RMBI or RMBR? Is the Renminbi Destined to Become a Global or Regional Currency?*

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Abstract
Previous studies have focused on when the renminbi will play a significant role as an international currency, but less attention has been paid to where. We fill this gap by contrasting two answers to the question. One is that the renminbi will assume the role of a global currency similar to the U.S. dollar. Supporters point to China's widely diversified trade and financial flows and to its institutional initiatives, not just in Asia but around the world. The other is that the renminbi will play a regional role in Asia equivalent to that of the euro in Greater Europe. Proponents of this view argue that China has a natural advantage in leveraging regional supply chains and deepening its links with other Asian countries as well as in developing regional institutions. Asia, they argue on these grounds, will become the natural habitat for the renminbi.

1. Introduction

Although much has been written about when China's currency, the renminbi (RMB), will assume an international role, less attention has been paid to the question of where. One view is that the renminbi will eventually challenge the dollar as the leading global currency. Supporting theories posit that network effects are strong, meaning that if it pays for banks, firms, and governments in some countries to do business in renminbi then it will pay for banks, firms, and governments in other countries to do so as well, regardless of where they are located. Supporting evidence includes the fact that China engages in

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merchandise and commodity trade with economies in every part of the world, as befits its position as the largest national exporter. China similarly makes direct foreign investments in every region. From these observations flows the conclusion that the renminbi will ultimately come to rival the U.S. dollar as a global currency.

The alternative is that the renminbi is destined to be a leading regional currency, in Asia in particular. Its future international role, in this case, will more closely resemble that of the euro than the dollar. The euro is used as an international unit of account, means of payment and store of value, primarily in Europe's neighborhood—in European countries as well as non-euro area members and countries to Europe's immediate east and south. Empirical studies confirm that the influence of geographical distance on international trade remains significant, reflecting transportation costs, broadly defined.[1] More strikingly, geographical distance also matters for financial transactions, reflecting the cost and difficulty of acquiring and disseminating information across space. Given how use of a currency in cross-border transactions flows from the geography of those transactions, this implies a bias toward the use of a given currency unit in the economic neighborhood of its national issuer. Similar to the role of the euro in Greater Europe, it follows that Asia is the natural region in which the renminbi will come to act as an international currency.

Consistent with this observation, the first seven countries to establish mechanisms for direct trading of their currencies against the renminbi—rather than buying and selling dollars as an intermediate step toward acquiring and disposing of the Chinese currency— were Asian countries. Efforts to foster renminbi internationalization have also relied heavily on developing transactions with an offshore financial center, Hong Kong, whose prominence reflects precisely its location in Asia. These reflections suggest that the renminbi will come to play an important role mainly in the region.

Political scientists (e.g., Helleiner and Korschner 2014) argue that the decision to use a currency in cross-border transactions reflects not just economic links with the issuer but also the latter's ability to project political leverage and power. The dollar has an important role, these analysts observe, in regions where the United States has political influence. China is best able to project leverage and power in the South China Sea and elsewhere in in the Asia-Pacific region, lacking as it does the aircraft carriers and allies needed to project them over longer distances, at least to an equivalent extent. Again, the conclusion follows that the renminbi's future is as a regional currency for Asia more than as a global currency in the same manner as the dollar.

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1 "The death of distance has been exaggerated," as Anderson and van Wincoop (2004) put it in their survey of the literature on trade costs.

The rebuttal is that the tyranny of distance is declining with improvements in transportation and information technologies. It may be true that the first seven countries to establish direct trading in renminbi were in Asia, but a growing number of countries in other parts of the world have followed suit. Hong Kong's special status as an offshore renminbi center is now being challenged by newly established centers from Singapore and Frankfurt to London and Toronto. This trend is likely to continue as China relaxes restrictions on use of the renminbi and opens its capital account.

Our goal in this paper is to evaluate these two views of the renminbi's prospective role as an international unit of account, means of payment, and store of value for private and official transactions. We begin in Section 2 with a review of the theory and history of international currencies. In Sections 3 and 4 we then develop the cases for a global and regional role for the renminbi, respectively. Our conclusions, in Section 5, are mixed, reflecting the fact that this paper has not only two views but also two authors.

2. Theory and history

Eichengreen (2014) distinguishes two classes of models of international currency status. One class (examples of which include Krugman [1980, 1984] and Matsuyama, Kiyotaki, and Matsui [1993]) emphasizes the power of network effects in the international monetary domain. Because of the importance of network-increasing returns, once a currency is adopted for international transactions, it comes to be used widely. In these models, it pays to do international business in the same currency that one's counterparties use in their own international transactions, including in transactions with third parties.

These network-increasing returns can neutralize other disadvantages of using a potential international currency—for example, such that the central bank issuing it and therefore acting as liquidity provider of last resort of the currency is in a different region and time zone. From this it follows that once a currency is used in international transactions in some countries; it will come to be used globally. Other implications include the fact that first-mover advantage is powerful, that persistence is strong, and that international currency status may be a natural monopoly. Many of these theoretical analyses are motivated by the desire to understand the international role of the U.S. dollar, which is used as an international unit of account, means of payment, and store of value globally and not merely, say, in the Western Hemisphere.

The alternative ("new") view of international currency status does not deny the existence of network-increasing returns but builds on theoretical work on open systems (see, e.g., Farrell and Klemperer 2007). In this view, increasing returns may exist but are not large, and interchangeability costs in high-tech 21st century financial markets are no longer so high. By implication, it is possible to have low transaction costs as well as

stable and predictable prices in cross-border transactions in several national currencies. It follows that other modest advantages (that the liquidity provider of last resort of a currency is in the same time zone or that there are other benefits of proximity, for example) may, too, be determining factors in the decision by a bank, firm, or government regarding which currencies to use for international transactions. In this class of models, multiple currencies can play a role in the international domain, with different units being used by different counterparties, including in different locations, as a function of local or regional characteristics.

Proponents of both views draw support from history. Those who subscribe to the old view, point to the dominance of specific currencies in international transactions at different points in time: the pound sterling before 1914 and the U.S. dollar after 1945. Their analyses highlight how these currencies were widely used in cross-border transactions around the world. They emphasize evidence of persistence or "lock-in" with the currencies in question continuing to play global roles even after the share of the issuing country's currency in international transactions had peaked, consistent with a setting in which network increasing returns are strong.

Advocates of the alternative ("new") view argue that a closer look reveals that there has always been more than one consequential international currency at a given point in time, and that the use of different currencies has typically had a regional dimension. Lindert's (1969) study showed that the foreign exchange reserves of central banks and governments in 1900 and 1913 were divided between the British sterling, the French franc, and the German mark. Building on Lindert's work, Eichengreen and Flandreau (1996) describe how the mark was held and used mainly in Eastern and Southeastern Europe as well as in parts of Scandinavia, whereas the franc was used in Western European countries like Spain, Belgium, and Switzerland, and the sterling dominated in Latin America and in the British Commonwealth and Empire.

Eichengreen and Flandreau (2009) provide a parallel analysis of the 1920s and 1930s. They find that the sterling and the U.S. dollar both featured prominently in the reserve portfolios of central banks and governments, with the sterling playing an important role in Scandinavia (having by this time displaced the German mark), Portugal, and other European members of the so-called sterling area and, as before, in the British Commonwealth and Empire, while the dollar took on a growing role in other parts of the world, including Latin America. That there were shifts relative to the pre-World War I position, with Scandinavia moving into sterling's camp and the dollar being utilized more widely in Latin America, poses a challenge to the traditional view emphasizing lock-in and persistence. Extrapolated to the future, this suggests that there may be greater scope for relatively rapid adoption of the renminbi for cross-border transactions in Asia than globally.
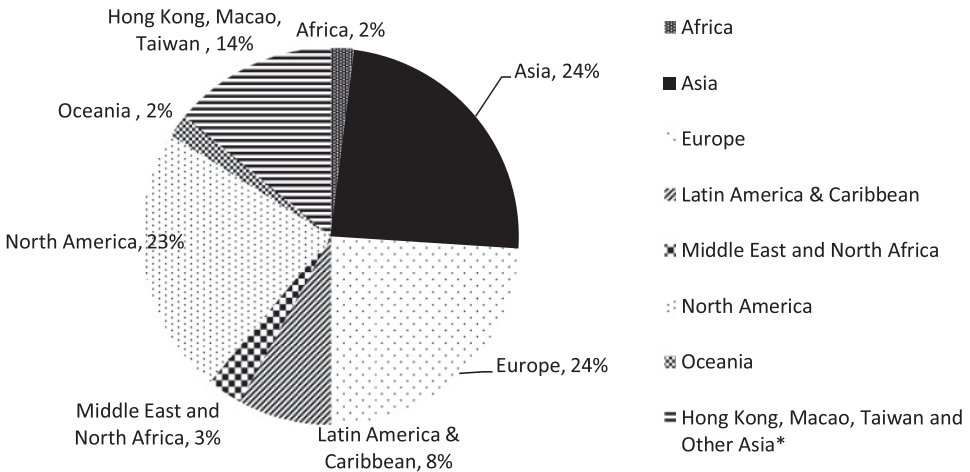
Another literature examines the use of international currencies during and after the Bretton Woods period. Some authors such as Bergsten (1975) suggest that the Bretton Woods system is properly viewed as a tripartite structure consisting of three blocs based on the sterling, the dollar, and gold. The interwar and wartime sterling area persisted, while the rest of the world coalesced into gold and dollar blocs. Members of the dollar area (Brazil, Canada, Israel, Japan, Mexico, Norway, Saudi Arabia, Sweden, Thailand, Turkey, Venezuela, Germany from 1967 and Spain from 1970) took the bulk of their exchange earnings in dollars. Members of the gold bloc, in contrast, took fully 75 percent of their increased reserves in the form of gold in the 1960s. The core members of this post-World War II gold bloc—Belgium, France, Italy, the Netherlands, and Switzerland—were not only geographically contiguous but had also been core members of the gold bloc of the 1930s and, indeed, key members of the 19th-century Latin Monetary Union.

