The Renminbi's Ascendance in International Finance

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The renminbi is gaining prominence as an international currency that is being used more widely to denominate and settle cross-border trade and financial transactions. Although China's capital account is not fully open and the exchange rate is not entirely market determined, the renminbi has in practice already become a reserve currency. Many central banks hold modest amounts of renminbi assets in their foreign exchange reserve portfolios, and a number of them have also set up local currency swap arrangements with the People's Bank of China. However, China's shallow and volatile financial markets are a major constraint on the renminbi's prominence in international finance. The renminbi will become a significant reserve currency within the next decade if China continues adopting financial-sector and other market-oriented reforms. Still, the renminbi will not become a safe-haven currency that has the potential to displace the U.S. dollar's dominance unless economic reforms are accompanied by broader institutional reforms in China.

1. Introduction

This paper considers three related but distinct aspects of the role of the renminbi in the global monetary system and describes the Chinese government's actions in each of these areas. First, I discuss changes in the openness of China's capital account and the degree of progress towards capital account convertibility. Second, I consider the currency's internationalization, which involves its use in denominating and settling cross-border trades and financial transactions—that is, its use as an international medium of exchange. Third, I trace the renminbi's evolution as a reserve currency.

It might seem premature to discuss the renminbi's ascendancy as a reserve currency or even as an international currency insofar as China has neither a flexible exchange rate nor an open capital account, once considered essential

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prerequisites for a country's currency to play a major role in global financial markets. Still, the Chinese government has recently taken a number of steps to increase the international use of the renminbi. Given China's sheer size and its rising shares of global GDP and trade, these steps are gaining traction and indicate the growing role of the renminbi in global trade and finance.[1]

This paper outlines some of the policy actions taken by the Chinese government to open up its capital account, which in turn will facilitate the currency's international use. China's approach to such policies is also closely linked to domestic macroeconomic objectives and financial market development. The paper reviews the potential implications of these changes for capital flows into and out of China and evaluates the renminbi's prospects for becoming a reserve currency based on a variety of conventional metrics. As it strives to meet these criteria, China faces two major challenges. First, it must properly sequence its capital account opening with other policies, such as exchange rate flexibility and financial market development, to improve the benefit/risk tradeoff. Second, it must commit to adequate financial market development, which involves strengthening the banking system along with developing deep and liquid government and corporate bond markets as well as foreign exchange spot and derivative markets.

What impact will the renminbi have on the global monetary system? Will it make a positive contribution to global financial stability? That depends on how, and how quickly, China opens up its capital account and develops its financial markets, as well as on other policy changes it enacts to support this process. It also depends on the implications of these policy initiatives for China's own growth and stability.

The main conclusions of the paper are as follows:

- China's capital account is likely to become largely open within the next three to five years, with few restrictions on capital inflows and outflows other than some "soft" controls related to registration and reporting requirements.
- The renminbi will play an increasingly important role in global trade and finance, with the currency being used more widely to denominate and settle cross-border transactions.
- Although the International Monetary Fund (IMF) has decided to include the renminbi in the basket of currencies that make up the IMF's special drawing rights basket in October 2016, this decision will not by itself transform the renminbi into a major reserve currency in terms of the currency composition of global foreign exchange reserves.

- The renminbi has in practice already become a reserve currency, as some central banks are holding modest amounts of renminbi assets in their foreign exchange reserve portfolios. A number of central banks have also set up local currency swap arrangements with the People's Bank of China (PBC).
- Although China's rapid growth will help promote the international use of its currency, its low level of financial market development is a major constraint on the renminbi's prominence in international finance.
- The renminbi will become a significant reserve currency within the next decade if China continues adopting financial-sector and other market-oriented reforms. However, the renminbi will erode but will not displace the dollar's dominance unless economic reforms are accompanied by broader institutional reforms in China. This does not appear likely.

2. Capital Account Opening

In this section, I document and assess China's capital account openness in both de jure and de facto terms.[2] An initial question is why capital account liberalization appears to be a priority for China, given the many domestic challenges the economy faces. China's approach is consistent with the objective of improving the benefit–cost tradeoff of capital account liberalization by undertaking liberalization in a controlled manner that provides a number of collateral (indirect) benefits while reducing the risks associated with having a fully open capital account (see Kose et al. 2009 for an analytical discussion).

The liberalization of inflows is important for attaining certain such collateral benefits. The liberalization undertaken thus far has allowed foreign investors to play a larger role in developing and deepening China's financial markets, and, as it continues, such investors will provide further impetus to this process. For instance, there is a significant body of evidence indicating that liberalizing portfolio inflows helps improve liquidity in the domestic equity markets of emerging economies. This, along with the entry of foreign banks, would increase competition in the banking sector, which in turn would benefit private savers and borrowers. Other segments of China's financial sector, including the insurance sector, have depended on capital controls and other entry restrictions to stay competitive. These segments will face greater competition with more open inflows. With effective regulation, this could lead to significant efficiency gains.

Liberalizing outflows also generates a number of collateral benefits for the domestic economy. It provides Chinese households with opportunities to diversify their savings portfolios internationally and stimulates domestic financial reforms by creating competition for domestic banks with captive domestic sources of funds. An additional benefit from the central bank's perspective is that, when the currency experiences sharp appreciation pressures, private capital outflows could serve as an alternative to official reserve accumulation (Prasad and Rajan 2008).[3]

Capital account liberalization could also have broader benefits for China. An open capital account would catalyze progress toward the objective of making Shanghai an international financial center. Capital account opening, especially if accompanied by greater exchange rate flexibility, could also strengthen China's domestic economic structure. It would facilitate financial-sector reforms, allowing for a rebalancing of growth away from reliance on exports and investment-driven growth to a more balanced model of growth, with larger contributions from growth in private consumption.[4]

2.1. De Jure and De Facto Capital Account Openness

De jure measures of capital account openness typically rely on binary indicators from the IMF's *Annual Reports on Exchange Arrangements and Exchange Restrictions* (*AREAER*). These binary measures reflect the existence of restrictions on any of a large number of categories of inflows and outflows. These measures change only when there is a relatively major policy shift related to specific capital account items. *AREAER* indicates that, as of 2013, China imposed restrictions of some sort in 14 out of 16 broad categories of capital inflows and in 15 out of 16 categories of capital outflows.

Conventional measures of de jure financial openness drawing on *AREAER* data show little, if any, change in China over the past decade. For example, the popular Chinn-Ito index has registered little change in China's de jure openness since 1993 (see Chinn and Ito 2006 and subsequent updates). The index, which is based on a statistical procedure that aggregates information from several categories covered by *AREAER*, ranges from 2.39 (most financially open) to –1.89 (least financially open). A higher value corresponds to a greater degree of de jure capital account openness.

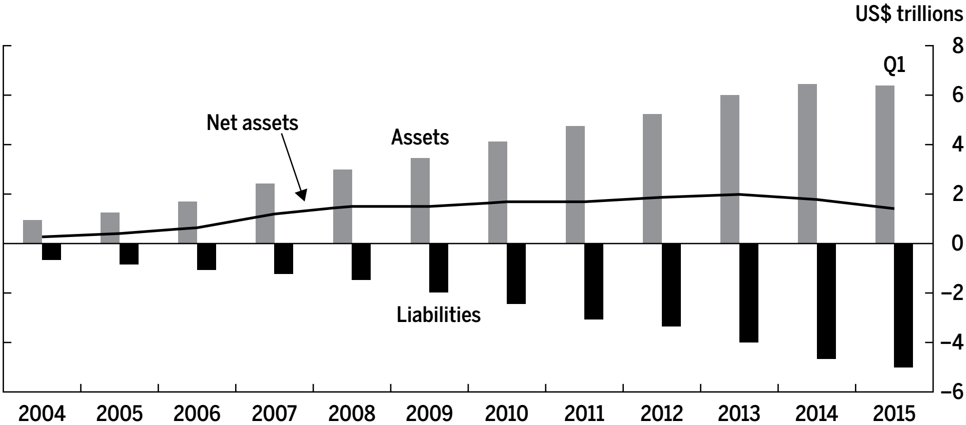
The reserve currency economies have the same index value of 2.39, which is the maximum and indicates a fully open capital account. The value of this index for China in 2013 is –1.19, compared with an average that is close to the maximum for advanced economies, 0.3 for emerging market economies, and 0.1 for less developed economies. China's index jumped from –1.89 to –1.19 in 1993 but has not changed since then. This value indicates a relatively closed capital account characterized by capital controls that are, on paper, extensive and stringent.

Standard de jure indices often fail to capture subtle or limited changes because they tend to be aggregated across finer categories of inflows or outflows. The number and magnitude of relaxations of capital account restrictions have gathered pace in the past few years, consistent with the active promotion of the renminbi as an international currency. In most cases, constraints on inflows and outflows have been made less stringent rather than being eliminated entirely.[5]

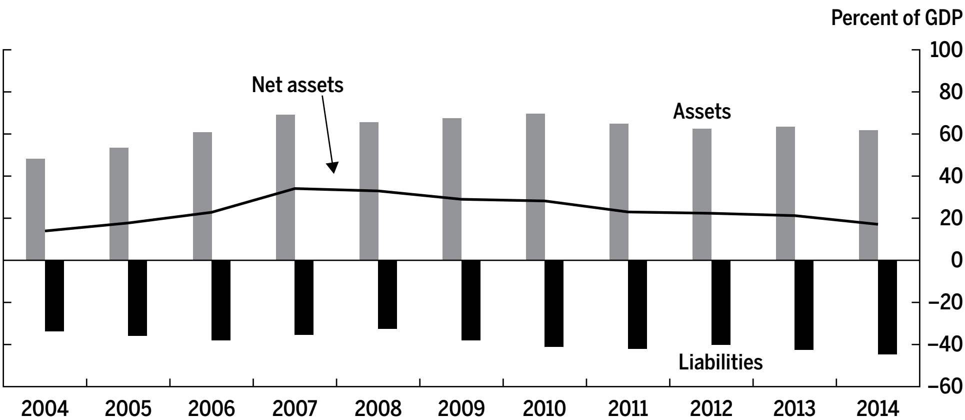
An alternative and complementary approach to evaluating an economy's financial openness is to analyze de facto measures of integration into global financial markets. Figure 1 shows China's gross external assets and liabilities,

FIGURE 1
China's External Assets and Liabilities

A Levels



B Ratios to Nominal GDP



Sources: State Administration of Foreign Exchange (SAFE) and CEIC.

along with its net asset position, both as levels (upper panel) and as ratios to nominal gross domestic product (GDP) (lower panel) from 2004 to the first half of 2015.[6] Both assets and liabilities have risen sharply over the last decade. As of the second half of 2015, China has $6.4 trillion in foreign assets and $5 trillion in foreign liabilities.

The academic literature often measures financial openness by reference to an economy's gross assets plus liabilities position (i.e., its gross external position) either in levels or as a ratio to GDP (see Kose et al. 2009). For China, the ratio of gross assets and liabilities to GDP is now just over 100 percent. In terms of levels, China's gross external position exceeds those of all the other key emerging markets and also that of Switzerland (Prasad and Ye 2012). As a share of GDP, its openness lags behind that of the reserve currency economies. Among emerging markets, however, China's de facto measure of openness is relatively high, exceeding those of countries such as Brazil and India.

2.2. Controlled Capital Account Liberalization: Channels for One-Way Flows

China's government has created a number of schemes that allow for controlled and calibrated opening up of the capital account to both inflows and outflows. These schemes have been designed to generate many of the collateral benefits of financial openness while creating freer movement of capital.

2.2.1. Qualified Foreign Institutional Investor (QFII) Scheme[7]

The QFII scheme, introduced in December 2002, allows QFIIs to convert foreign currency into renminbi and invest in a range of renminbi-denominated financial instruments that include A shares, B shares, treasury securities, convertible bonds and enterprise bonds listed on China's stock exchanges, securities investment funds, and warrants and other financial instruments approved by the China Securities Regulatory Commission (CSRC). The scheme seeks to attract high-quality and stable (medium-to-long-term) foreign portfolio investments while deterring short-term speculative inflows of foreign capital. One of the scheme's main objectives is to promote the development of China's securities market. QFIIs are typically foreign fund management institutions, insurance companies, securities companies, and other asset management institutions.

The CSRC (which licenses QFIIs) and SAFE (Safe Administration of Foreign Exchange, which approves investment quotas for each QFII) have established eligibility criteria with the explicit goal of blocking short-term, speculative capital inflows of foreign capital and inviting investors such as pension, insurance, mutual, and charitable funds that have long-term investment horizons. Foreign institutional investors applying for QFII status are required to meet minimum eligibility criteria related to the number of years of operation, the dollar value of total assets under management (AUM), and sound financial status and corporate governance. They are further required to be domiciled in countries with sound legal and regulatory systems and whose securities market regulators have entered into memoranda of understanding for maintaining regulatory cooperation with the CSRC.

QFII eligibility criteria related to the minimum number of years of operation and the minimum total AUM in the most recent fiscal year have been progressively liberalized to allow an increasing number of foreign institutional investors—smaller and lesser known ones—to undertake portfolio investment in China.

SAFE has demonstrated a clear policy thrust towards liberalizing the flows of foreign portfolio investment via the QFII channel by increasing the aggregate amount available for allocation as QFII quotas, and also by relaxing the maximum quotas for individual QFIIs. As of July 2015, the total investment quota awarded under the scheme was about $76.6 billion, covering nearly 300 institutions. The CSRC also announced that it intends to raise the total QFII quota from $80 billion to $150 billion. Until recently, only a handful of sovereign wealth funds, central banks, and monetary authorities were allowed to invest more than $1 billion. In March 2015, the $1 billion investment quota limit for overseas fund management companies was lifted as part of the effort to further open up the country's capital market and pursue structural reforms.

Over the period 2004–11 QFIIs held, on average, 67 percent of their total assets in A shares. However, QFII investments in the A-share market have remained small compared with the overall size of that market; A shares held by QFIIs accounted for less than 2 percent of the tradable capitalization of the A-share market. Thus, any effects of the QFII scheme on securities market development have been largely catalytic rather than directly substantive in nature.

