

Internationalization of the Korean Won in the Light of RMB Internationalization

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I. Introduction

China has been the second-largest economy by nominal GDP since 2010 and is expected to overtake the United States to become the world's largest economy in the next decade. While China has emerged as a global superpower and rapidly increased its influence on the world economy, its financial market still remains underdeveloped and its currency, the renminbi (RMB), plays a limited role in the existing financial system.

China is making more of an effort to promote RMB internationalization in order to reduce its reliance on the current global financial system. The RMB's internationalization will be a game changer due to its global power. Even if it is difficult to tell when, there will be a power transition in the global financial system in the future. In the gradual evolution of RMB internationalization, the Korean won is likely to synchronize with the Chinese yuan due to economic and geographic proximity.

It is now time to reconsider the internationalization of the Korean won (KRW). Despite the fact that Korea is classified as an advanced economy, its financial market is not entirely liberalized and the Korean won is not fully internationalized. The costs of pursuing KRW internationalization are thought to outweigh the advantages involved, given Korea's trauma from the Asian financial crisis in 1997 and the global financial crisis in 2008. Korea's economic fundamentals, on the other hand, are robust enough to allow its financial market to open up more. Korea is ready to face the future.

The global financial market environment, which promotes RMB internationalization, is likewise favorable to KRW internationalization. China and Korea can strengthen their financial and economic cooperation to push forward the process of RMB and KRW internationalization. However, the timing would be another matter. If

KRW internationalization is postponed and the RMB becomes the dominant currency in the region, the benefits of KRW internationalization will be reduced. In this context, it is important to reconsider the long-term strategy for KRW internationalization.

The structure of this Brief is as follows. The process of the RMB's internationalization and its prospects for the future are presented in the next section. In section 3, the direct KRW-RMB exchange market in Shanghai and Seoul is discussed, together with the current state of exchange market cooperation between China and Korea. Section 4 analyzes the determinants of RMB synchronization. The impact of RMB internationalization on KRW internationalization is examined in section 5, and the last section concludes.

II. RMB Internationalization

Efforts to internationalize the RMB only began in the mid-2000s, but have already had remarkable achievements. China has come a long way in increasing the international role of the RMB: the RMB is a part of the IMF's SDR basket and is an important currency in international payment and investment. However, it is still far from becoming a leading international currency, both in terms of its share of international financial activities and the number of functions it plays in the international financial market. China's process of RMB internationalization may be divided into several stages: phase 1 (2004-2008) preparatory steps, phase 2 (2009-2015) policy-driven and payment

function, phase 3 (2015-2016) setback, phase 4 (2017-2020) two-way opening of the financial markets, and phase 5 (2021-) restarting of RMB internationalization.

At the initial stage of RMB internationalization, the RMB was mainly used for international trade settlement between China and neighboring countries. During this period, the RMB continued to appreciate on the whole. Between 2009 and 2015, the RMB appreciated by nearly 40%. After China joined the WTO in 2001, it quickly became the world's largest international trading country, promoting the international use of RMB to exceed 10 trillion yuan in 2015, from only a few billion yuan in 2009. With this process, the international use of RMB continues to advance.

However, after 2016, the RMB internationalization process slowed down. First, the ratio of China's foreign trade surplus to GDP has dropped from more than 10% in the early stage to less than 2%. Second, after the "August 11" exchange rate reform in 2015, the RMB had apparent depreciation pressure. Devaluation pressure was very prominent in 2016. Nevertheless, in terms of business innovation and development and the acceptance of RMB by the international community, the internationalization of RMB was still moving forward during this period. Around 2016, with the RMB's entry into the SDR, the People's Bank of China and the State Administration of Foreign Exchange issued a series of measures to open the domestic financial market.

In recent years, the logic of RMB internationalization has changed. The motivation of overseas market players to accept, use, invest and hold RMB has undergone profound changes from an early trade settlement tool to the need for investment preference. The RMB internationalization is, fundamentally, a market-driven process. To make RMB an international reserve currency, China should continue to open the financial market and allow qualified foreign investors to buy, hold and invest in RMB assets. At the same time, to enable the foreign market entities to manage the liquidity and exchange rate risk of RMB assets, China must build a unified, open, competitive, and orderly multi-level foreign exchange market.

