17. The reform of China's exchange rate regime

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China has had an inflexible exchange rate regime for many decades. According to the International Monetary Fund (IMF), until 2015, China had a crawling-peg-like arrangement for its exchange rate regime. On 11 August 2015, the People's Bank of China (PBC) took a decisive step towards floating the renminbi (RMB) exchange rate. However, due to a misjudging of market sentiment at the time and bad luck, the reform experiment caused market panic and the renminbi quickly devalued. As a result, the PBC halted the experiment and introduced a new central parity rate-settling mechanism. According to the new rule, the RMB exchange rate with the US dollar was determined by the arithmetical average of the previous day's closing price and the current day's theoretical value of the renminbi's bilateral exchange rate against the dollar that can maintain the stability of the index of a given currency basket over the past 24 hours

This author has great reservations about this arrangement, which is intended to achieve both exchange rate stability and minimisation of the use of foreign exchange reserves. This is essentially mission impossible. In fact, only when devaluation pressure on the renminbi coincides with the falling dollar index can the RMB exchange rate move according to the rule, without the need to use a large volume of foreign exchange reserves.

The RMB exchange rate has started to stabilise since 2017. In the author's view, this stabilisation was a result of the combined affects of international and domestic factors, and cannot be attributed to the success of the new central parity price-setting rule—never mind that exchange rate stability should not be a policy objective of the PBC.

In recent quarters, the PBC has stopped its daily intervention in the foreign exchange market. This is a very positive development. Allowing the RMB exchange rate to float is the only solution for China to correct its external imbalances and allow the use of monetary policy to focus on promoting growth, prices and financial stability.

Exchange rate policy has been the focus of debates both within and outside China for the past 20 years. China's exchange rate policy is characterised by a fear of floating. When the renminbi is under appreciation pressure, authorities fear appreciation. When the renminbi is under depreciation pressure, they fear depreciation. For a long time, the renminbi was undervalued. While undervaluation

is conducive to China's export drive and economic growth, it leads to cross-border misallocation of resources. As a poor developing country, China accumulated some US\$4 trillion of foreign exchange reserves. When the renminbi is under devaluation pressure, the stability of the currency actually encourages the unwinding of hot money and facilitates capital flight. Within two years from 2014, China's foreign exchange reserves fell by an astronomical US\$1 trillion.

The PBC has long tried to make the renminbi flexible. It embarked on a long march towards a floating exchange rate regime, in 1994, which was restarted in 2015 and reached an apogee on 11 August 2015. After retreating, the bank might now have taken the appropriate steps to finally unshackle the RMB exchange rate.

There is a large existing literature on China's exchange rate policy, but there has been little study of its evolution. Misconceptions about China's exchange rate regime since the 11 August 2015 ('8/11') reforms are prevalent. This chapter aims to clarify these misconceptions and explain how China's current exchange rate regime has been working. The thrust of the chapter is that China should stop designing any exchange regimes that need regular government intervention, which will lead to market distortion and national wealth losses regardless of how smart is the design. It is not worth the costs to continue an exchange rate regime that is not based on market demand and supply.

The chapter begins with a brief review of the long evolution of China's exchange rate regime. The second section deals with the 8/11 reforms and their aftermath. The third section is the focus of the chapter, and discusses in detail the RMB central parity rate-setting rule introduced in February 2016 and its role in stabilising the RMB exchange rate against large depreciation pressures. The fourth section introduces the most recent changes in China's exchange rate regime, while the final section provides some concluding remarks.

The evolution of China's exchange rate regime

According to the IMF's *Annual Report on Exchange Rate Arrangements and Exchange Restrictions (AREAER)* (IMF 2016), which provides information on the exchange rate arrangements of member countries, exchange rate arrangements can be divided into four broad categories: hard pegs, soft pegs, floating regimes and residuals. Within each broad category, there are different arrangements (Table 17.1).