2.2.2. Renminbi Qualified Foreign Institutional Investor (RQFII) Scheme

The RQFII pilot program was launched in late 2011. The key difference relative to the QFII program is that RQFIIs can use offshore renminbi directly to invest in mainland markets. QFIIs must first convert their foreign currency funds into renminbi before purchasing equities and securities in onshore markets. Thus, the RQFII scheme may be seen as a response of China's authorities to the expansion of the pool of offshore renminbi funds.

This scheme, like the QFII scheme, requires financial institutions to apply for licenses from the CSRC and for investment quotas from SAFE. Approved institutions need to open special renminbi accounts separately to invest on foreign exchange markets, interbank bond markets, and stock index futures in domestic custodian banks. Movements of funds under the RQFII scheme are subject to various restrictions. Funds that can be remitted inward include investment principal remitted inward from overseas, amounts required for payment of the relevant taxes and fees, and other renminbi funds permitted by the PBC and SAFE to be remitted inward. Funds that can be remitted outward include income from the sale of domestic securities, cash dividends and interest, and other renminbi funds permitted by the PBC and SAFE to be remitted outward. These funds may be remitted outward in renminbi or in foreign exchange purchased with renminbi.

Initially, only Hong Kong subsidiaries of Chinese financial institutions were eligible for RQFII licenses. Since 2014, the scheme has been expanded to additional Hong Kong banks and asset managers and subsequently also to financial institutions in the United Kingdom, Singapore, South Korea, France, Germany, Australia, and Switzerland. As of July 2015, 135 financial institutions, including foreign branches of Chinese financial institutions and foreign institutions, had been granted a total quota of $64.3 billion under this scheme. Financial institutions from Hong Kong, many of which are Hong Kong branches of mainland financial institutions, are still the major players. Hong Kong now accounts for $43 billion of the allocated RQFII quota and South Korea accounts for $8 billion.

2.2.3. Qualified Domestic Institutional Investor (QDII) Scheme

The QDII (qualified domestic institutional investor) scheme, launched in 2006, allows Chinese domestic financial institutions (commercial banks, securities companies, fund management companies, and insurance companies) to invest in offshore financial products such as securities and bonds. Financial institutions must first apply for a QDII license from the relevant regulatory agencies (the Securities, Banking, or Insurance Regulatory Commission) and then seek a quota allocation from SAFE.[8] The scope of the investment under the QDII program is subject to certain restrictions, with investment in bank deposits, debt securities, stocks, bonds, and derivatives being allowed, while investments in real estate and precious metals are forbidden. The approved investment destinations for QDIIs include Hong Kong, the United Kingdom, the United States, Singapore, Japan, Korea, Luxembourg, Germany, Canada, Australia, and Malaysia.

As of May 2015, 132 institutions have been granted QDII licenses and a total quota of $90 billion which, broken down by institution type, is as follows:

securities companies ($38 billion), insurance companies ($31 billion), banks ($14 billion), and trust companies ($8 billion).

2.2.4. Qualified Domestic Individual Investor (QDII2) Scheme

The proposed Qualified Domestic Individual Investor scheme, commonly known as QDII2, will expand the QDII scheme from institutional to individual retail investors. It is to be launched initially in six Chinese cities: Shanghai, Tianjin, Chongqing, Wuhan, Shenzhen, and Wenzhou. News reports indicate that the new pilot scheme will allow individuals with at least 1 million renminbi (roughly $160,000) in assets to invest directly overseas in securities, stocks, and real estate. At present, the maximum amount in local currency that individuals can exchange for foreign currency is subject to an annual cap of $50,000; this restriction would not apply to investors under QDII2.

2.3. Controlled Capital Account Liberalization: Two-Way Flows

2.3.1 Free Trade Zones

China has extended its experimental, learning-by-doing approach to reforms to the context of the capital account liberalization program. We see one manifestation of this in the form of free trade zones (FTZs) that are islands of capital account convertibility within China. The Shanghai Pilot Free Trade Zone was officially launched in September 2013. In April 2015, China's State Council released official documents to launch three new FTZs—in Guangdong, Tianjin, and Fujian.

Key features of the FTZs include the following: (1) without seeking approval from the PBC, banking institutions in the zone are free to process cross-border renminbi settlements under current accounts and under direct investment for entities; (2) companies in the zone are allowed to borrow renminbi offshore, although these funds cannot be used outside the FTZ and cannot be invested in securities or used for extending loans; (3) voluntary foreign exchange settlement by foreign-invested enterprises (FIEs) within the zone is permitted, allowing FIEs to convert foreign currency in their capital account into renminbi at any time; (4) qualified foreign-invested banks are allowed to set up subsidiaries, branches, or special institutions, and to upgrade existing sub-branches to branches; (5) qualified private investors can enter the banking sector in the FTZ and set up banks, finance leasing companies, consumer finance companies, and other finance institutions; and (6) the government has indicated its intention to support banking institutions in the FTZ to develop cross-border financing services.

The Shanghai FTZ uses a "negative list" structure to regulate foreign investment. This implies that investment in other sectors is mostly unrestricted, although some administrative procedures must still be followed. The 2015 negative list contains 122 prohibited or restricted areas, down from 139 on the 2014 negative list.

The FTZs provide a significant channel for two-way capital flows through the banking system as well as through corporates, although there is in principle a firewall between each FTZ and the rest of the mainland. Over time, these walls are likely to erode since there are multiple financial institutions and corporations operating on both sides. Nevertheless, the FTZ approach does provide the government with another controlled approach to capital account opening.

2.3.2. The Shanghai–Hong Kong Stock Connect

Another approach to selective and calibrated capital account liberalization involves implementing a stock connect program that creates another channel for cross-border equity investments by a broad range of investors, including retail investors. The "stock connect" link between the Shanghai and Hong Kong stock exchanges was officially launched in November 2014. The program allows mainland Chinese investors to purchase shares of select Hong Kong and Chinese companies listed in Hong Kong (southbound investment), and lets foreigners buy Chinese A shares listed in Shanghai (northbound investment) in a less restrictive manner than had previously been the case.

Trading under this program in each direction is subject to a maximum cross-border investment quota (i.e., an aggregate quota), together with a daily quota. The northbound aggregate quota is set at 300 billion renminbi, with the daily quota being 13 billion renminbi. The corresponding southbound quotas are 250 billion renminbi (aggregate) and 10.5 billion renminbi (daily). The Stock Exchange of Hong Kong (SEHK) and Shanghai Stock Exchange monitor compliance with these quotas. Enforcement of the daily and annual quotas is managed through the structure of the settlement mechanisms.[9]

This investment channel has been used quite extensively. The northbound daily quota was used up on the launch day and has been consistently high (until this summer, when the Chinese stock market began to fall sharply), while the southbound daily cap was hit for the first time in April 2015.

2.3.3. Mutual Fund Connect

This program, launched in July 2015, allows eligible mainland and Hong Kong funds to be distributed in each other's markets through a streamlined vetting process. Along with the Stock Connect programs, this substantially increases the range of equity investment products available to investors on both sides and provides yet another channel for bidirectional flows of capital. The major difference between the two schemes is that the stock connect program allows retail investors to invest directly in equities, while the mutual funds program allows funds to sell their products to investors on both sides.

Eligibility for Mutual Fund Connect is limited to general equity funds, bond funds, mixed funds, unlisted index funds, and index-tracking exchange-traded funds (ETFs). Gold ETFs, listed open-ended funds, funds of funds, structured funds, and guaranteed funds are not eligible. Another criterion is that the fund must be a publicly offered securities investment fund registered with the CSRC under the Securities Investment Fund Law of the People's Republic of China or the Securities and Futures Commission under the Securities and Futures Ordinance of Hong Kong. There are additional requirements related to the minimum fund size, the minimum period for which the fund has been in existence, and so on. The initial investment quota for the scheme is 300 billion renminbi for fund flows in each direction.

2.4. Summary

In short, while China still has an extensive capital control regime in place, it is selectively and cautiously dismantling these controls. Many of the restrictions on cross-border capital flows have been loosened over time, consistent with the active promotion of the renminbi as an international currency. In most cases, constraints on outflows and inflows have been made less stringent rather than being eliminated entirely. Consequently, the country's capital account is becoming increasingly open in de facto terms, but the government is far from allowing the extent of free flow of capital that is typical of reserve currencies.

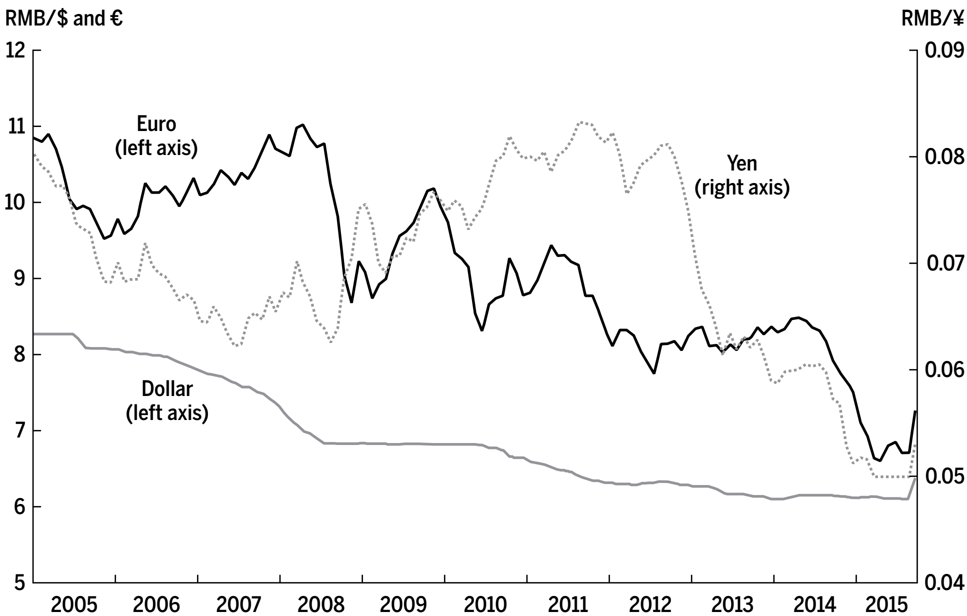
China's selective and calibrated approach to capital account liberalization has been effective at promoting the renminbi's international presence without risking the potentially deleterious effects of complete capital account liberalization. However, the full potential of the Chinese currency's international use cannot be realized without more active onshore development. It will be difficult, for instance, to fully develop China's foreign exchange and derivatives markets in the absence of a more fully open capital account.

An interesting issue is whether there is a policy goal short of complete capital account convertibility that provides a better risk/benefit tradeoff. Joseph Yam (2011), the former head of the Hong Kong Monetary Authority, has argued that China's long-term objective ought to be full capital account convertibility, which he defines as relaxation of capital controls but maintenance of "soft" controls in the form of registration and reporting requirements for regulatory purposes. He draws a careful distinction between this and an entirely unfettered capital flow regime, referred to as free capital account convertibility. This is a subtle but important distinction that aptly characterizes the Chinese approach to capital account liberalization, given that full convertibility by this definition provides a path to an open capital account without entirely ceding control to market forces.

3. The Exchange Rate Regime

The value of the renminbi was tightly managed against the U.S. dollar, but it was allowed to appreciate gradually against the dollar starting in July 2005. In principle, starting at that time the PBC implemented a managed floating exchange rate mechanism, with the currency's value determined by market demand and supply, and with reference to a basket of currencies. The PBC would announce the reference rate (relative to the U.S. dollar) at which the renminbi would begin trading each day, with intraday volatility of plus or minus 0.3 percent

FIGURE 2
China: Bilateral Exchange Rates
(renminbi per unit of foreign currency)



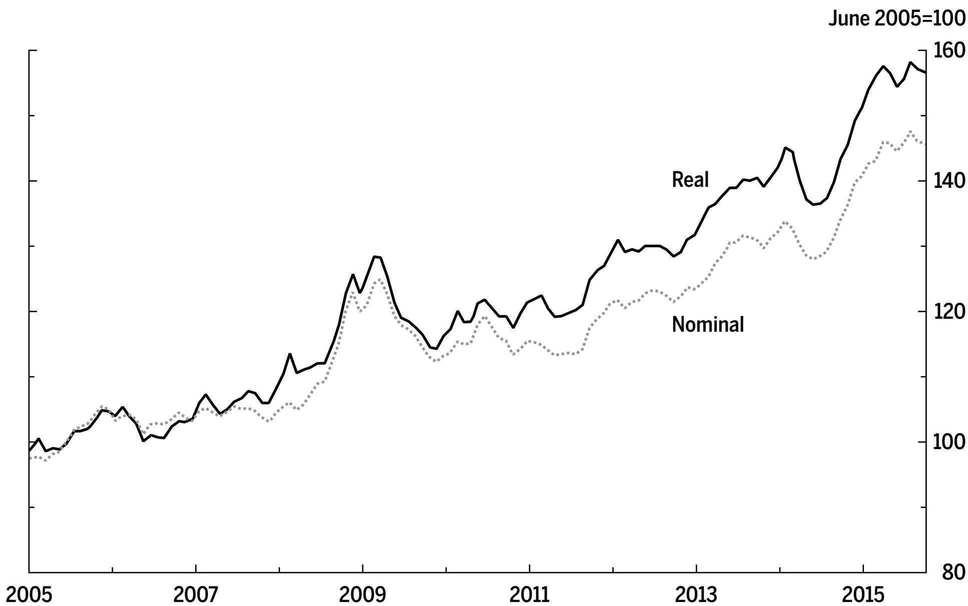
Source: SAFE.