Others, like McKinnon (1979), argue that the dollar was the dominant international vehicle and reserve currency in transactions among banks and the primary currency of invoice in international commodity trade throughout this period. They refer not to the Bretton Woods and post-Bretton Woods systems but to the "gold-dollar system" through the early 1970s and the "dollar" or "limping-dollar standard" thereafter. Members of this school (e.g., Prasad 2014) emphasize the extent to which the international monetary and financial system is still heavily dollar-based even today. Goldberg and Tille (2005) show that the dollar's use in invoicing international merchandise transactions remains far in excess of the U.S. share of global merchandise trade. The dollar is used in 85 percent of global foreign exchange transactions, far in excess of the United States' share of global cross-border financial transactions. And the dollar continues to constitute more than 60 percent of global identified foreign exchange reserves despite the fact that the United States' share of GDP is no more than 25 percent.

These observations are consistent with strong network-increasing returns, in the manner of traditional models in which a single national currency dominates international transactions. In the extreme, the implication of this view emphasizing dollar dominance is that for the renminbi to become a true international currency, it will not only have to supplant the dollar, but will also have to do so globally. The rebuttal is that the Bretton Woods and post-Bretton Woods periods were special by virtue of the absence of viable alternatives to the dollar. That is, the dollar was by default the dominant international currency, as no other national unit possessed the scale, stability, and liquidity needed to render it attractive for widespread cross-border use. This is something that will now change, it is hypothesized, as the renminbi acquires the stability and liquidity required to assume a consequential international role.

If this hypothesis is correct, then the dollar and the renminbi may eventually coexist in the international domain. The question is whether they will both be used globally, in

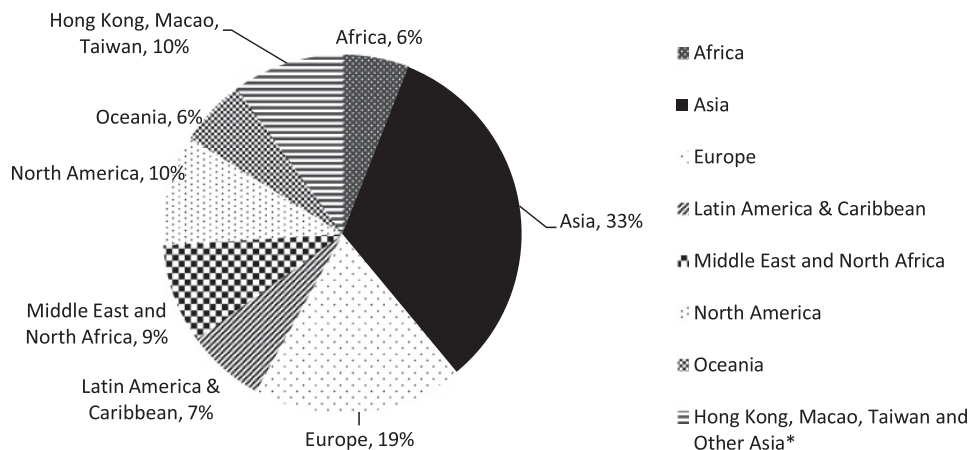**Figure 1. Regional composition of China's exports, 2013**

cross-border transactions with counterparties around the world, or mainly in different regions: the renminbi in Asia and the dollar in other parts of the world.

3. The case for a global currency

There is no one-to-one mapping between, on the one hand, trade and financial transactions with a country, and, on the other hand, the likelihood of using its currency as an international unit of account, means of payment, and store of value. But studies establishing this fact also establish a positive association between the two tendencies: more extensive economic relations with a country increase the likelihood of using its currency in cross-border transactions. This is not surprising given that firms, banks, and other entities in a country will have a natural preference for using their domestic currency in cross-border transactions, in turn conferring on their foreign counterparties an incentive to accommodate that preference. Goldberg and Tille (2005) document this for the choice of currency for invoicing merchandise transactions. The earlier literature has similarly shown that trade and financial transactions with a country, the use of its national unit to settle those transactions, and the need to hold these currencies in foreign reserves all go together.

It is therefore relevant to observe that China's foreign trade and financial transactions are widely distributed across regions. Figures 1 and 2 show the geographical distribution

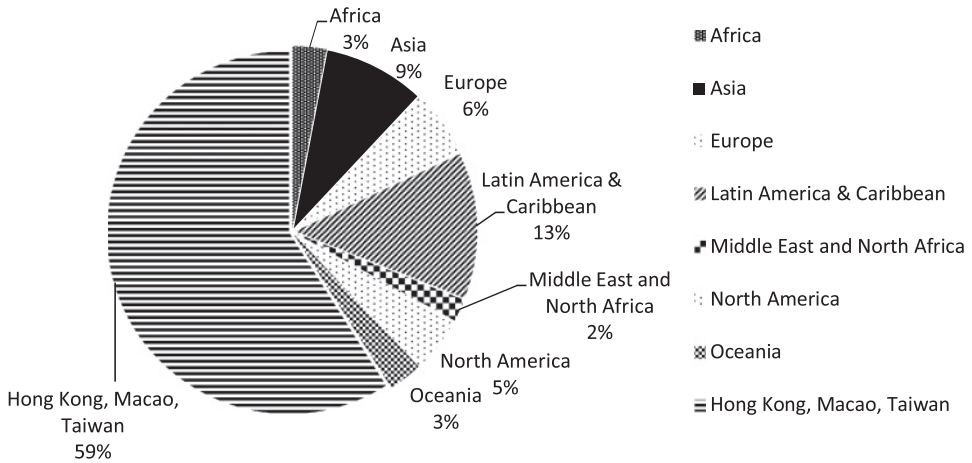**Figure 2. Regional composition of China's imports, 2013**

of China's imports and exports. Only one-quarter of China's exports go to other Asian countries, excluding Hong Kong, Macao, and Taiwan; an additional 24 percent go to Europe, and 23 percent to North America. The regional composition of China's imports is more concentrated, but only slightly, with one-third of the total drawn from other Asian countries. This difference on the import side reflects China's role in global supply chains, where large volumes of intermediate goods from Asia (industrial materials, parts and components, and semi-finished goods, for example) are imported to be processed for subsequent export (Choi 2015).

At first glance, the direction of China's foreign direct investment, depicted in Figure 3, is more concentrated, with the majority destined for Hong Kong, Macao, and Taiwan. But these offshore centers are serving mainly as intermediaries for Chinese foreign investment ultimately destined for other countries. Excluding offshore centers, Chinese foreign investment is widely distributed. This reflects investments by Chinese enterprises in commodity- and energy-related sectors as well as manufacturing.

Likewise, China's free trade agreements (FTAs) reflect its geographically diversified trade and investment flows. Although the country's early FTAs were with countries in Asia (ASEAN in 2004, Pakistan in 2006, Singapore in 2008), China has since negotiated agreements with countries in other parts of the world (including, to date, Chile, Peru, Costa Rica, Iceland, and Switzerland; see Table 1). FTAs under discussion or likely to be under discussion in the future suggest that this geographically diversified approach to negotiations will persist.