Table 17.1 Classification of exchange rate arrangements

Type	Categories				
Hard pegs	Exchange arrangement with no separate legal tender	Currency board arrangement			
Soft pegs	Conventional pegged arrangement	Pegged exchange rate within horizontal bands	Stabilised arrangement	Crawling peg	Crawl-like arrangement
Floating regimes (market-determined rates)	Floating	Free floating			
Residual	Other managed arrangement				

Note: This methodology became effective on 2 February 2009 and reflects an attempt to provide greater consistency and objectivity in exchange rate classification across countries and to improve the transparency of the IMF's bilateral and multilateral surveillance in this area.

Source: IMF (2016).

Until 2015, China belonged in the country group with crawl-like arrangements. According to the IMF, for classification as a crawl-like arrangement, the exchange rate must remain within a narrow margin of 2 per cent relative to a statistically identified trend for six months, and there must be a minimum rate of change greater than that for a stabilised (peg-like) arrangement. In the *AREAER* for 2016, China's exchange rate regime was reclassified to 'Other managed arrangement', which is a residual category used when, for example, exchange rate arrangements shift frequently. Until 2016, there were 20 countries in this category: China, Algeria, Angola, Azerbaijan, Belarus, Cambodia, Egypt, Gambia, Guinea, Haiti, Kyrgyzstan, Liberia, Myanmar, Malaysia, Rwanda, Pakistan, South Sudan, Syria, Tajikistan and Vanuatu.

From 1949 until the late 1970s, the Chinese Government set China's official exchange rate at a greatly overvalued level, while setting internal exchange rates for different exports according to the 'costs for earning foreign exchanges' (Goldstein and Lardy 2009). In 1979, when the country began to pursue its reform and opening-up policies, it loosened foreign exchange controls and allowed exporters to retain a share of their foreign exchange earnings. This arrangement was called the 'foreign exchange retention system'. In October 1980, companies were allowed to sell to other companies foreign exchanges that they did not need for their own use. In January 1981, the government introduced an 'internal settlement rate' of RMB2.8 per US dollar, applicable to all trade transactions, alongside an official exchange rate of RMB1.5 per dollar for nontrade transactions. The official rate was pegged to a basket of currencies, while the internal settlement rate was pegged exclusively to the US dollar.

In the mid-1980s, the so-called foreign exchange swap centres were established, where companies traded foreign exchange and the exchange rate was determined on the basis of demand and supply. At the same time, the government gradually devalued the official exchange rate of the renminbi against the dollar. In early 1985, the government abolished the internal settlement rate and all international transactions were settled at the official exchange rate.

On 1 January 1994, the official and swap markets were merged. The official rate fell from RMB5.80 per US dollar to the prevailing swap market rate of RMB8.70 per dollar. Because four-fifths of all foreign exchange transactions were made in the swap market, the impact of the devaluation of the official exchange rate on China's trade was insignificant. The merging of these markets enabled the Chinese Government to proclaim that China's exchange rate regime was based on market demand and supply and 'unitary managed floating'. Use of the word unitary implied that the US dollar was the unit of value for the renminbi. By October 1997, the renminbi's exchange rate with the US dollar was 8.28.

Initially, China was happy with the managed floating arrangement and it had no problem allowing market demand and supply to determine the exchange rate. In fact, after the 1994 reform, the RMB exchange rate was on the rise, driven by the international balance of payments surplus. However, the East Asian Financial Crisis abruptly changed China's policy prospects. To prevent the renminbi from collapsing—as many other Asian currencies had—the Chinese Government, while tightening capital controls, adopted a policy of 'no devaluation', to calm market panic. China's exchange rate regime shifted from managed floating to a very hard de facto peg to the US dollar.

