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RMB Exchange Rate: Moving Towards a Floating Regime

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Introduction

The RMB exchange rate formation mechanism has undergone frequent adjustments since the 1980s, with the transition from a double-track exchange rate system to a single exchange rate system, a de facto fixed regime (pegged to the USD) during the financial crisis, as well as many attempts in normal periods to reform the exchange rate regime so that it can respond to market changes.

The major challenge is that the exchange rate does not respond adequately to changes in market supply and demand. When the exchange rate deviates from economic fundamentals, expectation for one-way currency fluctuation and large-scale capital flow follow. Authorities are then forced to intervene in the foreign exchange market. This affects the independence and effectiveness of monetary policy and also jeopardises domestic economic stability. Additionally, regular intervention in the foreign exchange market has negative effects on economic upgrading, RMB internationalisation and outbound investment.

Since the beginning of 2017, supply and demand in the foreign exchange market have been more balanced, and the time is right for further reform. International experience suggests that reducing intervention in the foreign

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exchange market will not lead to a large depreciation of the RMB, given China's economic fundamentals. Two strategies can be used to introduce a floating exchange rate regime: free-floating regime, and allowing a wide band for the RMB exchange rate fluctuation against a basket of currencies. The latter could well be a transition plan towards a free-floating regime.

Part 1: History and current situation of the RMB exchange rate regime reform

Since the launch of reforms and the opening policy, the RMB exchange rate regime has undergone frequent changes, switching from a double-track exchange rate system to a single rate system during early 1980s and mid-1990s. After the mid-1990s, the Chinese monetary authorities experimented with the managed floating regime and the de facto USD-pegged regime, and attempted many reforms under the managed floating exchange rate regime. Currently, the authorities are still driving the RMB exchange rate through measures such as guidance of the central parity, the daily floating band, market intervention and capital controls. The RMB central parity formation mechanism has been adjusted to take into account multiple factors including foreign exchange supply and demand, exchange rate stability against a basket of currencies and the counter-cyclical factor. Clearly, the exchange rate of the RMB against the USD is a dollar-pegged regime with a slope rate (reflecting market supply and demand and the counter-cyclical factor) and a stochastic volatility variable (reflecting basket currency exchange rate movements). This chapter briefly reviews the evolution of the RMB exchange rate regime since the 1980s while focusing on analysis of the current regime.

History of the RMB exchange rate regime reform

First stage: from 1981–1984, China adopted a dual exchange rate system with an official exchange rate and an exchange rate for trade settlement.

Objectives: to promote exports and increase foreign exchange earnings.

Measures: based on the 'Regulations Concerning a Number of Issues on Vigorously Boosting Foreign Trade and Foreign Currency Earnings' enacted by the State Council in 1979, on 1 January 1981, the government introduced the exchange rate for trade settlement in addition to the official

exchange rate. First, the trade settlement exchange rate was applied to exports. Based on 1978 data, the average cost of US\$1 in export revenue was 2.56 RMB; after adding a profit of 10 per cent, the settlement exchange rate was set at 2.8 RMB. Second, the official exchange rate was applied to imports. US\$1 was exchanged for 1.5 RMB in July 1980, based on a weighted average exchange rate against a basket of currencies.

Second stage: from 1985–1993, China adopted a dual rate system with an official exchange rate and a foreign exchange market exchange rate.

Objectives: to establish a more reasonable exchange rate level through market mechanisms, improve the efficiency of foreign exchange utilisation and compensate for the loss of foreign trade enterprises.

Measures: first, foreign exchange swap centres had been established throughout the country since March 1988. The exchange rate in the foreign exchange swap markets was liberalised to balance the supply and demand of foreign exchange and compensate for the loss of foreign trade enterprises. In September 1988, an open foreign exchange swap market was pioneered in Shanghai. The open bidding mechanism was introduced in foreign exchange swaps, and the foreign exchange swap price was allowed to float within a certain range according to supply and demand in the open market. Second, the official exchange rate underwent several significant devaluations, and gradually came closer to the foreign exchange swap market exchange rate. With gradual liberalisation of the exchange rate in the foreign exchange swap market, the share of foreign exchange transactions at official exchange rate gradually decreased.

Third stage: from 1994–1996, China unified the exchange rates and adopted a managed floating exchange rate regime.

Objective: to establish a more reasonable exchange rate level through the market mechanism.

Measures: on 29 December 1993, the People's Bank of China (PBC) issued the 'Public Announcement on Further Reforming the Foreign Exchange Administration System', declaring a major reform to take effect on 1 January 1994. Several important measures were undertaken. First, the official exchange rate of the RMB and the swap market exchange rate were unified. Second, the foreign exchange retention system was abolished, a system of foreign exchange surrender and purchase through banks was implemented, and the RMB achieved convertibility under

the current account. Third, mandatory foreign exchange planning was cancelled; users with valid import documents were allowed to purchase foreign currencies from designated banks. Fourth, any form of pricing and settlement in foreign currencies domestically was also cancelled. The circulation of foreign currencies within the territory and foreign exchange transactions outside of designated financial institutions were prohibited. Additionally, the issuance and circulation of Foreign Exchange Certificates was terminated. Finally, the interbank foreign exchange market was established and a nationwide unified market for foreign exchange transactions was formed.

The fourth stage: from 1997–2005, China adopted a de facto USD-pegged regime for the RMB exchange rate.

Objective: to reduce the risk of exchange rate fluctuations and maintain macroeconomic stability.

Measures: the RMB was pegged to the USD at a fixed exchange rate. During the 1997 Asian financial crisis, east Asian countries devalued their currencies successively, while the Chinese Government adopted a policy of stabilising the RMB exchange rate. The RMB exchange rate against the USD was kept stable at 8.27, and the exchange rate was virtually pegged to the USD until July 2005.

The fifth stage: from mid-2005 to mid-2008, China adopted a managed floating exchange rate regime similar to the crawling peg system.

Objective: to reduce external imbalances and international pressure.

Measures: on 21 July 2005, the PBC issued the ‘Public Announcement on Reforming the RMB Exchange Rate Regime’, declaring the adoption of a managed floating exchange rate regime based on market supply and demand with reference to a basket of currencies. The RMB was no longer singularly pegged to the USD. The PBC announced the central parity of the RMB exchange rate to guide market participants and intervened to maintain the RMB market price close to the central parity. The monetary authority maintained control over the trajectory of the RMB exchange rate. During this period, the RMB exchange rate fluctuated very slightly against the USD and gained a gradual appreciation. As such, the exchange rate regime was also regarded as a soft peg to the USD.

