1 Introduction

On 11 August 2015, the onshore RMB, China's currency, depreciated by 1.9 percent against the USD, the largest one-day drop since the adoption of the managed float of the currency in 2005. China's yuan had been on an upward track for a decade, during which the country had been growing rapidly, and the market had been expecting the RMB to appreciate. So, what happened on that day?

Before 11 August 2015, the central bank, the People's Bank of China (PBC), set a midpoint for the value of the yuan against the US dollar (USD) (called the "central parity rate") at 9:15 a.m. on each trading day. In daily trading, the yuan was allowed to move 2 percent above or below the central parity rate. Under this mechanism, the central parity rate might not follow the trend of movement of the exchange rate the day before: The PBC sometimes set the central parity rate so that the yuan was stronger against the dollar a day after the market had indicated it should be weaker. In other words, the central bank intervened in the foreign exchange market to reverse the market trend from time to time under this mechanism. As the government intervened in the foreign exchange market, the RMB did not depreciate much against the USD even though capital began to move out of China starting from around October 2014, apparently due to the weakening growth momentum of the economy. The RMB would have depreciated more had the government not intervened to support its value.

On 11 August 2015, China implemented a new mechanism for setting the central parity rate. The central parity rate would now be largely based on how the yuan closed in the previous trading session. In other words, the central parity rate would follow the market trend the day before, which means that it became more market-driven.[1] As

a result of the reform on 11 August 2015, the yuan's central parity value was weakened by 1.9 percent on that day from the previous day, leaving it at 6.2298 to the USD, compared with 6.1162 the day before. As a consequence, the CNH/USD (the offshore RMB exchange rate against the USD) and CNY/USD (the onshore RMB exchange rate against the USD) exchange rates fell by 2.83 percent and 1.86 percent respectively on 11 August 2015, and they further depreciated by 2.08 percent and 0.96 percent respectively in the following trading day (see Figure 1.1). The market expected further, and possibly large, depreciation of the RMB. Before 11 August 2015, the market was still expecting the currency to appreciate relative to the USD in the short and medium term. It now was quite confident that it would depreciate in the short and medium term. This definitive reversal of the expected future exchange rate of the RMB was quite remarkable. As a result, it triggered capital outflows. To stem these outflows, the government soon reimposed certain measures of

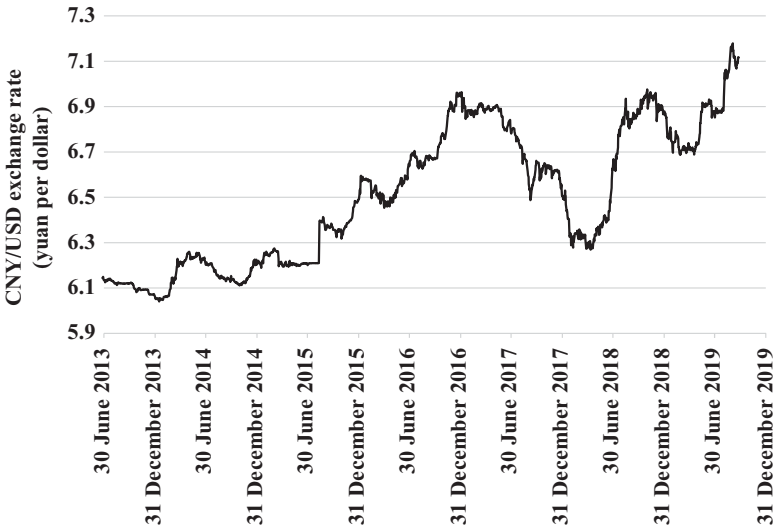

FIGURE 1.1 Historical CNY/USD exchange rate (yuan per dollar), 2013–2019.
Source: Bloomberg