During the East Asian Financial Crisis, the consensus among Chinese economists was that, as soon as the large depreciation pressure on the renminbi disappeared, the currency should be de-pegged from the US dollar and return to a managed floating arrangement. However, after the crisis, this idea met with strong opposition from China's exporting sector, worried about the effect on the competitiveness of exports. The de facto peg persisted until 21 July 2005, when the PBC de-pegged the renminbi from the US dollar and revalued it, from RMB8.28 per dollar to RMB8.11 per dollar—an appreciation of 2.1 per cent. The PBC announced that the renminbi's closing rate against the US dollar at the end of each business day would be its central parity rate against the dollar the next day. The renminbi was allowed to fluctuate up to 0.3 per cent around the central parity rate. The PBC also said that determination of the renminbi's exchange rate would refer to a basket of currencies. It is worth noting the use of 'refer' rather than 'peg'. In fact, since then, the determination of the RMB exchange rate has rarely referred to a basket of currencies, let alone being pegged to the basket.

In responding to the Global Financial Crisis, China re-pegged the renminbi to the US dollar, from August 2008 to June 2010. According to the IMF, the exchange rate regime during this period fell into the 'stabilised arrangement' category. After June 2010, the IMF reclassified China's exchange rate system as a crawl-like arrangement. Since then, the renminbi has resumed its gradual appreciation, and the band of fluctuation eventually widened to ± 2 per cent.

The '8/11' exchange rate reform and its aftermath

On 11 August 2015, the PBC introduced a new rule for setting the RMB central parity rate against the US dollar: the daily central parity quotes reported by primary dealers (major commercial banks) to the China Foreign Exchange Trade System (CFETS) before the market opens would be based on the previous day's closing rate of the interbank foreign exchange market, within a ± 2 per cent band. This was a bold step towards a floating regime. If the closing rate today falls, tomorrow's RMB central parity rate will be set correspondingly lower. Hence, the official exchange rate (the RMB central parity rate set by the PBC) would move in response to changes in supply and demand in the foreign exchange market. If the exchange rate devaluation pressures were high, the exchange rate could devalue by a maximum 2 per cent in a day. It is not too far-fetched to imagine that if the devaluation pressures were very high, the RMB exchange rate could devalue by 20 per cent in 10 days.

The change in the rules of the game was too abrupt for the market to take, and the RMB exchange rate fell immediately. In the first two days of the '8/11' reform, the central bank was shocked to see the renminbi devalued by almost 3 per cent, especially given that before 11 August there were only moderate devaluation expectations in the market. The PBC feared the depreciation could spin out of control. On 13 August, it declared that it had no plan to reform China's exchange rate regime; this had been a one-time adjustment of the exchange rate and the 3 per cent adjustment so far achieved was enough to correct the overvaluation. Thus, the reform experiment was brought to an abrupt end.

With hindsight, we can say that if the central bank had not blinked after three days of the trial, and had waited for a week or two, the exchange rate might eventually have stabilised and the reform may have succeeded. The general direction of the 8/11 reform was correct, but unfortunately the PBC failed to carry it through. Expectations of the devaluation of the renminbi increased significantly, accompanied by a sudden surge of capital outflows. Stabilising the renminbi became the PBC's top priority. It intervened heavily in the foreign exchange market and, as a result, there was a huge fall in foreign exchange reserves—of hundreds of billions of dollars.

From 13 August 2015 to the Spring Festival in February 2016, no one was quite sure what was guiding the PBC in setting the RMB central parity rate. A discernable pattern was that whenever the market expected the renminbi to fall, it would instead rise. An obvious explanation for this is that the PBC was manipulating the exchange rate to move it in an unexpected fashion to punish those who were shorting the renminbi, hoping to break depreciation expectations by so doing. For many months after 13 August, despite the strong depreciation expectations, the renminbi actually appreciated.

This was a costly strategy. Because of the central bank's intervention in the midst of RMB devaluation pressure, China's foreign exchange reserves fell quickly. As soon as the market was no longer expecting a further weakening of the exchange rate, the PBC would stop its intervention and let the renminbi fall slightly. As soon as the market detected that the PBC had reduced its intervention, however, selling pressure returned and the central bank had to step in again to support the renminbi by selling more dollars.