The sixth stage: from mid-2008 to 19 June 2010, China moved back to a de facto USD-pegged regime.

Objective: to reduce the risk of exchange rate fluctuations and promote macroeconomic stability.

Measures: the 2008 global financial crisis had a serious impact on the real economy. Consequently, the RMB exchange rate was returned to a USD-pegged regime.

The seventh stage: from 19 June 2010 to the present, China has tried various forms of managed floating exchange rate regimes.

Objective: to explore a more market-oriented exchange rate regime.

Measures: China adopted a managed floating exchange rate regime in various forms. On 19 June 2010, a spokesperson from the PBC announced measures to ‘further promote the reform of the RMB exchange rate regime, and enhance the flexibility of RMB exchange rate’, sending signals to the market about restarting RMB exchange rate reform. The spot daily fluctuation range of the RMB/USD exchange rate was expanded from 0.5 per cent to 1 per cent in April 2012, and then from 1 per cent to 2 per cent in March 2014. Since then, the market has gradually played a more important role in the RMB exchange rate formation.

On 11 August 2015, the monetary authority decided to improve the formation mechanism of the RMB’s central parity against the USD. The core reform was to require market makers to refer to the closing rate in the interbank foreign exchange market on the previous day and report the central parity to the China Foreign Exchange Trade System (CFETS) daily before the market opened. This adjustment kept the central parity of the RMB/USD exchange rate close to the previous day’s closing rate, instead of being set daily by the monetary authority to meet management goals. By doing this, the monetary authority abandoned years of guiding market expectations through the central parity of the exchange rate, giving way to market supply and demand determining the exchange rate. After the reform, market supply and demand played a larger role in exchange rate determination, and the RMB depreciated by nearly 2 per cent (the threshold of daily fluctuation) for two consecutive days.

On 13 August 2015, the monetary authority believed that the RMB exchange rate had moved to a reasonable and balanced level, so the government took a series of measures (mostly foreign exchange market intervention) to stabilise the exchange rate. After that, the monetary authority made a series of adjustments in the exchange rate regime, including reintroducing the central parity formation mechanism, adopting a transparent formula for central parity and introducing the counter-cyclical factor.

Supply and demand, basket of currencies and the counter-cyclical factor

The RMB exchange rate regime after May 2017 had three characteristics.

First, the monetary authority played a dominant role in the level of the RMB exchange rate. The monetary authority dominated the RMB exchange rate through three key measures: central parity, the daily floating band and intervention in the foreign exchange market. The central parity of the RMB exchange rate can send the market a message about the monetary authority's desired exchange rate level, guiding market expectations of the rate. The daily floating band limits exchange rate fluctuations. Foreign exchange market intervention (mainly referring to the sale and purchase of foreign currencies in the market, as well as other measures affecting supply and demand in the foreign exchange market) can absorb excess supply or demand, given the central parity of the RMB exchange rate and the floating band. For example, assuming the RMB/USD central parity is 6.5, with 2 per cent daily floating band limit, the range of exchange rate is 6.5 ± 0.13 . If the market equilibrium price is out of the above range, the monetary authority must intervene in the market by buying or selling excess supply or demand.

Second, market supply and demand, the basket of currencies and the counter-cyclical factor determine exchange rate movements. In the RMB exchange rate regime reform of 21 July 2005, China adopted a managed floating exchange rate regime based on market supply and demand with reference to a basket of currencies. In 2016, the monetary authority further clarified the specific role of the above two aspects in forming the central parity of the exchange rate. This was explained clearly in 'China Monetary Policy Report Quarter One, 2016':

For example, if the previous day's central parity rate of RMB/USD was 6.5000, closed at RMB6.4950, and the changes in the currency basket indicated the RMB had to appreciate by 100 basis points, the central parity quote from the market makers would be 6.4850, an appreciation of 150 basis points, where 50 basis points reflect the changes in market demand and supply and the other 100 basis points reflect the changes in the currency basket. Likewise, changes in the central parity of the RMB to the USD not only represent changes in the currency basket, but also indicate the market demand and supply situation. The central parity formation mechanism is more clearly characterized as based on market demand and supply and adjusted with reference to the currency basket.

In May 2017, the 'counter-cyclical factor' was introduced to the pricing model for central parity of the RMB against the USD.

Under the new formula, 'the change of central parity rate' = 'the closing rate on the previous trading day – the central parity rate on the previous trading day' + 'the exchange rate movements needed to maintain RMB exchange rate stability against the basket of currencies + the counter-cyclical factor'. The 'China Monetary Policy Report Quarter Two, 2017' explained the counter-cyclical factor as follows:

To calculate the counter-cyclical factor, one begins by excluding the impact of the currency basket changes from the difference between the previous day's closing rate and the central parity. After that the exchange-rate movements mainly reflect market supply and demand. Then one adjusts counter-cyclical coefficient to get 'counter-cyclical factor'. The coefficient is set by the quoting banks on their own based on changes in the economic fundamentals and the extent of pro-cyclicality in the foreign exchange market.

Third, the monetary authority alleviates the pressure of supply and demand in foreign exchange markets with capital controls. When it is difficult for exchange rate movements to automatically adjust supply and demand in the market, the greater the market pressure and the harder it is for interventions to maintain the RMB exchange rate within the target range. Massive intervention in the foreign exchange market, whether buying or selling, will lead to changes in the RMB's base money supply, putting pressure on China's macroeconomic stability. The monetary authority is faced with the dilemma of stabilising exchange rates and maintaining monetary policy independence. Capital controls are the key means to mitigate this conflict.

China has been facing continuous pressure of capital outflow and RMB depreciation since mid-2014, so capital controls have been strengthened. The government has not placed new restrictions on capital flows, but instead has implemented the existing measures of capital controls more strictly, along with strengthening capital flow authenticity checks. In practice, many companies report that availability of foreign currencies and the convenience of foreign exchange transactions have been affected.

In terms of formula, the RMB/USD exchange rate is a USD-pegged regime with a slope and a stochastic fluctuation of basket currency. The three items in the central parity formula—‘the closing rate on the previous trading day – the central parity rate on the previous trading day’ + ‘the exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’ + ‘the counter-cyclical factor’—correspond to the peg with slope, stochastic fluctuation and the correction of the slope of the peg, respectively.

