

Policy discussion No. 2016.003

Mar. 1 2016

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Assessing the Potential of RMB Trade Settlement¹

In July 2009, China launched a renminbi (RMB) trade settlement pilot scheme. Since then, the acceleration of RMB internationalization has made remarkable progress.

First, there is the development of RMB cross-border settlement. In addition to the pilot program of RMB settlement in trade and direct investment, a series of supporting measures under the financial account have also been implemented, such as RMB Qualified Domestic Institutional Investors, RMB Qualified Foreign Institutional Investors (RQFII) and RMB cross-border loans. From the second quarter of 2009 to the fourth quarter of 2014, the amount of RMB cross-border trade settlement accumulated to ¥16.6 trillion. At the same time, RMB settlements of foreign direct investment (FDI) and overseas direct investment (ODI) exceeded ¥1 trillion. By the end of April 2014, RQFII amounted to ¥215.6 billion. The pilot program of RMB cross-border loans has already launched within the Qianhai area in Shenzhen, the free-trade zone in Shanghai and Tianjin Eco-city.

Second, there is the construction of the RMB offshore market in Hong Kong (CNH)

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and other international financial centres. The current layout of RMB offshore markets in the Asia-Pacific region (including Macau China, Taiwan China, Australia, Korea, Japan and Association of Southeast Asian Nations [ASEAN] countries) is widely established and extends to the European market. In order to develop the RMB offshore market, more and more economies have taken up the launch of bilateral currency swaps with the People's Bank of China (PBoC) at the same time, to construct the RMB-clearing platform. So far, there is a preliminary worldwide RMB network composed of three types: the RMB onshore market; the RMB offshore centre; and the RMB offshore hubs (Subacchi and Huang 2012) that correspond to Shanghai, Hong Kong and other offshore markets, such as London, Singapore, Taiwan China, Frankfurt, Paris and Luxembourg.

RMB internationalization has made great progress both in cross-border settlement and offshore market development. These contributed to advancing the RMB's international function as a medium of exchange. According to statistics reported by SWIFT, the RMB surpassed the Australian dollar and became the fifth-largest payment currency in December 2014. Meanwhile, the RMB keeps rising for the commitment of bilateral currency swap lines between China and other economies, which reached ¥3.1 trillion by January 2015. In addition, the network for the RMB directly trading against other major currencies, such as the Japanese yen, Australian dollar, New Zealand dollar and the British pound, has been established. Some countries have begun to consider, or already hold, RMB assets as their official reserves.

The authorities have, so far, made great achievements on RMB internationalization in last five years. But there is some skepticism and worry about the smooth progress continuing. If RMB appreciation is no longer sustainable, the "hot money"-dominated RMB cross-border settlements could suddenly stop, which might also cause instability in the CNH (offshore RMB) market. The investigation by Fan He et al. (2011) identified CNH deposits as hot money, which carries some potential risks. Eichengreen also pointed out that if the public believes the yuan will continuously appreciate, then only the agents who receive payments in RMB have the motivation to participate in RMB internationalization (quoted in Wei and Davis, 2011). In this case, the settlement will inevitably be imbalanced.

The analysis by Garber (2011) argued that with the expectation of RMB appreciation, even RMB settlements based on real businesses have the appearance of speculation and, therefore, can exert influence on China's economy. Similarly, Li et al. (2013) analyzed to what extent the role of expectation of RMB appreciation plays in RMB cross-border

settlements. The conclusion is that although the impact from the expectation of RMB appreciation to RMB settlements is statistically significant,² the effect of appreciation expectation is not dominant.

In the beginning of 2013, taking advantage of RMB trade settlements, there were large-scale flows of hot money into China through fake trade invoices, aiming to earn profits from the interest rate spreads and exchange rate gap between onshore and offshore markets (Wu and Xu 2014). This indicates that speculation was an important driver for RMB cross-border settlement, at least in early 2013.

Now that the US Federal Reserve System has started to exit the quantitative easing policy, the RMB exchange rate has a depreciation expectation. This is troublesome. Xiao Lisheng (2015) points out that there has been a bottleneck for RMB internationalization since 2014, because the RMB exchange rate has become more volatile and the absolute appreciation expectation has disappeared.

As we can see, RMB internationalization has made great progress while facing deep skepticism. So far, RMB internationalization has benefitted from the RMB exchange rate gap and interest rate spread between the onshore and offshore market. What are the prospects for RMB internationalization in the future, if the appreciation expectation reverses? This chapter will assess the potential for RMB trade settlement.