Notes: The left scale shows the renminbi's exchange rates relative to the U.S. dollar and the euro. The right scale shows the renminbi's exchange rate relative to the Japanese yen. A decrease denotes appreciation of the renminbi. An increase denotes depreciation.

permitted. In reality, the practice of managing the value of the renminbi relative to the U.S. dollar was not abandoned and the amount of daily volatility was quite limited, although over time the renminbi was allowed to appreciate gradually relative to the dollar. Since June 2005, the renminbi has appreciated by nearly 30 percent relative to the U.S. dollar (as of November 5, 2015) and by over 40 percent relative to the euro and the Japanese yen (Figure 2). It has also appreciated substantially on a trade-weighted basis. From June 2005 to September 2015, the nominal effective exchange rate appreciated by 48 percent, while the CPI-adjusted real effective exchange rate appreciated by 58 percent (Figure 3).

In May 2007, the daily trading band was widened to 0.5 percent in each direction relative to the reference rate. With the onset of the global financial crisis, the hard peg to the dollar was reinstituted in July 2008 before being relaxed again in June 2010. In April 2012, the daily fluctuation band of the renminbi–dollar exchange rate was widened to 1 percent on either side of the reference rate set by the PBC. In March 2014, the daily fluctuation band was widened further to 2 percent on each side.

FIGURE 3
China: Effective Exchange Rates



Source: Bank for International Settlements.
Notes: An increase denotes appreciation of the renminbi. A decrease denotes depreciation.

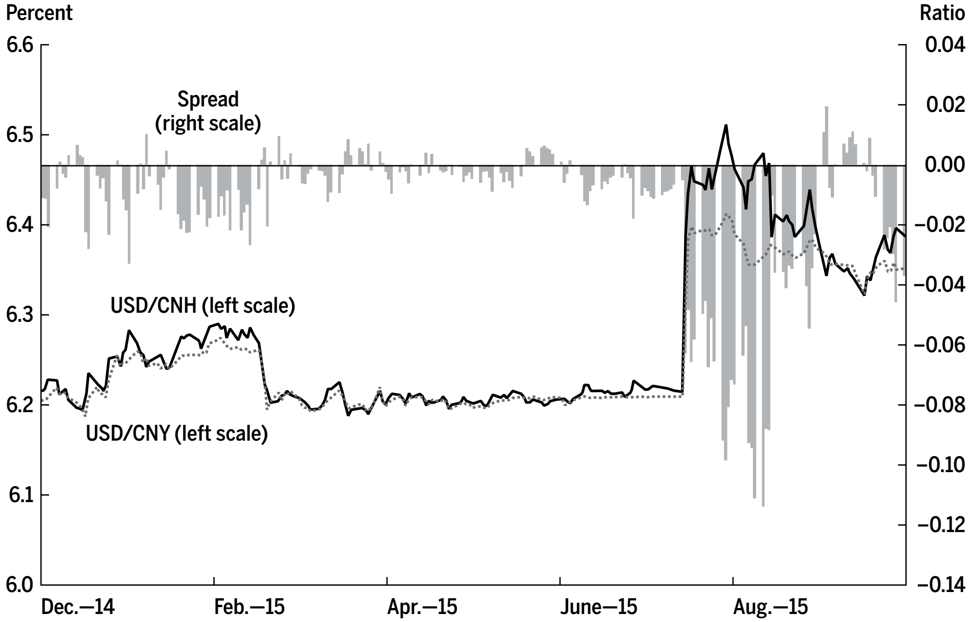
Despite these moves, which were designed ostensibly to increase currency flexibility, over the last decade the volatility of China's nominal exchange rate against the dollar, as measured by the standard deviation of changes in monthly exchange rates, has been the lowest among the major emerging market economies (Prasad and Ye 2012 and updates). China's trade-weighted effective exchange rate measures (nominal and real), which tend to track each other closely, are more volatile than the yuan–dollar exchange rate. The gap in exchange rate volatility relative to that in other emerging markets is smaller using these measures, but China still has the lowest level of volatility in this group. In other words, China now displays greater flexibility in its effective exchange rates but this flexibility remains quite low.

By limiting the flow of money, the capital account restrictions help control the value of the renminbi, which now trades on both onshore (CNY) and offshore (CNH) markets. Onshore trade takes place through the China Foreign Exchange Trade System, which is in effect managed by the PBC. Offshore trades take place mostly on the Hong Kong Interbank Market. Mainland government regulations mandate these separate markets for trading renminbi. The onshore market is subject to the mainland's capital account restrictions, and the renminbi's value on that market is therefore higher under the PBC's control. In contrast to the CNY market, the CNH market is not subject to direct official control or intervention.

The two exchange rates became more closely linked after a series of developments in the last quarter of 2010 boosted renminbi-denominated financial transactions (Figure 4). This includes the approval granted to financial institutions and banks in Hong Kong to open renminbi accounts and for Hong Kong banks to access the onshore interbank market, activation of a swap line between the PBC and the Hong Kong Monetary Authority, and a flurry of renminbi-denominated bond issuance activities. These measures have lowered transaction costs for eligible financial market participants seeking to access both markets. The two rates have moved in lockstep for much of the period since the end of 2010, reflecting the rising integration of China's onshore and offshore financial markets. Before this period, the renminbi was typically more valuable offshore.

On a conceptual basis, three operational elements characterize China's onshore exchange rate system. The first is the reference-pricing mechanism, whereby in the morning of each trading day the PBC sets the opening price on the Shanghai China Foreign Exchange Trading System. The second, a 2 percent trading band around the central parity, determines the maximum amount of intraday volatility in the renminbi–dollar exchange rate. The third involves

FIGURE 4
Onshore (CNY) and Offshore (CNH) Spot Renminbi–Dollar Exchange Rates



Source: Bloomberg.
Notes: This chart shows daily data (end of the day) on the onshore and offshore spot exchange rate markets. The spread is defined as the USD/CNY minus USD/CNH.

a dirty float to moderate exchange rate fluctuations when the PBC determines that the exchange rate is overshooting on one side or the other.

On August 11, 2015 the PBC changed the first element of the exchange rate management mechanism, combined with a 1.9 percent devaluation of the renminbi relative to the dollar. In principle, the PBC now sets the morning fixing at the same level as the closing price on the previous trading day. This change is fully consistent with onshore foreign exchange market intervention by the PBC during the trading day in Shanghai to manage the level of the exchange rate. The other two elements were left unchanged.

The shift in the exchange rate regime that was combined with a currency devaluation event on August 11, 2015 set off a sharp divergence between the CNY and CNH rates. The renminbi was for much of the remainder of the month worth less on the offshore markets than on the onshore markets, reflecting downward pressures on the renminbi as markets appear to have interpreted the government's move as possibly being the first in a series of devaluations intended to support the weak economy by boosting exports. By intervening in the CNY market, the government was able to limit the downward pressures on the renminbi–dollar exchange rate but at the cost of opening up a spread between the onshore and offshore rates. By mid-September 2015, the gap between the CNY and CNH exchange rates had closed. Press and analyst reports suggest that the PBC and Chinese state-owned commercial banks intervened directly in the CNH market to facilitate this outcome. By early October, however, a gap between the two exchange rates had opened up again. It remains to be seen if the PBC will in fact allow the onshore rate to float more freely and thereby lead to a natural, market-led convergence of the two rates.

4. China's External Position: Stocks and Flows

4.1. The External Balance Sheet

Starting in 2015, China began reporting its international investment position (IIP) based on the IMF's latest *Balance of Payments and International Investment Position Manual* (*BPM6*). A major change, according to SAFE, is that the key IIP items are now reported using the market capitalization method rather than the historical flow accumulation method. Data through 2014 are still reported based on *BPM5*. Hence, comparisons of the 2015 IIP with those of prior years are not feasible. It should be noted that SAFE started reporting balance of payments data based on *BPM6* standards earlier, so those data are in fact comparable over time. This inconsistency between the IIP and balance of payments data points to difficulties in matching flow and stock measures in earlier years.

An examination of China's international investment position in 2015 (at the end of the second half of the year) reveals a number of interesting features (Table 1). Foreign exchange reserves account for 58 percent of China's external assets. Foreign direct investment accounts for 57 percent of China's external liabilities, while portfolio equity liabilities account for another 14 percent. Portfolio debt and other investments (which typically capture bank loans) account for 29 percent of external liabilities. The relatively low share of external debt in China's external liabilities, as well as the fact that foreign exchange reserves are more than sufficient to cover them, suggests that China is not exposed to the vulnerability caused by high levels of external debt that has precipitated past crises in many emerging market economies.

China's foreign exchange reserves, which peaked at $3.99 trillion in June 2014, have fallen to $3.51 trillion in September 2015 (Figure 5). Reserves had been rising for a number of years until the second half of 2014. Starting in the third quarter of 2014, China's reserves have fallen for five consecutive quarters. This decline was partly accounted for by currency valuation effects, as

TABLE 1

Currency Distribution of Global Foreign Exchange Market Turnover

(selected currencies, in percent)

	2001	2004	2007	2010	2013
U.S. dollar	89.9	88.0	85.6	84.9	87.0
Euro	37.9	37.4	37.0	39.1	33.4
Japanese yen	23.5	20.8	17.2	19.0	23.0
Pound sterling	13.0	16.5	14.9	12.9	11.8
Australian dollar	4.3	6.0	6.6	7.6	8.6
Swiss franc	6.0	6.0	6.8	6.3	5.2
Indian rupee	0.2	0.3	0.7	1.0	1.0
Russian ruble	0.3	0.6	0.7	0.9	1.6
Chinese renminbi	0.0	0.1	0.5	0.9	2.2
South African rand	0.9	0.7	0.9	0.7	1.1
Brazilian real	0.5	0.3	0.4	0.7	1.1
All currencies	200.0	200.0	200.0	200.0	200.0

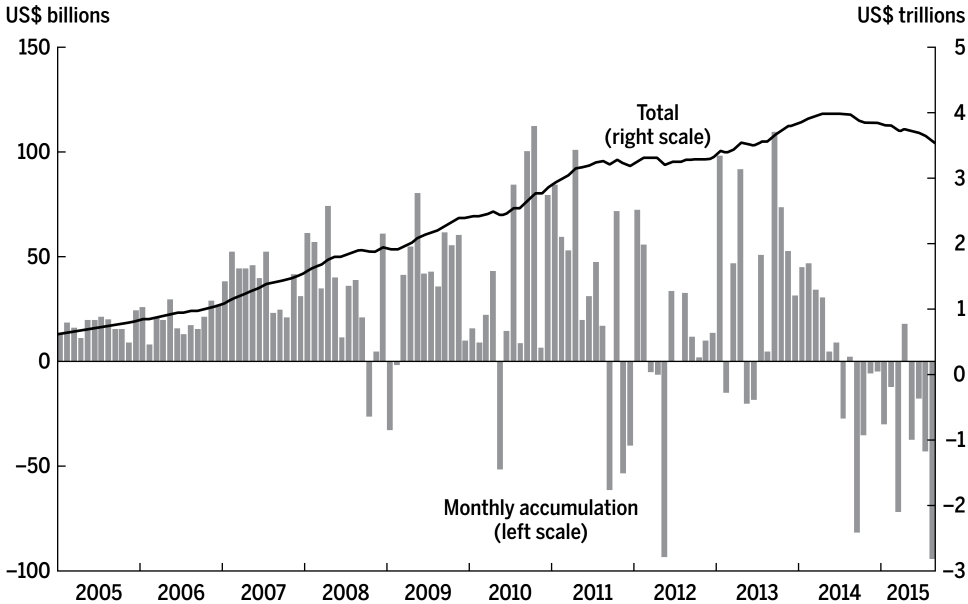
Source: BIS Triennial Central Bank Survey.

Notes: The percentage shares of individual currencies sum to 200 percent, because two currencies are involved in each transaction. Data are adjusted for local and cross-border interdealer double counting (i.e., "net-net" basis).

FIGURE 5

China: Foreign Exchange Reserves

(monthly accumulation in billions of dollars; total level in trillions of dollars)



Source: People's Bank of China.

the dollar value of China's holdings of euro- and yen-denominated assets has declined due to the depreciation of those currencies relative to the U.S. dollar. The remainder signals intervention by the PBC to keep the renminbi's value relative to the dollar stable in the face of large shifts in its balance of payments. The fall in China's reserves appears to have picked up pace during 2015, with a particularly steep fall of about $94 billion in August 2015.

The composition of China's external assets and liabilities has resulted in the paradoxical outcome that, despite China's being a substantial net external creditor, net foreign income flows have in fact been negative in recent years, for two reasons. First, China's foreign investments are largely concentrated in low-yielding advanced-economy bonds. This is dictated by the need to keep foreign exchange reserves, which constitute the dominant portion of external assets as noted earlier, in safe and liquid financial instruments, even at low yields. By contrast, foreign investors have gotten better returns on their foreign direct investment (FDI) and portfolio equity investments in China. Second, the renminbi has appreciated significantly relative to the G-3 currencies over this period.

I computed the approximate gross returns on China's external assets by comparing gross inward investment income flows in a given year with the total stock of external assets at the end of the previous year. I used a similar procedure to compute the approximate gross returns on China's foreign liabilities, i.e., the gross investment income earned by foreign investors on their investments in China. While these estimated returns are crude approximations, the patterns they reveal are still striking and unlikely to be overturned by more sophisticated calculations. Table 2 shows that, in every year over the last decade, China has received a substantially lower return on its foreign assets than it has paid out on its foreign liabilities. The average annual difference between the gross return on liabilities versus the gross return on assets is 3.76 percent. There are only two years when the net income flow was slightly positive despite this return differential; this was because the stock of foreign assets has been substantially larger than the stock of foreign liabilities.