The RMB will eventually evolve from an international settlement currency to an international foreign exchange trading currency. Under the background of building a new development pattern of "dual circulation," RMB internationalization is facing new opportunities. In the next stage, the Chinese authorities will further improve the policy support system and infrastructure arrangements for the cross-border use of RMB, promote the two-way opening of financial markets, develop the offshore RMB market, and create a more convenient environment for market players to use RMB. RMB internationalization will steadily progress with the orientation on market force and serving the real economy.

III. Direct KRW-RMB Exchange Market in Seoul and Shanghai

The Korea-China summit's agreement on a direct KRW-RMB exchange market reached on July 3, 2014, marked the beginning of direct exchanges between the Korean won and the Chinese yuan (KRW-RMB) in Seoul.¹ Double trading procedures were used to buy and sell RMB with KRW prior to the establishment of the direct KRW-RMB exchange market. One of the transactions involved a KRW-USD exchange on a domestic interbank market, and the other involved a USD-RMB exchange on an offshore interbank market, mainly in Hong Kong. But since the market for direct KRW-RMB exchange was established, it became feasible to carry out direct KRW-RMB transactions, which reduces transaction time and costs (Figure 1).

This provides several benefits for both China and Korea. First, it supports China in advancing the RMB internationalization, which started in 2003 with the establishment of direct exchange markets in Hong Kong and Taiwan. Through the diversification of corporate settlement currency, the direct KRW-RMB exchange market can create new opportunities for the financial industry and lower transaction costs. Moreover, it could potentially improve financial market stability in both countries, which can be vulnerable depending on global

¹ Government press release (October 31, 2014) "RMB trading revitalization plan to become an RMB financial center,"

<https://www.korea.kr/news/pressRelease-View.do?newsId=156015912>

financial market conditions.

However, both in South Korea and China, the settlement volume of the direct KRW-RMB exchange markets remains modest. The daily trading volume of KRW-RMB in Korea surged significantly from \$160 million in 2014 to \$2.47 billion in 2015 but has remained at \$2 billion ever since. The direct KRW-RMB exchange market is much limited. After reaching a height of 6.165 billion RMB in July 2017, the volume was reduced to 424 million yuan in May 2021 as a result of deteriorating relations between South Korea and China due to the deployment of THAAD in South Korea.

One reason for the poor trading performance of the direct KRW-RMB exchange market is that the market makers conventionally use existing Hong Kong RMB settlement accounts rather than transfer to the direct exchange market. The Hong Kong direct exchange market was one of the first RMB direct trading markets, and the Bank of China in Hong Kong has served as the primary RMB settlement bank for Korean banks since the 1990s. In addition, there is little profit in transferring settlement accounts from Hong Kong to Seoul because of the small size of settlements conducted in RMB. As of the fourth quarter of 2020, 31.8 billion dollars in exports and 27.4 billion dollars in imports, or more than 80% of the total volume of payments, were made in US dollars, which remains the most commonly used currency for Korean trade transactions with China. On the other hand, only 7% of the total payme-

nt volume was made in RMB, totaling 2.8 billion dollars for exports and 1.9 billion dollars for imports. Thus, the Korean banks have no incentive to move accounts from Hong Kong to Seoul, even if the cost of direct RMB trading is cheaper in Seoul.