The Framework for the Assessment

Assessment Based on the Currency Functions

Based on Benjamin J. Cohen (1971), Peter B. Kenen (1983) refined the three most important functions for international currency: unit of account, medium of exchange and

² In the onshore market, CNY reflects the RMB exchange rate with limited regulations, while in the offshore market, CNH reflects the RMB exchange rate based on market mechanisms. Therefore, the gap between CNH and CNY reflects RMB exchange rate expectation. If the RMB exchange rate against the US dollar in the CNH market is more expensive than the CNY market, it means RMB appreciation expectation exists. With this background, in order to make arbitrage, importers will transfer RMB payments to the CNH market through connected party transactions, and then exchange more US dollars with the same amount of RMB and lastly pay the foreign exporters with US dollars. In this way, RMB appreciation expectation leads to more RMB cross-border settlement, especially in imports. Since 2009, the payment of RMB accounted for more than 60 percent of the total RMB settlements. See Zhang and Xu (2012) and Xu (2015). Without the gap between CNH and CNY, this type of RMB settlement driven by arbitrage will disappear.

store of value. As shown in Table 1, there are six combinations for the three functions in official and private cases. It has become a popular framework to measure and forecast the potential for an international currency (Chinn and Frankel 2007; Gao and Yu 2011; Frankel 2012).

Table 1: Official and Private Use of Currency Functions

| Currency functions | Official use | Private use |
|---------------------------|--|--|
| Unit of account | Anchor for pegging currency | Denominating trade and financial products |
| Medium of exchange | Vehicle currency for intervention in the foreign exchange market | Invoicing trade and financial transactions |
| Store of value | Foreign exchange reserve | Financial investment |

Source: Kenen, Peter B. 1988. "International Money and Macroeconomics." In *World Economics Problems*, edited by K. A. Elliott and J. Williamson. Washington, DC: Institute for International Economics.

The literature on what determines reserve currency status is fairly well established. As summarized in Jeffrey Frankel (2012), three points are important: The first is the fundamental determinants, in particular the size of the country or region. The second is how open and developed a country's financial markets are. The third factor is the confidence in the value of the currency.

These three factors correspond to the three functions framework. A large economy has the advantage of transaction network externality, so that the currency can play the role of a unit of account or a medium of exchange. An open and developed financial market will meet the demand of financial liquidity, and confidence in the currency value provides the expectation of safety and a stable yield, both of which will contribute to a currency as a function for store of value.

Although these three factors sound reasonable, they could be challenged. Regarding the first factor, economic size, in itself, does not necessarily make sense from the global value chain view. China is the world's factory, and also the world's assembly line, which is in a low value-added position in the global value chain. Processing trade accounted for 36 percent of China's foreign trade in 2014. For example, China's exports of iPhones to the United States earned billions of surpluses in US dollars. In relatively crude value-added terms, however, China adds only a small share, say 3.95 percent, of domestic value added

to the iPhone, corresponding to the value of the assembly work (Organisation for Economic Co-operation and Development-World Trade Organization 2012). In this case, due to the low value-added position in the global value chain, processing enterprises will be forced to make the trade settlement in the currency that favours the foreign counterparty. On the contrary, if a processing trade such as the iPhone is settled in RMB, then the majority of the iPhone's added value will be exposed to the exchange rate risk. Therefore, considering the feature of processing trade and its share in China's foreign trade, the expectation of the RMB's potential as an invoicing currency should be brought down. It is not as optimistic as China's economic size shows. In addition, more factors will be presented to explain the inconsistencies between China's economic size and its position in the global production network. Therefore, the data on China's economic size probably overestimates the RMB's potential for trade settlement.

For the second factor, an open and developed financial market results from a well-behaved free market and an effective institution. For the third factor, a currency gains confidence in the global market in the short and middle term through a stable exchange rate and a relatively low inflation rate, which is supported by prudent monetary policies operated by an independent central bank. But from the long-term view, the Balassa-Samuelson effect³ will dominate the exchange rate and lead the anticipation.

Assessment Based on Transaction Network and Specialization Network

The Young theorem (Young 1928) states that not only is the level of division of labour dependent on the extent of the market, but also the extent of the market is determined by the level of division of labour, so that they are two like sides of the same coin. Yang Xiaokai (1990) further demonstrates the point by means of inframarginal analysis.⁴ From a view beyond the domestic market, the expansion of the extent of the market from a domestic to an international market originates at the level of the domestic division of labour. At the same time, the development of the domestic division of labour is driven by a larger domestic market extent and a higher efficiency of the domestic transaction network (Yang 1999).