Asian Economic Papers

Figure 3. Regional composition of China's overseas direct investment, 2013

Table 1. Existing and prospective FTAs

Country	Date
Bilateral FTAs	
Developing countries	
Pakistan	November 2006
Chile	November 2005
Peru	April 2009
Costa Rica	April 2010
Developed countries	
New Zealand	April 2008
Singapore	October 2008
Iceland	April 2013
Switzerland	July 2013
South Korea	June 2015
Australia	June 2015
Multilateral FTAs	
ASEAN	November 2004
FTA under negotiation	
Gulf Cooperation Council	July 2004
Regional Comprehensive Partnership	May 2013
ASEAN FTA Upgrade	September 2014
Norway	September 2008
Japan and Korea	January 2013
Sri Lanka	September 2014
Maldives	September 2015
Georgia	December 2015
FTA under consideration	2003
India	N/A
ColombiaMoldova	N/A
Fiji	N/A
Nepal	March 2016

Table 2. Dominant reference currency by region (2013–16)

	RMB	USD	Euro
Asia	5	6	1
Europe	1	2	9
Middle East and Africa	1	3	2
North America	1	1	0
South America	3	5	0
Total	11	17	12

With the growth of China's trade and financial links comes an incentive to conduct transactions in renminbi. In turn, this creates an incentive to stabilize a trade partner's local currency against the renminbi, which encourages the central banks of these countries to hold renminbi-denominated foreign exchange reserves and establish contingent renminbi liquidity lines with the People's Bank of China (PBOC). But is this last tendency limited mainly to Asia, or is it observed more widely? To address this issue, Subramanian and Kessler (2013) estimated "Frankel and Wei regressions," where the value of the local currency against a numeraire, in this case the Swiss franc, is taken as a function of the renminbi/franc, dollar/franc, yen/franc, and euro/franc rates. We update their results for a sample of 41 countries, as shown in Table 2 for the period January 2013 to January 2016 (as well as for the July 2012–July 2015 period). Specifically, we estimate:

$$dln\left(\frac{X_t}{CHF_t}\right) = p_1 * dln\left(\frac{US\$_t}{CHF_t}\right) + p_2 * dln\left(\frac{RMB_t}{CHF_t}\right) + p_3 * dln\left(\frac{EUR_t}{CHF_t}\right)$$

$$+ p_4 * dln\left(\frac{JPY_t}{CHF_t}\right) + \alpha + e_t, \tag{1}$$

where $dln\left(\frac{X_t}{CHF_t}\right)$ denotes the change in the log of currency X (the U.S. dollar, the yuan, the euro, and the Japanese yen) all against the Swiss franc. The dominant reference currency in Table 2 is then taken as the currency with the largest effect on the exchange rate of the countries considered.

As one would expect, we find the dollar to be the dominant reference currency for many countries throughout the Americas, Asia, Europe, and the Middle East. The euro tends to be the dominant reference currency mainly for European countries. Interestingly, the renminbi is the second most dominant reference currency in Asia, and in particular for the ASEAN economies.[2]

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2 It is possible to think that the observed correlation of other Asian currencies with the renminbi reflects the fact that they have a common correlation with the dollar. But we are controlling separately—and directly—in these regressions for their correlation with the dollar.

Table 3. Determinants of renminbi weight (2013–16)

RMB	Coef.	Robust Std. Err.	t	P > |t|	[95% Conf.	Interval]
Financial	1.694931	0.5871824	2.89	0.007	0.4973646	2.892497
Inflation	−0.2414102	0.1520255	−1.59	0.122	−0.5514683	0.0686479
Import share	−1.310916	0.8483331	−1.55	0.132	−3.041103	0.4192707
Constant	0.1651439	0.0924021	1.79	0.084	−0.023315	0.3535993

Number of obs = 35

F(3, 31) = 3.48

Prob > F = 0.0275

R^2 = 0.02678

Root MSE = 0.2553

In addition to having the strongest effect in a number of Asian countries, the renminbi also has a significant effect in several South American countries and a statistically significant effect in a number of European countries as well.[3] The renminbi tends to be important for the other BRICS members (Brazil, Russia, India and South Africa) as well as for countries elsewhere such as Israel, Mexico, and Peru.

Table 3 shows that the weight on the renminbi is plausibly a function of commercial and financial links between a given country and China—links that are as much global as regional. Following Subramanian and Kessler (2013), we relate the coefficient on the renminbi/Swiss franc exchange rate in the preceding equation to bilateral trade with China, the similarity of inflation rates, and common financial shocks:

$$p_{Countryi}^{RMB} = \alpha * ShTrade_{Countryi}^{China} + \beta * CommonInflation_{Countryi}^{China}$$
$$+ \gamma * CommonFinancialShocks_{Countryi}^{China} + e_i$$

Common inflation shocks are measured as the correlation between a country's monthly inflation rate and that of China during the period January 2012–December 2014, and common financial shocks are then taken as the correlation between a country's reference stock market index daily returns and the Shanghai Stock Exchange A Share Index daily returns over the July 2012–October 2014 period. The data correspond to the sample in Subramanian and Kessler (2013). Both the inflation figures and the stock index return figures are logged. The share of trade is measured as the proportion of a country's imports from China relative to the imports from the rest of the world. This figure is taken as the average import ratios for 2012–13.

In Table 3, the coefficient of a country's financial shock is positive and statistically significant at the 10 percent confidence level. Thus, we observe a larger renminbi co-movement

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3 This is in contrast to the euro, whose effect is limited to other European countries, and the dollar, which according to this methodology, is the most important exchange rate for countries in a variety of different regions, as befits a global currency.

Table 4. Founding members of the AIIB

East Asia and Pacific (12)
Brunei[a], Cambodia, China[a], Indonesia[a], Laos[a], Malaysia, Mongolia[a], Philippines, Republic of Korea[a], Singapore[a], Thailand, Vietnam
Other Asia (12)
Azerbaijan, Bangladesh, India[a], Kazakhstan, Kyrgyz Republic, Maldives[a], Myanmar[a], Nepal[a], Pakistan[a], Sri Lanka, Tajikistan, Uzbekistan
Oceania (2)
Australia[a], New Zealand[a]
Middle East (9)
Egypt, Iran, Israel[a], Jordan[a], Kuwait, Oman, Qatar, Saudi Arabia[a], United Arab Emirates[a]
Western Europe (15)
Austria[a], Denmark[a], Finland[a], France, Germany[a], Iceland, Italy, Luxembourg[a], Netherlands[a], Norway[a], Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom[a]
Other Europe (5)
Georgia[a], Malta[a], Poland, Russia[a], Turkey
South America (1)
Brazil
Africa (1)
South Africa

Source: AIIB.org
Note: a. Instrument of ratification is accepted.

from a higher correlation for a country's financial market with China, controlling for inflation and trade. Evidently, the coefficients for inflation shocks and trade shares, although negative, do not seem to affect the renminbi co-movement for the sample countries' exchange rates.

The question of whether the renminbi's future is mainly as a regional or global currency should be addressed from an institutional perspective as well. Beijing has used the China Development Bank and Export-Import Bank of China, for example, to promote renminbi-denominated lending and settlement. Countries to which these institutions lend receive funds in renminbi, which they then use to finance imports from China and to purchase the services of Chinese construction companies. Although a significant share of the lending by these state banks is to other Asian countries, a non-negligible share is to countries and companies outside of the region (to the government of Venezuela in 2010, for example, and to small- and medium-size enterprises in a variety of African countries).

China has recently sponsored the creation of the Asian Infrastructure Investment Bank (AIIB) to promote infrastructure investment in the Asia-Pacific region and, not incidentally, to create business for Chinese construction companies. Although the AIIB's current objective is to contribute to Asian infrastructure development and regional integration, membership is global, not regional, with 57 prospective founding members at the time of writing. These include 24 countries in Asia, 20 in Europe, and 9 in the Middle East (see Table 4). These countries will all be contributing capital to the bank, and their construction companies and consultants will similarly be competing for business. It will not be surprising, therefore, to see the AIIB expand its operations to developing countries outside of Asia.

Table 5. Offshore RMB centers

Country	City	Date	Bank
China SAR	Hong Kong	2003.12	Bank of China
China SAR	Macau	2004.08	Bank of China
Taiwan	Taipei	2012.12	Bank of China
Singapore	Singapore	2013.04	Industrial and Commercial Bank of China
United Kingdom	London	2014.06	China Construction Bank
Germany	Frankfurt	2014.06	Bank of China
South Korea	Seoul	2014.07	Bank of Communications
France	Paris	2014.09	Bank of China
Luxembourg	Luxembourg	2014.09	Industrial and Commercial Bank of China
Qatar	Doha	2014.11	Industrial and Commercial Bank of China
Canada	Toronto, Vancouver	2014.11	Industrial and Commercial Bank of China
Malaysia	Kuala Lumpur	2014.11	Bank of China
Australia	Sydney	2014.11	Bank of China
Thailand	Bangkok	2015.01	Industrial and Commercial Bank of China

Source: Bloomberg, Bank of China, Industrial and Commercial Bank of China, MAS, People's Bank of China, Reuters, UK government data, Wall Street Journal.

Other institutional bases for wider international use of the renminbi include swap lines with the PBOC, the designation of a Chinese financial institution as official clearing bank for settling renminbi-denominated transactions, and a quota for investing in China's local-currency equity market (a renminbi-qualified foreign institutional investor [RQFII] quota). Weir (2015) refers to these initiatives as the "three gifts," because they require negotiation and agreement with the Chinese authorities and because they tend to go together. They represent implicit endorsement by the Chinese authorities of a center's offshore RMB status.