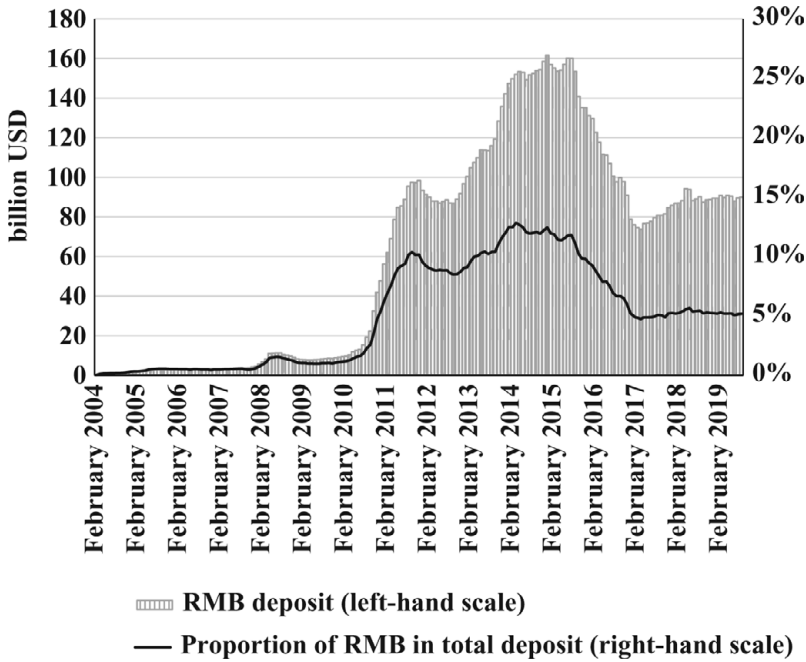

FIGURE 1.2 Monthly RMB deposits in Hong Kong in billion USD, 2004–2019 (excluding certificates of deposit).
Sources: CEIC and "HKMA – Size of Renminbi Deposit in Hong Kong": www.hkma.gov.hk/media/eng/doc/market-data-and-statistics/monthly-statistical-bulletin/T030302.xls

capital controls. CNH deposits in Hong Kong fell; so did cross-border capital flows into Mainland China.[2] Figure 1.2 shows that the RMB deposits in Hong Kong underwent a sharp decline from its peak (about the equivalent of USD 160 billion) after 11 August 2015. It never attained that level again even up till the time of writing (May 2020). In the third quarter of 2019, the amount of RMB deposits in Hong Kong was only slightly higher than 50 percent of the peak in the summer of 2015.

The change caused turmoil in the global financial market both immediately and long after the event took place. It not only marked the beginning of fundamental changes in Chinese exchange rate policy but had further repercussions, as indicated by the other events

that took place after 11 August 2015. For example, some months later, there were crashes in the Chinese stock market, which prompted measures to halt trading when stock prices became too volatile.

In the months after 11 August 2015, the state-owned banks in Hong Kong intervened in the Hong Kong offshore market to keep the CNH and CNY exchange rate aligned. That meant reducing the supply of CNH so as to raise the interest rate so that it became expensive to short the yuan. That kind of intervention greatly hurt the offshore market. The Hong Kong RMB offshore market suddenly lost steam. This was a serious setback to the internationalization of the RMB after many years of progress on that front. The Chinese government clearly underestimated the response of the market to its policy change.

In the aftermath of 11 August 2015, the momentum of RMB internationalization weakened substantially. The main reason is capital controls. Capital outflows were restricted so as to sustain a stable exchange rate of the RMB against the USD. This is due to a principle called the open-economy trilemma (see, for example, Obstfeld, Shambaugh, and Taylor 2005). The trilemma states that out of the three "desirable" goals of monetary policy autonomy, a stable exchange rate, and free capital mobility, it is impossible to achieve all three at the same time. Another interpretation of the trilemma is that when one goal (e.g., autonomy in monetary policy) is to be maintained, there is a tradeoff between the other two goals (i.e., free capital mobility and exchange rate stability)—if you have more of one, you will have less of the other. It dictates that if China wants to retain monetary policy autonomy and a very stable exchange rate, it cannot have a high degree of capital mobility.[3] The highest level of the government seemed to think that maintaining exchange rate stability took priority over allowing capital mobility. But capital mobility was essential for the internationalization of RMB, in particular the offshore RMB market. Thus, RMB internationalization was effectively put to the back burner.[4]

The fact that the above events caused a serious setback to RMB internationalization was quite ironic. One of the reasons for the

change in the mechanism of setting the central parity of the RMB exchange rate was supposed to make the RMB exchange rate more market-determined and more flexible so as to satisfy the requirements of the International Monetary Fund (IMF) for the RMB to be included in the basket of currencies that made up the special drawing right (SDR).[5] The SDR is a fictitious currency established by the IMF for lending to countries for short-term needs to fill the payment gap in their balance of payments account. Being included in the SDR basket was considered an important milestone of RMB internationalization by the Chinese government.

Indeed, subsequent to the central parity reform, the IMF announced on 30 November 2015 that the RMB would be included in the basket of currencies that made up the SDR on 1 October 2016. China's dream of making the RMB an internationally respected currency finally materialized on that date. The irony was that in the course of making the exchange rate more flexible so as to increase the chance of the RMB becoming an internationally recognized member of the club of elite currencies, China inadvertently put a brake on the pace of internationalization of RMB, one of whose aims was to increase the international status of the RMB.

Why then does China want to internationalize its currency in the first place? To answer this question, we first have to understand the IMS and its history.