The first item is ‘the closing rate on the previous trading day – the central parity rate on the previous trading day’. Considering that the monetary authority buys or sells foreign currencies and that the closing rate is also affected by intervention in the foreign exchange market, the first item only partly reflects market supply and demand.

To maintain relative stability of the RMB/USD exchange rate, the monetary authority’s intervention in the foreign exchange market has to change over time as the need for intervention fluctuates. During 2015 and 2016, China faced great pressure to intervene, and the monetary authority was forced to spend a large amount of foreign exchange reserves, which decreased from US\$3.81 trillion in early 2015 to US\$3.01 trillion by the end of 2016. From 2017, the pressure of supply falling short of demand in the foreign exchange market eased, and the foreign exchange market intervention required for the gradual change of the exchange rate has been reduced substantially. In addition, the foreign exchange reserve has even rebounded slightly due to the valuation effect.

The second item is ‘the exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’. For example, three currencies—the USD, euro and JPY—exist in the basket, and their weights are 0.5, 0.3 and 0.2 respectively. If BSK is the exchange rate against the basket (basket rate), then the following formula can be constructed:

$$\begin{aligned} \text{BSK} &= 0.5 \cdot \text{USD/RMB} + 0.3 \cdot \text{euro/RMB} + 0.2 \cdot \text{JPY/RMB} \\ &= \text{USD/RMB} (0.5 + 0.3 \cdot \text{euro/USD} + 0.2 \cdot \text{JPY/USD}) \end{aligned}$$

‘The exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’ refers to the changes in the USD/RMB exchange rate required to keep the BSK constant, given the changes in the euro/USD and JPY/USD exchange rates. In practice, the basket covers more currencies,² and the above is just an example. We can conclude that exchange rate adjustments depend on the exchange rate changes of other currencies in the basket against the USD, which has nothing to do with the domestic economy and supply and demand in the foreign exchange market.

The exchange rates of the USD against other major currencies in the basket, such as the euro, JPY, Australian dollar and British pound, are all under a floating regime and fluctuate randomly. This ensures that the exchange rate movement of the RMB against the USD is random, maintaining a fixed basket rate. The exchange rate against the basket essentially introduces the stochastic fluctuation for the exchange rate of the RMB against the USD.

The third item is the counter-cyclical factor. According to the official explanation, the counter-cyclical factor adds a counter-cyclical coefficient to market supply and demand (i.e. ‘the closing rate on the previous trading day – the central parity on the previous trading day’). This coefficient determines to what extent the factor of ‘the closing rate on the previous trading day – the central parity on the previous trading day’ will be reflected in the central parity on the current trading day.

If the coefficient is equal to -1 , ‘the closing rate on the previous trading day – the central parity on the previous trading day’ will be completely offset. This will not affect central parity on the next trading day. The slope of change in the RMB exchange rate caused by market supply and demand is 0, so the RMB exchange rate regime will be a fixed RMB/USD peg plus the exchange rate movements required to maintain basket rate stability.

2 For the latest currencies in the basket and their weights, see Appendix 4-1.

If the coefficient is equal to 0, ‘the closing rate on the previous trading day – the central parity on the previous trading day’ and ‘the exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’ will jointly determine central parity on the next trading day. Therefore, the RMB exchange rate regime will be a USD peg with the slope plus the exchange rate movements required to maintain basket rate stability.

If the coefficient is between 0 and 1, ‘the closing rate on the previous trading day – the central parity on the previous trading day’ and ‘the exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’ will jointly determine the central parity of the next trading day. The RMB exchange rate regime will be a USD peg with the slope (the slope is smaller than the slope when the counter-cyclical coefficient is equal to 0) plus the exchange rate movements required to maintain basket rate stability.

Through simple regressions,³ we can test the effect of various factors on the RMB central parity rate. We take the daily change of the central parity (‘D(MID)’) as the dependent variable, ‘the closing rate on the previous trading day – the central parity on the previous trading day’ and ‘the exchange rate movements of the RMB/USD needed to maintain the stability of the exchange rate of the basket of currencies’ as two independent variables. The sample period is from 5 April 2016 to 8 August 2017. The coefficients of the two independent variables in the regression are 0.96 and 0.5 respectively. Together, they explain 72 per cent of the central parity rate movement.

The residual term has shown a systematic downward deviation since 2017. The part that cannot be explained by the model is no longer subject to random distribution, but concerns appreciation of the RMB against the USD. A possible reason for this is that the influence coefficient of ‘the closing rate on the previous trading day – the central parity on the previous trading day’ on central parity has changed due to the introduction of the counter-cyclical factor. Through testing, 19 January 2017 was determined as the breakpoint. We conducted the same regression on the two subsamples before and after the breakpoint (i.e. from 5 April 2016 to 19 January 2017 versus from 20 January 2017 to 8 August 2017) (see Tables A4-3 and A4-4 in Appendix 4-2). The results showed that

3 For the regression equation, see Appendix 4-2.

the coefficients of the two independent variables are 1.13 and 0.46 in the previous sample, and 0.77 and 0.54 in the latter sample. The effect of ‘the closing rate on the previous trading day – the central parity on the previous trading day’ on the central parity of the RMB exchange rate was a significant decline.

Part 2: Challenges facing the RMB exchange rate regime

To properly identify the challenges faced by the RMB exchange rate regime, we must first determine an appropriate evaluative framework. The exchange rate is one of the most important prices in an open economy. It affects all aspects of the economy, and evaluations of the regime can vary from different subjects and perspectives. According to Frankel (1999), ‘[n]o single currency regime is right for all countries or at all times’. This is not to say that a country can choose any kind of exchange rate regime; rather, a country should determine the optimal exchange rate regime based on its specific national circumstances and timing.

From the perspective of macroeconomic management, evaluation of the exchange rate regime should be based on three criteria. First, is it conducive to macroeconomic stability? Second, is it conducive to the adjustment of economic structures and sustainable economic growth? Third, can it assist China’s long-term goal of capital account liberalisation and RMB internationalisation? The first is the traditional criterion found in most mainstream literature, while the latter two are tailored to China’s development level and policy environment.