In practice, these arrangements extend beyond Asia. Table 5 lists offshore clearing banks in foreign financial centers by date of establishment. These centers now include many cities outside of Asia and across the globe, including Frankfurt, London, Paris, Sydney, and Toronto. Indeed, virtually every important financial hub is now a designated renminbi offshore center with the exception of New York. If we exclude Hong Kong, Macau, and Taipei, which played strategic roles in the early development of the offshore renminbi market, only four Asian cities are designated offshore renminbi centers, compared with four in Europe and three in the rest of the world. In terms of geographic distribution, there is no obvious bias favoring Asia.

Having an official clearing bank matters because access to the renminbi is limited, since access to Chinese financial markets is limited. This designation creates a presumption that the bank in question will clear transactions in renminbi for offshore counterparties. One can argue that the presence of an official clearing bank will matter only for a transitional period, because all foreign banks will have access to the onshore renminbi market once China's capital account is fully open and thus official clearing banks will then have no advantage. If, on the other hand, there is a path-dependent aspect to financial development, then official clearing bank status can have persistent effects on the geography of

Table 6. RMB QFII quotas

Country	Quota (RMB billions)	Date Announced
Hong Kong, China	270	December 2011
Singapore	50	October 2013
United Kingdom	80	October 2013
France	80	March 2014
South Korea	80	July 2014
Germany	80	July 2014
Qatar	30	November 2014
Canada	50	November 2014
Australia	50	November 2014

Source: Hatzvi, Nixon, and Wright (2014).

international finance. Hong Kong was the first offshore RMB center, and for ten years until October 2013 had the only official offshore RMB clearing bank. Since then, six additional clearing banks have been designated for Asian countries, and seven have been designated for non-Asian countries (for these purposes we classify Qatar as a non-Asian country).

The RQFII program allows designated institutional investors to invest in renminbi-denominated assets in China. Virtually all countries with official clearing banks have RQFII quotas (see Table 6). Possession of an RQFII quota encourages local fund managers to source renminbi credit for use in investing in Chinese markets. Some fund management companies have been able to access RQFII quotas in more than one jurisdiction, however, and aside from the case of Hong Kong, few if any of these quotas have been fully taken up. Both observations raise questions about whether these quotas will significantly affect the location of renminbi-denominated business. To the extent that they do, further allocation of such quotas weakens their original Asia- and specifically Hong Kong–centric bias.

Central banks in a large set of countries in Asia and other regions—30 at the time of writing—now have swap lines with the PBOC (see Table 7). Thirteen of these bilateral swap arrangements are with Asian central banks, and eleven are with European central banks and others are with central banks in additional parts of the world. China's second largest swap line (after that with Hong Kong SAR) is with the European Central Bank, reflecting the fact that China is the European Union's second largest export market. These lines are useful for providing renminbi liquidity where official clearing banks have not been designated and for supplementing official clearing bank liquidity where they have. Access to renminbi funds can be essential in a crisis, and in the absence of such access, the local authorities will be reluctant to permit resident banks and firms to acquire renminbi exposure. In a handful of locations, notably Hong Kong, the PBOC swap line is also regularly resorted to by the local monetary authority as a mechanism for enhancing the liquidity of local renminbi markets and encouraging commercial and financial business in the currency.

Table 7. Swap arrangements with the People's Bank of China

Country	Date	Amount in yuan
Albania	2013.09	2 billion
Argentina	2009.03	70 billion
Argentina	2014.07	70 billion
Armenia	2015.03	1 billion
Australia	2012.03	200 billion
Australia	2015.04	200 billion
Belarus	2009.03	20 billion
Brazil	2013.03	190 billion
Canada	2014.11	200 billion
Chile	2015.05	22 billion
European Union	2013.10	350 billion
Hong Kong	2009.01	200 billion
Hong Kong	2011.11	400 billion
Hong Kong	2014.11	400 billion
Hungary	2013.09	10 billion
Iceland	2010.06	3.5 billion
Iceland	2013.09	3.5 billion
Indonesia	2009.03	100 billion
Indonesia	2013.10	100 billion
Kazakhstan	2011.06	7 billion
Kazakhstan	2014.12	7 billion
Malaysia	2009.02	80 billion
Malaysia	2012.02	180 billion
Mongolia	2011.05	5 billion
Mongolia	2012.03	10 billion
Mongolia	2014.08	15 billion
New Zealand	2011.04	25 billion
New Zealand	2014.05	25 billion
Pakistan	2011.12	10 billion
Qatar	2014.11	35 billion
Russia	2014.10	150 billion
Singapore	2010.07	150 billion
Singapore	2013.03	300 billion
South Korea	2008.12	180 billion
South Korea	2011.10	360 billion
South Korea	2014.10	360 billion
Sri Lanka	2014.09	10 billion
Suriname	2015.03	1 billion
Switzerland	2014.07	150 billion
Tajikistan	2015.09	0.5 billion
Thailand	2011.12	70 billion
Thailand	2014.12	70 billion
Turkey	2012.02	10 billion
Ukraine	2012.06	15 billion
United Arab Emirates	2012.01	35 billion
United Kingdom	2013.06	200 billion
Uzbekistan	2011.04	0.7 billion

Source: Garcia-Herrero and Xia (2013), AP, China Daily, PBoC, Xinhua, Reuters, Bloomberg, Reserve Bank of Australia, Reserve Bank of New Zealand.

Garcia-Herrero and Xia (2013) and Liao and McDowell (2015) have analyzed who is on the receiving end of these arrangements and why. We follow them in analyzing the determinants of their incidence, using an updated list of swap agreements for 166 countries. The dependent variable is possession of a bilateral swap arrangement with the PBOC, and explanatory variables include economic size, trade and financial integration with China, distance from China, and a variety of other macroeconomic indicators. To capture

regionalization, we add a dummy variable for Asian countries. This allows us to test whether Asian countries are *ceteris paribus* more likely than countries in other parts of the world to receive swap lines from the PBOC.

As shown in Table 8, the dummy variable for Asian countries is uniformly indistinguishable from zero for both the probit estimation of entering a bilateral swap arrangement and the amount of swap given. Unsurprisingly, the partner's GDP is important for both decisions. Larger economies are more likely to enter into a swap arrangement with China, and such arrangements are more likely to have a larger amount. The PBOC does not appear to prefer Asian countries when extending bilateral swap arrangements, or so it would appear after controlling for other variables such as the size of the economy, financial and trade flows, and inflation. Similar to Cheung, Lin, and Zhan (2016), we show trade partnerships matter for bilateral swap arrangements as shown in Table 8A and Table 8B.

Finally, China has supplemented these bilateral renminbi swaps with the BRICS Bank Contingent Reserve Arrangement (CRA). Through the BRICS Bank, members will lend money to one another for development projects, where some of that money will presumably be denominated in the currency of the lender. Under the CRA, participating central banks will be able to draw up to US$ 100 billion of international reserves from one another, subject to certain conditions. China has made the largest initial commitment, of US$ 41 billion, to the CRA.

Revealingly, China's partners in this arrangement include countries both within (India and Russia) and outside Asia (Brazil and South Africa). CRA capital allocations and quotas are shown in Table 9. But it is not clear whether CRA lending by China will be in dollars or renminbi (indeed, the initial BRICS CRA treaty refers to dollars). The CRA cannot therefore automatically be viewed as a mechanism for promoting use of the renminbi within the region.

4. The case for a regional currency

Although the renminbi is an increasingly popular global payments currency, its 2.79 percent share of global payments is dwarfed by the 45 percent share of the dollar.[4] The dollar is still the preferred reserve currency, and is still far and away the dominant currency in global foreign exchange markets, as noted earlier. These facts reflect the dollar's first-mover advantage, the depth and liquidity of U.S. financial markets, the close commercial and financial ties of other countries with the U.S. economy (ties that are larger than China's at market exchange rates) and America's geopolitical and military leverage (which remains considerable, even if in decline).

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4 Figures are based on Swift data as released on 6 October 2015.