1.1 THE DOLLAR STANDARD

Under the current IMS, many well-established currencies choose to adopt a floating exchange rate regime. However, many other countries, especially less-developed ones, choose to adopt a pegged exchange rate regime, meaning that they peg their exchange rate to a hard currency or a basket of hard currencies, such as the USD, euro, pounds sterling, and Japanese yen because they want to maintain stable exchange rates with these currencies. There can be multiple reasons for a country to adopt a pegged exchange rate regime. For example, it may want to maintain an undervalued exchange rate so

as to facilitate an export-oriented growth strategy, to minimize the risk of destabilizing the weak domestic banking system due to excessive volatility in the exchange rate, to anchor the domestic inflation rate, and to minimize the exchange rate risks faced by domestic firms that incur debts denominated in foreign currencies. In order to peg to a hard currency, these countries have to accumulate sufficient amounts of foreign reserves denominated in the hard currency in case they have to intervene in the foreign exchange market so as to sustain the exchange value of their currency. Suppose, for example, a country wants to peg its currency to the USD. If the market exerts depreciating pressure on the currency, the central bank has to sell USD and buy the domestic currency in the foreign exchange market so as to defend its peg to the USD. To safeguard the currency peg against market shocks and speculative attacks, the country has to keep a sufficient amount of USD reserves. Thus, the USD has to be a major reserve currency kept by the central bank of the country. A currency's share in the total foreign reserves of all countries is positively related to the extent to which they want to maintain a stable exchange rate with that currency. As of the end of the second quarter of 2019, the shares of USD, euro, Japanese yen, and pounds sterling in the total amount of allocated central banks' reserves in the world were 61.6 percent, 20.3 percent, 5.4 percent, and 4.4 percent respectively[6] (see Figure 1.3). Thus, the USD is by far the most important reserve currency. Moreover, the reason that many countries want to maintain a stable exchange rate with the USD is that it is also the dominant trade invoicing currency, trade settlement currency, and funding currency (the currency in which financial assets are denominated). Thus, the functions of reserve currency, invoicing currency, settlement currency, and funding currency are mutually reinforcing, making the USD the dominant currency in the world. As most countries want to maintain a stable exchange rate against the USD, they accumulate large amounts of USD reserves. However, the USD does not have to be pegged to any currency or to any asset such as gold. Thus, the United States does not have to keep any substantial amount

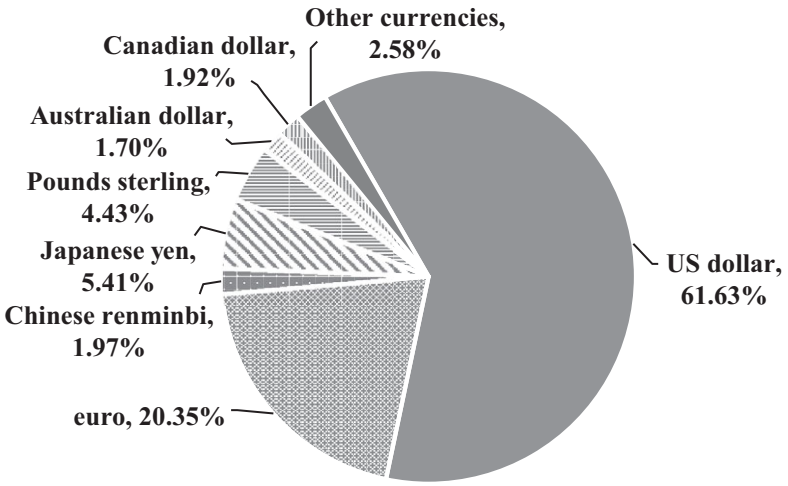

FIGURE 1.3 Shares of currencies in the total amount of allocated foreign exchange reserves across the globe by 2019 Q2.
Sources: IMF Currency Composition of Official Foreign Exchange Reserves (COFER), International Financial Statistics (IFS), International Monetary Fund.
http://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4

of foreign exchange reserves. More importantly, being the major reserve-currency country, the United States has the autonomy to use monetary policy to influence its own national income, unemployment rate, and inflation rate, while other countries that peg their currency to the USD do not have the autonomy to use monetary policy to influence their national income, unemployment rate, and inflation rate unless they limit capital mobility. (This is because of the open-economy trilemma.) This asymmetry is remarkable.

1.2 THE "EXORBITANT PRIVILEGE" OF THE UNITED STATES

Because of the reserve currency status of the USD, American citizens are able to borrow in their own currency at very low interest rates. This is because a major reserve currency is also a major invoicing currency and funding currency. Thus, there is a large supply of USD funds in the international capital market, lowering the borrowing

rate. The assets held by foreigners in the United States as of the end of 2017 was composed of 17.3 percent in US Treasury bonds, 11.5 percent in US corporate bonds, 2.8 percent in US agency debt, 22.4 percent in US stocks, 25 percent in inward foreign direct investment, 4.5 percent in financial derivatives, and 15.5 percent in other investments.[7] The overseas assets held by Americans as of the end of 2017 was composed of 12.4 percent in foreign debt securities, 32.7 percent in foreign stocks, 32.1 percent in US outward direct investment, 5.9 percent in financial derivatives, 15.4 percent in other investment, and 1.6 percent in reserve assets.[8] So, foreigners held a lot more US bonds than Americans held foreign bonds (in percentage terms). Since foreigners held more US assets than Americans held foreign assets, this difference is even larger in absolute terms. This reflects the fact that foreign central banks held a lot of US Treasury bonds as foreign exchange reserves.