4.2. External Accounts—Flows

China's external flow imbalances have to a large extent dissipated since the global financial crisis. China's current account and trade surpluses have shrunk markedly relative to their peaks in 2007, when they hit 10.1 percent and 7.6 percent of GDP, respectively. On a rolling four-quarter basis, the two ratios stood at 2.8 percent and 3.4 percent, respectively, in the first quarter of 2015 (Figure 6). We can attribute these shifts to two factors—the lower level of China's trade surplus in recent years and the recent deficit on the capital account, implying

TABLE 2

Geographical Distribution of Global Foreign Exchange Market Turnover

(selected economies, in percent)

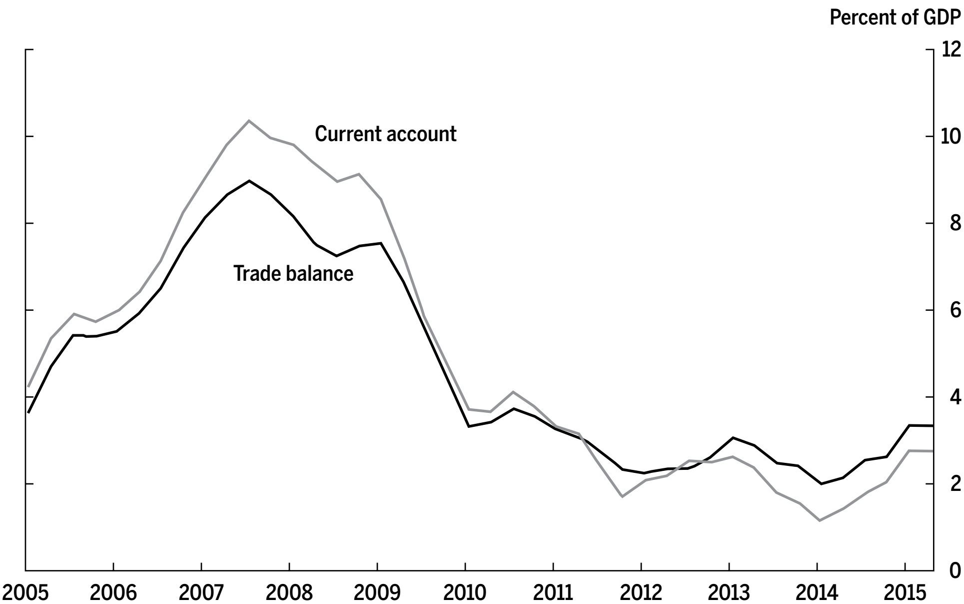
	2001	2004	2007	2010	2013
United Kingdom	31.8	32.0	34.6	36.8	40.9
United States	16.0	19.1	17.4	17.9	18.9
Singapore	6.1	5.1	5.6	5.3	5.7
Japan	9.0	8.0	5.8	6.2	5.6
Hong Kong	4.0	4.1	4.2	4.7	4.1
Switzerland	4.5	3.3	5.9	4.9	3.2
Germany	5.4	4.6	2.4	2.2	1.7
Russia	0.6	1.1	1.2	0.8	0.9
China	—	0.0	0.2	0.4	0.7
India	0.2	0.3	0.9	0.5	0.5
Brazil	0.3	0.1	0.1	0.3	0.3
South Africa	0.6	0.4	0.3	0.3	0.3
Total	78.5	78.1	78.6	80.3	82.8

Source: BIS Triennial Central Bank Survey (Foreign Exchange Turnover, Table 6 in April 2013).

Notes: Other countries with at least a 1 percent share include Australia, France, Canada, Denmark, and the Netherlands. A dash (—) indicates that data were not available for that year. Data are adjusted for local interdealer double counting (i.e., "net-gross" basis). Estimated coverage of the foreign exchange market ranged between 90 percent and 100 percent in most countries.

FIGURE 6

China: Current Account and Trade Balances



Sources: SAFE and National Bureau of Statistics.

Notes: Current account balance (gray line) and the goods and services trade balance (black line) are both expressed as ratios to nominal GDP. The figure shows four-quarter trailing moving averages for both variables.

that more capital (other than through accumulation of international reserves) flowed out of the country relative to the amount that came in. This represents an important change in the nature of China's overall capital exports (which is equivalent to the current account surplus). Balance of payments data show that, in 2014, China's current account surplus was $220 billion, while the increase in international reserves was $118 billion. This implies that other net capital outflows, including private outflows and non-reserve official outflows, amounted to $102 billion in 2014.[10] In fact, most of these net outflows went through unofficial channels. The net errors and omissions in 2014 amounted to –$140 billion, and the financial account registered a small surplus of $38 billion.

In the first half of the year, the trade surplus to GDP ratio rose to 5.1 percent, while the current account to GDP ratio was 2.9 percent. This resurgence in the trade surplus appears largely to reflect domestic demand conditions, as import growth has fallen more sharply than export growth, driving up the trade balance. The difference between the current account and trade surpluses again reflected capital outflows, this time through a capital account deficit as well as negative net errors and omissions. These outflows were tempered by a decline in the stock of reserves (which, in a balance of payments accounting sense, are similar to capital inflows).

4.3. Capital Outflows

The financial account balance fell to $38 billion in 2014 and registered a deficit of $126 billion in the first half of 2015. The capital account deficit has sparked concerns about capital flight, with the connotation being that domestic residents and corporations concerned about China's domestic macroeconomic and financial situation are sending capital out of the country. A more benign interpretation is that rising capital outflows are a natural consequence of steps that China is taking to open up its capital account and remove restrictions on outflows. As the economy matures and financial markets develop, domestic retail and institutional investors will look to foreign investments as a way of diversifying their portfolios. Moreover, Chinese corporations and financial institutions are seeking investments abroad to diversify their operations and as a conduit for acquiring technical and managerial expertise.

Based on simple balance of payments accounting, the current account balance represents an economy's overall capital exports. There are three components that add up to the current account balance:

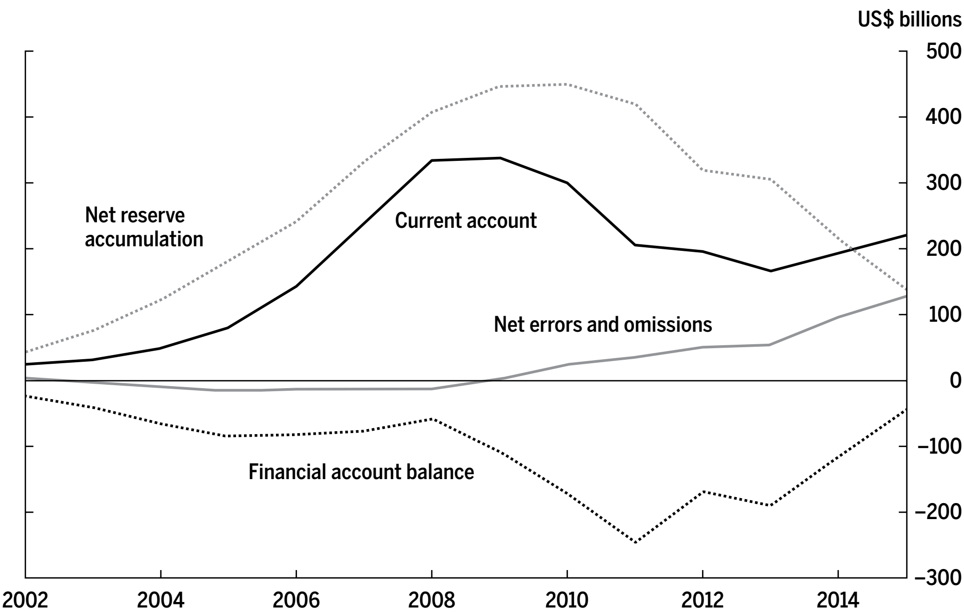
$$\begin{aligned}\text{Current Account Balance} = {} & \text{Net Reserve Accumulation} \\ & - \text{Financial Account Balance} \\ & - \text{Net Errors and Omissions.}\end{aligned}$$

The first component is net reserve accumulation, which represents official exports of capital through accumulation of foreign assets on the central bank's balance sheet. Second, the negative of the financial account balance represents net non-reserve official and private capital flows. A positive financial account balance indicates a capital account surplus (i.e., net capital inflows), so taking the negative of that reduces net capital outflows. Third, net errors and omissions represent unofficial flows. A negative number indicates capital outflows, so taking the negative of that represents unofficial capital outflows.

Figure 7 shows the three-year trailing moving averages of the current account balance and its components measured in this manner, all in billions of U.S. dollars. The current account balance rose through 2007 and has declined significantly since then before rising modestly near the end of the sample. Net reserve accumulation has fallen sharply since 2007, while unofficial outflows, as represented by (the negative of) net errors and omissions, have trended steadily upward. The financial account surplus (shown as a negative number) has fallen markedly in the period since the financial crisis. While gross inflows

FIGURE 7

A Decomposition of China's Current Account Balance



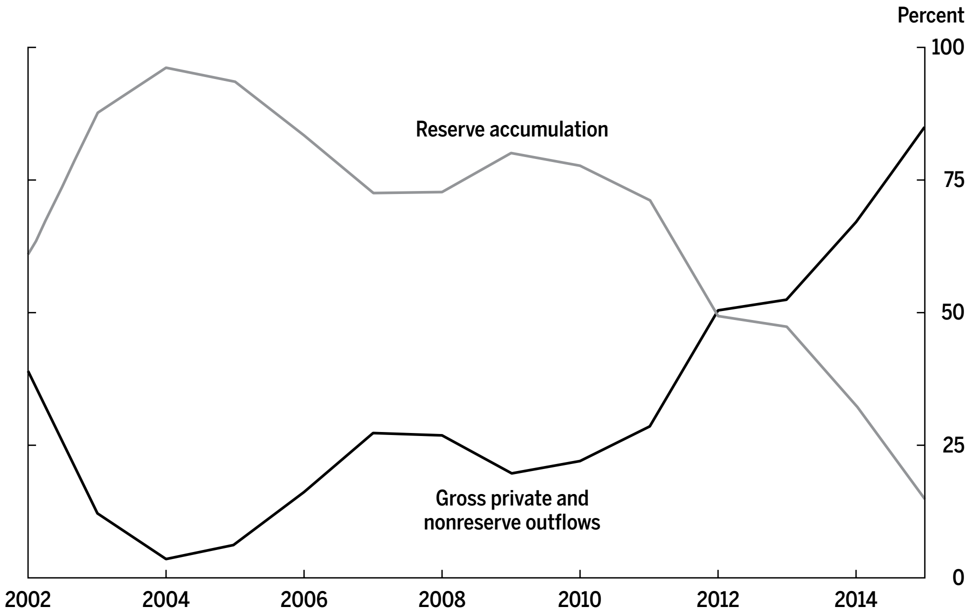
Sources: SAFE and CEIC.

Notes: This figure shows three-year trailing averages of the current account balance and its accounting breakdown into three parts. The figure shows the negative of the financial account balance and the negative of net errors and omissions. The current account balance is the sum of the other three lines shown in the figure. Data for 2015 represent a simple doubling of available data for the first half of 2015.

fell modestly in 2014, a sharp rise in gross outflows resulted in a fall in the financial account surplus from $343 billion in 2013 to just $38 billion in 2014.

To explore changes in the composition of gross capital outflows, I split them into (1) reserve accumulation and (2) gross private and non-reserve official outflows plus (the negative of) net errors and omissions. The latter category includes foreign investments by the China Investment Corporation (the sovereign wealth fund) and other state-owned financial and corporate entities. Figure 8 shows the trailing three-year moving averages of shares of gross capital outflows accounted for by these two components. There is clearly a trend change in the composition of gross outflows, which has shifted markedly from reserve accumulation to official and unofficial flows from both the private and state sectors. This shift is consistent with SAFE's stated objective of shifting foreign exchange risk from the central bank's balance sheet to those of households, corporations, and state-controlled entities such as the sovereign wealth fund. This objective of "foreign exchange holdings by the people" (rather than the central bank) will have a significant impact on the composition of future capital outflows from China.

FIGURE 8
The Structure of China's Gross Capital Outflows



Sources: SAFE and CEIC.

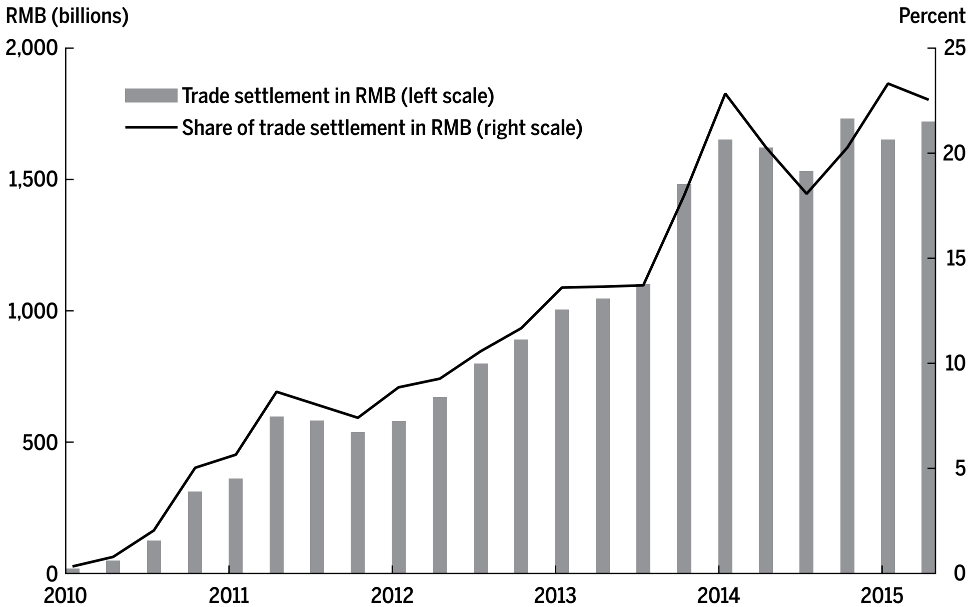
Notes: This figure shows three-year trailing averages of the shares of China's gross capital outflows accounted for by net reserve accumulation and all other outflows, which includes private outflows as well as foreign investments by Chinese official agencies, including its sovereign wealth fund. Data for 2015 are for the first half of the year.

