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Abstract

China has ambitious plans to internationalise the Renminbi (RMB) since the beginning of the 21st century and taken a series of steps over the past two decades and more particularly, since the global financial crisis of 2008. This paper provides an empirical study of the challenges facing China in internationalising the RMB as it deals with the constraints dictated by the classic trilemma of international economics which states that a country can only simultaneously have any two of three policy objectives – an open capital account or free capital flows, a fixed exchange rate and an independent monetary policy. Therefore, China is forced to choose between the degree to which it liberalises its capital account and exchange rate regimes and the degree of monetary policy autonomy it maintains. As the world's second-largest economy with a large domestic market, monetary policy autonomy provides Chinese policymakers with an important lever to conduct effective macroeconomic management. However, this in turn determines the degree to which exchange rate flexibility along with a more open capital account can be maintained. All three, in turn, impact the degree of internationalisation of the RMB.

Keywords: monetary trilemma; RMB internationalisation; capital account liberalisation; exchange rate flexibility; monetary policy independence; intermediate regimes.

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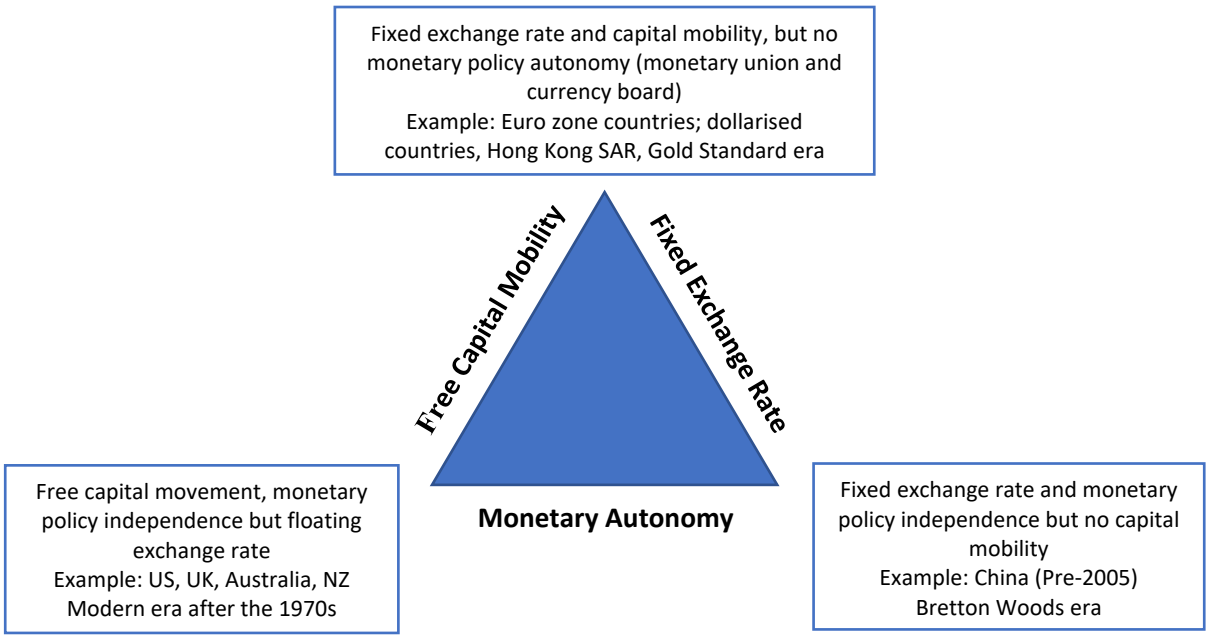
Introduction

One of the most important policy objectives of many monetary authorities, such as central banks, is achieving noninflationary, stable economic growth. To the extent that currency stability helps achieve price stability, especially in open economies, by anchoring inflation expectations, potentially reducing macroeconomic and financial volatility, and fostering international trade and investment, stable or fixed exchange rates are often an important policy objective. Open financial markets – or a capital account where citizens and foreign investors can freely move capital into and out of the country with few restrictions – help countries diversify economic and financial risks, and smooth consumption, investment and output over time. Financial market openness also enhances the efficiency of financial intermediation by better allocating resources and influencing the saving and investment decisions of households and firms. Finally, many monetary authorities find it highly attractive to retain monetary policy autonomy so that they can implement monetary policy as appropriate for achieving domestic economic policy goals in an environment of low inflation and stable economic growth as well as a response to any external economic challenges. Therefore, it would be ideal for a monetary authority to have all three – more exchange rate stability, greater financial market/capital account openness and higher levels of monetary policy autonomy.