A macroeconomic stability perspective

For a long time, the independence of China’s monetary policy has been constrained by the exchange rate policy. For most of 2003–2014, the monetary authorities constantly and significantly intervened in the foreign exchange market to maintain the exchange rate target. This resulted in substantial increases of base money. The growth of base money was more than required to maintain price stability, which seriously affected monetary policy independence. The monetary authority had to offset the effect of excessive base money by issuing central bank bills, raising the reserve ratio of commercial banks, etc. Even so, these operations could not completely

offset the effect, as the volume of interventions was significant and changes were without restraints. Additionally, continuous interventions led to expectations of RMB appreciation and influenced asset prices, which were difficult to address with quantitative measures. The authority had to balance target conflicts between interest rate policy, whose goal was to serve domestic macroeconomic stability, and exchange rate policy targets. When conflicts arose, the former was compromised for the latter.

After mid-2014, expectations of RMB appreciation turned into depreciation, and the monetary authority faced reversed pressures. Intervention in the foreign exchange market moved from buying to selling foreign currencies, and the amount of base money was reduced. The monetary authority had to find new ways to offset the effect, but a perfect outcome remained difficult to achieve. Interest rate policy was again compromised. See Box 4-1 for details.

Box 4-1: Large capital outflows and RMB depreciation expectations from 2014–2016

This box explains why the RMB faced continuous depreciation expectations and why capital outflows increased substantially from late 2014 to the end of 2016.

1. Predetermined conditions—a sharp increase in external debts and currency mismatch risks

According to Zhang and Xu (2012, p. 7) and Zhang and He (2012), since the expansion of the RMB trade settlement for imports and exports and the further promotion of RMB internationalisation, carry trades profiting from the one-way appreciation expectations of the RMB and the spread between Chinese and US interest rates had increased significantly. As a result, China began to accumulate external debts quickly. Based on the data of Dealogic, Bank for International Settlements and the PBC, Yi and Ports (2016) found that the external debts of Chinese enterprises witnessed substantial increases between 2012 and 2014. The growth of external debts was highly correlated with arbitraging spreads. The indebted enterprises were mainly from the oil and gas, real estate and other sectors. Miao and Rao's (2016) similar findings suggested that the factors (such as the changes in spreads between domestic and foreign interest rates and the credit constraints imposed by macro-regulation authorities on overcapacity industries, including real estate and the iron and steel industry) stimulated the enterprises' borrowing abroad. During the one to two years prior to the second half of 2014, Chinese enterprises had increased their external debts by a large amount. A considerable portion of these enterprises did not have enough foreign exchange earnings to match their external debts. An important motivation of external debt accumulation is to capture the interest rate spread and gain from a one-way appreciation of the RMB. This paved the way for the deleveraging of massive external debts thereafter.

2. Shocks—the divergence of economic trends and monetary conditions in China and the US

Many factors could have impacts on foreign exchange market, among which monetary and credit policies are of higher market concern and greater significance. Around the second half of 2014, the monetary policy environment at home and abroad changed significantly. While the US Federal Reserve was discussing the possibility of raising interest rates, China's domestic monetary policy conditions were relaxed to some extent. Interest rates in the domestic interbank market had been declining generally since the end of 2013, decreasing from 4.78 per cent in the fourth quarter of 2013 to 2.49 per cent in the fourth quarter of 2016. During this period, interest rates experienced a brief rebound in the first quarter of 2015, but this did not change the downward trend that had begun in the fourth quarter of 2013. Since that quarter, the interest rate spread between China and the US was also largely dominated by changes in interest rates in China's interbank market. The spread of change between China and the US markets and the direction of capital flows aligned with expectations.

A high correlation exists between interest rate spreads between China and the US and China's cross-border capital flows. In simple terms, interest rate spreads drive capital flows. More precisely, changes in the economic fundamentals of China and the US drive capital flows, and changes in interest rate spreads reflect comprehensive information on the changes in fundamentals and policy responses. After mid-2014, cyclical industries in China continued on a downward trend, and also had to address overcapacity in the process of economic restructuring. Enterprises' investment returns were low, while the monetary authority adopted a loose monetary policy to boost economic growth. Domestic enterprises generally had relatively ample liquidity and low capital costs, but were troubled by the lack of suitable investment projects. In contrast, the US economic recovery was successful during the same period; enterprises' profits increased and the stock market hit record highs. With distinctly different changes in the economic fundamentals of the two countries, an outflow of capital was expected.

3. Response measures—phased depreciation under the principles of supply and demand, basket of currencies and stability

As previously discussed, the formation of the RMB/USD central parity considers two factors: market demand and supply, and stability against a basket of currencies.

As a result of these two factors combining, when the USD is strong against other currencies in the basket, the RMB depreciates against the USD. When the USD is weak, the RMB is stable against the USD, which leads to a gradual and phased depreciation of the RMB against the USD. From February to April 2016, a weaker USD should have led to an appreciation of the RMB against the USD. A shortage of foreign exchange supply should have led to a depreciation of the RMB against the USD. With the two factors combined, the RMB exchange rate was relatively stable in relation to the USD. After October 2016, the USD strengthened. While these two factors both require depreciation of the RMB, the RMB cannot depreciate too much under the principle of maintaining the stability of the RMB exchange rate.

4. Vortex—the vicious circle of RMB depreciation (due to the exchange rate regime) and capital outflow

Under different exchange rate regimes, the net effects of shocks on short-term capital flows vary widely. In a floating exchange rate regime, capital flow pressure caused by internal or external shocks will lead to exchange rate adjustment. Therefore, the relative prices of domestic and foreign financial assets will change, so the floating exchange rate spontaneously stabilises capital inflow or outflow. In a fixed exchange rate regime, capital flows caused by internal or external shocks will put pressure on the exchange rate. The monetary authorities have to use foreign exchange reserves or adjust interest rates. Therefore, the relative prices of domestic and foreign financial assets will change, so capital flows will be stabilised and the fixed exchange rate level maintained.

Under the current RMB exchange rate regime, exchange rate changes cannot stabilise short-term capital flows, but instead create a cycle where capital outflows and RMB depreciation reinforce each other. The specific logic is as follows: internal or external shocks lead to the situation of demand exceeding supply in the foreign exchange market → under the current RMB exchange rate regime, the RMB shows periodic depreciation → the periodic depreciation of the RMB reinforces the depreciation expectations of the RMB → the depreciation expectation of the RMB stimulates a new round of capital outflow → capital outflows exacerbate the problem of demand exceeding supply in the foreign exchange market (see Figure 4-1).

