.3472***	−5.2198	−2.3515
	(5.3517)	(7.3259)	(2.7112)

It can be seen from the above regression results that RMB internationalization has a significantly positive impact on the development of total factor productivity in the eastern and western provinces and administrative regions of China after 2015, while it has a positive impact on the central region, but the impact is not significant.

The reasons can be attributed to two aspects: first, the eastern region is the main engine of China's economic development, with a relatively developed modern industrial base such as manufacturing, service and financial industries, as well as a more mature market mechanism and high-quality human resources.

At the same time, the degree of dependence on foreign trade is high, and there are convenient international trade networks and foreign cooperation conditions. In addition, the eastern region has a number of high-level universities, research institutes and scientific research institutions, and industrial institutions are constantly upgrading. RMB internationalization can help provinces and cities in eastern China improve the efficiency of resource allocation and save foreign trade costs.

Second, the development of the western region was relatively backward in the past. With the deepening of the Belt and Road Initiative, the western region, as an important hub connecting eastern China with Central Asia and South Asia, has gradually changed from a "land-locked" region to a "land-linked" region, with important geographical advantages, which has strengthened trade links, infrastructure construction and personnel exchanges with landlocked countries and regions in Asia, and promoted inter-regional exchanges and cooperation. The internationalization of RMB reduces the cost of foreign communication in the western region and helps attract more foreign capital to flow into the western region. At the same time, relying on its comparative advantages in production resources, it has continuously undertaken industrial transfer from the eastern and central regions.

4.3. Results of PVAR Model

In order to better reflect the dynamic impact of RMB internationalization on total factor productivity, this paper uses the PVAR model. Based on the results of the benchmark regression and heterogeneity test, which selects 2015 as the impact time point of the impulse response function, and conducts dynamic analysis on the eastern, middle and western regions respectively.

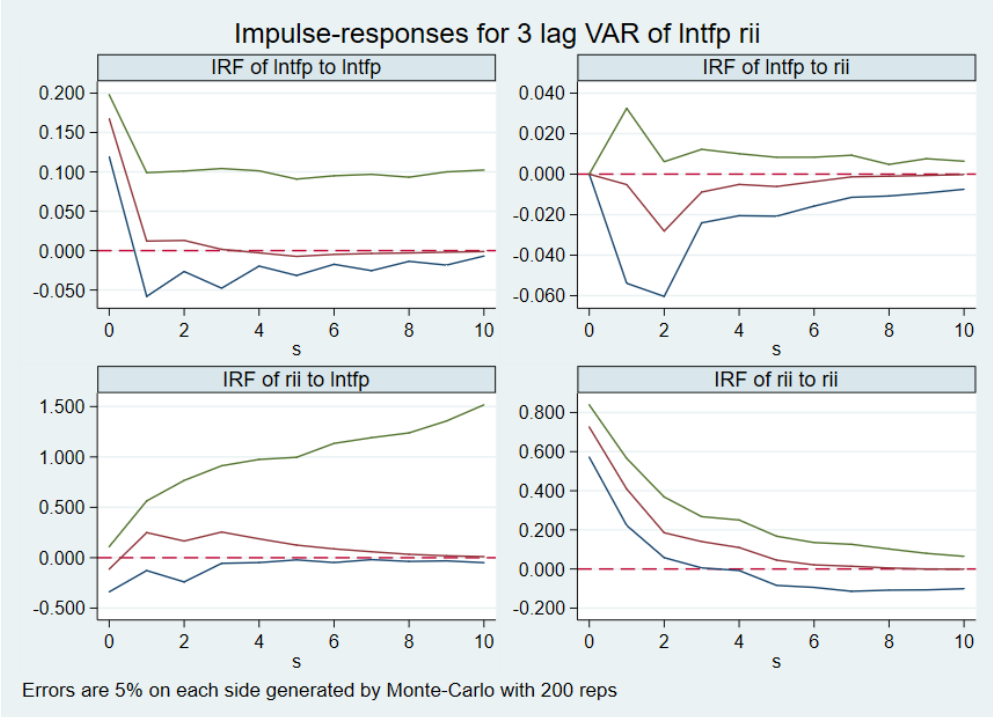

Fig. 1 The impact of RMB internationalization on provincial and municipal TFP in China

Figure 1 shows the impulse response function of provincial-level total factor productivity after RMB internationalization in 2015. From left to right and from bottom to top, it corresponds to the eastern, central and western regions respectively.

When RMB internationalization is subject to a one-unit positive shock, the impulse response value of total factor productivity in the eastern and central regions is positive, but then the positive effect decreases continuously, indicating that the promotion effect of RMB internationalization on total factor productivity in the eastern region is obvious in the short term, but the effect weakens in the long term. However, the results for the western region show that it is not sensitive to the degree of RMB internationalization.

To sum up, with the continuous progress of RMB internationalization, its development trend is generally characterized by rising fluctuations. Since the "811" exchange rate reform in 2015, the internationalization degree of RMB has been on the rise, which has a positive impact on China's total factor productivity.

5. Conclusion and Suggestions

This paper uses the fixed effect model and the PVAR model to study the impact of RMB internationalization on China's total factor productivity at the provincial and municipal levels, as well as the impact in different regions and over time and its dynamic characteristics.

The results show that the initial stage of RMB internationalization has an impact on China's provincial TFP, but it is not significant. However, after the "811" exchange rate reform in 2015 and the inclusion of RMB in the SDR currency basket in 2016, the positive impact of RMB on China's provincial and municipal TFP has become increasingly significant over time. It shows that the market-oriented formation mechanism reform of RMB exchange rate and the inclusion of SDR currency basket have effectively promoted the function of RMB as an international currency, thus significantly enhancing the impact on the total factor productivity of different regions in China.