5. International Use of the Renminbi

In this section, I provide a quantitative evaluation of the renminbi's rising prominence as an international currency. Given China's rapidly expanding trade volumes, promoting greater use of the renminbi in trade settlement was a logical first step in the currency's internationalization process. In a relatively short period, cross-border trade settlement in the Chinese currency expanded rapidly. Figure 9 shows that trade settlement in renminbi was $1.72 trillion in the first quarter of 2015, amounting to roughly 23 percent of China's trade. Virtually all of the trade settled using renminbi involves China. The rise in the share of China's trade settled using renminbi has leveled off since 2014, which could be related to reduced interest among foreign exporters in acquiring renminbi as appreciation pressures on the currency abated.

To support renminbi settlement, the Hong Kong Interbank Market initiated a renminbi settlement system in March 2006 in order to provide a variety of services such as check clearing, remittance processing, and bankcard payment services. There were virtually no renminbi clearing transactions until

FIGURE 9
Settlement of China's Foreign Trade in Renminbi



Sources: People's Bank of China and SAFE.

Notes: The bars show the amount of trade settlement in renminbi (billions of yuan, left scale). The solid line shows the share of China's trade settled in renminbi (in percent, right scale).

mid-2010, when financial institutions in Hong Kong were allowed to open renminbi-denominated accounts. At the end of 2014, renminbi customer deposits and certificates of deposit issued by banks in Hong Kong together amounted to over 1.1 trillion renminbi. Renminbi financing is also available in Hong Kong in the form of bank loans. The outstanding amount of renminbi loans in Hong Kong was 188 billion renminbi at the end of 2014.[11]

Another development is the rising issuance of renminbi-denominated bonds, better known as "dim sum bonds," in Hong Kong. The outstanding stock of these bonds was 381 billion renminbi at the end of 2014 (starting at a minuscule level in 2010), making Hong Kong by far the largest renminbi bond market outside the mainland. The stock of outstanding bonds grew more slowly in 2014 than in previous years, indicating that the issuance of new bonds has slowed. Mainland government agencies, banks, and enterprises accounted for about 42 percent of the outstanding stock of renminbi bonds at the end of 2014.

As a result of the initiation and rapid expansion of various elements of the offshore renminbi market, the currency has been gaining a significant foothold in Asian trade and financial transactions (see Shu, He, and Cheng 2014).

5.1. The Renminbi's Role as a Payment Currency

One indicator of the renminbi's rising international role that has received considerable attention is its evolution as a payments currency, i.e., a currency used for clearance and settlement of cross-border financial transactions. Data on the renminbi's role as a payments currency are based on information compiled and provided by the Society for Worldwide Interbank Financial Telecommunication (SWIFT). SWIFT provides a network that enables financial institutions worldwide to send and receive information about financial transactions in a standardized environment. While SWIFT transports financial messages, it does not perform clearing or settlement of transactions. The majority of international interbank messages use the SWIFT network.

SWIFT data on the usage of renminbi primarily measure the number of financial institutions using the currency for payments, both inbound and outbound, throughout the world. The data can also be used to show the share of renminbi in terms of the value of all payments transacted over the SWIFT network. This share has risen significantly in recent years, from 0.3 percent at the end of 2011 to 2.3 percent by mid-2015. While this share still seems relatively modest, it has vaulted the renminbi from the 20th rank at the beginning of 2012 to the rank of 5th most important payments currency by 2015. That leaves just four currencies—the U.S. dollar (43.6 percent), the euro (28.5 percent), the pound sterling (8.7 percent), and the Japanese yen (2.9 percent)—ahead of the renminbi by this metric.

Hong Kong continues to dominate payment transactions conducted in renminbi. In 2012, it accounted for about 80 percent of renminbi transactions over the SWIFT network. By 2015, however, that share had declined to 70 percent. Singapore and the United Kingdom account for 6.9 percent and 5.1 percent, respectively, while China itself accounts for less than 5 percent. Most of the countries on this list are also designated as renminbi clearing centers. The United States is an important exception—it does not have a clearing center for renminbi transactions but still accounted for nearly 3 percent of renminbi payments over the SWIFT network.

While the SWIFT data on the renminbi's rising international role have attracted great interest, there are a few important caveats regarding these data. First, SWIFT estimates its market share to be around 80 percent of all cross-border payments flows in volume (correspondent banking); remaining transactions go through other channels. Second, SWIFT does not capture all intra-institutional flows, since financial institutions may use their own proprietary networks or systems. Third, SWIFT does not capture a large share of domestic flows. For instance, transactions that are intermediated through the Fedwire Funds Service are not on SWIFT. Fourth, the financial flows (sender–receiver) track bank-to-bank activity rather than the underlying commercial flows. For instance, a commercial transaction between China and South Africa that is intermediated through a U.S. bank could involve two messages—one between South Africa and the United States, and the other between the United States and China. This could result in double counting of some financial transactions (relative to the value of the underlying commercial transactions).

Notwithstanding these caveats, the SWIFT data reveal the rising prominence of the renminbi as an international payments currency, although it is still a long way from being a major payments currency that can rival the U.S. dollar.

5.2. Limited Use in International Financial Transactions

The pace of the internationalization of China's currency depends on its use in international financial transactions as well. The choice of currency for denomination and settlement of trade flows is contingent on the extent to which that currency can also be used in international financial transactions.[12]

Foreign exchange market turnover is a good indicator of a currency's potential for developing into a vehicle currency. As shown in Table 1, the renminbi accounts for just over 2 percent (out of 200 percent, as each transaction involves two currencies) of all turnover in foreign exchange markets. While this may seem like a small share, it represents a considerable increase over a relatively short period, especially for a currency that is not freely convertible. The U.S. dollar is dominant in this dimension, accounting for 87 percent of turnover in 2013. The four major reserve currencies (the dollar, the euro, the yen, and the pound sterling), along with the Australian dollar and Swiss franc, account for 169 percent of total turnover in foreign exchange markets.

In terms of the geographic distribution of foreign exchange turnover, China has the advantage of having Hong Kong as an important financial center for settling foreign exchange transactions (Table 2). Hong Kong accounts for 4 percent of global foreign exchange market turnover (compared with 41 percent for the United Kingdom and 19 percent for the United States). This leaves the renminbi on a competitive footing relative at least to other emerging market currencies in terms of attaining the role of an international currency.

Table 3 shows the shares of various instruments in each major currency's foreign exchange market turnover (each row sums to 100). Overall, the spot and derivatives markets for trading in the renminbi have progressed to a significant extent but remain underdeveloped. China's currency once took a relatively low share of spot transactions turnover among all major economies, but that has shifted in just the last three years (since the previous Bank for International Settlements (BIS) Triennial Central Bank Survey based on 2010 data). The renminbi's foreign exchange derivatives trading volume as a share of total

TABLE 3
Global Foreign Exchange Market Turnover: Currency and Instrument Distribution
(percentage shares of average daily turnover: April 2013)

	Spot	Outright Forwards	Foreign Exchange Swaps	Currency Swaps	Options, Other Instruments
U.S. dollar	36.3	12.6	43.6	1.1	6.3
Euro	42.2	10.0	42.9	1.0	3.9
Japanese yen	49.7	10.0	27.0	0.9	12.4
Pound sterling	36.0	10.9	47.7	0.8	4.6
Australian dollar	42.4	10.8	39.6	1.3	5.8
Swiss franc	30.5	9.8	54.2	0.4	5.1
South African rand	31.7	11.7	51.7	—	3.3
Russian ruble	43.5	10.6	43.5	—	3.5
Indian rupee	28.3	45.3	18.9	—	5.7
Brazilian real	18.6	57.6	1.7	5.1	18.6
Chinese renminbi	28.3	23.3	33.3	0.8	14.2

Source: BIS Triennial Central Bank Survey (Foreign Exchange Turnover in April 2013).

Notes: This table shows, for each currency, the relative shares of its turnover in each of the five categories of global foreign exchange market shown in the column. Each row sums to 100. A dash (—) indicates that data were not available. Data are adjusted for local and cross-border interdealer double counting (i.e., "net-net" basis).

renminbi foreign exchange market turnover, which used to be far smaller than those of the major reserve currencies, has also risen. China also has a major presence in markets for commodity futures (not shown here). Based on the number of futures/options traded, three of China's commodity futures exchanges are among the top 20 derivatives exchanges in the world. These data confirm that China has made headway in promoting the international use of its currency.

The renminbi now leads other emerging market currencies in terms of its share of the turnover in global foreign exchange markets (Table 4). The U.S. dollar, the euro, and the Japanese yen together account for a substantial fraction of the total turnover in spot and derivatives markets. The renminbi has made significant progress—especially in terms of the share of its turnover in spot, outright forwards, and foreign exchange swaps markets. Its share of global foreign exchange market turnover still remains modest but is larger than those of other major emerging markets.

The renminbi's presence in the interest rate derivatives market remains modest. For trades cleared through centralized counterparties, the renminbi's shares are 0.9 percent of trades and 0.2 percent of the notional value of trades, respectively (Table 5, panel A). For trades cleared through all channels (including those not cleared through centralized counterparties), the renminbi's shares are lower and account for 0.5 percent of all trades and just 0.1 percent of the notional value of all trades (Table 5, panel B).

Another indicator of the currency's potential use in international financial transactions is the relative amount of international debt securities (i.e., debt issued outside the home country) in the several currencies of issuance. Table 6

TABLE 4

Turnover in Global Foreign Exchange (FX) Markets, April 2013

(daily averages in billions of U.S. dollars during April 2010)

	Spot	Outright Forwards	FX Swaps	Currency Swaps	Options Sold	Options Bought	Total Options	Total FX Contracts
U.S. dollar	1,691	588	2,030	50	189	188	293	4,652
Euro	754	178	766	18	48	46	70	1,786
Japanese yen	612	123	332	11	94	99	153	1,231
Pound sterling	227	69	301	5	19	20	29	631
Australian dollar	196	50	183	6	19	19	27	462
Swiss franc	84	27	149	1	8	8	14	275
Chinese renminbi	34	28	40	1	11	11	17	120
South African rand	19	7	31	0	1	1	2	60
Russian ruble	37	9	37	0	2	2	3	85
Indian rupee	15	24	10	0	2	2	3	53
Brazilian real	11	34	1	3	8	7	11	59

Source: BIS Triennial Central Bank Survey (global foreign exchange market turnover in 2013).

TABLE 5
Interest Rate Derivatives by Currency

	Gross Notional Value		Total Trade Count	
	USD Billions	Percent of Total	Trade Count	Percent of Total
A. Trades cleared through centralized counterparty				
Euro	80,018	33.9	628,417	25.3
U.S. dollar	75,502	32.0	702,401	28.3
Japanese yen	29,271	12.4	267,440	10.8
Pound sterling	20,526	8.7	234,049	9.4
Swiss franc	2,652	1.1	32,221	1.3
South African rand	1,792	0.8	30,080	1.2
Brazilian real	776	0.3	15,658	0.6
Indian rupee	742	0.3	43,097	1.7
Chinese renminbi	435	0.2	22,417	0.9
Russian ruble	1,466	0.6	6,648	0.3
Share of total	213,180	90.3	1,982,428	79.8
Total	236,185		2,483,499	
B. All trades				
Euro	172,596	34.8	1,103,212	25.6
U.S. dollar	172,099	34.7	1,320,501	30.7
Japanese yen	64,845	13.1	64,845	1.5
Pound sterling	42,325	8.5	425,289	9.9
Swiss franc	5,921	1.2	77,470	1.8
South African rand	2,387	0.5	49,975	1.2
Brazilian real	775	0.2	15,658	0.4
Indian rupee	742	0.1	43,097	1.0
Chinese renminbi	435	0.1	22,417	0.5
Russian ruble	132	0.0	6,648	0.2
Share of total	462,257	93.2	3,129,112	72.7
Total	495,889		4,302,569	

Source: Tri-Optima Interest Rate Trade Repository Report 2012.

Notes: "Trades cleared through centralized counterparty" refers to any interest rate trade cleared through a central counterparty. This was calculated by adding the trade summary by currency for G14 and non-G14 dealers. Tri-Optima's Interest Rate Trade Repository Report no longer publishes this data. The Depository Trust and Clearing Corporation now handles the data but does not make it available to the public.

shows that the existing reserve currencies dominate, with the U.S. dollar and the euro together accounting for 82 percent of outstanding international bonds and notes. The top five reserve currencies combined account for 95 percent of these instruments. Only a modest 0.5 percent of international debt is denominated in renminbi.

All of these indicators point to the significant progress that has been made by the renminbi in gaining acceptance in international financial markets, although a gulf between it and the advanced economy currencies, particularly the U.S. dollar, remains.

TABLE 6
International Bonds and Notes Outstanding
(selected currencies)

	June 2015 (USD billions)	Share (percent of total)
U.S. dollar	8,816	42.7
Euro	8,092	39.2
Pound sterling	1,988	9.6
Yen	402	1.9
Swiss franc	295	1.4
Chinese renminbi	98	0.5
Brazilian real	37	0.2
South African rand	29	0.1
Russian ruble	21	0.1
Indian rupee	7	0.0

Source: *BIS Quarterly Review*, Detailed Statistical Annex, Table 13B, September 2015.
Note: This table shows the breakdown of outstanding international debt securities by their currency denomination.

5.3. Payments and Clearing

The scale of international use of the renminbi will be determined to an important extent by the availability of renminbi liquidity offshore and how many financial centers are authorized to serve as clearing centers for renminbi transactions. The Chinese government has taken a number of measures in recent years to promote the renminbi's international use by increasing the number of international financial centers authorized to do renminbi business and by making it easier to settle transactions abroad in renminbi.

Table 7 shows that a total of 15 financial centers (other than Hong Kong and Macao) now serve as Chinese government-approved offshore centers for clearing yuan transactions. The list spans a wide geographic distribution of countries, with only five of them in Asia (Singapore, Taiwan, Thailand, South Korea, and Malaysia). Three major European financial centers—Frankfurt, London, and Paris—joined the list in 2014. Two Latin American countries—Chile and Argentina—are the latest additions to the list, while Japan and the United States are not on it.