However, as postulated by Mundell (1963), the "impossible trinity" or monetary trilemma suggests that countries face trade-offs in policy choices and authorities can simultaneously choose no more than two out of three macroeconomic objectives – fixed exchange rate, free capital mobility and monetary policy autonomy (Figure 1). Therefore, if for example, an economy wishes to exercise full autonomy over monetary policy to manage the domestic economy in an environment of a fully open capital account, it has to forsake control over the exchange rate. The country can benefit from the gains accruing from monetary policy autonomy and an open capital account but will have to take on the costs (and benefits) associated with a flexible exchange rate. A similar argument applies to any other set of policy choices among the three elements.

The three sides of the triangle in Figure 1 represent the three macroeconomic objectives a country aims to achieve. A fixed exchange rate stabilises currency values and thus is beneficial for international trade and investment. Capital mobility refers to capital allocation across borders that requires countries to open their capital accounts. Monetary autonomy refers to the ability of countries to adjust domestic output and price fluctuations independently without being influenced by external factors. For countries where the interest rate is a major monetary policy tool, monetary autonomy refers to the ability of countries to adjust domestic interest rates unilaterally and autonomously without necessarily being forced into co-movements with any "base" country interest rate. For countries that rely mainly on monetary aggregates and/or bank reserve requirements, monetary autonomy means the central bank's ability to fully control money supply and banking sector credit conditions. Constrained by the monetary trilemma, a country can only target two out of the three goals.

FIGURE 1 THE MUNDELLIAN TRILEMMA



Source: Authors' compilation.

Solutions to the Trilemma

Different countries, at different times, have chosen diverse solutions to the trilemma. One set of policy choices can be referred to as "corner solutions". China, prior to the 2005 exchange rate regime reform, and the Bretton Woods era from 1945 to 1973 involved giving up capital mobility – or having closed or highly controlled capital accounts – to maintain fixed exchange rates and monetary policy independence. Hong Kong SAR, Eurozone countries and small dollarised economies currently maintain fixed exchange rates and free capital flows by surrendering monetary policy autonomy to the European Central Bank or the US Federal Reserve. The gold standard era from 1880 to 1914 when a country's currency or paper money had a value directly linked to gold is another example: monetary policy was entirely constrained to ensure the convertibility to gold and defend the exchange rate peg. On the other hand, countries such as the United States, the United Kingdom, Australia and New Zealand currently maintain free capital mobility and monetary policy autonomy simultaneously by adopting fully floating exchange rates.