³ Countries with high productivity growth also experience high wage growth, which leads to higher real exchange rates. The effect was proposed by economists Bela Balassa (1964) and Paul Samuelson (1964).

⁴ Inframarginal economics is applying inframarginal analysis to studies of network effects of division of labour and various economic problems associated with different features of the network pattern of division of labour. Inframarginal economics make it possible to make the network of division of labour endogenous. See Yang (1991).

Cohen (1998) defines a money's authoritative domain, which combines the influence of state-imposed territoriality (visible hand) with that of market-generated transactional networks (invisible hand). On the one hand, the government imposes influences through money issuance and monopoly of currency management. On the other hand, there is an invisible (market) hand, which plays a role through the transaction network. Generally, the visible hand of the government is effective within political jurisdictions, while the invisible hand of the market plays a more important role in currency deterritorialization.

As a result, behind an international currency there is a mutual promotion between the efficiency of the transaction network and the degree of specialization. The mutual promotion makes an economy more important in the global value chain and keeps economic growth stable. The internationalization of an economy's currency is just the expansion of its specialization network (Xu and Li 2008).

International trade captures the features of a cross-border transaction network and a specialization network. Studying the fundamentals in international trade is critical for assessing a currency's internationalization.

A historical account of the yen's internationalization is insightful. In the 1980s and 1990s, discussions focused mainly on financial market liberalization. Japanese Prime Minister Ryutaro Hashimoto announced plans in November 1996 to accelerate and broaden financial reforms by creating "free, fair, and global" markets (Osaki 2005). He called these reforms the "Japanese big bang," based on their similarity to Britain's 1986 big bang. Japan's big bang encompassed all the financial sectors. But the yen's internationalization did not behave well because of Japan's big bang. For example, as an index of the yen's internationalization, in 1995 before the big bang, the yen occupied seven percent of the currency compositions of official foreign exchange reserves, while after the big bang it declined to three percent within 10 years (IMF 2009). With a liberalized financial market, the studies of yen's internationalization focus more on trade sector. In 2007, the former adviser of Japan's prime minister, Takatoshi Ito, investigated the international trade settlement of Japanese multinational enterprises (Ito et al. 2011). The traditional assessment method, based on the real economy, is at the forefront of the yen's internationalization.

This chapter first provided an overview of the existing literature and illustrated a framework to make an assessment. In the second part, China's international trade will be analyzed, in particular structural information reflecting China's position in the global transaction network and specialization network. The third part will focus on the pricing

power of China's export enterprises, and then assess the potential of the RMB as an invoicing currency in the export settlement. The final section will make concluding remarks and provide some policy advice.

The Structure of China's International Trade

The most prominent features of China's foreign trade structure are huge volumes and a large trade surplus. There are also four other characteristics that cannot be overlooked: foreign-owned enterprise, which contributed 46 percent for both exports and imports in 2014 (these data have fluctuated around 50 percent in the last decade); processing trade, which accounts for 36 percent of total imports and exports; primary commodities, which accounted for 33 percent of total imports in 2014, although most of the primary commodities prices declined at the same time; and China still relies heavily on the demand from EU countries, and the United States, which account for 35 percent of China's total export⁵.

Some of the six features mentioned above are favourable conditions for RMB internationalization, while others are restraining factors.

First, with a total trade volume of nearly US\$3 trillion, China has, since 2010, become the largest exporter and second-largest importer, second only to the United States⁶. This is obviously a beneficial factor driving the RMB to become an international currency.

On the other hand, the trade surplus recorded US\$182 billion in 2010 and US\$383 billion in 2014, respectively⁷. There are no indications that the huge surplus in foreign trade will fade away. As a result, it will be difficult for China to export RMB through the trade account, which is necessary for an international currency to make provisions for its liquidity in the offshore market.

So far, the proportion of RMB settlement for imports is much higher than for exports. This enables a net outflow of RMB through the trade account. However, Chinese importers do not benefit from the RMB settlement in such a model, unless they can make arbitrages between onshore and offshore markets profitable. Of course, the arbitrage works well through a long-term expectation of RMB appreciation. Nevertheless, it can clearly be seen that exporting RMB liquidity through arbitrages is unsustainable in the long run.

⁵ Source for these percentages in the paragraph: *National Bureau of Statistics of China, 2015*.