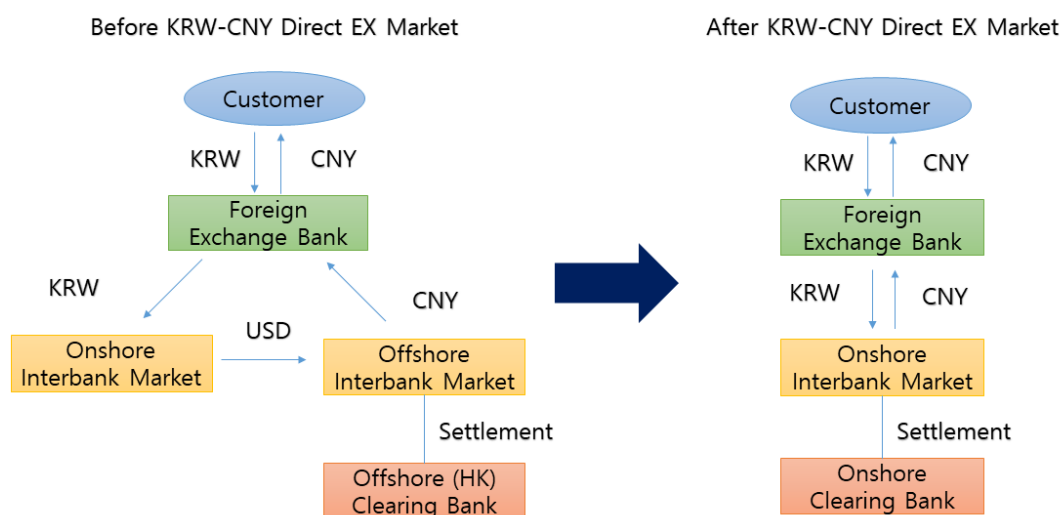
The other reason for the low utilization of the direct exchange market is the lower level of capital transactions with RMB. Bonds denominated in local currency – for instance, the so-called "kimchi bonds," "panda bonds," and "dim sum bonds" – were initially expected to invigorate the direct KRW-RMB exchange market. However, most of these bonds are financed via interbank SWAP rather than the direct market.

There is still a huge opportunity to take advantage of the direct KRW-RMB exchange market as companies continue to increase RMB settlements in import and export transactions and investors increase their investment in the Chinese bond market. China is the largest trading partner of Korea, and market demand for RMB continues to grow for Korean companies. Though the volume of RMB settlement is less than 10%, the share of RMB settlement among the total settlement size has been continuously increasing over the past two years. Also, there is potential for capital transactions for RMB bond markets. Recently, China has pushed forward to opening the financial market. The Chinese Foreign Exchange Administration canceled the limit of the RMB Qualified Foreign Institutional Inve-

stor (RQFII) scheme,² which expands the investment channels of foreign institutional investors

to mainland China capital markets by using offshore RMB.

Figure 1. KRW-RMB Trading Mechanism



IV. Analysis of Factors Determining the Synchronization of RMB and Korean Won

Recent research has highlighted the renminbi's growing importance as an international currency (Tovar and Nor 2018, Rogoff 2021). Given China's large proportion of global trade, the use of the renminbi will continue to grow, and China has made significant progress to encourage RMB internationalization, even if it requires considerable progress and time to reform domestic financial markets and institutions before removing the residual restrictions on capital account that limit the international use of the RMB (Wang 2017). The key evidence for RMB internationalization is the rising co-movements between RMB and

other emerging economy currencies.

In this section we dig deeper into the question of what drives those currency co-movements with the RMB. We find that not only trade and financial linkages, but also institutional efforts of Chinese authorities explain variations in the RMB co-movements. The importance of institutional efforts has been newly investigated in this Brief. For example, the People's Bank of China (PBOC) has made various institutional efforts to internationalize the RMB, such as signing bilateral currency swap agreements between PBOC and its partner central banks, authorizing RMB clearing banks, and launching direct trade systems between China and its partner countries.

² A system that allows foreign investors to invest in offshore

RMB in the mainland capital market within the amount allocated to financial institutions by the Chinese government.