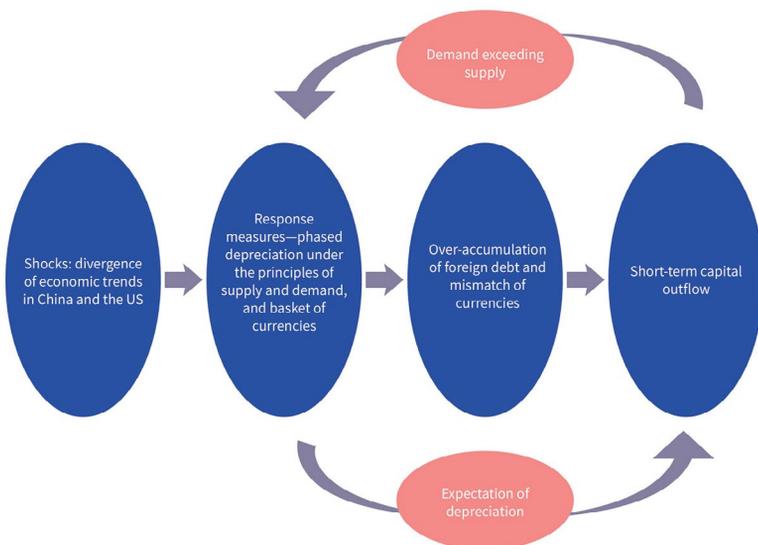


Figure 4-1: The circle of RMB phased depreciation and short-term capital flows.

Source: Author’s original.

The monetary authority saw the problems with the exchange rate regime and took measures to modify the central parity formation mechanism. The authority began to consider introducing a counter-cyclical factor into the RMB central parity formation mechanism. The main purpose of this was to offset pro-cyclical fluctuations driven by market sentiment and alleviate the 'herd effect' in the foreign exchange market.

After introducing the counter-cyclical factor, expectations of a one-way movement of the RMB exchange rate should have weakened and capital flow pressure should have eased. However, the exchange rate still cannot reflect market supply and demand or economic fundamentals. It remains difficult to break expectations of a one-way movement of the RMB. The independence of the monetary authority and macroeconomic stability still face challenges. After introducing the counter-cyclical factor, the impact of 'the closing rate – the central parity on the previous trading day' on the central parity decreased. If we do not consider the exchange rate against a basket of currencies, changes in the RMB/USD exchange rate will be minimal or even negligible (i.e. changes could be completely offset by the counter-cyclical factor). The introduction of the RMB exchange rate against a basket of currencies simply adds a stochastic volatility item to the RMB/USD exchange rate.

Compared to the former mechanism with no counter-cyclical factor, the current mechanism has lowered expectations of one-way exchange rate movement and eased the pressure of capital flows. However, this mechanism is essentially similar to a fixed exchange rate regime and the exchange rate does not fully respond to supply and demand in the market. Once economic fundamentals change, if the exchange rate does not respond to this, the aforementioned problems will return. The monetary authority will still need to intervene substantially in the market to maintain the exchange rate target level.

A structural adjustment perspective

To evaluate the exchange rate regime, mainstream literature adopts a macroeconomic stability perspective and generally does not consider an economic structure perspective. But this latter perspective is necessary for China's circumstances. The mainstream literature does not consider this perspective because the monetary authorities cannot control the real exchange rate no matter what type of exchange rate regime is adopted. Under a fixed regime, the nominal exchange rate will not change. However,

the price will change when shocks occur, so the real exchange rate will eventually be adjusted according to the economic fundamentals. Under a floating regime, adjustment of the nominal exchange rate will lead to an adjustment of the real exchange rate. In China, intervention in the foreign exchange market has resulted in excess base money, which in turn has pushed up the price level. The monetary authority then uses many policy instruments, including central bank bills, raising the reserve ratio, capital control and credit control, to offset the impact. In this way, the authority has a strong influence on both the nominal exchange rate and price level. Because of these practices, the real exchange rate cannot adjust fully in the short term. If the monetary authority only intervenes temporarily and the intervention offsets the influence of the base money increase fully, distortion of the real exchange rate will gradually be corrected. However, if the intervention remains for an extended period, distortion of the real exchange rate will be long-lasting and resource allocation will also be seriously distorted.

In an unpublished paper, Mao and Zhang (n.d.) introduced capital account control and foreign exchange market intervention to the intertemporal general equilibrium model and explained the mechanism by which continuous interventions in the foreign exchange market influence resource allocation along with the various outcomes. The model assumes that the government's goal is to stabilise the nominal exchange rate. When external demand is high, technology advancement of domestic trade sector is fast, the level of the target exchange rate is low and more intervention will be required to stabilise the nominal exchange rate. The model also assumes that the capital account is balanced under capital control measures and that the scale of market intervention equals the current account balance. Based on these assumptions, the findings are as follows: 1) a current account surplus instigated by massive interventions in the foreign currency market raises real interest rates, which in turn curbs domestic investment; 2) market intervention can stimulate the industrial sector, but it suppresses non-industrial sectors and, as a result, the industrial sector will grow larger relative to the non-industrial sector, causing imbalance within the economic structure (internal imbalance); and 3) domestic consumption is restrained, leading to a rise in both the aggregate savings ratio and private sector savings ratio. This is how continuous purchase of foreign currencies could influence the real economy; the sale of foreign exchange works in the opposite direction.

This model shows that market intervention does affect resource allocation in the real economy and can lead to external and internal imbalances. Simulation analysis shows the effect is significant.

A financial opening up perspective

This perspective is unique to China and is not discussed in mainstream literature. As a large developing country, China still faces many problems of reforms and institutional improvement. The reforms relate to many fields and cannot be undertaken simultaneously but implemented in an orderly manner. The sequence of reform of the exchange rate regime is a key issue.

The current exchange rate regime is not conducive to RMB internationalisation. Further liberalisation of the capital account is needed to promote RMB internationalisation. If the monetary authority frequently intervenes in the market and the RMB is constantly faced with expectations of one-way movement, the relaxation of capital controls will lead to excessive capital flows and threaten economic stability. Control measures will need to be tightened again. During 2010 and 2013, expectations of RMB appreciation were high, and RMB trade settlement was liberalised. Large profits were made through carry trades between the onshore and offshore markets, and overseas RMB deposits increased rapidly. The carry trades boosted capital inflows, the monetary authority was forced to take measures to maintain exchange rate stability and economic stability was threatened. Further, as result of frequent interventions and a failure of market clearing, expectations of RMB depreciation during 2014 and 2016 were high. Then, overseas RMB deposits decreased rapidly and capital inflow turned into capital outflow, again threatening economic stability. During this process, the offshore RMB market experienced great volatility and the monetary authority had to intervene in the offshore market and impose stricter capital controls. However, these measures slowed the development of the offshore RMB market and the pace of RMB internationalisation.