The current RMB central parity rate–setting rule

The formula for the new RMB central parity rate–setting rule

In response to the rapid depletion of foreign exchange reserves and criticisms from the IMF and market participants about the lack of a transparent rule for setting the RMB exchange rate, a new approach was introduced in January 2016. It was based on the formula of 'the closing rate + the theoretical RMB exchange rate to keep the index of a currency basket unchanged over the previous 24 hours'. Although the central bank did not explicitly announce the rule, bank officials implicitly acknowledged its existence. In contrast with the 8/11 reform, instead of fixing the RMB central parity rate according to the previous day's closing rate, now the change in the RMB central parity rate on a trading day would be determined by the arithmetical average of two variables. The first variable is the difference between the previous trading day's closing rate and the previous trading day's central parity rate. The second is the difference between the 'theoretical' bilateral exchange rate of the renminbi against the dollar that can keep the index of a currency basket unchanged and the previous trading day's central parity rate.

Assuming that the previous day's RMB central parity rate is 6.1, the closing rate is 6.2, and the 'theoretical RMB exchange rate'—shorthand for 'the bilateral exchange rate between the renminbi and the dollar that makes the index of a currency basket unchanged over the past 24 hours'—is 6.15. According to the new rule, today's

RMB central parity rate is equal to $6.1 + [(6.2 - 6.1) + (6.15 - 6.1)]/2 = 6.175$. This formula can be transformed into a second and simpler formula: the RMB central parity rate = [previous day's closing rate + the theoretical RMB exchange rate]/2 = $[6.2 + 6.15]/2 = 6.175$. The two formulas are equivalent. For the sake of simplicity, we will use the second formula in the discussion below.

The PBC uses the CFETS as its currency basket. According to the definition of the CFETS index, and with available data, anyone can calculate the RMB central parity rate against the dollar on a trading day before the market is open.

The 'theoretical RMB exchange rate'

The key to the formula is understanding the concept of the theoretical RMB exchange rate. A basket of currencies is a unit of value for measuring the value of goods, services and financial products (including currencies), and consists of a given set of currencies with a given number of units for each constituent currency. While a currency can be measured by the US dollar, it can also be measured by a basket of currencies. The Special Drawing Rights (SDR) is a typical basket of currencies, comprising 0.58 units of the US dollar, 0.39 units of the euro, 1.02 units of the renminbi, 11.9 units of the Japanese yen and 0.086 units of the pound sterling. Any currency can be measured by the SDR. For example, on 30 September 2016, the value of US\$1 was SDR0.7164 or, equivalently, SDR1 was worth US\$1.3958.

The value of the renminbi can be measured in dollars. For example, we can say that $\text{RMB1} = \text{US\$0.16129}$ (direct quotation) or, more commonly, $\text{US\$1} = \text{RMB6.2}$ (indirect quotation). To show how a basket of currencies can be used as a unit of value to measure the value of the renminbi, we assume that the US dollar/Japanese yen (USDYEN) is 100 and US dollar/Chinese renminbi (USDRMB) is 6.2. Since $\text{RMB6.2} = \text{US\$1} = \text{US\$0.6} + \text{US\$0.4}$ (0.6 and 0.4 are weights), we can substitute the yen for the dollar to achieve the relationship: $\text{RMB6.2} = \text{US\$0.6} + 0.4 \times \text{¥100}$. If divided by 6.2, the equation becomes $\text{RMB1} = \text{US\$0.097} + \text{¥6.45}$.

Now we can say either $\text{RMB1} = \text{US\$0.16129}$ or $\text{RMB1} = \text{US\$0.097} + \text{¥6.45}$. In the first case, the renminbi is measured by US dollars. In the second, the renminbi is measured by a basket of two currencies, which consists of 0.997 unit of the US dollar and 6.45 units of the Japanese yen. It is worth emphasising that the two measurements are equivalent only on a given date—the base time when $\text{USDRMB} = 6.2$ and $\text{USDYEN} = 100$.