In October 2015, China launched a new cross-border renminbi payments system—the China International Payment System (CIPS)—that is organized more in line with internationally accepted standards. This will help facilitate settlement and clearing of cross-border renminbi transactions, including trade and investment flows, and bolster the international role of the renminbi. Nineteen banks, including eight Chinese subsidiaries of foreign banks, have been authorized to use CIPS. CIPS will initially use SWIFT for interbank messaging, but the system has the capability eventually to serve as an independent channel for secure transmission of payment messages.

TABLE 7
Recent Offshore Yuan Clearing Arrangements
(excluding Hong Kong and Macao)

Country	Date Signed (Date of bank appt.)	Bank Appointed	Transaction Amount	Share of Payment Value
Singapore	July 6, 2012 (Feb. 8, 2013)	ICBC	¥10 trillion+ (Apr. 8, 2014)	6.9%
Taiwan	Aug. 31, 2012 (Dec. 11, 2012)	Bank of China	¥3.1 trillion (May 2014)	2.6%
Germany	Mar. 28, 2014 (June 19, 2014)	Bank of China	TBA	0.6%
Thailand	Dec. 22, 2014 (Jan. 8, 2015)	ICBC (Thai) Public Co. Ltd.	TBA	< 0.4%
United Kingdom	Mar. 31, 2014 (June 18, 2014)	China Construction Bank	TBA	5.1%
Luxembourg	June 28, 2014 (Sept. 23, 2014)	ICBC Luxembourg	TBA	0.6%
France	June 28, 2014 (Sept. 23, 2014)	Bank of China Paris	TBA	1.1%
South Korea	July 3, 2014 (July 4, 2014)	Bank of Communications of China	TBA	2.3%
Qatar	Nov. 3, 2014 (Nov. 14, 2014)	ICBC (Qatar)	TBA	< 0.4%
Malaysia	Nov. 10, 2014 (Jan. 8, 2015)	Bank of China (Malaysia) Berhad	TBA	0.4%
Australia	Nov. 17, 2014 (Nov. 17, 2014)	Bank of China (Sydney)	TBA	1.5%
Canada	Nov. 17, 2014 (Nov. 17, 2014)	ICBC (Canada)	TBA	< 0.4%
Switzerland	Jan. 21, 2015	TBA	N/A	< 0.4%
Chile	May 26, 2015	China Construction Bank (Chile)	TBA	< 0.4%
Argentina	Sept. 17, 2015	TBA	TBA	< 0.4%

Notes: Each offshore clearing center has only one clearing bank. The third column of the table shows official renminbi clearing banks. The shares of payment values are based on data from the SWIFT renminbi tracker as of July 2015. In addition to the designated offshore clearing centers listed in the table, two special renminbi centers that were set up over a decade ago—Hong Kong (December 2003) and Macao (September 2004)—account for 69.8 percent and 0.4 percent of payment values, respectively. The United States, Japan, and the Netherlands are not offshore clearing centers but are ranked among the top 15 countries, with their shares of payment values amounting to 2.68 percent, 0.4 percent, and 0.3 percent, respectively.

6. The Renminbi's Role as a Reserve Currency

The renminbi's prospects as a reserve currency will be influenced by progress on these criteria: (1) capital account openness, (2) exchange rate flexibility, (3) economic size, (4) macroeconomic policies, and (5) financial market development. China's progress on the former two criteria has been covered in previous sections. In this section I evaluate how the renminbi measures up on the remaining three criteria and then provide a summary evaluation of its progress towards reserve currency status.[13]

6.1. Economic Size

Some economists have argued that China's sheer size and dynamism will lead to its currency becoming a global reserve currency. China is now the second-largest economy in the world, accounting for 13.4 percent of global GDP in 2014 at market exchange rates. At purchasing power parity (PPP) exchange rates, the Chinese economy is already slightly larger than the U.S. economy, accounting for 16.3 percent of global GDP.

Another important criterion for achieving international or reserve currency status is the share of an economy in world trade and its trade interconnectedness with other economies. Although having large trade flows is neither a necessary nor sufficient condition for a country to have an international currency, it does boost the potential for the economy's currency to serve as an invoice currency.[14]

China now accounts for 8.5 percent of world trade in goods and nonfactor services, behind only the shares of the euro area (which includes within-euro-area trade) and the United States. When trade is measured on the basis of goods trade alone, the same ranking of the top three holds up, with China accounting for 10.5 percent of the world total. In addition to trade volumes, another important criterion is the degree to which an economy is interconnected with other economies through trade linkages. This has implications for the incentives of traders in other countries to settle their transactions in the home country's currency. On the basis of a variety of criteria, Errico and Massara (2011) find that, in 2010, China was the second-most interconnected country in terms of its trade flows, up from fifth in 2000.

6.2. Macroeconomic Policies

Macroeconomic policies that anchor long-run inflationary expectations and foster macroeconomic stability are typically important conditions for a reserve currency. China has a low level of explicit public debt relative to the major reserve currency economies. The level of central government debt is estimated to be about 17 percent of GDP in 2015. This is a positive situation from the perspective of macroeconomic stability, even if it means limited availability of "safe" renminbi-denominated assets. The IMF also calculates a measure of augmented debt, which includes various types of local government borrowing, including off-budget borrowing by local government financing vehicles (LGFVs) via bank loans, bonds, trust loans, and other funding sources. By this measure, China's public debt is estimated to be about 57 percent of GDP in 2015, which would still be below the median public debt-to-GDP ratio among advanced economies.[15]

China has had a relatively stable inflation rate in the recent past. During the years 2000–10, the period of the Great Moderation followed by the global financial and economic crisis, inflation was well contained in most major economies. The standard deviations of annual consumer price index inflation in the reserve currency economies were all around 1 percent. During this period, the standard deviations of inflation in emerging markets were in the range of 3 to 4 percent, with China registering the lowest inflation volatility in that group, with a standard deviation of 2 percent (Prasad and Ye 2012). In 2014 and 2015, CPI inflation generally came in under 2 percent. China's track record in terms of the level and volatility of inflation indicates that concerns about inflation should not be an impediment to the renminbi becoming a global currency.

The reserve currency economies have diverse net international positions. The United States has a particularly large negative net foreign asset position, amounting to $6.7 trillion in the second quarter of 2015. Germany, Japan, and Switzerland have positive net asset positions. The United Kingdom and also the euro area as a whole have negative net asset positions. This diversity suggests that the signs of the net positions are themselves not crucial for reserve currency status. In other words, it is not essential for a country to run current account deficits for its currency to attain reserve currency status (as some have argued based on a misinterpretation of the Triffin dilemma). In fact, the average current account balance as a ratio to GDP during the period 2000–07 was positive (or, in the case of the euro zone as a whole, essentially zero) for all reserve currency economies except the United Kingdom and the United States.[16]

6.3. Financial Market Development

Financial market development in the home country is one of the key determinants of a currency's international status.[17] There are three relevant aspects of financial market development: (1) breadth, or the availability of a broad range of financial instruments, including markets for hedging risk; (2) depth, or a large volume of financial instruments in specific markets; and (3) liquidity, or a high level of turnover (trading volume).

Without a sufficiently large and liquid debt market, the renminbi cannot be used widely in international transactions. To make the currency attractive to foreign central banks and large institutional investors, they will need access to renminbi-denominated government and corporate debt as "safe" assets for their portfolios. At the same time, both importers and exporters may be concerned about greater exchange rate volatility resulting from an open capital account if they do not have access to derivatives markets to hedge foreign exchange risk.

Thus, depth, breadth, and liquidity are all relevant considerations in assessing the readiness of a country's financial sector to cope with an open capital account and elevate its currency to reserve currency status.

China's financial system remains bank-dominated, with the state directly controlling most of the banking system. Domestic credit allocation has been disproportionately directed toward large state-owned enterprises rather than households and small and medium-sized private enterprises. Credit allocation through the banking sector is supported by massive deposits in the banking system, amounting to 179 percent of GDP in 2014. The size and structure of the banking sector in China seem unsuitable for promoting the international use of the renminbi. Policies that favor the banking sector relative to the rest of the financial system—including the interest rate structure that inhibited competition by setting a floor for lending rates and a ceiling for deposit rates—have been detrimental to broader financial market development. Recognizing this, the Chinese government has instituted a number of recent reforms including full liberalization of bank lending and deposit rates (although the PBC still sets reference rates) and the introduction of an explicit deposit insurance system.

China also has a large shadow banking system that has expanded rapidly as a way around the regulations imposed on the formal banking system. Based on a broad definition and using figures from Moody's, shadow banking assets are estimated to amount to 65 percent of GDP in China, compared with 150 percent in the United States and a world average, weighted by country size, of about 120 percent (Jiang 2015). The risks related to shadow banking are that it is nontransparent, falls largely outside the formal regulatory apparatus, and has no formal safety backstops, such as through a deposit insurance mechanism. Concerns about the risks to financial stability posed by the growth of shadow banking in China have prompted the government to impose stricter regulation of shadow banking activities undertaken by both banks and nonbank financial entities. As a result, the flow of total social financing (a measure that includes bank credit as well as credit provided by the shadow banking system) has fallen sharply in the last two years, led by a decline in shadow banking.

While the financial system in China is dominated by regular or shadow banks, the more relevant issue for the renminbi's role as a reserve currency—beyond financial stability considerations—relates to the availability of high-quality financial assets for foreign investors.

Capitalization and turnover in Chinese equity markets now exceed those of other economies—with the notable exception of the United States, which remains dominant in terms of its share of global equity market capitalization and turnover (Prasad and Ye 2012). Equity markets do in principle provide renminbi-denominated instruments that can be held by both domestic and foreign investors and, as noted earlier, there are an increasing number of channels through which foreign investors can participate even in China's A-share market. The level of foreign investor participation remains limited, however, relative to overall stock market participation. Moreover, Chinese stock markets are volatile and prone to concerns about weak corporate governance, limited transparency, weak auditing standards, and shoddy accounting practices. The recent volatility in the stock market has heightened many of these concerns, which is likely to lead international investors to shy away from investing heavily. Hence, the country's deep equity markets may be of limited help in making the renminbi an international currency in the near future.

China's fixed-income markets, especially for corporate debt, have developed rapidly in recent years (Table 8). The stock of government bonds stands at about $3.51 trillion, a tenfold increase since 2002. Nonfinancial corporate debt was practically nonexistent in 2002, but the outstanding stock has risen to $1.57 trillion. Turnover in both markets remains quite low, however. China's overall domestic debt market value of $5 trillion in 2014 was significantly lower than those of the top three reserve currency areas—the United States, Japan,

TABLE 8
Government and Corporate Bonds in China: Stocks and Turnover

Year	Government Bonds			Corporate Bonds		
	Level (USD billions)	Turnover (USD billions)	Turnover Ratio	Level (USD billions)	Turnover (USD billions)	Turnover Ratio
2002	328	—	—	7	—	—
2003	424	—	—	12	—	—
2004	570	—	—	22	—	—
2005	788	—	—	54	—	—
2006	1,038	—	—	98	—	—
2007	1,426	—	—	140	—	—
2008	1,898	—	—	230	—	—
2009	2,062	—	—	427	—	—
2010	2,349	—	—	618	—	—
2011	2,459	—	—	797	—	—
2012	2,725	—	—	1,176	—	—
2013	2,952	496	0.17	1,416	263	0.18
2014	3,341	1,053	0.31	1,543	306	0.20
2015	3,515	1,885	0.54	1,570	425	0.27

Sources: AsianBondsOnline, Asian Development Bank.

Notes: Turnover is defined as the value of bonds traded on the secondary market. Turnover ratio is defined as total turnover divided by average amount of bonds outstanding between the end of the third and fourth quarters of each year. Repurchase transactions are excluded. Corporate bonds include those issued by nonfinancial and financial corporations. The BIS revised the compilation methodology for debt securities statistics in 2012. While the revised stock data on outstanding bonds are consistent over time, the turnover data had a discontinuity in 2013, so data for prior periods are not shown. A dash (—) indicates missing data (based on the revised statistics). Data for 2015 are for June of that year.

and the euro area (Table 9). Interestingly, the quantity of China's outstanding domestic securities is greater than that of the United Kingdom and Switzerland, two reserve currency economies (not shown here). This suggests that the size of the domestic debt market per se does not necessarily prevent the Chinese currency from going global.

China had placed a number of restrictions on foreign investors' participation in its bond markets, which could affect its currency's scope with respect to becoming a reserve currency. In recent years, however, China has started creating channels, including through the QFII scheme, through which foreign institutional investors can purchase both government and corporate debt securities. However, the level of participation remains modest.

6.4. A Summary Evaluation

This section builds on the prior analysis to discuss the relative importance of each criterion for reserve currency status mentioned earlier and summarizes how China measures up against each of these.

- **Economic size:** A country's size and its shares of global trade and finance are important, but not crucial, determinants of the status of its reserve currency. China now accounts for 13 percent of world gross domestic product (16 percent if measured by PPP rather than market exchange rates) and 9 percent of world trade. In 2014, it is estimated to have accounted for about one-third of world GDP growth.
- **Open capital account:** Reserves must be acceptable as payments to a country's trade and financial partners, which requires that the currency

TABLE 9
Stocks and Turnover of Government and Corporate Bonds: A Cross-Country Perspective

	Government			Corporate		
	Amount Outstanding	Turnover	Turnover Ratio	Amount Outstanding	Turnover	Turnover Ratio
U.S.	13,063	127,739	9.8	7,718	5,368	0.7
Japan	8,216	11,103	1.4	670	37	0.1
Euro area	8,126	—	—	3,655	—	—
China	3,341	1,053	0.3	1,543	306	0.2
Germany	1,356	5,919	4.4	267	—	—

Sources: Statistical Abstract of the United States, Securities Industry and Financial Markets Association (SIFMA), European Central Bank, Bundesbank, the Federal Financial Supervisory Authority, AsianBondsOnline, CEIC, and Securities and Exchange Board of India.