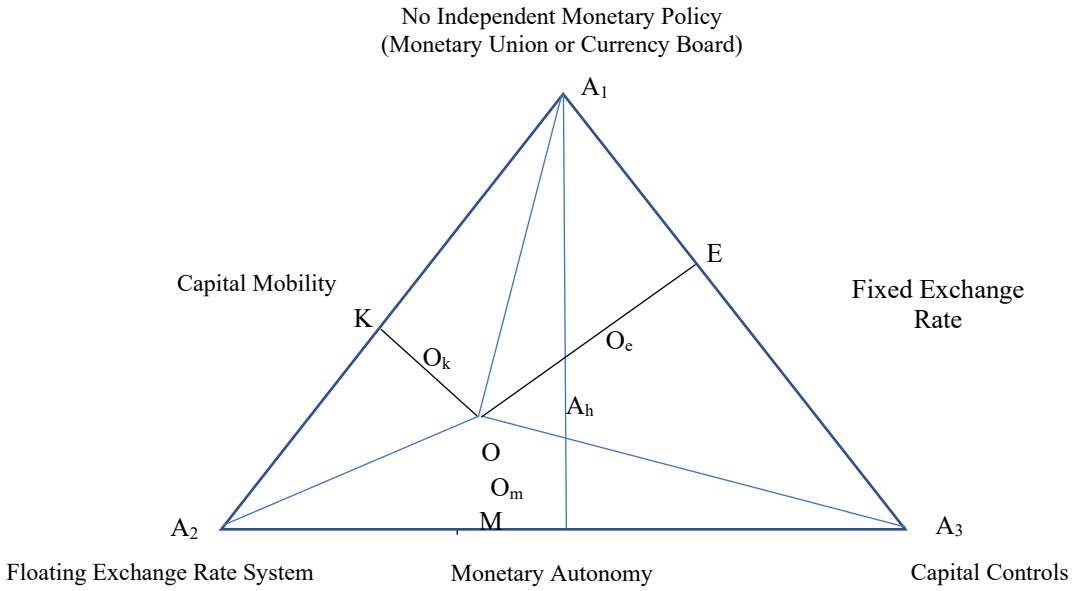
Beyond corner solutions, there are also cases where countries (in particular, developing countries) choose "intermediate regimes" or middle-ground policies to maintain partial control over all three elements. For example, capital accounts may be partially open and subject to controls. Exchange rates are neither hard pegs nor pure floats but "managed" floats using international reserves as a buffer to manage volatility. The monetary authority accepts limitations on its ability to have full policy autonomy in return for control over other elements.

Interest in such intermediate regimes has risen after the Asian financial crisis of 1997 and accelerated after the global financial crisis of 2008, with debates being centred on whether middle-ground policies concerning capital controls were preferable. The International Monetary Fund (IMF) has reversed its earlier stance of pushing for open capital accounts and adopted a more pragmatic and non-ideological approach where the use of capital controls and other capital flow management measures (CFMs) in certain circumstances is viewed as an acceptable policy option (International Monetary Fund, 2012). Some theoretical models support this view and show that episodic and targeted capital controls could be a key prudential instrument to help build financial resilience (Jeanne, 2012a, 2012b; Jeanne and Korinek, 2010; Korinek, 2011). Klein (2012) calls these capital control regimes "gates" as opposed to "walls". The whole range of scope within which capital controls are employed constitutes the middle ground between a completely open capital account and a fully closed one.

A better understanding of these "intermediate" choices can be obtained by examining the equilateral triangle in Figure 2, where the three sides represent three macroeconomic objectives that central banks want to achieve: monetary autonomy, free capital flow and a stable exchange rate. The three corners represent the three policy combinations of corner solutions. Corner A_1 represents a currency board or monetary union with no monetary policy autonomy. Corner A_2 represents a flexible exchange rate system. Corner A_3 represents capital controls or a closed capital account regime. Mathematically, the sum of the perpendicular distances from an arbitrary point inside the equilateral triangle to the three sides of the triangle is a constant. Therefore, an arbitrary point O inside the equilateral triangle can be used to represent the combination of policy choices made by a country in an intermediate regime. Draw perpendicular lines from point O to each of the vertices of the triangle, and let those perpendicular distances be O_m, O_k and O_e, that is, the distances to the targeted macroeconomic objectives, where O_m is the degree of monetary policy autonomy, O_k is the level of capital controls and O_e captures the flexibility of the exchange rate.

In this equilateral triangle, if the height $A_h = 1$, we have $0 \leq O_m, O_k$ and $O_e \leq 1$. If $O_k=0$, the level of capital mobility is maximised and full capital controls exist if $O_k=1$; if $O_m=0$, there is complete independence of monetary policy, while if $O_m=1$, the reverse is true; if $O_e=0$, it is least likely that exchange rate will change under a fixed regime and if $O_e=1$, a fully flexible exchange rate exists. The sum of the perpendicular distances from point O to the three edges of the triangle equals the height of the equilateral triangle, that is, $O_m + O_k + O_e = A_h = 1$. The position of point O therefore can be used to represent different combinations of policy choices, from corner solutions to intermediate policy choices.

FIGURE 2 A GRAPHICAL ILLUSTRATION OF INTERMEDIATE REGIMES



Source: Authors' compilation.