1. Currency Co-movements with RMB and Factor Determinants on the RMB Weights

Since the operation of a formal or informal currency basket is unobservable, the currency weights can be inferred from the estimation models. We use the two-stage method of Kawai and Pontines (2016) in estimating the bilateral co-movement between the renminbi and other currencies. In the first stage, we discard the dependent component of the RMB from the influence of major currencies, including the US dollar, considering the following auxiliary regression as follows:

$$\begin{aligned} \Delta \log \left(\frac{RMB}{NZD} \right) = & \varphi_0 + \varphi_1 \Delta \log \left(\frac{USD}{NZD} \right) + \varphi_2 \Delta \log \left(\frac{EURO}{NZD} \right) \\ & + \varphi_3 \Delta \log \left(\frac{JPY}{NZD} \right) + \varphi_4 \Delta \log \left(\frac{GBP}{NZD} \right) \\ & + \omega \end{aligned}$$

where the exchange rates of currencies are denominated against the New Zealand dollar. The residual ω is interpreted as the RMB movements after controlling the major international currencies in China's currency basket. In the second stage, the influences of the major international currencies and the RMB are estimated from the estimated residual $\hat{\omega}$ as follows:

$$\begin{aligned} \Delta \log \left(\frac{x}{NZD} \right) = & \gamma_0 + \gamma_1 \Delta \log \left(\frac{USD}{NZD} \right) + \gamma_2 \Delta \log \left(\frac{EUR}{NZD} \right) \\ & + \gamma_3 \Delta \log \left(\frac{JPY}{NZD} \right) + \gamma_4 \Delta \log \left(\frac{GBP}{NZD} \right) \\ & + \gamma_5 \hat{\omega} + v \end{aligned}$$

where γ_5 is the weight of the RMB on currency x . as $\hat{\omega}$ is a proxy variable for the actual RMB movements.

To explain the variation in the RMB weights, we regress the estimated RMB coefficient γ_5 on various China's linkage measures and internal factors that could potentially influence the neighboring countries. We run the following panel regression of the RMB weights on the determinant variables:

$$\gamma_{i,t} = \alpha + \beta Linkage_{i,t} + \theta Policy_{i,t} + \sum_{k=1} d_k Z_{i,t}^k + \mu_{i,t}$$

where $\gamma_{i,t}$ is the RMB weights γ_5 of country i 's currency basket at time t . $Linkage_{i,t}$ is trade linkages measures between China and country i at time t . $Policy_{i,t}$ captures domestic and international policy measures of the Chinese government that can intentionally or unintentionally enhance the RMB internationalization. $Z_{i,t}^k$ is a vector of control variables.

2. Empirical Results

Table 1 reports the effects of trade linkage and Chinese international policies on the RMB synchronization. The trade linkage coefficients in all models are positive and statistically significant, implying that the higher the proportion of trade with China (TRADE), the higher the RMB synchronization. Despite the finding that the coefficient of the bilateral currency swap dummy variable is negative and statistically significant as in column (1), both authorizations of clearing bank and the direct FX market are estimated to be positive and statistically significant (columns (2) and (3)). In other words, clearing bank authorizations and direct FX market authorizations have been implemented based on actual demand as part of

China's RMB internationalization policy. These results can be interpreted as improving synchronization with the RMB through currency transactions.

To address the endogeneity problem, we additionally incorporate the Renminbi Globalisation Index (RGI), which has the capacity to alter both the dependent and explanatory variables. The statistical significance and signs of most variables in columns (1)-(4) do not

change following additional analysis after 2015Q3, which includes the RGI to control for endogeneity in column (5). We tested various internationalization indexes other than RGI, and the logarithm of RMB reserves. They also show comparable results. Aside from authorizations of clearing institutions and direct FX market, accumulating RMB as reserves or internationalization through various policy and market implementations helps boost the RMB synchronization.