⁶ Source: IMF, International Finance Statistics (CD), 2015.

⁷ Source: IMF, International Finance Statistics (CD), 2015.

Yin Jianfeng (2011) describes two models from the history of currency internationalization. One is “trade settlement plus offshore market” and the other is “capital account plus multinational enterprises.” The latter is more sustainable from a long-term perspective, while the former is more fragile, or even dangerous, as seen with the Japanese yen during the 1980s and 1990s. As discussed above, RMB internationalization has, thus far, developed typically in the model of trade settlement plus offshore market. The huge trade surplus acts as a constraint on RMB internationalization.

As mentioned above, foreign-owned enterprises accounted for about half of China's foreign trade for decades. In the global production network, the business decisions of foreign enterprises are generally made by parent companies. Therefore, the subsidiary corporations in China are not fully independent. For Chinese companies, RMB settlement is favourable in order to eliminate the exchange rate risks. But for the subsidiaries of the multinational enterprises in China, RMB settlement is not necessarily helpful. For a foreign-owned enterprise based in China, the balance sheet of its parent company is denominated in yen, euro or US dollars, thus, RMB settlement is not necessarily attractive for it. Therefore, it is always difficult for foreign companies in China to accept the RMB settlement. Of course, when RMB appreciation is predictable, foreign enterprises will be interested in RMB settlement. However, it should be noted that their interests exist only under the conditions of RMB appreciation expectation. Therefore, the sustainability of the speculative RMB settlements is doubtful.

Processing trade accounted for 36 percent of China's foreign trade in 2014. Processing trade includes mainly two types of trade: processing with imported materials, and process materials supplied by clients. As an example of the latter case, Chinese company A imports accessories from Japanese company B, which cost A ¥9,500. Company A assembles the accessories and then exports them back to B, receiving ¥10,500 in return. In this case, the total trade volume is ¥20,000. But in order to save the costs for remittances, B just pays the difference of ¥1,000 to A. It means that even if all the cross-border transactions, ¥1,000, are settled in RMB, it accounted for only five percent of the total trade volume.

For the case of processing with imported materials, enterprise A will import from foreign company C and then export to another foreign company, D. But Chinese processing trade companies are in a low value-added position in the global value chain. As in the case of iPhones mentioned above, due to the low value-added position in the global value chain, processing enterprises are always forced to choose the settlement currency in favour of the

foreign counterparty. Considering the share of processing trade in China's foreign trade, the expectation of the RMB's potential as an invoicing currency should be brought down.

Furthermore, the proportion of primary commodities is rather high in China's imports — 33 percent in 2014, despite the fact that their prices declined. This means two things: First, the RMB will be excluded in import settlement to the extent that primary commodities are always denominated and settled in US dollars. Second, for some Chinese exporters, imports are the main cost. But at least a substantial part of the import cost, such as the primary commodities, are denominated and settled in US dollars. Under the condition, if the exports are settled in RMB, the Chinese exporters will face greater exchange rate risk or higher risk management costs. The above two aspects restrict the use of RMB in cross-border settlement. Since Japan has also been quite dependent on resource imports, the Japanese yen's internationalization has been restrained for the same reason (Ito et al. 2011).

Finally, China still relies heavily on the demand from developed economies, and even more so in recent years. In 1997, nearly 60 percent of China's exports were to Asian economies, while in 2014, it declined to 51 percent. In the same year, 35 percent of China's exports were to Europe and North America, and in 2014 it increased to 40 percent. In international trade between a developed and a developing economy, the currency of the developed economy is usually selected as the invoicing currency (Grassman 1973). Therefore, the potential of RMB internationalization will be restricted with such trade directions.

It is worth noting that even the yen failed to play a leading role in Japanese exports within Asia. In this area, most Japanese exports are denominated and settled not in yen, but in US dollars. Ito et al.'s (2011) investigation revealed that subsidiaries of Japanese multinational enterprises in other Asia economies, say Malaysia, process intermediate goods that are imported from Japan, and then export the final product to the United States. In this case, Japan, Malaysia and the United States constitute a triangular trade. Because commodities are ultimately exported to the US market, the proportion of dollar-denominated trade still remains high.

The proportion of internal trade within Asia appears to be high, but a substantial ratio is intermediate trade. Asia remains highly reliant on the final demand from European and American markets. A report by the Asian Development Bank (2008) pointed out that in terms of traditional trade data, the Asian economies export 51.8 percent inside the area, and

48.2 percent outside the area. However, if the intermediate goods are excluded, the trade of final products shows a different outcome. The above two ratios would be revised to 32.5 percent and 67.5 percent, respectively.