Pegging to a basket of currencies means that, in our example, whatever the bilateral exchange rate between the dollar and the yen, RMB1 should always be equal to $\text{US\$0.097} + \text{¥6.45}$. $\text{RMB1} = \text{US\$0.16129}$ holds when $\text{USDRMB} = 6.2$ and $\text{USDYEN} = 100$. However, USDYEN changes over time. If USDYEN has become 140, and the renminbi is pegged to a basket of currencies consisting of 0.097 units

of the US dollar and 6.45 units of the Japanese yen, the value of RMB1 should be US\$0.1431. Equivalently, US\$1 is now worth RMB6.99 instead of RMB6.2. This means that, due to the change in the US dollar/Japanese yen exchange rate—which is outside China's control—to maintain the peg of the renminbi to the basket of currencies, the RMB exchange rate against the dollar should also change.

Keeping a currency basket index unchanged means that no matter how the exchange rates between component currencies change, the currency basket index must always be equal to 1 (or 100). It can be shown that keeping the currency basket index unchanged (or pegging to the index of a currency basket) is equivalent to pegging to a basket of currencies. To illustrate, under a regime of 'pegging to a basket of currencies', the expression 'RMB1 = US\$0.097 + ¥6.45' can be rewritten as Equation 17.1.

Equation 17.1

$$1 = 0.6 \frac{\$/¥}{6.2} + 0.4 \frac{yen/¥}{0.062}$$

In Equation 17.1, 6.2 is the US dollar/Chinese renminbi exchange rate and 0.062 is the Japanese yen/Chinese renminbi exchange rate in the base period. It can be verified that in the base period, when the US dollar/Japanese yen exchange rate was 100, we have Equation 17.2.

Equation 17.2

$$0.6 \frac{\$/¥}{6.2} + 0.4 \frac{yen/¥}{0.062} = 1$$

When the US dollar/Japanese yen exchange rate is no longer 100, to keep the index of the currency basket unchanged, the Chinese monetary authority has to change the US dollar/RMB exchange rate to offset the impact of the change in the dollar/yen exchange rate on the index of the currency basket. For example, if the US dollar has appreciated against the yen, from 100 to 140, to keep the index of the currency basket equal to 1, the renminbi must depreciate against the US dollar, from 6.2 to 6.99—a depreciation of 11.3 per cent. In this example, the theoretical RMB exchange rate is 6.99.

The CFETS index

The index of the currency basket to which the renminbi is supposed to be pegged is defined by the following formula (Equation 17.3).

Equation 17.3

$$CFETS = \frac{100.02}{0.2640 \frac{\$}{¥} + 0.2139 \frac{Euro}{¥} + \dots}$$

In Equation 17.3, 0.2640 and 0.2139 are weights of the exchange rates of component currencies against the renminbi, which sum to 1.0002. The numbers 6.1190 and 7.4556 are the exchange rates of component currencies against the renminbi in the base period.

The CFETS index can be divided into approximately three components: the RMB exchange rate against the US dollar,¹ the dollar index and the index of the remaining currencies that are not included in the dollar index. Because currencies that are not included in the dollar index are not important in deciding the CFETS index, they are neglected in the discussion below. It is easy to see that if the dollar index is falling,² the RMB exchange rate against the dollar should rise. If the dollar index is rising, the RMB exchange rate against the dollar should fall. Hence, to peg to the CFETS index means that, in response to the fall in the dollar index, the RMB exchange rate should appreciate, and vice versa.