On average, during the period 2005–2017, the overseas assets held by Americans earned around 3 percentage points higher interest rate per year than the assets held by foreigners in the United States.[9] This means that Americans can spend more than they produce year after year (i.e., running a current account deficit year after year) without incurring more net international debt. We shall discuss this issue further in Chapter 3.

Approximately 70 percent of US foreign assets are denominated in foreign currencies, while close to 100 percent of US liabilities to foreigners are denominated in USD.[10] Thus, when the USD depreciates, the international investment position of the United States improves, as the dollar value of American liabilities is unchanged but the dollar value of American assets rises. Consequently, when the United States is in a recession, say caused by a fall in foreign demand for its goods and services, its currency depreciates but this negative shock is mitigated by a wealth transfer from foreigners to the United States in the form of the increased net international investment position of the United States. Such an international transfer serves as an insurance payment and partly offsets the damage caused

by a negative demand shock to the country's economy. Admittedly, this "privilege" or advantage is not confined only to the United States but also accrues to any country that can borrow in its own currency, such as the eurozone countries, the UK, or Japan. However, the absolute values of the total foreign assets and total foreign liabilities of the United States are much higher than those of the UK or Japan, which means that the United States, as a country, benefits most through this privilege among all the countries that can borrow in their own currencies.

1.3 SEIGNIORAGE

Seigniorage is the real resources a government earns when it prints or creates money that it spends on goods and services. The dollar amount of US currency held outside of the United States is an indicator of the value of the seigniorage the US government earns from foreigners. There is no official data on the amount of US currency circulating outside the United States. Some researchers have provided estimates: Ruth Judson (2012) of the Federal Reserve Board of Governors of the United States estimated that "about half of all U.S. currency, and about 65 percent of the hundred-dollar notes, were held abroad as of the end of 2011." Edgar L. Feige (2012) estimated that "the percentage of U.S. currency currently held overseas is between 30–37 percent." An older report provided by the US Treasury Department in 2000 cited the following figure: "Estimates by the Federal Reserve suggest that at the end of 1998, 50 percent to 70 percent of the $500 billion in U.S. currency outstanding, or $250 billion to $350 billion, was held outside the United States."[11] The average of the above three estimated percentages is 47.8 percent. The total amount of USD in circulation as of 6 June 2018 was USD 1,661 billion, according to the Federal Reserve Bank of St. Louis.[12] So, assuming the above estimated percentages remain constant over the years, the total amount of US currency circulating outside the United States as of June 2018 was approximately USD 800 billion, which was about 4 percent of US GDP, a non-trivial amount.

Thus, the United States benefits a lot from the advantage that it enjoys as a major reserve currency. Valéry Giscard d'Estaing, French President Charles de Gaulle's finance minister, called it the "exorbitant privilege" of the United States. However, the IMS was not always like that of today. As Zhou Xiaochuan, the former governor of the People's Bank of China, once said, "The acceptance of credit-based national currencies as major international reserve currencies, as is the case in the current system, is a rare special case in history."

1.4 SOME HISTORY OF THE INTERNATIONAL MONETARY SYSTEM

During 1870–1914, most of the world was under the Gold Standard, in which all countries fixed the prices of their currencies in terms of gold. This avoided the asymmetry that exists in a reserve currency standard and put constraints on the supplies of money in all countries.

During 1944–1971, most of the world was under the Bretton Woods system, in which all countries fixed their exchange rates to the USD, while the USD fixed its value to the price of gold at USD 35 per ounce. Thus, the USD became the reserve currency of all countries that joined the Bretton Woods system. The monetary policy of the member countries other than the United States was disciplined as their currencies were fixed to the USD. As the USD was pegged to the price of gold, it provided discipline to the monetary policy of the United States. Thus, there existed no asymmetry as is seen in the reserve currency system. Because the exchange rates of countries were ultimately fixed to gold via the USD, it was called a gold exchange standard.

From 1973 to the present time, a large part of the world economy has been under a floating exchange rates system as mentioned above. Nonetheless, many countries continue to maintain a stable exchange rate with the USD, while the value of the USD is no longer fixed to the price of gold. There is no external commitment by the United States to discipline its monetary policy. The system acts like a reserve currency system with the value of the reserve

currency not backed by anything of value, such as gold, but by a national currency, the USD. As countries are not committed to fixing their exchange rates to each other, in principle they can choose to have autonomous monetary policy to deal with internal economic matters such as unemployment and inflation. However, partly for historical reasons and partly because the United States is still the largest economy with the most mature financial system, many countries continue to keep the vast majority of their foreign reserves in USD. Central banks want to keep a large amount of USD reserves not just because they need to defend their currency peg when necessary, but also the citizens of their countries, such as firms and households, need USD when they buy goods and services through international trade and or buy financial assets through international financial transactions. Their central banks need to have sufficient amounts of USD to provide dollar liquidity to their citizens. The historical reason for this entrenchment of the USD is that, by 1973, when the Bretton Woods system ended, the USD was the dominant invoicing, funding, investment, and reserve currency of the world. As the USD was widely used and kept, it was very easy to exchange into and out of the currency. The transaction costs of exchanging USD were very low compared with those of other currencies. There was literally no rival. Figure 1.4 shows the average transaction cost (measured by bid–ask spread) of exchanging between currency-pairs among four currencies: USD, EUR, GBP, and JPY during 2013–2017. It is clear that the average transaction cost of exchanging with the USD is the lowest compared with that of other currencies. The phenomenon that the transaction cost of exchanging with a currency is lower when more people use it is called network externalities. This, together with the fact that more people use a currency when the transaction cost of using it is lower, creates a positive feedback effect between the (larger) number of people who use the currency and the (lower) transaction cost of using it. This positive feedback effect partly explains the entrenchment of the use of the USD all over the world by 1973.