The IMF has developed an exchange rate classification system covering eight main exchange rate regimes (IMF, 2004): exchange arrangements with no separate legal tender (NSLT); currency board arrangements (CBA); other conventional fixed peg arrangements (CFP); pegged exchange rates within horizontal bands (HB); crawling pegs (CrP); exchange rates within crawling bands (CrB); managed floating with no predetermined path for the exchange rate (MF); and independently floating (IF). According to the degree of flexibility, these regimes could be divided into three categories: (i) exchange arrangements with no separate legal tender including currency unions and dollarised regimes, currency boards and conventional fixed pegs are defined as "fixed-rate regimes"; (ii) horizontal bands, crawling pegs and crawling bands are grouped into "intermediate regimes"; and (iii) managed and independent floats are defined as flexible regimes.

Whether $O_m = 0$, $O_m = 1$, or $0 < O_m < 1$, Table 1 shows various policy combinations according to IMF's classification of exchange rate regimes. Non-corner solutions or intermediate regimes refer to combinations 3, 4 and 5, where the exchange rates are controlled by the government and fluctuate within a certain range. Corner solutions, where currencies are either "free-floating" or have "hard pegs", are combinations 1, 2, 6 and 7.

TABLE 1 POLICY TRILEMMA COMBINATIONS AND IMF'S EXCHANGE CLASSIFICATIONS

Type	**Degree of monetary dependence**		
	$O_m=0$	**$0< O_m<1$**	**$O_m=1$**
Capital controls and exchange rate changes			
$O_k=0$ **$O_e=1$**	Combination 1: full monetary policy independence, full capital mobility and flexible exchange rate (IF)		
$O_k=1$ **$O_e=0$**	Combination 2: full monetary policy independence, full capital controls and fixed exchange rate (CFP)		
$0< O_k <1$ **$0< O_e <1$**	Combination 3: full monetary policy independence, limited capital mobility and limited exchange rate flexibility/soft pegs/near floating (MF)		
$O_k=0$ **$0< O_e <1$**		Combination 4: limited monetary policy autonomy, full capital mobility and limited exchange rate flexibility (CrB)	
$0< O_k <1$ **$0< O_e <1$**		Combination 5: limited monetary policy autonomy, limited capital mobility and limited exchange rate flexibility/soft pegs (HB or CrP)	
$0< O_k <1$ **$O_e=0$**		Combination 6: limited monetary policy autonomy, limited capital mobility and fixed exchange rate (CFP)	
$O_k=0$ **$O_e=0$**			Combination 7: no monetary policy independence, full capital mobility and fixed exchange rate (NSLT and CBA)

Source: Authors' compilation.

Why Do Countries Move to Intermediate Regimes?

A developing country's exchange rate regime can heavily influence both its domestic monetary stability and trade competitiveness, but conventional belief assumes a trade-off between these two objectives. Hence, emerging market and developing open economies had been usually advised to choose either a fixed exchange rate regime without the associated independence of monetary policy (like in the case of Hong Kong) or an independent monetary policy with a floating exchange rate regime (for example, South Africa).

It was earlier believed that exchange rate systems other than completely fixed and floating were not feasible. This belief was especially strengthened in the face of the wave of financial crises in the 1990s and early 2000s such as the Mexican Peso Crisis in 1994, Asian Financial Crisis of 1997-98, Russian Financial Crisis of 1998 and Argentina Crisis of 1999-2002. To a large extent, the cost of defending a fixed exchange rate in a deteriorating domestic macroeconomic environment proved too expensive in terms of loss of foreign exchange reserves for most of the countries involved in these crises, a reason for their move away from fixed exchange rates or soft pegs towards floating regimes. Brazil, Indonesia and Russia started to float their currencies under the pressure of a crisis. Chile and Colombia abandoned their crawling bands and moved towards a floating system, even in the absence of a crisis. Israel and Poland expanded the bands within which their exchange rates could fluctuate to a very wide range of +/- 15% (Williamson, 2002).