Chinese companies have invested more in emerging and developing economies in recent years. Correspondingly, the international trade grew rapidly between China and these economies. Before the rising overseas investments, China exported directly to developed economies such as the United States. It could be expected that China will export more via a third country to the United States. However, such changes will not fundamentally change the pattern of the global production network. Continuing in this path, the yuan will encounter the same problem as the yen experienced with the triangular trade.

As mentioned above, the huge trade volume has a positive effect on RMB internationalization, but China's large trade surplus and high reliance on the final demand from European and American markets has restricted the optional path of RMB internationalization. In addition, foreign-owned enterprises occupied 46 percent in China's foreign trade in 2014, foreign trade enterprises overall lack pricing power, processing trades accounted for 36 percent of the foreign trade in 2014, as well as high dependence on imported primary commodities⁸. All these factors will restrain the long-term potential of RMB internationalization.

Finally, all the negative factors are closely related to the enterprises' international competitiveness. From the point of view of the micro economy, invoicing currency in international trade is definitely selected by the multinational enterprises that enjoy global market power. All major international currencies are supported by a large number of multinational companies that are highly competitive. In contrast, most Chinese multinational enterprises listed in the Fortune 500 rely heavily on the domestic monopolistic advantages and protection policies. Such enterprises could hardly be expected to be competitive in the global market. From this perspective, the potential for RMB internationalization is rather limited and there is a long way to go.

⁸ Source: The Census and Economic Information Center (CEIC), China's economic data base, 2015. <http://www.ceicdata.com>

Table 2: The Impacts from Trade Structure to the Potential of RMB Settlement

| China's trade structure | Impact on RMB trade settlement |
|--|---------------------------------------|
| Huge trade volume | Positive |
| Large surplus, dependence on the developed markets | Path constraint |
| Foreign-owned enterprises (46%) | Negative |
| Processing trade (36%) | |
| Reliance on imported bulk commodities (33%) | |

An Assessment of Pricing Power of Chinese Enterprises

When bargaining in the international market, a company's pricing power is a critical factor, and which currency is selected to be dominant and the invoicing currency, is inevitably included in the international trade contract. Generally speaking, enterprises always prefer to select domestic currency for settlement, so as to reduce exchange costs and avoid exchange rate risks. Therefore, the selection of invoicing currency is ultimately a pricing power competition between both sides of the deal. The final decision certainly can be favoured by stronger pricing ability, while the counterparty with weaker pricing power will bear more costs or exchange rate risk.

If a company has no pricing power or weak power, it could hardly have a voice in selecting the invoicing currency in the international bargaining. In cases where domestic companies lack pricing power, the use of domestic currency as invoicing currency is confined to the following two conditions: First, foreign enterprises demand changes for the contracts, such as changing the price, in order to shift the cost of exchange rate risk hedging. Second, with the expectation of RMB appreciation, foreign exporters to China will probably prefer to accept the RMB as invoicing currency. But the condition is unfavourable for domestic importers. Eichengreen (2011) also points out that if the public believes the yuan will continuously appreciate, then only the agents who receive payments in RMB have the motivation to participate in RMB internationalization. In this case, the settlement will inevitably be imbalanced. Moreover, this type of imbalance is based on the expectation of RMB appreciation.

In accordance with the lower value-added position in the global production network, Chinese enterprises have a relatively weak pricing power in international trade. In 2008, the People's Bank of China (PBoC) carried out an investigation that involved the largest 18

provinces in terms of international trade volume. It showed that among 1121 foreign trade enterprises, 10 percent have no pricing power at all, 47.4 percent of them have weak pricing power, while only 42.6 percent of the total are endowed with strong pricing power (Xu 2010). Even for those with strong power, a considerable number of them are foreign-owned enterprises. As mentioned earlier, the foreign-owned enterprises could not be the micro foundation for RMB internationalization.