Table 1. Panel Regression Results

Models	(1)	(2)	(3)	(4)	(5)
Variables (expected signs)	Swap	Clearing Banks	Direct FX	Swap, Clearing Banks, Direct FX	2016- 2020
<i>TRADE_ict</i> (+)	0.637*** (0.069)	0.511*** (0.083)	0.553*** (0.072)	0.619*** (0.079)	0.379*** (0.126)
<i>SWAP_ict</i> (+)	-0.026** (0.011)			-0.071*** (0.014)	-0.125*** (0.016)
<i>CLEARING_ict</i> (+)		0.055*** (0.019)		0.052*** (0.017)	0.128*** (0.023)
<i>DIRECTEX_ict</i> (+)			0.109*** (0.016)	0.120*** (0.017)	0.136*** (0.025)
<i>RGI_ct</i> (+)					0.153** (0.064)
<i>CRISK_ct</i> (+)	0.200*** (0.065)	0.170** (0.066)	0.178*** (0.058)	0.229*** (0.062)	0.112 (0.076)
<i>REGIME_it</i> (+)	0.042*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.039*** (0.003)	0.039*** (0.004)
<i>BASKET_ct</i> (+)	0.069*** (0.017)	0.048** (0.018)	0.029* (0.015)	0.029* (0.016)	
<i>TRADEOPEN_it</i> (+)	-0.093*** (0.031)	-0.151*** (0.040)	-0.128*** (0.026)	-0.110*** (0.037)	-0.386*** (0.045)
Observations	1,867	1,867	1,867	1,867	578
Adjusted R ²	0.41	0.414	0.444	0.463	0.555
# of countries	31	31	31	31	29

Notes: Driscoll-Kraay standard errors in parenthesis. For better presentation of coefficients, variables with % units have been replaced to ratios and constant is omitted.

V. Effects of RMB Internationalization on Korean Won Internationalization

Does the promotion of RMB internationalization help or impede the internationalization of the Korean won? Both scenarios are plausible, and the answer depends on whether the RMB and Korean won are complementary or substitutes in the foreign exchange market. On the one hand, the internationalization of the Korean won can be hindered if the demand for RMB overtakes that of the Korean won in international transactions. On the other hand, RMB internationalization can encourage the use of local currency transactions with geographic proximity and economic linkage.

This section examines the effects of RMB internationalization on the internationalization of Korean won. We empirically find a robust negative effect. In other words, as the RMB becomes more globally accepted, it can replace the Korean won in international transactions. In order to derive this result, we newly construct the Korean won (KRW) internationalization index using a similar method with the RMB international index that is regularly published. Then, using a structural VAR model, we estimate the effect of RMB internationalization on KRW internationalization.

1. Constructing the Korean Won International Index

Following the method to construct the Renminbi Globalisation Index (RGI)³ developed by Standard Chartered (SC), we use four similar measures for the KRW internationalization index (KII). These four measures are the non-residents' KRW deposits outstanding, the KRW trade settlement, the KRW non-deliverable forward transactions of foreign exchange banks, and the foreign holdings of onshore KRW-denominated assets. Those measures, which include a unit of account, medium of exchange, and store of value, theoretically reflect the function of international currency. However, variables like international bond issuances denominated in KRW and cross-border bank liabilities that represent the volume of financing in KRW are excluded. Arirang bonds are rarely issued, making them challenging to use. Also, we use the KRW non-deliverable forward transactions as a proxy for offshore KRW foreign exchange trading.

Using these variables, we calculate the KII as follows:

$$KII_t = KII_{t-1} \times \left(WD \times \frac{DEPO_t}{DEPO_{t-1}} + WT \times \frac{TRAD_t}{TRAD_{t-1}} + WI \times \frac{INVE_t}{INVE_{t-1}} + WF \times \frac{FXTOT_t}{FXTOT_{t-1}} \right),$$

$$KII_0 = 100$$

The weights of each measure (WD , WT , WI , WF) are inversely proportional to their variance. KII_t is the index level as calculated at time t , with a base of 100 as of December

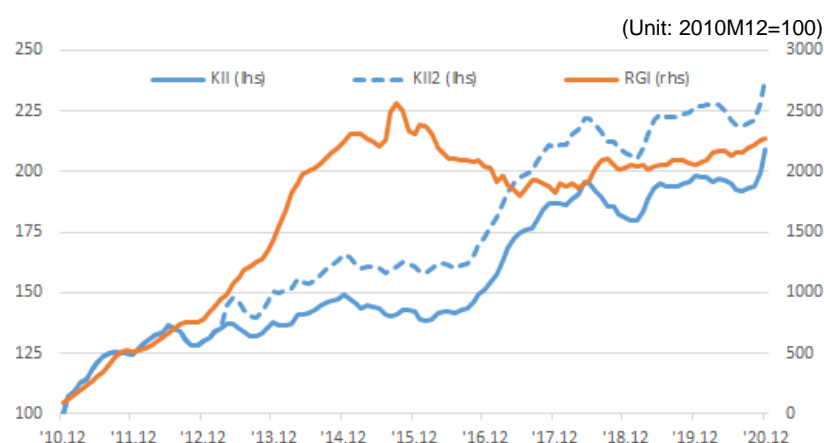
³ RGI is constructed by five measures representing the major areas of offshore RMB activities by corporates: the offshore RMB deposits outstanding, the RMB trade settlement and other RMB international payments, the outstanding issues of