In the above discussion, movements in the RMB exchange rate and the dollar index are assumed to be independent. However, according to the new RMB central parity rate-setting rule, the RMB central parity rate on a trading day is jointly determined by the previous day's closing rate and the theoretical RMB exchange rate. In turn, the latter is calculated given the dollar index known when the market opens on the trading day as well as the CFETS index 24 hours previously. To illustrate, in the previous example, if the dollar index is falling, to keep the CFETS index stable, the RMB exchange rate should be 6.99. However, because the RMB central parity rate today is the arithmetical average of yesterday's closing rate and 6.99—the theoretical RMB exchange rate—unless the previous day's closing rate is also 6.99, the basket currency index today will be either higher or lower than 6.99. In other words, the central parity-setting rule has made the CFETS index a moving target, and pegging to a constant CFETS index is almost impossible. In contrast, pegging to a basket of currencies means the index of the currency basket should be kept unchanged within a narrow band for a long time—usually six months at least. Because China's central parity rate-setting rule requires that in determining the central parity rate the closing rate should also be taken into consideration, the CFETS index cannot be kept unchanged even within 24 hours. It is therefore incorrect to say China has adopted a currency basket peg regime.

1 The dollar index in the CFETS index is not exactly the same as the US dollar index that is published by US authorities, because the weights for currencies included in the former are not the same as those in the latter.

2 For the sake of simplicity, we do not discuss the index for the rest of the currencies.

The working of the new rule

If the renminbi is on a depreciation path while the dollar index is falling, according to the central parity rate–setting rule, today's RMB central parity rate must be higher than yesterday's closing rate, which in turn implies that sooner or later the central bank will probably have to 'lean against the wind' to artificially raise today's RMB closing rate to make sure it is kept within the 2 per cent band below today's central parity rate. It can be seen that the introduction of the peg element into the central parity rate–setting rule can slow the process of RMB depreciation, but it probably requires the central bank's constant intervention and the use of foreign exchange reserves.

If the renminbi is on a depreciation path while the dollar index is rising, according to the central parity rate–setting rule, today's RMB central parity rate falls, due to the fall in both today's theoretical RMB exchange rate and yesterday's closing rate—relative to yesterday's central parity rate. If the fall in the theoretical RMB exchange rate is less than yesterday's closing rate, today's RMB central parity rate will be higher than yesterday's closing rate. This means that if today's depreciation pressure is as large as yesterday's in terms of percentages per day, the PBC will have to intervene to keep today's closing rate within the 2 per cent band below today's central parity rate. But, compared with the case where the dollar index is falling, the intervention should be weaker.

If the theoretical RMB exchange rate falls below the previous day's closing rate, due to a persistent rise in the dollar index, the PBC may choose to avoid intervening but to allow the present day's closing rate to fall as long as it remains within the band so as to release the depreciation pressure on the renminbi. In this case, today's closing rate can be more or less equal to tomorrow's theoretical RMB exchange rate. As a result, while the renminbi is falling, the CFETS index can be quite stable.

Some argued that the depreciation of the renminbi between August 2016 and the end of that year was entirely attributable to the rise in the dollar index, and there was nothing wrong with the renminbi per se. In other words, there was no depreciation pressure in the foreign exchange market. Besides being factually incorrect—China ran an international balance of payments deficit for the whole of 2016, and the depletion of foreign exchange reserves continued until the second quarter of 2017—this argument ignores the role of the depreciation pressure on the renminbi in the determination of its central parity rate. If there were no depreciation pressures in the market, yesterday's closing rate would be equal to the RMB central parity rate set at yesterday's market opening. With a constant closing rate and a falling theoretical rate due to the fall in the dollar index, to maintain the stability of the CFETS index, today's RMB central parity rate should be set lower than yesterday's closing rate. However, to keep today's closing rate within the upper limit of the band, the PBC

would have to buy the dollar and sell the renminbi in the foreign exchange market to pull down today's closing rate. This, in turn, would lead to an increase in foreign exchange reserves. This obviously was not the case.