Table 8. Determinants of bilateral swaps

A. Determinants of bilateral swap arrangements

	(1)	(2)	(3)	(4)
Ln GDP (US$, real)	0.168***	0.211***	0.201***	0.197***
	(3.07)	(3.38)	(2.95)	(2.80)
Free trade agreement	0.662**	0.600*	0.608	0.391
	(2.22)	(1.96)	(1.55)	(0.87)
Ln distance to Beijing	−0.473**	−0.497**	−0.594**	−0.220
	(−2.47)	(−2.49)	(−2.16)	(−0.53)
Past default		0.446	0.504	0.428
		(1.25)	(1.35)	(1.05)
Open capital account		−0.136	−0.218**	−0.214*
		(−1.64)	(−2.01)	(−1.83)
Rule of law			−0.280	−0.477
			(−0.57)	(−0.91)
Corruption Index			0.450	0.548
			(1.02)	(1.20)
Asia			−0.060	1.091
			(−0.12)	(1.28)
Other Asia				0.909
				(1.61)
Europe				0.809*
				(1.70)
America				0.296
				(0.53)
N	467	467	467	467
Pseudo R²	0.1744	0.2077	0.2213	0.2437

B. Determinants of bilateral swap amount

	(1)	(2)	(3)	(4)
Ln GDP (US$, real)	0.041	0.033	0.080	0.186
	(0.29)	(0.23)	(0.51)	(0.66)
Share of exports	0.083***	0.074***	0.076***	0.075***
	(3.54)	(2.99)	(3.03)	(2.99)
Distance to Beijing	−0.084	−0.030	−0.264	−0.484
	(−0.15)	(−0.05)	(−0.38)	(−0.57)
Free trade	1.869*	1.594	1.644	1.889
	(1.85)	(1.29)	(1.33)	(1.40)
Overseas direct investment		0.095	0.095	0.099
		(1.50)	(1.49)	(1.54)
Past default			0.848	1.035
			(1.00)	(1.09)
Inflation history			−0.009	−0.014
			(−0.19)	(−0.30)
Open capital account				−0.123
				(−0.45)
Mills ratio	−1.731**	−1.726**	−1.403*	−0.900
	(−2.51)	(−2.51)	(−1.83)	(−0.66)
adj. R²	0.1224	0.1267	0.1286	0.129
N	467	467	467	467

Source: GDP data are from World Bank. Distance from Beijing is from Kristian Skrede Gleditsch, accessed through http://privatewww.essex.ac.uk/~ksg/data-5.html and calculated using Google Maps. Export data is from UN Comtrade and Observatory of Economic Complexity. Chinese overseas FDI data is from CEIC. Capital account openness uses the Chin-Ito index, accessed through http://web.pdx.edu/~ito /Chinn-Ito_website.htm Default data collected from Moody's. Inflation, rule of law, and corruption index are from the World Bank and IMF. Free-trade agreements are accessed online through the Ministry of Commerce, the People's Republic of China (http://fta.mofcom.gov.cn/english/index.shtml).

Note: Table 8A dependent variable is a dummy for bilateral swap arrangement that equals 1 if there is a swap arrangement between China and the specified country. Table 8B dependent variable is the natural log of the bilateral swap amount given in Table 7. Asia dummy equals 1 for East Asian and Southeast Asian countries, including Hong Kong SAR.

*** Statistically significant at the 1 percent level; ** statistically significant at the 5 percent level; * statistically significant at the 10 percent level.

Table 9. The BRICS contingent reserve arrangement

Country	Committed Resources[a]	Access to CRA Resources[b]
China	41 billion USD	50 percent
Brazil	18 billion USD	100 percent
Russia	18 billion USD	100 percent
India	18 billion USD	100 percent
South Africa	5 billion USD	200 percent
Total	100 billion USD	

Source: BRICS Information Centre, University of Toronto (2014). See www.brics.utoronto.ca

Note: a. As of 15 July 2014.

b. Parties can access resources subject to the maximum access limits equal to the specified percentage of each party's individual commitment.

The alternative is to argue that the renminbi is destined to become an important vehicle for cross-border transactions, not so much globally, but in Asia. This argument is lent plausibility by China's strong trade ties with its Asian neighbors. It is supported by the fact that China has been running persistent trade deficits with the rest of Asia, thereby enabling other Asian countries to accumulate the renminbi-denominated reserves needed to operate a renminbi-based system (Chey 2012).[5] Swift data on international payments are consistent with these presumptions. Although they show that the renminbi is the vehicle for less than 3 percent of payments worldwide, it is already used in the majority of payments with China and Hong Kong.

Thus, if the renminbi is to play an international role, it is most likely to do so in Asia where it has special advantages. This can be argued on three grounds. First, China and other Asian countries are natural economic partners. Li, Li, and Ding (2004) document the existence of an exceptionally large elasticity of China's imports from other East Asian economies with respect to Chinese GDP. Given the prospect of rapid Chinese GDP growth, they conclude that China will become the largest trading economy in East Asia in the next 20 years, with about half of its imports coming from the region. According to data from the General Administration of Customs of China, China's imports from major East Asian economies (Hong Kong, Japan, South Korea, India, and ASEAN) already account for 38 percent of its total imports, and imports from Asia as a whole (including the West and Central Asian countries) represent 55 percent of its total imports (estimates for 2014).

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5 China's trade structure is characterized by a trade surplus with developed countries in North America and Europe and a trade deficit with economies in East Asia. This can, in turn, facilitate renminbi-based exports in the emerging East Asian economies.

Underlying these patterns is the fact that trade costs still matter importantly for cross-border commercial transactions, and distance is still relevant to trade costs (see, e.g., Anderson and van Wincoop 2004). Transport costs are a significant portion of total trade costs (where the latter include also costs of insurance, time in transit, and local distribution). Abe and Wilson (2009), for their part, confirm that transport costs increase with distance. More generally, these costs can be inferred from differences in the prices of the same products in different countries. Feenstra (1998) famously contrasts the cost in different markets of Mattel's Barbie doll), from the difference between the inclusive cost of insurance and freight and free on board prices, and from the predominant mode of transportation (and from the posted costs of utilizing that mode). To be sure, the association of transport costs with distance varies with the presence or absence of natural ports, long coastlines, and mountain ranges. But none of this changes the fact that Asian countries, and, in particular, those that border the South China Sea, are natural trade partners.

Another way of gauging whether economies are natural trade partners is on the basis of relative resource endowments. There is no question that resource endowments vary widely within Asia. For example, China is poorly endowed in certain natural resources compared with some of its Asian neighbors: It possesses little in the way of clean fossil fuels compared with, say, Malaysia, and is the world's largest petroleum importer. Further, its labor force peaked in 2010, and, as a result, unskilled labor is becoming increasingly scarce relative to say, Indonesia, India, and Bangladesh. It follows that China will export goods embodying skilled and semi-skilled labor and capital and import goods that make more intensive use of raw materials, energy, and unskilled labor—again making Asian countries like Indonesia, India, and Bangladesh natural trading partners. Consistent with this presumption, trade among the economies in question has been growing more rapidly than global trade, and more rapidly than China's trade overall.

Another dimension is intra-industry trade. Because of the development of international supply chains, different countries specialize in different (vertical) stages of a production process and produce different components of a final product or set of products. This has been a large component of Asian trade flows throughout the rapid economic development of Asia since the mid 1980s. China has long been involved in these regional supply chains, most prominently in the case of consumer electronics, importing semiconductors from Japan, South Korea, and Taiwan, and combining them with other components before exporting a final product. On the demand side, it is likely that Asia will become an increasingly important destination for these Chinese products, as these countries increase income and wealth per capita and develop their middle classes. Accordingly, intra-industry trade between China and other Asian countries is likely to increase further, which will provide consistent momentum for intra-industry trade and for renminbi use for cross-border transactions in the region.

One objection is that many of the supply chains in which China is involved are global, and not regional; the country imports iPhone design from Sunnyvale, California, before exporting the assembled product back to the United States. But with the articulation of supply chains, production has grown increasingly susceptible to disruption by climatic and political shocks. As these risks come to be better appreciated, producers have relocated supply chain-related production to sites closer to the point of final sale, which are less susceptible to natural and economic disruptions and where political conditions, by virtue of their proximity, are better understood. A case in point is how U.S. firms in a variety of industries have relocated the production of components from China and other Asian countries to Mexico. These observations point to the likelihood that we will continue to observe the disproportionate growth of intra-Asian trade.

An abundance of evidence suggests that distance also continues to play a role in international financial transactions. Portes, Rey, and Oh (2001) study cross-border financial transactions in U.S. equities and bonds and show that distance still matters after controlling for other determinants of the volume of these transactions. Analyzing FDI flows, Brainard (1997), Gao (2009), and Paniagua (2011) show that such flows vary inversely and significantly with distance. Di Giovanni (2002) shows that distance matters for cross-border mergers-and-acquisitions-related capital flows. The association between cross-border financial flows and proximity presumably reflects costs of information acquisition and corporate control, which historically have tended to increase with distance. To the extent that this remains the case today, the observation points to the disproportionate growth of cross-border financial transactions within Asia and a role for the dominant regional currency in those transactions.

A second basis for arguing that the renminbi is likely to be an important vehicle for cross-border transactions mainly in Asia points to Beijing's Asia-specific institutional and policy initiatives. China's Silk Road Initiative was designed to promote trade and economic integration in Central Asia. Also known as the "Belt and Road Initiative," this was laid out by President Xi Jinping in visits to Central and Southeast Asia in 2013 and has been backed by the country's National Development and Reform Commission. The plan envisages enhanced connectivity within and among Asia, Europe, and Africa via land and adjacent sea routes, although it appears to be centered on Central and Southeast Asia. The Silk Road Economic Belt will run along the historic Silk Road trade route, which stretches from coastal China through Central Asia, and the Maritime Silk Road will connect China's south with Southeast Asia. Although focused on transport and other forms of physical infrastructure, the Silk Road Initiative is also intended to encompass trade facilitation, financial cooperation, and cultural exchange. Insofar as it achieves its goal of reducing transport costs, cultural barriers, and other obstacles, it has the potential to deepen, on the one hand, trade and financial interaction with China, and on the other hand, Southeast

and Central Asian countries, thereby enhancing the attractiveness of use of the renminbi in this region.