dim sum bonds and offshore RMB-denominated CDs, the offshore RMB (CNH) foreign exchange trading turnover, and the foreign holdings of onshore assets.

2010. The trend in RGI and KII is depicted in Figure 2. The RGI significantly rises between 2010 and 2015. After a pick in 2015, the RGI drops to 1797 in June 2016 due to the RMB depreciation (SC 2016) and the decline in the issuance of dim sum bonds (SC 2017). Re-

cently, the RGI has increased moderately, reflecting a substantial increase in cross-border capital flows (SC 2021). The KII increased at the annual average rate of 5.9% (RGI: 35.5%), showing relatively slow progress of KRW internationalization.

Figure 2. Renminbi Globalization Index and Korean Won Internationalization Index



Note: The KII2 is calculated by using the DTCC data as the fifth component (since 2013).
Source: Standard Chartered Research; Authors' calculation.

2. Empirical Results

To analyze the effects of RMB internationalization on KRW internationalization, we employ a structural VAR model with block exogeneity. Thus, the RGI or China variables are assumed to be fully exogenous to the KII or Korean variables, reflecting the fact that the size of the Korean economy is far smaller than the size of the Chinese economy. In the baseline model, we include two variables: RGI and KII. Under the block exogeneity assumption, the KII does not have any impact on the RGI. As robustness check, we additionally include industrial production and interest rates, and the exchange rates of China, Korea and United States as control variables to reflect overall

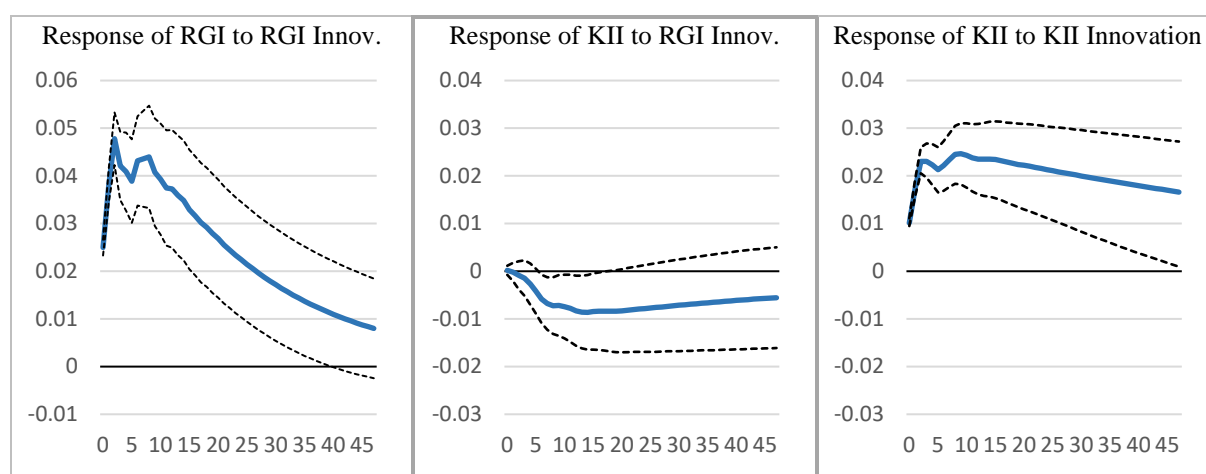
economic and financial condition that potentially affect the RMB or KRW internationalization.