It is worth noting that the most important entry point for intervention is the closing rate. Today's RMB central parity rate is determined by yesterday's closing rate and the dollar index that can be known only when the market is opening—but all these are historical and have already been decided. The only thing the PBC can do about today is influence today's closing rate. If the PBC reckons minimising the use of foreign exchange reserves is more important than stabilising the RMB exchange rate, it will allow the closing rate to fall until it hits the lower limit of the band. When the dollar index rises strongly and consistently, the PBC may significantly reduce its intervention to allow the closing rate to fall as much as possible to release depreciation pressure. In this case, the CFETS index may remain unchanged, while the renminbi is falling. The resulting stability of the CFETS index gives the market an impression that the PBC has adopted a peg to a currency basket and has stuck to it, and that the fall in the renminbi is a result of the rise in the dollar index rather than, for example, capital flight. This tactic seems quite successful.

The implementation of the new RMB central parity rate-setting rule

The trajectory of the RMB exchange rate against the US dollar and the CFETS index shows that the PBC has more or less followed the central parity rate rule (Figure 17.1). In the first four months of 2016 when the dollar index was falling—and hence the theoretical RMB exchange rate was rising—and faced with depreciation pressures on the renminbi, the PBC was reluctant to intervene forcefully for the sake of preserving foreign exchange reserves. Because the closing rate was constantly lower than the theoretical RMB exchange rate, the CFETS index fell materially alongside the fall in the RMB exchange rate.

Figure 17.1 Behaviour pattern of CFETS index and its components

Source: Yu and Xiao (2017a).

From April to late July 2016, while the dollar index was on the rise, the PBC allowed the closing rate to fall substantially. As a result, the CFETS fell as well as the RMB central parity rate. From late August, the dollar index rose strongly. Hence, despite the closing rate and the RMB central parity rate continuing to fall, the CFETS index was rather stable.

Why was the new central parity rate-setting rule introduced?

It is clear that the central parity rate-setting rule makes it impossible for the renminbi to really be pegged to a basket of currencies because of the incorporation of the closing rate in the determination of the RMB central parity rate. What is the purpose of introducing such a rule? My guess is that the PBC hopes this mechanism will help stabilise the RMB exchange rate and gradually release depreciation pressures.

First, with the same depreciation pressure, the new rule can slow the pace of devaluation. For example, under the rule introduced during the 8/11 reform, if the RMB central parity rate depreciated by 2 per cent per day for 10 days, it would depreciate by 20 per cent. Under the new rule, however, if the closing rate is 2 per cent lower than the RMB central parity rate every day, the accumulated depreciation of the RMB central parity rate in 10 days could be as small as zero or even negative, because the determination of the next day's central parity rate will take into account changes in the dollar index. If the dollar index has fallen over the past 24 hours, the rise in the theoretical RMB exchange rate could more than fully offset the impact of the fall in the previous day's closing rate on today's RMB central parity rate. Of course, to ensure the actual RMB exchange rate in foreign exchange markets remains within the 2 per cent band, the PBC's intervention is unavoidable.

Second, for market participants, the uncertainty of the RMB central parity rate determination has increased significantly. No one can figure out tomorrow's RMB central parity rate until the opening of the market, when the theoretical RMB exchange rate can be calculated based on the information available on the dollar index. The central bank is pleased that the new mechanism brings uncertainty. Now the determination of the RMB central parity rate depends not only on the previous day's closing rate, but also on the dollar index, which is a result of interactions of all sorts of variables with global conditions. Market participants can only wait until tomorrow to know the dollar index, and there is no way for them to know in advance what tomorrow's RMB central parity rate will be. The uncertainty of the dollar index creates uncertainty in the RMB central parity rate. The increased uncertainty can to some extent curb the shorting activities and reduce depreciation pressure on the renminbi. However, this new pricing mechanism will not clear the market. The two-way fluctuations thus created are only partially market-driven, so cannot be sustained. More risks have been created for speculators, but more foreign exchange reserves have to be spent to achieve the central bank's preferred exchange rates.