In a general model, Engle (2006) shows that firms would set prices in their own currencies, i.e., producer currency priced if the prices would exhibit high exchange rate pass-through (ERPT),⁹ while they would choose to set prices in the destination market currencies, i.e., local currency priced, if the prices exhibit low ERPT. Based on Engle (2006), Li Cui, Chang Shu and Jian Chang (2009) draw the conclusion that if a producer has sufficient market power, it can decide to have its exports invoiced in its own currency and keep its profit margin unchanged, which is the case of zero price-to-market (PTM),¹⁰ but full ERPT to export prices in the buyer's currency. While the theoretical analysis is constructed considering the individual exporters, it can also be expected that a similar result exists at an aggregate level. That is to say, the higher ERPT to the destination markets, the more the exporters' currency would be used as the invoicing and settlement currency.

As Cui, Shu and Chang (2009) have shown, even considering Chinese enterprises' weak pricing power, the potential of RMB settlement in China's export will increase to 20–30 percent if the RMB is fully convertible. It would be inferior to the yen's past performance, which was about 40 percent. But considering China's foreign trade volumes, it would still be high.

However, the processing trade occupies a big ratio in China's foreign trade, and it is processing trade that destroys the theoretical link between pricing power and the ERPT effect.

Mordechai Kreinin (2004) considered the global production networks and pointed out that production sharing changes the role of pass-through, to the extent that a country's exports enter into its imports and its imports become part of its exports.

⁹ ERPT is a measure of how responsive international prices are to changes in the exchange rate. When ERPT is higher, the producer will transfer more exchange rate changes to the prices in destination market. When it is lower, the producer will absorb more exchange rate changes and transfer fewer changes to the prices in destination market.

¹⁰ When the exchange rate changes, some exporters will stabilize foreign currency prices in destination market in order to maintain their market share. This is a behaviour called price-to-market (PTM). A zero PTM behaviour shows that there is no ERPT effect, while a one PTM behaviour shows a complete ERPT effect.

For example, suppose that the appreciation of the RMB is passed through completely in the import channel. It will result in a decrease in the RMB price of component imports into China. And suppose it is, in turn, fully passed through to the RMB price of the assembled vehicle. Therefore, the dollar price will rise only to the extent that the vehicle contains China's value added. That is, the ERPT effect on exports denominated in one currency is offset by the exchange rate effect on the import expressed in the other currency.

The real world is more complicated. Production sharing is popular in East Asia. Korea, Japan, China and the ASEAN countries are heavily involved in the production network, in which China mainly plays a role as an international assembly line. For example, Japan exports intermediate goods to China, then China assembles the components and finally exports the finished goods to the United States. At the same time, the RMB is supposed to peg against the dollar, and the yen is relatively flexible.

Suppose yen appreciation is fully passed through to the RMB's price of component imports into China. Then the RMB cost for Japanese vehicle companies in China will increase accordingly. However, owing to their market power, Japanese vehicle enterprises have a strong pricing power in global market. Yen appreciation will be finally passed through to dollar price in the US market. At the same time, the RMB is still pegged to dollar.

In the case above, it appears that companies in China enjoy an extremely high pass-through effect. They could raise the dollar price for exports even as the RMB exchange rate stays constant. But this kind of high pass-through effect will not necessarily result in RMB settlements for two reasons. First, the export companies in China are Japanese multinational enterprises, not Chinese. Second, to avoid the exchange rate risk, the Japanese companies will prefer to settle the international trade with yen or dollars, but not RMB. The yen is the home currency — it is consistent with the asset, which is either denominated in yen in the Tokyo stock market or in dollars in the New York stock market.

Thus, it can be seen that Japanese companies could export to the United States via China's assembly line. This type of three-country model results in two characteristics in China's exports. First, 38 percent of China's total exports, a much higher level than general cases, are indirectly contributed by foreign companies, such as Korean and Japanese companies. Secondly, 46 percent of China's total exports are classified as section 16 and 17

of the Harmonized Commodity Description and Coding System.¹¹ Generally, these two sections are capital- and technical-intensive industries, and the exporters in the sections have a relatively strong pricing power. But in the case of China, these two sections are typically in the processing trade section in exports (Chen, Li and Lu, 2007; Yang, 2012), which means they will not be favourable to sustainable development for RMB trade settlement, although such kinds of exports appear to enjoy pricing power.