Based on the above research conclusions, this paper puts forward seven suggestions. First, we need to strengthen reform of the financial system. Break the fixed thinking of heavy inflow and light outflow in financial regulation. The initial stage of RMB internationalization focuses on cross-border trade, and there are still many restrictions on the free convertibility of capital and financial items. We will accelerate reform of the financial system and improve a market-oriented and law-based financial environment. We will establish a sound financial supervision mechanism, improve the ability to prevent and control financial risks, ensure the sound operation of the financial sector, and avoid the negative impact of financial risks on total factor productivity.

Second, we should advance capital account opening in an orderly manner. At present, promoting RMB internationalization through trade channels may encounter greater resistance. Although the inertia of international currencies may not be as great as imagined, major international currencies still remain strong in commodity trading and currency exchange market. Especially in the current situation of more refined global division of labor and industrial chain factories, foreign trade agreement to use US dollar settlement can reduce unnecessary exchange risks. The dollar's strength also shows up in China's imports and exports, where foreign importers are generally reluctant to denominate in yuan. When it comes to imports, foreign exporters are willing to use yuan only if the yuan is in the appreciation band.

Therefore, promoting the internationalization of RMB through the bond or securities market is also consistent with the current situation of China's balance of payments. The United States can export liquidity through trade channels, which makes liquidity flow back through capital and financial channels, forming the current situation of high currency issuance, low inflation and high asset value. However, the provision of RMB liquidity by China's current account surplus through the trade channel means more holdings of financial assets in developed countries, resulting in liquidity shifting to European and American sovereign debts with low interest rates. Therefore, promoting the

continuous expansion of cross-border bond channels represented by "panda bonds" may contribute more to the internationalization of RMB.

Third, promote trade facilitation. We will promote international trade facilitation and liberalization and lower trade barriers. Simplify trade procedures, improve customs clearance efficiency, improve the efficiency and convenience of trade operations by introducing electronic documents, online declaration, self-service and other ways to reduce transaction costs. In addition, a trade information platform will be established and improved to provide accurate and timely trade data and market intelligence. It promotes information sharing among enterprises and between enterprises and the government to help enterprises make market forecasts and decisions. At the same time, we should actively participate in the formulation of international multilateral trade rules to create a fairer and more favorable international trade environment for Chinese enterprises. Constantly improve the conditions for enterprises in our country to obtain raw materials with market competitiveness and imported intermediate goods of high-level intrinsic value. At the same time, with the help of China's huge trade scene, we will promote new breakthroughs with trading partners on currency exchange, currency pricing and currency payment.

Fourth, we should support scientific and technological innovation. On the one hand, in the face of new international science and technology tracks and opportunities, we need to increase investment in scientific and technological innovation and improve the level of scientific and technological research and development and innovation capacity. We will strengthen intellectual property protection and encourage enterprises to make independent innovations. We will deepen cooperation between universities and enterprises and strengthen the deep integration of industries, universities and research institutes. Strengthen cooperation and exchanges with other countries in the field of scientific and technological innovation, and share scientific and technological resources and achievements. We will promote the improvement of innovation capacity and the transformation of scientific and technological achievements through cooperative research and development and scientific and technological cooperation projects.

Fifth, promote human capital development. Increase investment in education, including basic, vocational and higher education. Improve the education system, improve the quality and fairness of education. Encourage students to choose their own learning content, and cultivate the ability of all-round development and innovation spirit. We should pay attention to the cultivation and development of human resources, establish a sound vocational education and training system, provide workers with skills training and employment guidance that meet market demand, and improve their education level and skill quality. Lower barriers to talent flow and encourage cross-field and cross-regional talent flow. Establish a talent market and a talent service organization to provide a platform for talent recruitment, consultation and communication. Optimize the allocation of human resources and improve labor productivity.

Sixth, strengthen industrial policy support. Formulating and implementing policies and measures conducive to industrial upgrading and transformation. By supporting the development of strategic emerging industries and high-end manufacturing, we will promote the improvement of total factor productivity. We will strengthen the environment for innovation and entrepreneurship and encourage enterprises to carry out technological innovation, transformation and upgrading. Special funds were set up to provide low-interest loans and risk compensation deposits to support the development of emerging industries and high-tech industries. We will strengthen cooperation with financial institutions and provide more financing channels and convenient conditions for enterprises. We will build industrial parks and demonstration zones, provide advanced production facilities and supporting services, and attract enterprises to gather and develop innovatively. Provide land, energy, communication and other resources support and preferential treatment for settled enterprises.

Seventh, strengthen international cooperation and exchanges. The proportion of RMB in international economic activities does not match the huge size of China's economy, which is bound to hinder the construction of a new development pattern with the major domestic cycle as the theme and the double

domestic and international cycles promoting each other. The internationalization of RMB requires both hard and soft measures. On the "hard" side, it is necessary to promote and maintain the high-quality development of China's economy, improve total factor productivity, and provide a solid material foundation for the international credit of RMB. On the soft side, we need to steadily increase China's influence in international affairs, strengthen cultural exchanges and educational cooperation, and enhance people-to-people friendship and mutual understanding. Through study abroad exchanges, academic research, cultural exhibitions and other forms, it promotes cultural exchanges and personnel interaction among different countries, establishes and improves international exchange platforms, such as international conferences, high-level dialogues and forums, and provides opportunities for exchanges and cooperation among governments, enterprises and academia of various countries. We will promote information sharing, experience exchange and docking of cooperation projects to pave the way for deepening the internationalization of RMB.

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