The introduction of the ‘countercyclical factor’

In 2016, and especially after the dollar index rose strongly in August, this mechanism was commonly regarded as quite good, because RMB depreciation expectations were receding and the fall in foreign exchange reserves was slowing. It is difficult to estimate how large is the contribution of the new RMB central parity rate-setting rule to the stabilisation of the renminbi. In fact, during this period, the exchange rates of all emerging market economies stabilised and rebounded, whatever their exchange rate regimes.

From the second quarter of 2017, China returned to an international balance of payments surplus. While the renminbi was on the rise, the dollar index started to fall. To follow the RMB central parity rate-setting rule, in such circumstances, both the theoretical RMB exchange rate and the closing rate, and hence the RMB central parity rate, should rise. Perhaps the rise in the theoretical RMB exchange rate was smaller than the closing rate and hence the rise in the RMB central parity rate failed to appreciate as strongly as the PBC would have liked.

In May 2017, the PBC introduced a ‘countercyclical’ factor in setting the RMB central parity rate. Now the RMB central parity rate will be determined by three factors: the bilateral exchange rate of the renminbi against the dollar, the theoretical RMB exchange rate and the countercyclical factor. Since 2017, the dollar index has been weakening and China’s economic fundamentals have improved significantly. However, the appreciation of the RMB central parity rate has been just 1.07 per cent. According to the PBC, the irrational herd effect creates a procyclical tendency for the movement of the exchange rate. It seems the PBC believed the renminbi’s closing rate failed to increase sufficiently to reflect the country’s economic fundamentals. It is less clear why the closing rate would rise as a result of introducing the countercyclical factor. Perhaps it would send the market a signal that the PBC wants to see a larger appreciation of the renminbi, which in turn would help to strengthen RMB appreciation expectations and hence the RMB exchange rate. Or perhaps the introduction of the countercyclical factor just gave a freer hand to the PBC to prop up the closing rate of the renminbi and hence the RMB central parity rate, while still enabling the bank to insist it is acting in line with a preset rule.

The PBC has never been explicit about the calculation of the countercyclical factor and what weight it has been assigned in the formula for the RMB central parity rate. Neither is the logic in the justification for its introduction clear. Since the introduction of the countercyclical factor, appreciation of the RMB exchange rate against the dollar has strengthened, but it is not clear to what extent this can be attributed to the countercyclical factor.

On 9 January 2018, the PBC announced the suspension of the countercyclical factor in setting the RMB central parity rate. This led immediately to a fall of the RMB exchange rate in both the renminbi and offshore renminbi markets. The PBC

provided no explanation of why it dumped the countercyclical factor. It is pretty clear, however, that the introduction of the countercyclical factor was not only a further step back from the direction embodied by the 8/11 reform, but also made the exchange rate–setting rule less transparent and verifiable. Furthermore, in the current domestic and international environments, any further strengthening of the renminbi is counterproductive for the Chinese economy. Neither the countercyclical factor nor the entirely central parity rate–setting rule is any longer needed. In fact, in late 2017, the head of the State Administration of Foreign Exchange (SAFE) announced that the PBC had stopped regular intervention in the foreign exchange market.

Concluding remarks

China's hands have been tied for more than a decade by the inflexibility of the exchange rate, which is one of the most important—if not the most important—prices. If the exchange rate does not reflect market supply and demand, misallocation of resources across countries and across generations is inevitable. As a result of the distortion, China has been importing 'dark matter'³ for years. As one of the largest capital-exporting countries, holding more than US\$2 trillion in foreign assets, China has run large investment deficits for many years. This is already very bad. Now China's foreign assets may have fallen significantly, while its foreign liabilities may have increased. This pattern in the international balance of payments will create serious problems in the future for an ageing China. A distorted exchange rate is a major contributor to this problem. I hope the Chinese authorities can make up their minds early to complete the drawn-out reform of the country's exchange rate regime as soon as possible.

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3 Dark matter is a term coined by Ricardo Hausmann and Federico Sturzenegger (2006) to refer to the 'invisible' assets that explain why the United States is able to maintain investment income account surplus while running a huge current account deficit since 1982.

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