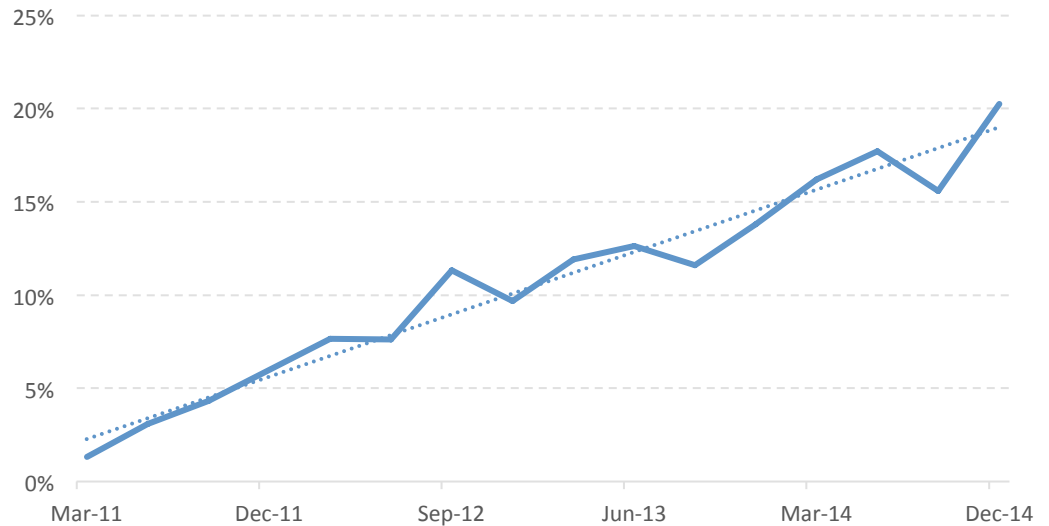
Cui, Shu and Chang (2009) studied the pass-through effect of China's exports without considering the global production network and processing trade, hence they overestimate the potential of the RMB as an invoicing currency in cross-border trade, and consequently overestimate the potential of RMB internationalization.

Since processing trade accounted for 38 percent of exports, the estimation of Cui, Shu and Chang (2009) could be applied to only 62 percent of export settlements in 2014. Cui, Shu and Chang (2009) concluded that the potential of RMB settled in exports was 20–30 percent according to the panel regression on the price-to-market (PTM) coefficients.¹² As explained above, we know that processing export trade, which accounted for 38 percent of the total, could hardly make the RMB an invoicing currency; the conclusion of Cui, Shu and Chang (2009) about the proportion 20–30 percent should be converted to 12.4–18.6 percent.

¹¹ The Harmonized Commodity Description and Coding System, generally referred to as "Harmonized System" or simply "HS," is a multi-purpose international product nomenclature developed by the World Customs Organization. It comprises about 5,000 commodity groups, each identified by a six-digit code, arranged in a legal and logical structure, and is supported by well-defined rules to achieve uniform classification. Section 16 — Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles. Section 17 — Vehicles, aircraft, vessels and associated transport equipment.

¹² When the exchange rate changes, some exporters will stabilize foreign currency prices in the destination market in order to maintain their market share. This is a behaviour called PTM. A zero PTM behaviour shows that there is no ERPT effect, while a one PTM behaviour shows a completely ERPT effect.

Figure 1: The Proportion of RMB Settlement in Cross-border Trade



Data source: PBoC, CEIC data (www.ceicdata.com/en/countries/china).

As shown in Figure 1, the share of RMB as a denominating currency in exports reached 20.3 percent by December 2014. Meanwhile, the potential ratio estimated by the authors ranges from 12.4 to 18.6 percent, which appears to tell us that the share of RMB as an invoicing currency exceeded the upper limit of the potential level in 2014.

But what should be underlined is the difference between the two currency functions: the RMB as a denominating currency and an invoicing currency. The PTM coefficient drawing from the regression analysis of Cui, Shu and Chang (2009) captures the pricing power of China's exports. A company with strong pricing power would like the deal to be denominated in domestic currency so as to avoid the exchange rate risk. At the same time, if a deal is only settled in RMB, but denominated in US dollars, it would be meaningless for China's exporter to reduce the exchange rate risk. As a result, the function of the RMB as a denominating currency is more important to China's exporters than the RMB as an invoicing currency. Furthermore, the links among pricing power, the PTM coefficient and the possibility of the RMB as a denominating currency have been discussed. Unfortunately, data about the RMB playing the role of denominating currency is not available. The data on RMB settlement must be used as a substitution.