China also participates in a number of regional initiatives together with ASEAN countries. As noted earlier, it signed an FTA with ASEAN in 2002, which came into effect in 2010. An FTA agreement with South Korea has also recently been signed. These agreements encourage additional trade flows between China and its Asian partners, have been responsible for some movement in the direction of freer trade in the region, and signal more of the same in the future.

Moving from trade to financial integration, China was a founding member of the Asian Bond Market Initiative (ABMI) established by the ASEAN+3 countries following the 1997–98 Asian financial crisis. The ABMI is intended to promote the growth and integration of regional debt security markets, and markets in local currency debt securities in particular, by sharing information on best practices and applying pressure for adoption. It was then followed by the creation by the same countries of an Asian Bond Market Forum (ABMF) of regular meetings between private-sector experts and officials with the goal of harmonizing regulation and standardizing market practices across the region, in this case with the explicit goal of promoting cross-border transactions in local-currency-denominated debt securities. Insofar as standardization includes standardization on a specific local currency, the currency in question will plausibly be that of the largest issuer: China.

Further, China is, along with Japan, the largest contributor to the Chiang Mai Initiative Multilateralization (CMIM) through which the ASEAN+3 countries have agreed to extend swap lines and credits to one another. This is a regional supplement to the global network of central bank swap lines, including the PBOC swap lines described earlier. It was established in 2000 as the Chiang Mai Initiative, a network of bilateral swaps, and reorganized in 2010, nominally as a single reserve pool, now amounting to US$ 240 billion. China (including Hong Kong) and Japan each contribute 32 percent of the collective reserve pool (for national contributions see Table 10). Most of these arrangements are specified as swaps of local currencies for U.S. dollars, but four (China–Japan, China–Philippines, China–Korea, and Japan–Korea) involve the partners' local currencies. In addition to the practical uses of swap arrangements, the CMIM and the other China–ASEAN initiatives signal that China and ASEAN are willing to cooperate in developing a larger regional network.

Like other swaps, the availability of local-currency lines of credit through the CMIM will encourage regulators to permit banks and firms under their jurisdiction to incur exposures in foreign currencies, since local central banks gain the power to engage in at least limited last-resort lending in those currencies. It is worth noting that the

Table 10. CMI multilateralization contributions, purchasing, and voting

	Financial contribution		Purchasing multiple	Total voting power percent (%)
	USD (billion)	Percent (%)		
China (Mainland)[a]	68.40	28.5	0.5	25.43
Hong Kong, China	8.40	3.5	2.5	2.98
Japan	76.80	32	0.5	28.41
Korea	38.40	16	1	14.77
Plus 3	**192**	**80**		**71.59**
Indonesia	9.104	3.793	2.5	4.369
Thailand	9.104	3.793	2.5	4.369
Malaysia	9.104	3.793	2.5	4.369
Singapore	9.104	3.793	2.5	4.369
Philippines	9.104	3.793	2.5	4.369
Vietnam	2.00	0.833	5	1.847
Cambodia	0.24	0.1	5	1.222
Myanmar	0.12	0.05	5	1.179
Brunei	0.06	0.025	5	1.158
Lao PDR	0.06	0.025	5	1.158
ASEAN	**48**	**20**		**28.41**
Total	240	100		100

Source: ASEAN+3 Macroeconomic Research Office (2015). See: www.amro-asia.org

Note: a. China, including Hong Kong, contributes US$ 76.80 billion and has 28.41% of the voting shares.

renminbi is the currency that appears most frequently in this connection (in three out of four cases). The CMIM thus provides a natural institutional platform for the renminbi in the ASEAN+3 region.

Use of the renminbi by commercial banks and enterprises in the region should in turn encourage Asian central banks to hold more renminbi in their reserve portfolios, thus enabling them to stabilize the renminbi–local currency exchange rate and act as lender of last resort in renminbi to the banks and firms in question. In fact, the majority of ASEAN+3 central banks already have indicated that they have added the renminbi to their reserve portfolios. Early adopters include Malaysia, Cambodia, the Philippines, Singapore, and Thailand (for the complete list see Table 11).

A further basis for arguing that the renminbi's future is as an international currency in Asia builds on the same observations as in Section 3 but applies to it a different spin. The vast majority of exchange rates in whose determination the renminbi now has the greatest weight are Asian currencies. The countries with the largest RQFII quotas (Hong Kong, Singapore, and Taiwan) are Asian countries. The Shanghai-Hong Kong Stock Connect, which removes barriers between equity markets in Shanghai and offshore, specifically removes those barriers between Shanghai and a principal Asian market. Moreover, the first seven countries with direct trading of their local currencies against the renminbi (Laos, Kazakhstan, Vietnam, Korea, Thailand, Japan, and Australia) were all Asian countries, as were the first countries to add the renminbi to their reserve portfolios (Hong Kong and Malaysia).

Table 11. RMB as official reserve by country

Country	Date[a]	Amount	Type
Norway	October 2006	up to $1.5 bn	onshore
Malaysia	September 2010	undisclosed	sovereign
Hong Kong	October 2010	5−10% ($16−$31 bn)	sovereign
Belarus	November 2010	undisclosed	onshore
Venezuela	August 2011	undisclosed	undisclosed
Kenya	August 2011	undisclosed	undisclosed
Chile	September 2011	2.3% ($945 mn)	undisclosed
Nigeria	September 2011	2−7% ($2.3−$4.6 bn)	offshore
Cambodia	October 2011	undisclosed	undisclosed
Philippines	October 2011	undisclosed	undisclosed
Russia	October 2011	undisclosed	undisclosed
Singapore	October 2011	up to $1 bn	onshore
Thailand	November 2011	0.5% ($836 mn)	off & onshore
Austria	November 2011	undisclosed	onshore
Japan	December 2011	$10.3 bn	sovereign
Uruguay	2012[a]	$0.21 bn	offshore
Macao	March 2012	15.5% ($2.5 bn)	off &onshore
Bolivia	May 2012	0.4% ($58 mn)	offshore
Indonesia	July 2012	undisclosed	onshore
Korea	July 2012	$3.3 bn	onshore
Saudi Arabia	July 2012	undisclosed	undisclosed
Tanzania	August 2012	undisclosed	offshore
Pakistan	October 2012	undisclosed	onshore
Angola	April 2013	undisclosed	offshore
Australia	April 2013	$1.6 bn	sovereign
Nepal	June 2013	undisclosed	onshore
South Africa	June 2013	$1.5 bn	off & onshore
Taiwan	October 2013	undisclosed	undisclosed
Lithuania	November 2013	up to $100 mn	onshore
Namibia	December 2013	undisclosed	offshore
Ghana	April 2014	undisclosed	undisclosed
France	April 2014	undisclosed	sovereign
Switzerland	July 2014	up to $2.5 bn	onshore
Sri Lanka	September 2014	undisclosed	onshore
Argentina	September 2014	$1.3 bn	undisclosed
United Kingdom	October 2014	$490 mn	offshore
Zimbabwe	October 2014	undisclosed	undisclosed
Hungary	May 2015	undisclosed	undisclosed

Source: Liao and McDowell (2015), Xinhua News.

Note: a. Missing month for Uruguay.

Finally, insofar as political power and leverage matter for international currency use, it is worth noting that China is best able to project such power and influence in the South China Sea and elsewhere in Asia. In terms of economic influence, there is no doubt that China plays a large role for Asian countries like Thailand, Malaysia, and Vietnam, as China is one of their most important trade and financial partners. Consistent with this, Asian countries' willingness to participate in institutional arrangements with China reflects the fact that the same countries, too, benefit from these relationships. All these are reasons for believing that the renminbi's future is as a leading regional, not global, currency.

5. Conclusion

Forecasting is difficult. Any forecast about whether the renminbi's future is as a global or regional currency should therefore be taken with a grain of salt. Instead of forecasting,

therefore, we have done our best in this paper to make the cases for both scenarios. Neither theory nor history points unambiguously in either direction, and modern evidence can be marshaled in support of either view. On the one hand, China has increasingly important economic, financial, and political links with countries not only in Asia, but throughout the world, just as China invests globally, not just in Asia. Many of China's policy initiatives, such as its bilateral free trade agreements, designating Chinese banks as official renminbi clearing banks for foreign financial centers, and concluding renminbi swap arrangements with foreign central banks, extend also to countries in Europe and the Western Hemisphere. These observations suggest that as Chinese financial markets gain depth and liquidity, the renminbi will assume a role not merely as a currency used in settling trade-related transactions, where it already functions, but also as an investment and reserve currency, not just in Asia but globally.