Notes: Data shown in this table are for 2014. The data shown here do not include debt securities of monetary financial institutions such as central banks. Government bonds include both central and general government debt. The amount of government and corporate bonds outstanding and their turnover are expressed in billions of U.S. dollars. Corporate bonds for China, the euro area, Germany, and Japan include those issued by nonfinancial and financial corporations. A dash (—) indicates that data were not available.

be easily tradable in global financial markets. China is gradually and selectively easing restrictions on both inflows and outflows. The capital account has become increasingly open in de facto terms, but extensive capital controls remain in place.

- **Flexible exchange rate:** Reserve currencies are typically traded freely and their external value is market determined, although this does not preclude occasional bouts of intervention by the country's central bank in foreign exchange markets. China has in principle increased the flexibility of the exchange rate, which will become increasingly hard to manage as the capital account becomes more open.
- **Macroeconomic policies:** Investors in a country's sovereign assets must have faith in its commitment to low inflation and sustainable levels of public debt so the value of the currency is not in danger of being eroded. China has a lower ratio of explicit public debt to GDP than most major reserve currency economies and has maintained moderate inflation in recent years.
- **Financial market development:** A country must have broad, deep, and liquid financial markets so that international investors can access a wide array of financial assets denominated in its currency. China's financial markets remain limited and underdeveloped, with a number of constraints such as a rigid interest rate structure.

While China measures up favorably in the first four areas, its aspirations to make the renminbi a global reserve currency rest in large part on the pace of development of its fixed-income markets. Reserve currency economies are expected to issue high-quality and creditworthy government debt or government-backed debt instruments in markets that are both deep and liquid. The recent growth of China's debt markets suggests that the pace of the country's financial market development is consistent with its intention to gradually increase acceptance of its currency as an international currency. Moreover, to satisfy their demand for relatively safe renminbi-denominated assets, foreign investors—both official and private—will eventually need to be given greater access to China's debt markets if the renminbi is to become a significant reserve currency.

6.5. De Facto Reserve Currency Status

Since 2009, the PBC has moved aggressively to establish bilateral local currency swap arrangements with other central banks in order to facilitate and expand the use of the renminbi in international trade and financial transactions. So far, 34 central banks have signed such local currency swap arrangements with the PBC (Table 10). The total amount that could be drawn by the 34 participating swap arrangements amounts to roughly half a trillion dollars.[18] China's bilateral swap lines with foreign central banks directly support the renminbi's greater international use.

Moreover, despite its lack of convertibility, the renminbi is already beginning to play a modest role in a few central banks' reserve portfolios.[19] Chile, Malaysia, and Nigeria are widely believed to have pioneered this trend, starting in the second half of 2011. Official statements and other accounts, including press reports, suggest that other central banks are also considering adding renminbi assets to their reserve portfolios. The IMF estimates that in 2014 about 1.1 percent of official foreign currency assets were held in renminbi, up from a share of 0.7 percent in 2013 (see IMF 2015, Table 4). This puts the renminbi in the seventh spot in terms of the identified composition of official foreign currency assets (behind the U.S. dollar, the euro, the British pound sterling, the Japanese yen, the Australian dollar, and the Canadian dollar, and ahead of the Swiss franc, the New Zealand dollar, and the Swedish krona).

On November 30, 2015, the IMF executive board announced its decision to incorporate the renminbi into the basket of currencies that comprise the IMF's special drawing rights (SDR), taking effect October 1, 2016. The IMF's SDR basket consists of the major currencies that are (1) issued by IMF members (or monetary unions that include IMF members) that are the largest exporters, and (2) have been determined by the IMF to be "freely usable." The latter condition was added as a formal criterion only in 2000 and requires that the currency be (1) widely used to make payments for international transactions, and (2) widely traded in the principal exchange markets. Full capital account convertibility is not necessary for a currency's inclusion in the SDR basket.

The IMF staff's recommendation to the executive board was summarized as follows:[20]

> *There is a sufficient basis for the Board to determine that the RMB is a freely usable currency. The analysis suggests that the use of the RMB in international payments has risen substantially, reaching in staff's view a critical mass such that it can now be considered "in fact, widely used to make payments for international transactions" under the freely usable currency definition. RMB activity in FX markets covering two of the three major trading time zones has also increased significantly and can accommodate transactions of the magnitude involved in Fund operations. The level of trading across multiple time zones provides, in the judgment of staff, a basis for the RMB can now [sic] be*

TABLE 10

Central Bank Swap Arrangements with People's Bank of China, December 2008–September 2015

Bank	Date	Amount (billion yuan)	USD equivalent (billion)
Bank of Korea	Dec. 12, 2008	180	28.2
	Oct. 26, 2014	360	56.4
Hong Kong Monetary Authority	Jan. 20, 2009	200	31.3
	Nov. 27, 2014	400	62.7
Bank Negara Malaysia	Feb. 8, 2009	80	12.5
	Feb. 8, 2012	180	28.2
	Apr. 18, 2015	180	28.2
National Bank of the Republic of Belarus	Mar. 11, 2009	20	3.1
	May 11, 2015	7	1.1
Bank Indonesia	Mar. 23, 2009	100	15.7
	Oct. 1, 2013	100	15.7
Central Bank of Argentina	Apr. 2, 2009	70	11.0
	July 18, 2014	70	11.0
Central Bank of Iceland	June 9, 2010	3.5	0.5
	Oct. 14, 2013	3.5	0.5
Monetary Authority of Singapore	July 23, 2010	150	23.5
	Mar. 7, 2013	300	47.0
Reserve Bank of New Zealand	Apr. 18, 2011	25	3.9
	May 22, 2014	25	3.9
Central Bank of the Republic of Uzbekistan	Apr. 19, 2011	0.7	0.1
Bank of Mongolia	Apr. 19, 2011	5	0.8
	Mar. 20, 2012	10	1.6
	Aug. 21, 2014	15	2.4
National Bank of Kazakhstan	June 13, 2011	7	1.1
	Dec. 14, 2014	7	1.1
Bank of Thailand	Dec. 22, 2011	70	11.0
	Dec. 22, 2014	70	11.0
State Bank of Pakistan	Dec. 23, 2011	10	1.6
Central Bank of the United Arab Emirates	Jan. 17, 2012	35	5.5
Central Bank of the Republic of Turkey	Feb. 21, 2012	10	1.6
Reserve Bank of Australia	Mar. 22, 2012	200	31.3
	Apr. 8, 2015	200	31.3
National Bank of Ukraine	June 26, 2012	15	2.4
Banco Central do Brazil	Mar. 26, 2013	190	29.8
Bank of England	June 22, 2013	200	31.3
Central Bank of Hungary	Sept. 9, 2013	10	1.6
Bank of Albania	Sept. 12, 2013	2	0.3
European Central Bank	Oct. 10, 2013	350	54.9
Swiss National Bank	July 21, 2014	150	23.5
Central Bank of Sri Lanka	Sept. 16, 2014	10	1.6
Central Bank of Russian Federation	Oct. 13, 2014	150	23.5
Qatar Central Bank	Nov. 3, 2014	35	5.5
Bank of Canada	Nov. 18, 2014	200	31.3
Nepal Rastra Bank	Dec. 25, 2014	—	—
Central Bank of Suriname	Mar. 18, 2015	1	0.2
Central Bank of Armenia	Mar. 30, 2015	1	0.2
South African Reserve Bank	Apr. 10, 2015	30	4.7
Central Bank of Chile	May 25, 2015	22	3.4
National Bank of Tajikistan	Sept. 7, 2015	3	0.5
Total Amount		3,162	495.8

Sources: People's Bank of China and other participating central banks.

Notes: The U.S. dollar equivalent amounts are based on the September 9, 2015, exchange rate of 6.38 yuan per dollar. The table shows only the dates of the initial arrangement and the latest arrangement (if the initial arrangement has been renewed). Intermediate renewals (for instance, the Bank of Korea's and Hong Kong Monetary Authority's renewals in 2011) are not shown. A dash (—) indicates unknown.

considered "widely traded in the principal exchange markets." While recognizing some remaining operational challenges, staff views these as manageable. In light of these considerations, staff proposes that the Board add the RMB to the list of freely usable currencies and include it in the SDR basket.

One of the operational challenges referred to in the report was the deviation between the offshore (CNH) and onshore (CNY) renminbi exchange rates. Deviations between the two rates imply that the CNH cannot be a perfect hedge for CNY-based exposures. This had become a significant concern in the aftermath of the August 11, 2015, exchange rate move, which led to a sizable gap between the two rates. The report concluded that this was not enough of a hurdle to keep the renminbi, which met the other technical criteria, out of the SDR basket:

Recent developments highlight some remaining operational challenges although their impact on members is mitigated by a number of factors . . . the existence of some capital account restrictions does not preclude a currency from being freely usable as long as the currency is "in fact widely used to make payments for international transactions" and "widely traded in the principal exchange markets." Therefore, the existence of a spread between RMB onshore and offshore exchange rates is not an impediment per se for the assessment. However, sudden spikes in the spread, as recently experienced, create uncertainty for RMB users and, if persistent, could increase the complexity and costs associated with RMB transactions. Unencumbered access to both onshore and offshore markets should reduce financial risks to members by allowing them to transact in the market with the most favorable conditions, although the need to operate simultaneously in two separate markets for the RMB could imply some additional administrative burden and hedging could be more challenging and costly. China's obligation to collaborate with the Fund and other members to enable the exchange of RMB for other freely usable currencies if the RMB is declared freely usable should also help to ensure that Fund-related transactions can be executed even in circumstances of market stress.

The IMF also changed the formula used to calculate the shares of currencies in the SDR basket (the shares have to sum to 100). The new formula is meant to better reflect the rising importance of cross-border financial flows in addition to trade flows. The formula assigns equal weight to exports and a financial indicator, reflecting a country's importance in global trade and the currency's importance in global financial markets, respectively. The financial indicator is a composite variable that assigns a 50 percent weight to the share of reserves denominated in that currency, a 25 percent weight to foreign exchange turnover accounted for by that currency, and a 25 percent weight to the sum of international banking liabilities and international debt securities denominated in that currency.[21]

Under the new formula, the weights of the SDR currencies are as follows: 41.7 percent for the U.S. dollar, 30.9 percent for the euro, 10.9 percent for the renminbi, 8.3 percent for the Japanese yen, and 8.1 percent for the pound sterling. The new basket of currencies with these weights will take effect on October 1, 2016. Interestingly, the U.S. dollar's share, which was 41.9 percent in the previous SDR basket, was essentially unchanged, while the shares of the other three currencies fell significantly compared with their shares in the previous basket.

The IMF's decision is an important validation of China's efforts over the past year to liberalize financial markets, open up its capital account, and allow the renminbi's value to be determined to a greater extent by market forces. Progress in all of these areas has been slow and uneven, as described in earlier sections, but in a relative sense these reforms have outstripped those in other areas such as state-owned enterprise reform, liberalization of the services sector, and other reforms of the "real" side of the economy where progress has been limited at best.

The decision by itself is unlikely to generate a surge of capital inflows into China. SDRs currently account for less than 3 percent of reserve asset holdings worldwide, so the direct effect of including the renminbi in the SDR basket will not be large. Private financial institutions do not have any portfolios that are benchmarked against SDRs, so no portfolio rebalancing effect will follow. But the symbolic effect could be significant, as the renminbi's recognition as an official reserve currency is likely to encourage central banks around the world to begin adding renminbi assets to their reserve portfolios. The IMF's imprimatur will help, but ultimately it is the availability of sufficient high-quality renminbi-denominated financial assets and the ease of moving financial capital into and out of China that will determine the renminbi's trajectory as a reserve currency.

There could be significant effects on the patterns of global capital flows if this decision does lead to further financial sector reforms, capital account liberalization, and exchange rate flexibility in China. These changes would open the door to more capital inflows into China and also further tilt the composition of

China's outflows away from foreign exchange reserve accumulation by the central bank, as it will spur more foreign investments by China's households, corporations, and institutional investors.

The IMF argued that its decision would be good for both China and the international monetary system, stating:

> *Put into a broader context, the inclusion of the [RMB] in the SDR basket could be seen as an important milestone in the process of China's global financial integration. It also recognizes and reinforces China's continuing reform progress. As this integration continues and further deepens, and is paralleled in other emerging market economies, it could bring about a more robust international monetary and financial system, which in turn would support the growth and stability of the global economy. The RMB's inclusion will also enhance the attractiveness of the SDR as an international reserve asset, as it diversifies the basket and makes its composition more representative of the world's major currencies.*[22]

7. Sequencing and Transitional Risks

One important issue is how China sequences capital account liberalization steps relative to other policy changes and how that affects the benefit/risk tradeoff from capital account opening. This has implications for China's growth and financial stability, and therefore for the renminbi's international role.

Is China putting the cart before the horse by pushing forward with capital account opening before fixing its financial markets and fully freeing up its exchange rate?[23] An examination of China's international investment position, in terms of evolution over time and from a cross-country perspective, would seem to suggest that the economy faces only modest risks from having a more open capital account in terms of vulnerability to external shocks. China's gross capital inflows since 2000 have been mostly in the form of foreign direct investment. As noted earlier, FDI liabilities now account for 57 percent of China's total (gross) external liabilities. FDI and portfolio equity together account for 71 percent of external liabilities. This structure of liabilities—dominated by FDI and portfolio equity—is consistent with the objective of sharing risk across countries, with foreign investors bearing capital as well as currency risks on such investment.