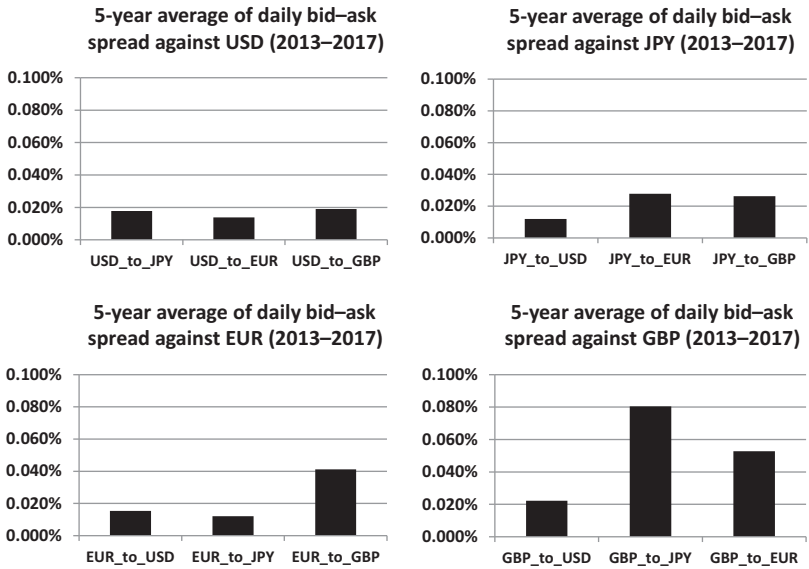

FIGURE 1.4 Average bid–ask spread of selected currency pairs, 2013–2017.
Source: Bloomberg

BOX 1.1 How the Americans seized the opportunity in Bretton Woods

The fact that the USD with its ties to gold was placed at the center of the post-World War II international monetary system (IMS) was not totally determined by economic reality but also by a power struggle between the declining British power and the ascending American power at the twilight of the war. The privileged position occupied by the USD anointed by the Bretton Woods conference in July 1944 was accepted by the participants only after some very heated arguments between the representatives of the Americans and those of the British. The American team was led by Harry Dexter White, the chief international economist at the Department of the Treasury of the United States at that time, while the British team was headed by none other than the iconoclastic economic thinker John Maynard Keynes. White represented the financial power of the United States, while Keynes represented the intellectual power of Britain.

BOX 1.1 **(cont.)**

White drafted the US blueprint for the International Monetary Fund (IMF) that competed with the plan drafted for the British Treasury by Keynes. However, the final compromise adopted at Bretton Woods mostly followed White's plan: White drafted a plan that would restore international stability after the war through the creation of the IMF and the World Bank. His plan defined the IMF and the World Bank as a promoter of economic growth through international trade with the financial plumbing based on the USD. In the end, White prevailed, not because of the superiority of White's intellectual power, but because of the strength of American economic and political power. Thus, the IMF was shaped primarily by White's plan rather than that of Keynes, and so the IMF became a dollar-based institution.

Where the two founding fathers of the IMF differed most was the degree of independence of the IMF and its power. To Keynes, the world needed an independent countervailing force to balance American economic power, a world central bank that could regulate the global supply of credit and its distribution. Keynes wanted to create an international reserve currency called the "bancor," to be issued by the IMF, which would act as a global central bank. White was opposed to the idea of a global central bank and that of the bancor. White wanted the IMF to be an adjunct to American economic power, an agency that could promote the balanced growth of international trade in a way that preserved the central role of the USD in international finance.[1]

Unfortunately, the Bretton Woods system contained a serious flaw. For international reserves to keep pace with the growth in world trade required an ever-expanding supply of dollars, which, as the economist Robert Triffin observed in the late 1950s, was incompatible with the preservation of a stable value for the dollar. This would cause a confidence problem regarding the exchange value of the USD. The way out of that dilemma was for the IMF to create an international credit instrument to supplement dollars in reserves. That instrument was finally created by the IMF in 1969. It was the special drawing right, or SDR, a fictitious currency composed of all major currencies at that

BOX 1.1 **(cont.)**

time, such as the USD, Deutsche Mark, Japanese yen, and British pound, for use as central bank reserves.

In fact, most people focus on the confidence problem raised by Robert Triffin, and ignore the problem of the dominance of the USD as a consequence of the Bretton Woods conference. This is a serious omission. The creation of the SDR came too late, as the USD was already entrenched in the IMS.