At the same time, however, some of China's most natural economic, financial, and political links are with neighboring Asian countries. Transport costs are still important for international trade, and they are lowest over short distances. Distance also matters for international financial transactions, whether because local knowledge dissipates with distance or because certain financial transactions are more costly across multiple time zones. These facts make China and other Asian countries logical commercial and financial partners. Asian countries that see themselves as sharing common characteristics, and specifically common economic and financial vulnerabilities, have responded with regional initiatives like the ABMI, Asian Bond Forum, Asian Bond Fund, CMIM, and ASEAN–China FTA, all of which work to further deepen economic and financial integration in the region. This suggests that the renminbi, as the currency of the largest Asian economy and leading trader, has a natural habitat in the region, and that its future is as the leading Asian currency.

As for which scenario is more likely, one can only echo Zhoa Enlai (speaking not of the French Revolution but of the French student demonstrations of 1968, in actual fact), that it is too early to tell. This paper at least identifies some of the principal factors on which the answer will hinge.

References

Abe, Kazutomo, and John Wilson. 2009. Weathering the Storm: Investing in Port Infrastructure to Lower Transport Costs in East Asia. World Bank Policy Research Working Paper No. 4911. Washington, DC: World Bank.

Anderson, James, and Eric van Wincoop. 2004. Trade Costs. *Journal of Economic Literature 42*(3):691–751.

ASEAN+3 Macroeconomic Research Office. 2015. Contributions, Purchasing Multiple, Maximum Swap Amount. Available at www.amro-asia.org/the-relationship-between-amro-and-cmim/CMIM%20Contributions.

Asian Infrastructure Investment Bank. 2016. Prospective Founding Members. Available at http://euweb.aiib.org/html/aboutus/introduction/Membership/?show=0.

Bergsten, Fred. 1975. *The Dilemmas of the Dollar.* New York: New York University Press.

Brainard, S. Lael. 1997. An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade. *American Economic Review 87*(4):520–544.

BRICS Information Centre, University of Toronto. 2014. Treaty for the Establishment of a BRICS Contingent Reserve Arrangement. Available at www.brics.utoronto.ca/docs/140715-treaty.html.

Cheung, Yin-Wong, Zhitao Lin, and Wenjie Zhan. 2016. China's Bilateral Currency Swap Lines. Global Research Unit Working Paper No. 2016–013. City University of Hong Kong.

Chey, Hyoung-kyu. 2012. Can the Renminbi Rise as a Global Currency? The Political Economy of Currency Internationalization. GRIPS Discussion Paper No. 11–20. Tokyo: National Graduate Institute for Policy Studies.

China, Ministry of Commerce. 2015. China FTA Network. Available at http://fta.mofcom.gov.cn /english/index.shtml.

Choi, Nakgyoon. 2015. Global Value Chains and East Asian Trade in Value-Added. *Asian Economic Papers 14*(3):129–144.

Di Giovanni, Julian. 2002. What Drives Capital Flows? The Case of Cross-Border M&A Activity and Financial Deepening. CIDER Working Paper No. C02–122. Berkeley: Center for International and Development Economic Research, University of California, Berkeley.

Eichengreen, Barry. 2014. International Currencies Past, Present and Future: Two Views from Economic History. Working Paper No. 2014–31. Seoul: Bank of Korea.

Eichengreen, Barry, and Marc Flandreau. 1996. Blocs, Zones and Bands: International Monetary History in Light of Recent Theoretical Developments. *Scottish Journal of Economics 43*(4):398–418.

Eichengreen, Barry, and Marc Flandreau. 2009. The Rise and Fall of the Dollar (or When Did the Dollar Replace Sterling as the Leading International Currency?). *European Review of Economic History 13*(3):377–411.

Farrell, Joseph, and Paul Klemperer. 2007. Coordination and Lock-In: Competition with Switching Costs and Network Effects. In: *Handbook of Industrial Organization*, volume 3, edited by Mark Armstrong and Robert Porter, pp. 1967–2072. Amsterdam: North-Holland.

Feenstra, Robert. 1998. Integration of Trade and Disintegration of Production in the Global Economy. *Journal of Economic Perspectives 12*(4):31–50.

Gao, Shen. 2009. The Predictive Capacity of the Gravity Model of Trade on Foreign Direct Investment. Unpublished paper, Uppsala University.

Garcia-Herrero, Alicia, and Le Xia. 2013. China's RMB Bilateral Swap Agreements: What Explains the Choice of Countries? Institute for Economies in Transition Discussion Paper No. 12/2013. Helsinki: Bank of Finland.

Goldberg, Linda, and Cedric Tille. 2005. Vehicle Currency Use in International Trade. Staff Report No. 200. New York: Federal Reserve Bank of New York.

Hatzvi, Eden, William Nixon, and Michelle Wright. 2014. The Offshore Renminbi Market and Australia. *RBA Bulletin* 53–62.

Helleiner, Eric, and Jonathan Kirshner editors. 2014. *The Great Wall of Money: Power and Politics in China's International Monetary Relations*. Ithaca, NY: Cornell University Press.

Krugman, Paul. 1980. Vehicle Currencies and the Structure of International Exchange. *Journal of Money, Credit and Banking 12*(3):513–526.

Krugman, Paul. 1984. The International Role of the Dollar: Theory and Prospect. In: *Exchange Rate Theory and Practice*, edited by John Bilson and Richard Marston, pp. 261–278. Chicago, IL: University of Chicago Press.

Li, Xiao, Junjiu Li, and Yibing Ding. 2004. On the "Asianization" of Renminbi. *The Journal of World Economy* 2004–2.

Liao, Steven, and Daniel McDowell. 2015. Redback Rising: China's Bilateral Swap Agreements and Renminbi Internationalization. *International Studies Quarterly 59*(3):401–422.

Lindert, Peter. 1969. Key Currencies and Gold, 1900–1913. Princeton Studies in International Finance No. 24. Princeton, NJ: International Finance Section, Princeton University, Department of Economics.

Matsuyama, Kiminori, Nobuhiro Kiyotaki, and Akihiko Matsui. 1993. Toward a Theory of International Currency. *Review of Economic Studies 60*(2):283–307.

McKinnon, Ronald. 1979. *Money in International Exchange: The Convertible Currency System.* New York: Oxford University Press.

Paniagua, Jordi. 2011. FDI Gravity Equation: Models, Estimations and Zeros. Unpublished paper. Valencia, Spain: Catholic University of Valencia.

Portes, Richard, Helene Rey, and Yonghyup Oh. 2001. Information and Capital Flows: The Determinants of Transactions in Financial Assets. *European Economic Review 45*(4):783–796.

Prasad, Eswar. 2014. *The Dollar Trap: How the US Dollar Tightened its Grip on Global Finance.* Princeton, NJ: Princeton University Press.

Subramanian, Arvind, and Martin Kessler. 2013. The Renminbi Bloc Is Here: Asia Down and the Rest of the World to Go. Working Paper No. WP 12–19. Washington, DC: Peterson Institute of International Economics.

Weir, Geoffrey. 2015. Offshore RMB Centres: Some Observations of Relevance to Sydney. Unpublished paper.

Whalley, John, and Chunding Li. 2014. China's Regional and Bilateral Trade Agreements. Voxeu.org, March.

Comments by Doo Yong Yang, **on RMBI or RMBR?**
Is the Renminbi Destined to Become a
Global or Regional Currency?

Doo Yong Yang: This paper analyzes the issue of Chinese renminbi (RMB) interna-
tionalization. The authors investigate whether the RMB will become a global or re-
gional currency based on China's economic conditions and institutional development.
This issue is related to the process of internationalization of the RMB, which includes
market-driven factors.

This issue of Chinese RMB started with the internationalization of the RMB in the late
2000s. In 2009, China established the dim sum bond market and expanded cross-border
RMB settlement, which helped establish pools of offshore RMB liquidity. Since then, RMB
internationalization has accelerated. In 2013, the Chinese RMB was the eighth most traded
currency in the world and the seventh most traded in early 2014. By the end of 2014, the
RMB ranked fifth as the most traded currency. In terms of interest rate derivative, its
amount is now ranked as tenth. Government efforts on pilot schemes and related liber-
alization measures with political motivation are behind this acceleration.

Market-driven factors also contributed to the internationalization of the RMB. First, an
increase in international trade, especially with Asian countries, has played an important
role. The rapid increase of trade with ASEAN and other Asian countries created an op-
portunity for both sides to use the RMB as a settlement currency. Also, China's export
to the world has dramatically increased since early 2000s. Finally, production fragmen-
tation and the vertical integration of supply chains have contributed to regional trade
with China.

In addition, the continuous appreciation of the RMB has contributed to its rapid interna-
tionalization. The appreciation of the RMB and the expectation of its continuous appre-
ciation of the RMB has encouraged foreign exporters to settle their trades with the RMB.
Even though the imbalanced currency settlement in China has prevailed, the use of the
RMB as a settlement has increased. According to recent studies (Mehl and Fratzscher
2011; Subramanian and Kessler 2012), the use of the RMB in trade settlement has in-
creased consequences for the RMB as a reserve currency.