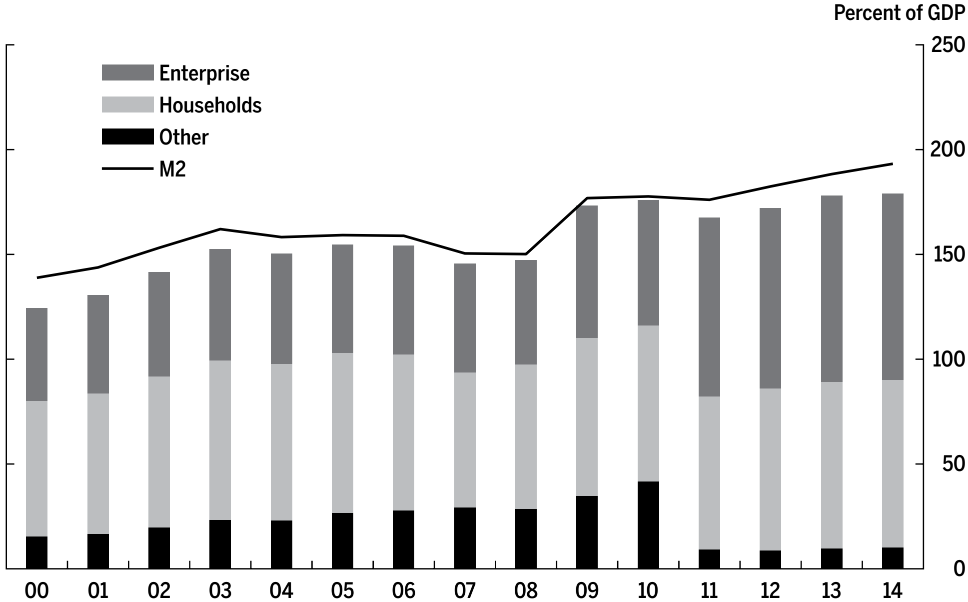
Another potential source of risk is that an open capital account often encourages accumulation of external debt. Short-term foreign-currency-denominated external debt has been the scourge of emerging markets and was a major source of vulnerability for Latin American and Asian economies during the 1980s and 1990s. China has traditionally maintained a low level of external debt, which amounted to about $900 billion or 9 percent of GDP in 2014 (IMF 2015), a lower ratio than those in other major emerging markets. China's overall external balance sheet suggests that its economy is relatively well insulated from external shocks, as net foreign assets amounted to about $1.5 trillion at the end of the first half of 2015. China has enough foreign assets not only to meet all its external debt obligations but also to more than cover all of its foreign liabilities. In short, China does not seem to be subject to the traditional risks associated with opening up the capital account in advance of increasing exchange rate flexibility.

One of the bigger risks may be related to domestic policies. The combination of a managed nominal exchange rate and an increasingly open capital account weakens the ability of the central bank to use monetary policy instruments such as interest rates to maintain domestic price stability. Although its capital account is not fully open, this constraint applies to China as well because the capital account is in fact rather porous and becomes even more so when interest differentials with the rest of the world increase and the incentives to evade controls increase as well (Goodfriend and Prasad 2007). Indeed, the expectations of renminbi appreciation that resulted from the tight management of the renminbi's value may have fueled more speculative inflows in previous years. The reverse is true as well. As discussed in greater detail below, capital outflows at a time of domestic economic weakness can also complicate domestic policymaking.

China's stock of foreign exchange reserves, which stood at $3.2 trillion (roughly 30 percent of GDP) in April 2016, would seem to provide enough insurance against most conceivable financial shocks. However, for an economy with a weak financial system and a de facto relatively open capital account, the relevant measure of foreign exchange reserve adequacy may be determined not in relation to exports or short-term debt but relative to the size of the monetary base (Obstfeld, Shambaugh, and Taylor 2010). By this criterion, China's massive stockpile of foreign exchange reserves looks less imposing. Bank deposits in China amounted to 179 percent of GDP in 2014 (Figure 10). Corporate deposits amounted to 89 percent of GDP and household deposits were about 80 percent of GDP. The ratio of M2 to GDP was 193 percent in 2014.

The recent elimination of the ceiling on deposit interest rates has reduced the risk of withdrawals from China's banking system in search of better returns abroad. However, another important reform, the replacement of the implicit full government insurance of all deposits with an explicit risk-based deposit

FIGURE 10
China: Bank Deposits and Money Supply



Sources: People's Bank of China, National Bureau of Statistics, and CEIC.

insurance system, raises the risk that an accident in the banking system could trigger a surge of outflows due to loss of confidence. Substantial deposit withdrawals for other reasons, including more basic concerns about the stability of the banking system, can damage banks and strain the entire domestic financial system.

How worried should China be about these risks? The government has firm enough control of its financial markets and enough resources to back up its banks that these risks are probably not likely to escalate into a full-blown banking or broader financial crisis. Nevertheless, it could take a large amount of government resources to keep the system stable in difficult times. Even if one were to discount the possibility of a systemic crisis in the Chinese financial system, there are many fragilities in the banking system and in the unregulated parts of the financial system that warrant serious concern. A capital account that is becoming increasingly open could heighten these tensions.

The controlled and calibrated approach to capital account opening adopted by China mitigates but does not eliminate these risks. The scale of recent outflows indicates how sentiments about economic and financial market conditions can shift quickly. These capital flow surges in one direction or another can be exacerbated if the exchange rate is not allowed to adjust freely, and speculative pressures on the currency start building up.

Consider, for example, the downward pressure on the renminbi–dollar exchange rate after the PBC announced a shift to a more market-determined exchange rate on August 11, 2015. In the immediate aftermath of this shift, which was accompanied by a nearly 2 percent devaluation of the renminbi relative to the dollar (as noted earlier), financial market participants appeared to interpret the move as signaling Chinese policymakers' concerns about the state of the economy. This move, in tandem with the sharp drop in mainland stock markets since July 2015, appears to have increased outflows. Foreign exchange market intervention to keep the renminbi's value from falling sharply in the second half of August led to a reduction in foreign exchange reserves. SAFE data indicate that the reserve losses may have been about $94 billion in that month, although it is not clear if any of this represents currency valuation effects on the value of China's massive foreign exchange reserve portfolio or actual foreign exchange market intervention.

Reflecting the fragility of even a large stock of reserves, China's foreign exchange reserves fell from their peak of $3.99 trillion in June 2014 to $3.51 trillion in September 2015, a 12 percent decline. In the first three quarters of 2015 alone, China lost a total of $329 billion of reserves, a decline of 8.5 percent relative to the level at the end of 2014.

An additional aspect of capital outflows is that net errors and omissions, which reflect unrecorded capital account or current account transactions, have been persistently negative since 2009. Negative amounts in this category reflect money leaving the country through unofficial channels. During 2014, such outflows amounted to –$140 billion and in the first half of 2015 alone they amounted to –$180 billion. From 2009 through the first half of 2015, cumulative net errors and omissions amounted to –$578 billion. One possibility, which is difficult to verify for obvious reasons, is that the government's crackdown on corruption is leading to some capital leaving the country for fear of expropriation as part of the crackdown. But these flows could also represent outward investments reflecting the same concerns about macroeconomic and financial stability laid out earlier.

In summary, China has taken major steps down the path of capital account liberalization that will be difficult to reverse. In the absence of other domestic reforms that are necessary to support a more open capital account—including financial-sector development, better regulatory frameworks, and a more flexible exchange rate—there are transitional risks that could result in substantial capital flow volatility and impose significant stresses on the financial system. Nevertheless, the possibility of a systemic financial crisis or balance of payments crisis remains low.

8. Concluding Remarks

On its present trajectory, China will have a nearly fully open capital account in the next few years, allowing the renminbi to play an increasingly prominent role in global trade and finance. The renminbi already plays a significant role in the denomination and settlement of international trade transactions that involve China. The renminbi is also making inroads into the global financial system and is starting to appear in the reserve portfolios of certain emerging market central banks. It is set to become a constituent of the basket of currencies that comprise the IMF's special drawing rights. These shifts, some of which are more symbolic than substantive at present, will develop critical mass over time and have the potential to start transforming the global monetary system.

The renminbi's prospects as a global currency will ultimately be shaped by broader domestic policies, especially those related to financial market development, exchange rate flexibility, and capital account liberalization. As Chinese financial markets become more fully developed and private investors increase the international diversification of their portfolios, shifts in China's outward investment patterns are also likely to become more pronounced. Thus, the various policy reforms that are needed to support the international role of the renminbi could also create significant changes in China's economy and the patterns of its capital inflows and outflows.

So long as China continues to make progress on financial-sector and other market-oriented reforms, it is likely that the renminbi will become a significant reserve currency within the next decade. However, the government's unambiguous repudiation of significant political, legal, and institutional reforms means that the renminbi is unlikely to be seen as a safe-haven currency (see Prasad 2014). In the absence of these broader reforms, the rise of the renminbi is likely to erode but not seriously challenge the dollar's dominance in international finance.

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NOTES

1 Chen, Peng, and Shu (2009) and Subramanian (2011) argue that the renminbi is well on its way to becoming a major, if not dominant, reserve currency. Dobson and Masson (2009), Eichengreen (2011a, 2011b), and Kroeber (2011) offer more nuanced and skeptical views.

2 A burgeoning body of literature examining specific aspects of China's exchange rate management and capital account liberalization includes Frankel (2005, 2011), Lardy and Douglass (2011), Yam (2011), and Yu (2015).

3 Initiatives designed to encourage corporate outflows have focused on large state-owned firms and a concentrated set of sectors such as natural resources that are relevant to the Chinese economy (Rosen and Hanemann 2009; Scissors 2011).

4 See Prasad (2009) for a more detailed discussion of these issues.

5 Appendix B in Prasad (2016) provides a detailed documentation of significant changes to capital account restrictions during the past decade, based on annual IMF *AREAER* reports.

6 As discussed in greater detail later in the paper, the 2015 figures are not directly comparable with those for prior years.

7 This subsection draws on Sharma (2015).

8 The general qualification requirements for QDII include (1) stable financial status and good credit; (2) qualified personnel who meet the relevant stipulations; (3) a sound governance structure and internal control systems; and (4) no record of major penalties levied by the relevant regulatory authority. There are also specific requirements that vary by type of institution. For example, an eligible fund management company needs to have net assets of at least 200 million renminbi, at least two years of active participation in the fund management business, and more than 20 billion renminbi or assets of equal value under management at the end of the latest quarter.

9 The quota balances are calculated at the end of each trading day on a net-buy basis: Aggregate Quota Balance = Aggregate Quota – Aggregate Buy Trades + Aggregate Sell Trades. The daily quota caps the daily net value of cross-border trades and is updated on a real-time basis. When the balance falls short of the daily quota, all buy orders on the next trading day are suspended, while sell orders are still accepted. The Hong Kong Securities Clearing Corporation and the China Depository and Clearing on the mainland are each other's clearing participants and undertake the settlement obligations of their respective clearing participants' trades on a net basis.

10 In principle, China has been reporting balance of payments (BOP) data based on *BPM6* standards for a number of years, while, as noted earlier, it has begun reporting IIP data based on *BPM6* in 2015. Changes in foreign exchange reserves differ between the historical BOP and IIP data. For instance, in 2014, the BOP data indicate net accumulation of foreign exchange reserves of $118 billion, while the corresponding number in the official reserves data, which is consistent with the IIP, is $22 billion. The difference could be due to two types of valuation effects—currency valuation effects and marking-to-market of assets in the reserve portfolio. In the first half of 2015, BOP data indicate a loss of reserves of about $67 billion, while the corresponding number in official reserves data is a loss of $149 billion.

11 See "Hong Kong: The Premier Offshore Renminbi Business Centre," Hong Kong Monetary Authority, April 2015.

12 Data on foreign exchange market turnover, derivatives markets, and currency denomination of international debt securities are taken from the Bank for International Settlements. See Prasad and Ye (2012) for further discussion of the concepts and data. Also see Ito and Chinn (2014) and Eichengreen and Kawai (2015).

13 Angeloni et al. (2011) note that, in addition to strong financial markets, a reserve currency should be backed up by (1) the reliability of rules and institutions, (2) the quality and predictability of fiscal and monetary policies, (3) the ability of policymakers to respond to unexpected shocks, and (4) political cohesion. Some authors also argue that network externalities are important, as they generate economies of scale and scope. See, for instance, Chinn and Frankel (2007). There is related empirical evidence on strong persistence effects in international investment patterns. See European Central Bank (2013, appendix C).

14 This is an underlying implication of Krugman's (1995) triangle model of currency invoicing—whereby economies are more likely to use the currency of the larger nation, as measured by trade, due to economies of scale.

15 The IMF refers to this figure for augmented debt as an upper bound of the government's obligations. However, this figure does not seem to include estimates of contingent liabilities in the state-owned banking system, which could swell the government's fiscal obligations. Reliable estimates of these contingent banking system liabilities are hard to come by.

16 See Prasad and Ye (2012) and Prasad (2014) for more details

17 On the importance of home country financial market development for attaining reserve currency status, see Tavlas (1991), Chinn and Frankel (2007), Forbes (2009), and Obstfeld (2011).

18 The PBC's 2014 report on renminbi internationalization indicates that 38 billion yuan (about $6 billion) was actually drawn by other central banks during 2014, with the cumulative amount used by the end of 2014 adding up to 80.7 billion yuan (about $12.6 billion).

19 Foreign central banks that want to buy Chinese bonds for their reserve portfolios need permission from the Chinese government through the QFII scheme. Sovereign wealth funds need the same. In December 2012, SAFE removed the ceiling on inward investments by sovereign wealth funds, central banks, and monetary authorities.

20 IMF Policy Paper, "Review of the Method of Valuation of the SDR," December 1, 2015.

21 The previous formula essentially involved summing up the country's exports and the stock of global foreign exchange reserves held in assets denominated in its currency.

22 The IMF has posted a Q&A about its decision at http://www.imf.org/external/np/exr/faq/sdrfaq.htm.

23 For a discussion of the issue of the sequencing of capital account liberalization in the context of China, see Prasad, Rumbaugh, and Wang (2005) and Prasad and Rajan (2005, 2006, 2008). Goodfriend and Prasad (2007) discuss the implications of China's exchange rate regime for monetary policy formulation and implementation. For a description of the challenges facing China's financial system, see Lardy (2012).