The current exchange rate regime is also a drag on overseas direct investments. If the exchange rate mechanism cannot remove expectations of a one-way RMB movement, overseas direct investments by Chinese enterprises will be hindered. If a persistent expectation of RMB appreciation exists, overseas investment will face additional exchange rate risks and enterprises will choose to delay investment. Conversely, if a persistent expectation of RMB depreciation exists, enterprises will

have a strong motivation to invest overseas. In that case, the authorities will tighten capital controls to restrict capital outflow, so enterprises will still have to postpone their investments.

Part 3: Moving towards a floating exchange rate regime

The floating exchange rate regime has become the choice of a growing number of countries. Many developed economies, and all large economies except China, use this regime. An increasing number of emerging market economies have also adopted the regime over the past 20 years. According to Rey (2015), in today's highly integrated global financial market, monetary policy independence might not be fully realisable under a floating regime. Former International Monetary Fund (IMF) Chief Economist Maurice Obstfeld (2015) noted that, compared with other exchange rate regimes, although the floating regime cannot fully protect the independence of monetary policy, it can cushion the shock effectively and provide more space for domestic monetary policy. Under the floating regime, shocks from capital flows can cause the exchange rate to adjust and change the relative prices of domestic and foreign financial assets. Therefore, the floating exchange rate can automatically stabilise capital flow.

A consensus between the government and academia already exists that the ultimate goal of RMB exchange rate regime reform is to adopt a floating regime. However, widespread concerns remain that the transition will cause drastic volatility of the exchange rate and hurt the real economy. Many emerging market economies were forced to abandon the managed exchange rate regime and move to a floating regime after losing the ability to intervene effectively in the market. This was an involuntary choice for those economies in crisis situations. The following discussion is on whether China can actively introduce a floating regime as soon as possible.

In the medium and long term, adopting a floating regime is conducive to macroeconomic stability. It can improve resource allocation and promote RMB internationalisation and opening of the financial market. Putting these benefits aside, this part discusses concerns over the adoption of a floating regime. The focus is on whether the RMB will depreciate substantially if the currency floats freely, the impact of currency depreciation on the economy and specific approaches to achieve a floating regime.

The changing trend of capital flows

Currently, short-term capital outflow is relatively large, but has steadily decreased. This change is due to the following situations.

First, since mid-2016, changes in net external debts have turned capital outflows to inflows. There are several reasons for this: 1) the scale of China's external debts is not large relative to the size of the economy. The external debts of enterprises have decreased by more than US\$300 billion over the past two years, and the need to further reduce external debts has decreased; 2) local government financing platforms and state-owned enterprises have increased their external debts; 3) interest rates in the domestic interbank market have increased slightly since mid-2016. Financial regulation has also tightened, making it more difficult for enterprises to raise capital in the domestic market, and enterprises are more willing to take on external debts; and 4) the size of existing external debts in China is relatively small compared to the size of its economy, and there is a great potential for overseas investors to hold more RMB assets. For these reasons, external debts should increase naturally.

Second, the motivation to hold overseas assets is weakening because: 1) many enterprises engaged in international trade significantly increased their holdings of the USD in the past two years to avoid the RMB's depreciation. Now that the expectation of RMB depreciation has weakened and the cost of holding the USD is high, these enterprises are less willing to increase their holdings of the USD; 2) higher interest rates in the domestic market and tighter financial regulations have discouraged enterprises from increasing overseas assets. Yields on wealth management products in the household sector have recently risen significantly, while the opportunity cost of holding USD assets has increased; and 3) control of foreign exchange has been tightened and illegal overseas investments are subject to stricter controls.

Third, the size of China's current account surplus and foreign direct investment is large, and the return on China's financial assets is comparable to that of US assets. A floating exchange rate will lead to an expectation of two-way fluctuations in the currency. If there is no expectation of RMB depreciation, the rate of return on Chinese financial assets, including safe assets such as government bonds, will not be lower than the yields on US Treasury bonds. Therefore, net foreign assets will not be expected to increase and neither will net foreign liabilities be expected to decrease.

Even so, it is difficult to estimate the degree of RMB depreciation that would occur after adopting a floating exchange rate regime. International experiences may shed some light on this issue.

Abandoning intervention would not lead to sharp currency depreciation

Here, a ‘large depreciation’ is defined as an annual depreciation of more than 15 per cent, and below are tallied the cases of ‘large depreciation’ in the IMF’s database since the end of the Bretton Woods system in 1971. In subsequent years, a sample of 27 developed countries accumulated 72 cases of large depreciation, while 25 less developed countries saw 85 cases. Altogether, there are 157 cases of large depreciation from 52 sample countries.

Most of the large depreciations occurred in a situation of inflation or trade deficits. Of the 157 cases, the countries in 148 cases had high inflation or trade deficits or both. Only nine cases occurred in the context of low inflation and trade surplus. Table 4-1 shows these nine cases and their backgrounds, which can be divided into several categories: 1) export-oriented economies suffered severe external crises, South Korea (2008–2009) and Malta (1993); 2) governments guided the devaluation with a substantial relaxation of monetary conditions, Sweden (2009) and Japan (2013); 3) monetary system reform, Denmark (2000) and Switzerland (1997); 4) currencies were overvalued during the previous period, Japan (1996) and the Netherlands (1997); and 5) excessive credit and external debts, Indonesia (2001).

These international experiences show that the foreign exchange market is not as ineffective as some argue. Most large depreciations have occurred only when serious problems existed in the economic fundamentals, when the monetary system or monetary policy changed suddenly, or when the country suffered from a severe external crisis. Currently, China’s economy is growing at a medium rate with low inflation and a large trade surplus, no serious external economic crisis exists, the overall risk of the domestic financial system is manageable, and external debts have reduced. According to international experiences, the probability of large depreciation in this context is very low.

Table 4-1: Cases of large depreciation

Country	Year	Depreciation (%)	Background
Developed countries			
Denmark	2000	47.84	Introduction of the euro
Japan	1996	15.65	Substantial appreciation during the previous period (appreciated 56.8% in the previous two years)
Japan	2013	22.31	Abenomics, printing money aggressively
Malta	1993	19.87	Europe's economic crisis
The Netherlands	1997	15.74	Pegged to the deutschmark; depreciation of the deutschmark led to the depreciation of the Netherlands guilder
Sweden	2009	16.12	The monetary authority guided depreciation by reducing interest rates
Switzerland	1997	17.42	The gold content of each Swiss franc was decreased from 40% to 25%
Less developed countries			
Indonesia	2001	21.84	Banking crisis and debt crisis
South Korea	2008–2009	37.41	2008 global financial crisis

Source: IMF database.