1 See Boughton 1998 and "Buttonwood" 2014. As an aside to the story of Harry Dexter White being cast as the hero of the US by orchestrating the dominance of the USD at Bretton Woods, there was a bizarre turn of events in the later years of his life: he was accused of being a spy for the Soviet Union during the McCarthy era. White had all along wanted to co-opt the Soviet Union into the IMF for the sake of world peace and prosperity. But, according to Boughton (1998), "White's intensely personal internationalism came under heavy criticism in the United States once the wartime military alliance with the Soviet Union against the Axis countries was no longer in force. During the investigations of the McCarthy era, attacks on his motives ranged from the questionable to the bizarre. His meetings with Soviet officials around the time of Bretton Woods were interpreted as espionage. His efforts during the war to hold the Nationalist government in China accountable for hundreds of millions of dollars in U.S. financial aid were interpreted as an effort to undermine Chiang Kai-shek in favor of Mao Tse-tung. His assistance in drafting a plan to limit the reindustrialization of Germany after the war was interpreted as part of a grand design to create an economic vacuum in Europe to be exploited by the Soviet Union." See also Steil 2013.

1.5 THE USD-BASED INTERNATIONAL MONETARY SYSTEM AND ITS PROBLEMS

The fact that the United States is the largest economy in the world with the most mature financial system implies that it has the deepest, broadest, and most liquid domestic financial market. This, together

with the fact that the USD is fully convertible in the current account and the capital account, makes it very attractive to be used as a funding currency for firms that need to raise funds for their business and as an investment currency for financial institutions that invest on behalf of their clients, such as households that save for retirement. There are two more reasons why the USD is widely held all over the world. The first is that the United States is politically stable and militarily powerful, which makes the USD a safe-haven currency in times of turmoil in the world. The second is that the monetary policy of the United States is disciplined by the checks and balances set up in the system of governance of the country. It has a relatively independent central bank, the Federal Reserve System, whose mandates are to maintain stable price levels and economic growth. This system makes it harder for the executive branch of the government to influence the central bank to print or create money to finance fiscal expenditure or stimulate the economy to facilitate re-election yet gives the central bank the freedom to steer the course of the economy by monetary policy, such as influencing inflation and unemployment. This set of institutions wins the trust of other countries.

During 1996–2005, China's exports took off while the RMB was pegged to the USD. Like many other developing countries, China tried to maintain a stable exchange rate with the USD. As a result of such a policy, China's central bank accumulated huge amounts of USD assets. In its 2018 annual report, the State Administration of Foreign Exchange (SAFE) disclosed that China's total foreign exchange reserves grew from a value equivalent to USD 1.07 trillion at the end of 2006 to a value equivalent to USD 3.84 trillion by the end of 2014. The amount then began to fall. Still, by the end of 2018, the value of China's foreign reserve was equal to an enormous amount of USD 3.07 trillion, compared with USD 3.14 trillion at the end of 2017 (see Figure 1.5). Foreign analysts broadly agreed that as of 2014 about two-thirds of Chinese foreign exchange reserves are held in USD. The USD assets held by the central bank of China yield very low interest rates compared with the potential average return from investing in domestic real assets. Thus,

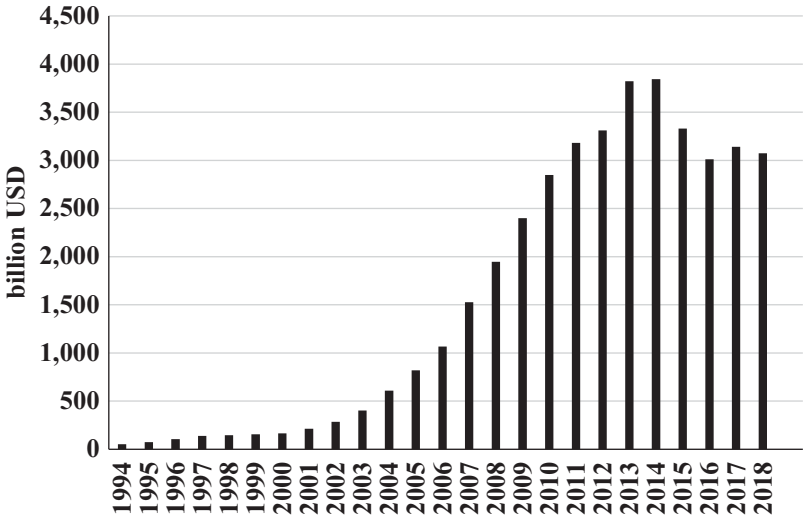

FIGURE 1.5 China's foreign exchange reserves, 1994–2018.
Source: State Administration of Foreign Exchange Annual Report (2018) [国家外汇管理局 《国家外汇管理局年报（2018）》 (in Chinese)

China paid a high price in buying an "insurance policy" to secure a stable exchange rate between the RMB and the USD. So, like many other developing countries that pegged their currencies to the USD, China was caught in "the dollar trap."