However, due to their difference, the RMB settlement could be misleading for understanding the RMB's position as a denominating currency. As a matter of fact, compared with the role of an invoicing currency, the RMB has fallen behind in its role as a

denominating currency to some extent. In some trade settlements, the RMB is the invoicing currency while it is still dominated in US dollars in contracts. According to the PBoC's data in 2012 and 2013, the RMB was the denominating currency for 50 percent of RMB trade settlements (Li 2013). If the ratio of 50 percent is kept the same in 2014, the share of RMB settlement in export should be cut by 50 percent. According to the estimation, the share of RMB as denominating currency occupied 10.15 percent of the total export. It means 10.15 percent of China's export was both settled and denominated by RMB. However, there is also another 10.15 percent of the export, which was just settled but not denominated by RMB.

It is clear that there is more potential to explore the RMB's role as a denominating currency. The estimation taking into account processing trade shows the potential level is 12.4 percent to 18.6 percent, while the ratio in 2014 just recorded 10.15 percent. However, there is another 10.15 percent RMB settlement in the total trade, which is settled in RMB but not denominated by RMB. For the second 10.15 percent RMB settlement, it is not supported by exporters' pricing power. On the contrary, it could be a settlement arbitrage or carry trade, which takes advantage of the RMB exchange rate difference and the interest rate gap between onshore and offshore market. As a result, for the achievement of RMB settlement in export, the sustainability of the second 10.15 percent RMB settlement is questionable.

Concluding Remarks

There has been both big progress and deep skepticism in RMB internationalization. In order to understand the RMB's prospects, we try to assess the potential of RMB settlement based on the transaction network and specialization network. As mentioned in the first part of this chapter, an international currency results from a virtuous circle between the efficiency of the transaction network and the degree of specialization.¹³

Because international trade captures the features of a cross-border transaction network and specialization network, the fundamentals of China's performance in international trade are studied to assess the potential of RMB internationalization.

The result is complicated by both positive and negative factors. The huge volume of

¹³ See section "Assessment Based on Transaction Network and Specialization Network."

trade is positive through the network effect for RMB internationalization, but the large trade surplus and high reliance on the final demand from developed markets had restricting effects. Foreign-owned enterprises occupied 46 percent in China's foreign trade in 2014, and processing trades accounted for 36 percent of the foreign trade in 2014. As well, there is a high dependence on imported primary commodities. All these factors will restrain the long-term potential of RMB internationalization.

All the negative factors are all closely related to the enterprises' international competitiveness. In the third part of this chapter, the links among pricing power, PTM coefficient and the possibility of RMB as a denominating currency were discussed. It was estimated that the potential share for RMB as a denominating currency in exports ranges from 12.4 percent to 18.6 percent. But the real performance of RMB had reached 20.3 percent by December 2014. Then the difference was explained based on the different meaning between denominating currency and invoicing currency. Finally, it was pointed out that in 2014, half of the achievement of RMB settlement in export was not supported by the exporters' pricing power, and the sustainability of the half is questionable. The half of the achievement of RMB settlement in export was fundamentally supported by the exporter's pricing power, which we can regard as a solid part of RMB settlement progress. At the same time, the other half was mainly driven by carry trade and arbitrage between on shore and off shore RMB market, which we can regard as a fragile part of RMB settlement. There is further space for the solid part to expand; at the same time, the fragile part could be at least partly collapsed with the conditions changing in the global market. The evolution of the RMB's position as an international currency depends on the tradeoff between the above two.

So far, the pricing power of Chinese companies is rather weak, and the international trade structure has posed barriers to RMB cross-border settlement in many areas. Nevertheless, the profit-driven companies, with increasing competitiveness in the international market, can serve as a supportive micro-foundation for RMB internationalization. Based on the current conditions, two major policies could be adopted from the national level to promote the RMB function as the unit of account (denominating currency) and invoicing currency (settlement currency) in the cross-border trade.

First, the RMB's role in cross-border trade settlement should be promoted from the government level. Specifically, RMB internationalization should be promoted through the international economic assistance and loans; trading platforms of primary commodity

futures should be set up in Shanghai, so as to leverage China's position as a major buyer in the international market and raise the international influence of the RMB pricing futures. In this way, it might be possible to turn negative factors, such as China's heavy dependence on primary commodities, into positive ones. The possibilities of using bilateral domestic currencies in the primary commodities trade with other resources exporting countries should be explored.

Second, other structural reforms could be adopted at the national level to improve the potential for RMB internationalization: to reduce the policy distortion, improve domestic market competition conditions, and foster the competitiveness of Chinese companies to become competitive multinational companies in international market; to improve China's trade structure, reduce dependence on processing trade and promote trade structure upgrading; to develop new energy and new technology to reduce the dependence on importing primary products; and to promote productive services and improve companies' capability of autonomous innovation.

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