The advantages of depreciation to the real economy outweigh the disadvantages

In theory, in regard to the relationship between depreciation, economic growth and price, the conclusion is that depreciation will usually increase aggregate demand, increase economic growth and raise price levels. But what is the reality? According to the above sample, the economic growth rate in a depreciating year was higher than that of the previous year in 41 cases, and lower in 95 cases. The inflation rate in the depreciating year was higher than that of the previous year in 75 cases, and lower in 52 cases. On the surface, a large depreciation was accompanied by a decline in economic growth and a rise in inflation. However, this is not a causal relationship. The large depreciation itself is a result, and the driving forces behind it are often economic downturn and upward inflation. Instead of depreciation leading to slower economic growth and higher inflation, the same negative factors instigate depreciation, declining economic growth and rising inflation.

We should examine the relationship of depreciation to economic growth and inflation, after controlling for the effects of other common factors. Economies without high inflation and trade deficits before depreciation did not suffer from the effects of serious negative shocks, so the changes in their economic growth and inflation might reflect the impact of depreciation. Out of nine cases with low inflation and a trade surplus, the economic growth rate of six in the year of depreciation was higher than that of the previous year. Three were lower than the previous year, Malta (1993), Sweden (2009) and South Korea (2008–2009). Even in these three cases, it is difficult to blame depreciation for the decline in economic growth, because the countries suffered severe external economic crises in the year of depreciation. These external crises may have been the common factor behind the depreciation and the slowing of economic growth. The inflation rate rose in most of the nine cases, but not much further. Only Indonesia (2001) experienced an increase in inflation. This was due to low supply elasticity in Indonesia caused by its relatively single and backward economic structure. This created upward pressure on prices when demand rose sharply.

Yu, Zhang and Zhang (2016) studied the negative effects that a large depreciation might instigate based on international experiences. They found that, in addition to inflationary pressures, excessive external debts, debt crises, under the background of serious currency mismatches and even banking and sovereign debt crises could occur. After discussing the overall scale, distribution pattern of industries and recent progress of China's external liabilities, they concluded that the risk of depreciation through external debt channels was set within a limited range. The scale of short-term debts in China was limited and had decreased sharply in the past, and the profitability of cyclical industries such as real estate, steel, coal and other industries that borrowed more money from abroad had improved significantly since 2016. As such, these industries' ability to resist risk was enhanced.

Two alternative floating exchange rate strategies

One strategy is to adopt a free-floating exchange rate regime like the US, the European Union or many other developed countries. This does not mean that monetary authorities have completely abandoned intervention in the foreign exchange market. Monetary authorities can intervene in extreme cases, but intervention should not become the norm.

We can also consider a similar regime in which the RMB exchange rate floats within a wide band, taking into consideration that many policymakers and scholars in China have little confidence in the free-floating exchange rate regime and are concerned that unexpected problems will arise during the transition period despite the advantages of such a regime.

Another strategy is to adopt a regime in which the RMB exchange rate can fluctuate in a wide band. This strategy allows the RMB to float against a basket of currencies and simultaneously introduces a wide band for the annual fluctuation of currency. For example, the index of the RMB against the currency basket is 100 today. In the next year, the index could float freely within the bands of 100 ± 7.5 per cent and will convert to basket peg automatically if it hits the upper or lower limit. The central rate should not be adjusted too frequently.

However, there is arbitrariness about the annual floating range of ± 7.5 per cent. The choice of 7.5 per cent is mainly based on the following two aspects. First, if the band is too small, the space left to the market will not be enough. In this situation, the market cannot really play its role of adjusting supply and demand and the monetary authority has to consume more foreign exchange reserves. Second, if the band is too wide, the exchange rate may be too volatile to be accepted by people in China. We can also widen the band to 15 per cent on the basis of the European exchange rate regime experience. The wider the band is, the closer the RMB is to the floating exchange rate, and more reserve ammunition is at the central bank's disposal to spare in guarding the lower limit.

There is no daily central parity and daily floating band in this strategy. The RMB exchange rate against the USD depends on the choice of fluctuation band and the change in the USD exchange rate against other currencies in the basket. The RMB is likely to appreciate or depreciate against the USD. Krugman (1991) found that if the monetary authorities had sufficient market credibility and the exchange rate level did not seriously deviate from the fundamentals, the market exchange rate would fluctuate within the band. Even if the currency faced a greater pressure of depreciation or appreciation, the exchange rate would fluctuate somewhat close to the lower or upper band, with the credibility of monetary authorities guaranteed by ample foreign exchange reserves.

Compared with the current exchange rate regime, this strategy has the following advantages. First, the market forces of supply and demand are fully released and the risk of assuming RMB depreciation increases. Second, it can minimise the consumption of foreign exchange reserves. Third, the relatively stable basket rate is conducive to the stability of foreign trade. Finally, the RMB exchange rate regime can convert spontaneously to a two-way floating regime at any time with changes in the market environment.

Compared with the completely free-floating exchange rate regime, this strategy is a compromised choice. If the band is not wide enough, the independence of monetary policy will still be limited, and the monetary authority will need to consume foreign exchange reserves. However, this strategy avoids the effect of excessive exchange rate depreciation on the economy and combines the benefits of both short-term macroeconomic stability and floating exchange rates. With the widening of the fluctuation band, the difference between this strategy and the free-floating regime will disappear.

There are some important provisos in the transition from a peg regime to a floating exchange rate regime. First, the monetary authority must tolerate abnormal fluctuations of the foreign exchange market after introducing a floating exchange rate. It should not easily intervene in the market, as non-intervention except for in extreme cases is related to the credibility of the monetary authority and market expectations. Second, the transparency and analysis of foreign exchange-related data should be strengthened and all kinds of panic statements eliminated with facts and logic. Third, it must be ensured that financial institutions have ample foreign exchange liquidity, and international coordination and communication must be strengthened. As depreciation of the RMB has an even greater impact on some small trading partners than it does on China, multilateral and bilateral agreements should be used to reduce the impact of exchange rate reform on the international market. Fourth, appropriate capital control should be maintained. This is particularly important during the transition period of exchange rate regime reform.