Several factors, however, will challenge the current trend of the increasing role of the
RMB as a global or regional currency. First of all, development of financial markets and

RMB internationalization are incompatible. The internationalization of the yuan requires convertibility and liberalization of the capital account. Because of the fragility of the financial system and its lack of attractive financial instruments, however, China's liberalization of the capital account and hence the internationalization of the RMB might increase the probability of a financial crisis. Prasad and Ye (2012) propose a broader range of policy reforms—especially those related to financial market development, exchange rate flexibility, and capital account liberalization—as necessary steps that must be taken before the RMB can be used more internationally.

The current monetary and financial conditions are unfavorable to RMB internationalization. As mentioned, the strong value of the RMB against the U.S. dollar might be the reason for the recent increase in use of the Chinese yuan. Nevertheless, it seems that it will not be easy to maintain the strong RMB in times of U.S. interest hikes. This will hurt the role of the RMB as a regional currency.

The role of the RMB as a regional currency might be exaggerated. In this paper, the authors estimate the role of the RMB in Asia by estimating the Frankel and Wei regressions, where the value of the local currency against a numeraire (in this case, the Swiss franc). The model is as follows:

$$dln\left(\frac{X_t}{CHF_t}\right) = p_1 * dln\left(\frac{US\$_t}{CHF_t}\right) + p_2 * dln\left(\frac{RMB_t}{CHF_t}\right) + p_3 * dln\left(\frac{EUR_t}{CHF_t}\right)$$

$$+ p_4 * dln\left(\frac{JPY_t}{CHF_t}\right) + \alpha + e_t, \tag{1}$$

In this estimation, there is a multicollinearity problem. The coefficient p_2 might not be properly interpreted, because there are strong correlations between the yuan and the U.S. dollar.

In conclusion, it is natural that the RMB will be a global and regional currency as China becomes the world's second largest economy, largest trading nation, and the largest foreign reserves. For the next several years, however, the RMB will be challenged as the regional and global currency.

References

Mehl, Arnaud, and Marcel Fratzscher. 2011. China's Dominance Hypothesis and the Emergence of a Tripolar Global Currency System. *European Central Bank Working Paper*. Available at https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1392.pdf?efc669e7d00e51e4a3c38d4e5ed180c3

Prasad Eswar, and Lei Ye. 2012. Will the Renminbi Rule? *IMF Finance & Development 49*(1). Available at http://www.imf.org/external/pubs/ft/fandd/2012/03/prasad.htm

Subramanian, Arvind, and Martin Kessler. 2012. The Renminbi Bloc is Here: Asia Down, Rest of the World to Go? Peterson Institute for International Economics Working Paper. Available at https://piie.com/publications/working-papers/renminbi-bloc-here-asia-down-rest-world-go

Comments by Shigeyuki Abe, **on RMBI or RMBR? Is the Renminbi Destined to Become a Global or Regional Currency?**

Shigeyuki Abe: This paper gives an interesting and informative analysis through a superb literature survey and empirical tests of whether the renminbi (RMB) can be either a global or a regional currency. The idea set at the beginning is clear and the authors' conclusion is sharp because both negative and positive arguments for the RMB as a key currency are explained and no concrete future direction is shown, reflecting the fact that the paper has not only two views but also two authors.

Negative arguments are that the RMB is different from the US$, China has dubious macro statistics, and global currency requires more than RMB. The US$ was initially linked with gold until 1971 and hysteresis has kept the US$ as a strong global currency. Global currency rests on amazingly high score macro statistics, but China has questionable macro statistics. In particular, important conditions that China does not fulfill include free trade, free capital movement, and an independent central bank.

Positive arguments are such that China can exist in the vacuum of world leaders— namely, G7, which is obsolete, and G20, which is a mess. The Asian Infrastructure Investment Bank is well recognized, with the support of major countries except Japan and the United States. Another positive argument is that the increasing share in Special Drawing Rights composition supports the RMB as a key currency too.

Surely, the share of RMB in world trade is substantially increasing, but this is more or less the result of China's government-led strategy. It is quite a contrast to the case of Japan. For a long time, the Japanese government has tried to make the yen an international currency, albeit with no success. This is because private Japanese corporations have been hesitant to use yen for transactions and have been using US$ more to avoid the risk of exchange rate fluctuations. Chinese firms listen to and obey the Chinese government's intention and use RMB for transactions; this results in increases of the RMB share. One

fear that the RMB cannot be global or even regional rests on the behavior of Chinese firms in the future (since someday they might use RMB less and US$ more—just like Japanese corporations).

The assertion that the RMB can be global like the US$ is self-contradicting. The US$ is and will remain a global currency in the future, and there will be no chance for the RMB to replace the US$. This means that the future situation for the RMB, although global, is different from the current US$ dominant situation (i.e., two currencies, RMB and US$, coexist as global currency).

Two factors not discussed in the paper are the price-setting mechanism of most commodities including oil and the size of foreign exchange reserves of China and the United States. Major commodities are traded constantly on commodity exchanges around the world such as the Chicago Mercantile Exchange and the New York Mercantile Exchange. Because influential markets are in the United States and prices are set in US$, the US$ has strong advantage over the RMB in this regard. If one compares foreign exchange reserves, the U.S. advantage is clearer: As of May 2016, China has the largest, 3,507 trillion US$ worth, whereas the United States has 119 trillion US$ worth, 0.9 percent of that of China.[1] In other words, the United States does not have to hold much foreign exchange reserves These figures alone show that it is not likely for the RMB to play the role of the US$ in the near future.

The RMB can be regional as long as China ties the usage of RMB with official development assistance and trade. Even this depends on how much influence the Chinese government continues to successfully exert on the private sector with regard to RMB for transactions.

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[1] IMF. Data Template on International Reserves and Foreign Currency Liquidity. Available at http://data.imf.org/?sk=1117171F-7E11–4E80-A28E-439E4F3D1EEF&ss=1450382449040.

Summary of the General Discussion on "RMBI or RMBR? Is the Renminbi Destined to Become a Global or Regional Currency?"

Anwar Nasution emphasized that the approach to the question of the RMB's internationalization should be based on the role of money (i.e., as a medium of exchange, store of value, unit of account). From this perspective, he feels that the basic role of the RMB as money is difficult to fulfill. China has limited technology. He cited examples such as an iPad's parts being made elsewhere and simply assembled in China, as well as the fact that one cannot simply buy high-technology items such as a Boeing 747 from China owing to limited technology in China. The medium of exchange function will therefore have difficulty being met by the RMB as there is not much of value that can be bought in China. Tight capital controls in China also mean that there is no wide international trading of the RMB. The legal system necessary is also absent; there are high transaction costs because of the RMB's non-convertibility, and so given that the basic role of money is difficult to meet, it will take time for the RMB to be internationalized.

Chalongphob Sussangkarn said the distinction between the RMB becoming a regional versus a global currency is confusing given that China's relationship with the rest of the world is global. He expects the share of the RMB to increase. He asks whether the RMB be China-centric (trade between China and other countries), or will the RMB become the currency of choice by third-party trade and investment, as this is not the case today. He sees the need to make the use of the RMB less expensive and to make it attractive for people to hold RMB by reducing capital controls. He feels that all this will take a long time to unfold.

Lars Oxelheim noted that RMB internationalization is a tricky topic with two models being used. Two percent of RMB use is related to trade and 98 percent is due to speculation. The choice of currency is made by decision makers in society. He asserted that it is premature for the RMB to be a reserve currency unless the known preconditions for an optimum currency area (OCA) are fulfilled. There is a lack of transparency and deregulation in China. He said that the next step in the research would be to assess whether Asia is an OCA. In other words, the authors can try to calculate the benefits and costs of the RMB becoming like the euro is to Europe.

Sisira Jayasuriya pointed out that as the discussion is about the future, in terms of trade, distance is diminishing and should, by itself, should not be a major factor. What

are the conditions under which China's currency will become global—with capital account liberalization?

Some discussions could be misleading. China is a capitalist country with many distortions. Chinese currency trade is a small proportion of the total so how can an RMB depreciation of 4.4 percent be seen as chaotic? If there is no volatility in the exchange rate, there simply won't be trade in the currency. Looking forward, currencies of major countries become important.

Toshihiro Okubo stated that in the long run, the more important aspect is the interaction with the real economy. The issue of OCA is similar to this discussion.

Wing Thye Woo pointed to the importance of GDP size, how open the financial market is, and the state of the rule of law. In 2050, we may see China and India being of equal size. On the rule of law, India may have the rule of law but with low-quality implementation. The rupee might pose a challenge to the RMB. He also asked the question of how many currencies can be accommodated in the region.

Domenico Lombardi responded and pointed out that he and his co-author do not claim that the RMB will supplant the U.S. dollar, but simply that the RMB will become an international currency in the future. The share of RMB payments goes up and down. The authors noted that China has capital controls but the point is that they are looking at a longer-term scenario.

He emphasized that the issue of the region being an OCA is not really the point they are making. Traders hold euros not because Tunisia is more integrated with Europe.

On GDP size, he noted that if you are an issuer of currency and you are very large, this may have implications on internationalization.

He also stated that although the rupee might become a global currency, this was not the focus of their paper.