The global financial crisis in 2007–2009 sounded an alarm that the dollar-based system could be unreliable. For a period after the brokerage house Lehman Brothers went bankrupt in September 2008, there was a large-scale credit crunch in the banking system in the United States and Europe. They could not provide the necessary trade finance denominated in USD, euro, and other hard currencies to Asian countries and regions. This led to the collapse of trade in many Asian countries. Thus, countries and regions such as South Korea, Malaysia, Indonesia, China, and Hong Kong began to encourage settling bilateral trade using their own currencies, which was facilitated by bilateral currency swap agreements among the countries. For China, the natural response to this collapse of USD-based trade finance was to promote the international use of the RMB for trade settlement. Since 2009, the offshore RMB market in Hong Kong has

rapidly developed into a platform for facilitating RMB trade settlement. By 2015, the percentage of trade with China settled in RMB reached 29.4 percent, which was a historical high even up to the time of writing.[13] As many as 36 countries had entered into bilateral currency swaps with China by March 2018.

Other signs that the incumbent major reserve currencies could be quite unreliable were found in the euro debt crisis and the downgrading of US Treasury bond rating. In 2011, because of the euro crisis, the market generally predicted that the euro would depreciate by a large margin and suspected even that the euro might eventually disintegrate. In the same year, Standard & Poor downgraded the rating of US Treasury bond from AAA to AA+.[14] These events showed that the expected values of these incumbent reserve currencies might not be always sound. They suggested that perhaps central banks of the world should consider making their portfolios of reserve currencies more diversified. The RMB, being the currency of the second largest and the fastest-growing country at that time, was an obvious candidate for adding into their diversified portfolios.

The fragility of the USD-based international monetary and financial system prompted China to seek independence from it. China felt the need to increase the use of its own currency in international transactions and establish its own system in international payments. Moreover, certain quarters within the Chinese government felt that it was a good idea to use capital account liberalization, which is a prerequisite for internationalization of the RMB, to create pressure for domestic financial sector reform. This is called *daobi* (倒逼), which literally means creating a pressure in the reverse direction. As a result of the confluence of the above-mentioned factors, there has been a series of measures aimed at RMB internationalization since 2010. The effects were dramatic. As of the end of 2014, the amount of RMB deposits in banks in Hong Kong reached RMB 1,003.6 billion (12 percent of total deposits). Offshore RMB centers emerged all over the world, including Hong Kong, Taipei, Singapore, and London. At the end of 2014, the outstanding amount of offshore RMB-denominated

bonds (called dim sum bonds) issued in Hong Kong reached RMB 380.5 billion. In December 2015, RMB became the fifth most used payment currency in the world, and the second most used trade finance currency, according to SWIFT. In October 2016, RMB officially became one of the five currencies in the basket of the SDR.

However, in order for the RMB to be a significant international currency, it has to be largely convertible in the capital account (i.e., capital has to be largely free to move in and out of China) and China's financial market must be sufficiently deep, broad, and liquid. It is not clear whether and when this might happen. The further development of the financial market is hindered by the requirement for the state-owned banks to offer cheap credit to non-profitable state-owned enterprises (SOEs) to keep them afloat for social and political reasons. As for capital account opening, one obstacle is that China does not want to fully integrate its financial system with the rest of the world, partly because of the experience of the global financial crisis in 2007–2009 that the United States-based IMS is not always reliable, and partly because of ideology – a mistrust of the West. This is one obstacle to RMB internationalization. To overcome this obstacle, the Chinese government borrows a page from the playbook of Deng Xiaoping's "one country, two systems" idea. They decide to adopt the "one currency, two markets" approach, meaning that they create an offshore RMB market that is not completely integrated with the onshore one. The offshore RMB is called CNH, as distinct from the onshore RMB, which is called CNY. They facilitated the formation of offshore RMB centers in Hong Kong, Singapore, Taipei, London, and elsewhere. The CNH is a fully convertible currency in the offshore market. In the offshore centers, the markets for CNH-denominated bonds, loans, bank deposits, and financing of projects gradually develop. How effective this approach is going to be remains to be seen.

Moreover, capital account convertibility of the RMB (which is equivalent to free capital mobility except for some subtle differences) implies that its exchange rate would become less stable. This is due to the open-economy trilemma. It dictates that exchange rate stability

cannot be achieved under free capital mobility if autonomy in monetary policy is to be maintained. Assuming that China always wants autonomy in monetary policy, there is a tradeoff between higher exchange rate stability and freer capital mobility. You cannot have both at the same time. To what extent is China willing to let its currency fluctuate according to market forces? If China is unwilling to let its currency fluctuate too much, then its degree of capital mobility would be limited. This is another obstacle to RMB internationalization. Faced with these challenges, the future of the internationalization of the RMB is unclear.