Figure 3 shows the impulse responses with 68% probability bands in the baseline model. In response to RGI shocks that increase RGI significantly for more than three years, the KII falls significantly. The KII decreases by 0.9% one year later, and the decrease is significant for the six to fifteen-month horizons. This empirical result is robust with additional control variables. In many extended models, the negative impact of RGI to KII is consistently significant. A one standard deviation shock to RGI leads to 0.4 – 1.1% decrease in KII after one year.

In order to investigate the cause of this substitution effect, we additionally analyze each component of KII and find that the non-residents' KRW deposits outstanding and the foreign holdings of onshore KRW-denominated assets are decreased, whereas the KRW non-deliverable forward transactions of foreign exchange banks are increased due to the RMB internationalization. As a result of promotion

of RMB internationalization, foreign investors may find it easier to access and more convenient to hold Chinese assets. This may result in a decrease in investments in Korean assets, which are highly synchronized to the Chinese economy. Meanwhile, the demand for Korean won transactions in foreign exchange expanded concurrently with the RMB internationalization.

Figure 3. Impulse Responses in Baseline Model



Note: Dashed lines indicate the 68% confidence intervals.
Source: Authors' estimates.

VI. Policy Proposals and Conclusion

The internationalization of a nation's currency is not automatically achieved. Historical experiences emphasize that currency internationalization was largely an unintended outcome of a nation's economic and financial development. It is essentially an organic, evolutionary, and market-driven process. Economic fundamentals such as size of the economy and trade network, depth, and liquidity of the financial markets, as well as the stability of the

currency, are important determinants that support currency internationalization (Cohen 2000, Kim 2017).

Therefore, in view of the maturity of the real economy, external soundness such as good international credit quality, the resilience of the financial system through crisis experiences, and high capital market openness, the time has come for South Korea to pursue KRW internationalization in line with the RMB internationalization. If efforts are not made to internationalize the won, long-term development

of the foreign exchange market cannot be expected, and its international financial market will continue to be evaluated as an emerging market.

To support this process, the government must play a number of important roles. First of all, through various market-oriented structural reforms, the government should maintain sustainable, strong, and balanced economic growth in order to build up a solid base for currency internationalization. Secondly, liberalizing the capital account is a basic precondition for making national currency used on an international scale. Based on the so-called “impossible trinity” or trilemma, for those countries that need to keep independence of monetary policy, it is necessary to maintain a flexible exchange rate regime. Because capital account liberalization is one of the most dangerous economic reforms for a transitional or emerging economy, it is strongly encouraged to pursue it in a gradual and cautious manner and continue to adopt a macroprudential policy even after capital account liberalization has been completed. Thirdly, maintaining sound macroeconomic policies that guarantee the stability of currency value is also important to make currency internationalization successful. Lastly, strengthening international economic cooperation could be a very useful way for making currency internationalization. By signing bilateral or regional currency swap agreements, a national currency may have more opportunities to be used by other country’s foreign exchange intervention activities

and then be used commercially in trade and investment. Additionally, both public and private settlement infrastructure for facilitating currency internationalization will contribute to reducing the transaction costs for currency conversion.

The internationalization of the Korean won provides a new opportunity for the country's financial development, rather than a disruption to the current global financial system. In the process of the internationalization of the RMB and KRW, China and Korea should further strengthen bilateral financial and economic cooperation to push forward the process of RMB and KRW internationalization. Because both the RMB or the KRW represent such a small proportion of the global monetary system, it is premature to be concerned about competition. Cooperation should take priority. The key policy suggestions for cooperation between these two currency internationalizations could at the very least include: (1) increasing the bilateral currency swap lines (BSLs) and making them more effective; (2) encouraging more usage of RMB and KRW in bilateral trade and direct investment; (3) encouraging more Chinese investors to hold KRW-denominated assets, as should the other party; (4) accelerating the development of offshore RMB market in Seoul while nurturing increasingly important offshore KRW market in China; and (5) strengthening coordination and cooperation in exchange rate policies. **KIEP**

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