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Appendix 4-1: Latest currency composition and weights in the CFETS basket

The CFETS RMB exchange rate index refers to the CFETS's basket of currencies, including all foreign currencies traded against the RMB in the CFETS. The weights of the sample currencies are calculated by the trade-weighted method after considering transit trade. The base period is 31 December 2014, and the index of the base period is 100 points. On 1 January 2017, the CFETS basket added 11 currencies, increasing the number of currencies in the CFETS basket to 24 (see Table A4-1).

Table A4-1: CFETS's currency basket

Currency	Weight
USD	0.2240
EUR	0.1634
JPY	0.1153
HKD	0.0428
GBP	0.0316
AUD	0.0440
NZD	0.0044
SGD	0.0321
CHF	0.0171
CAD	0.0215
MYR	0.0375
RUB	0.0263
THB	0.0291
ZAR	0.0178
KRW	0.1077
AED	0.0187
SAR	0.0199
HUF	0.0031
PLN	0.0066
DKK	0.0040
SEK	0.0052
NOK	0.0027
TRY	0.0083
MXN	0.0169

Appendix 4-2: Central parity rate and its independent variables

The dependent variable is the change in the central parity rate, $D(\text{MID})$. The independent variables are ‘the closing price on the previous trading day – the central parity rate on the previous trading day’, $\text{CLOSE}(-1) - \text{MID}(-1)$, and ‘the exchange rate movements needed to maintain the stability of the RMB exchange rate against the basket of currencies’, $D(\text{BSK})$ (see Table A4-2 and Figure A4-1).

Table A4-2: Changes in central parity rate: Regression equation with all the samples

Dependent variable: $D(\text{MID})$				
Sample: 4/05/2016 to 8/08/2017				
Observations: 330 after adjustments				
Variable	Coefficient	SE	t-statistic	Prob.
$\text{CLOSE}(-1) - \text{MID}(-1)$	0.959534	0.043452	22.08242	0.0000
$D(\text{BSK})$	0.498339	0.028272	17.62631	0.0000
C	-0.002882	0.000482	-5.978667	0.0000
R-squared	0.718572	Mean dependent variable		0.000788
Adjusted R-squared	0.716851	SD dependent variable		0.015434
SE of regression	0.008213	Akaike information criterion		-6.757225
Sum squared residual	0.022056	Schwarz criterion		-6.722688
Log likelihood	1117.942	Hannan–Quinn criterion		-6.743448
F-statistic	417.4660	Durbin Watson statistic		2.102728
Prob(F-statistic)	0.000000			

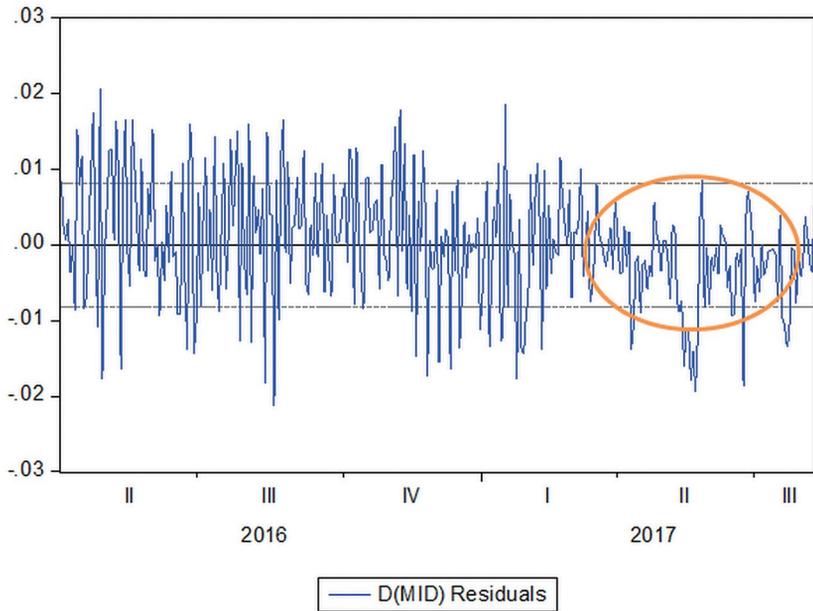


Figure A4-1: Residual term of the regression equation with all samples.
Source: Authors' original.

Table A4-3. Regression equation with the samples before the breakpoint

Dependent variable: D(MID)				
Sample (adjusted): 4/05/2016 to 1/19/2017				
Observations: 197 after adjustments				
Variable	Coefficient	SE	t-statistic	Prob.
C	-0.001625	0.000638	-2.544542	0.0117
CLOSE(-1) - MID(-1)	1.127450	0.058927	19.13298	0.0000
D(BSK01)	0.455855	0.034447	13.23341	0.0000
R-squared	0.755179	Mean dependent variable	0.002022	
Adjusted R-squared	0.752655	SD dependent variable	0.017435	
SE of regression	0.008671	Akaike information criterion	-6.642570	
Sum squared residual	0.014586	Schwarz criterion	-6.592572	
Log likelihood	657.2931	Hannan-Quinn criterion	-6.622330	
F-statistic	299.2072	Durbin Watson statistic	2.229122	
Prob(F-statistic)	0.000000			

Table A4-4: Regression equation with the samples after the breakpoint

Dependent variable: D(MID)				
Sample: 1/20/2017 to 8/08/2017				
Observations: 133				
Variable	Coefficient	SE	t-statistic	Prob.
C	-0.004173	0.000614	-6.797155	0.0000
CLOSE(-1)-MID				
(-1)	0.766417	0.053334	14.37004	0.0000
D(BSK01)	0.543422	0.043856	12.39113	0.0000
R-squared	0.728125	Mean dependent variable		-0.001041
Adjusted R-squared	0.723942	SD dependent variable		0.011693
SE of regression	0.006144	Akaike information criterion		-7.324501
Sum squared residual	0.004907	Schwarz criterion		-7.259306
Log likelihood	490.0793	Hannan-Quinn criterion		-7.298008
F-statistic	174.0805	Durbin Watson statistic		2.058797
Prob(F-statistic)	0.000000			

This text is taken from *The Jingshan Report: Opening China's Financial Sector*, by China Finance 40 Forum Research Group, published 2020 by ANU Press, The Australian National University, Canberra, Australia.

doi.org/10.22459/JR.2019.04