This book investigates the necessary conditions for RMB internationalization to succeed and the prospects of the initiative. In the following chapters, I shall tell my story, supporting my arguments with theory, and supporting my theory with evidence. I shall discuss the various factors that are important for RMB internationalization and assess the potential for China to satisfy the requirements. I shall also identify the impediments, the greatest of which is the Chinese system itself, which is essentially still a planned economy. Thus, RMB internationalization cannot move forward without further reforms. The two major reforms are capital account liberalization and financial sector liberalization. Currently, the country is characterized by capital controls and financial repression, both of which represent distortions to the economy, creating inefficiency. Reforms mean removal of distortions to the economy. According to economic theory, when there is distortion in one part of the economy, distortion in another part of the economy may be justified on the grounds of economic efficiency. This is called The Theory of the Second Best. Thus, when the country is under financial repression, it may be justified to have capital controls so as to maintain economic stability. In order to attain the "first best," however, both distortions need to be removed or relaxed, and this requires reforms in both parts of economy. In other words, both the capital account and financial sector need to be liberalized. We advocate that both reforms should be carried out in tandem in a gradual manner so as to exploit the synergy of the two reforms. In fact, we argue that RMB internationalization can be a catalyst for these reforms.

NOTES TO CHAPTER 1

1 According to the website of the PBC, the China Foreign Exchange Trade System (CFETS) publishes the daily middle exchange rate of the renminbi against the USD for the permitted trading range of the day at 9:15 a.m. on each working day. As of 11 August 2015, the middle rate is based on three factors: the closing rate of the inter-bank foreign exchange rate market of the previous day; supply and demand in the market; and the price movements of major currencies. See www.pbc.gov.cn/goutongjiaoliu/113456/113469/2927054/index.html. According to the website of the PBC, "为增强人民币兑美元汇率中间价的市场化程度和基准性，中国人民银行决定完善人民币兑美元汇率中间价报价。自2015年8月11日起，做市商在每日银行间外汇市场开盘前，参考上日银行间外汇市场收盘汇率，综合考虑外汇供求情况以及国际主要货币汇率变化向中国外汇交易中心提供中间价报价。"

2 Indeed, after 11 August 2015, the RMB exchange rate was generally on a depreciating trajectory until the exchange rate reached its trough of about 6.96 yuan to the dollar around the end of 2016.

3 The trilemma has been challenged by researchers in recent years. See, for example, Rey 2015 and Han and Wei 2018. Nonetheless, there is still plenty of evidence to show that the theory is sound. See Chapter 5 for more discussion of the challenges.

4 See, for example, "CNH: 'Taken' – The RMB Episode," from the Development Bank of Singapore, 15 January 2016 (www.dbs.com/aics/pdfController.page?pdfpath=/content/article/pdf/AIO/160115_insights_defending_the_yuan.pdf).

5 In December 2015, the RMB exchange rate fixing mechanism became more transparent as the PBC officially published for the first time the composition of the reference currency basket. CFETS publicly released for the first time the CFETS RMB Index, which reflects the RMB exchange rates against 13 currencies traded at CFETS. The USD, the euro, and the Japanese yen had the highest weightings at 26.4 percent, 21.39 percent, and 14.68 percent respectively, followed by the Hong Kong dollar (6.55 percent) and the Australian dollar (6.27 percent). See Hong Kong Exchanges and Clearing Limited 2018.

6 Source: IMF Currency Composition of Official Foreign Exchange Reserves (COFER) (http://data.imf.org/?sk=E6A5F467-C14B-4AA8–9F6D-5A09EC4E62A4).

7 Sources: US Bureau of Economic Analysis (www.bea.gov/international/index.htm#iip); US Department of the Treasury (www.treasury.gov/resource-center/data-chart-center/tic/Pages/fpis.aspx#usclaims). The shares of US Treasury, corporate bonds, and agency debts are calculated using the data as of mid-2017 provided by the US Department of the Treasury, so the shares do not add up to 100 percent.

8 Source: US Bureau of Economic Analysis (www.bea.gov/international/index.htm#iip); US Department of the Treasury (www.treasury.gov/resource-center/data-chart-center/tic/Pages/fpis.aspx#usclaims).

9 Calculated by the author, based on methodology suggested in Habib 2010 .

10 See, for example, Krugman, Obstfeld, and Melitz 2018: 55.

11 "The Use and Counterfeiting of United States Currency Abroad" (www.treasury.gov/press-center/press-releases/Documents/counterf.pdf).

12 Board of Governors of the Federal Reserve System (US), "Liabilities and Capital: Other Factors Draining Reserve Balances: Currency in Circulation: Week Average [WCURCIR]," retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/WCURCIR), 6 June 2018.

13 Source: PBC – RMB trade settlement in 2015 (www.pbc.gov.cn/diaochatongjisi/116219/116225/3004953/index.html); China Customs Statistics – 2015 Total Trade (www.customs.gov.cn/publish/portal0/tab49667/info785130.htm).

14 Source: Reuters, "S&P Lowers United States Credit Rating to AA+" (www.reuters.com/article/us-usa-sp-downgrade-text/sp-lowers-united-states-credit-rating-to-aa-idUSTRE7750D320110806).