However, free-floating regimes were not without concerns. Financial markets were largely underdeveloped in many emerging markets and developing countries. The experiences of excessive exchange volatility made these countries concerned about trade competitiveness vis-à-vis their trading partners as international trade continues to be mainly invoiced in US dollars. Countries could potentially face long-lasting loss of competitiveness leading to a significant deceleration of economic growth as currencies strengthened while issues related to servicing of foreign currency-denominated debt and potential corporate defaults could surface in a potential crisis associated with currency weakening. Thus, many emerging markets and developing countries have demonstrated a tendency towards a "fear of floating" [1] (Calvo and Reinhart, 2002) and gradually moved back to managed floating regimes to allow central banks to intervene regularly in foreign exchange markets to manage excessive volatility or maintain competitiveness.

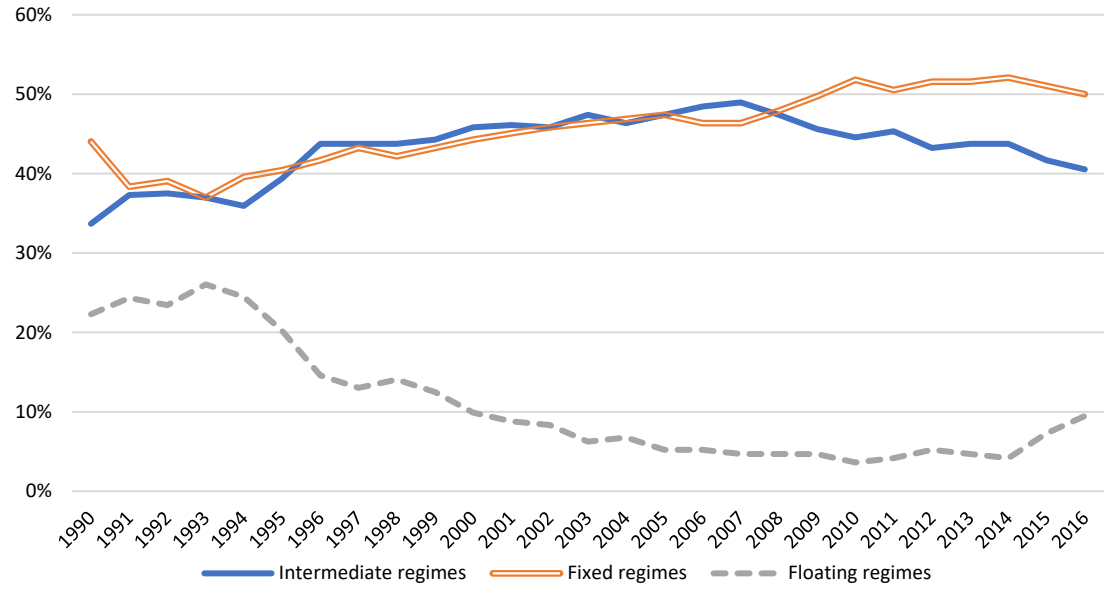
Even though some economists once believed that these sorts of intermediate exchange rate regimes would disappear eventually given the financial crises that were taking place in the 1990s and proposed the so-called "two poles" or "hollowing out" theory of exchange rate regimes (Eichengreen, 1993), the empirical evidence did not support this hypothesis. For example, as shown in Masson (2001), projections of transitions into the future based on both the Ghosh et al. (1997) and Levy-Yeyati and Sturzenegger (2005) datasets suggest that a range of exchange rate regimes would still exist, indicating that intermediate exchange rate regimes continue to be important exchange rate regime choices. Frankel (1999) once commented that certain types of intermediate regimes would be better than corner regimes for some countries. Subsequent studies developed trilemma indicators to capture the varying degrees of policy independence and regime flexibility and provided empirical evidence of the efficacy of intermediate regimes in different contexts. For

[1] "Fear of floating" means many countries that claim to have floating exchange rates do not allow the exchange rate to float freely, but rather deploy intervention policy to affect exchange rate behaviour.

example, Aizenman and Ito (2012) constructed a divergence index of the trilemma policy choices and found that the three dimensions of the trilemma configurations are converging to the middle ground of policies among emerging market economies, namely partial monetary autonomy, incomplete financial account openness and limited exchange rate flexibility supported by large foreign reserve holdings. They also found that countries with more converged policy options tend to experience less output volatility over the period 1990-2009. In another study, Aizenman and Ito (2014) find that emerging market or developing countries with more converged policy options are less likely to experience a currency or debt crisis than countries that adopt corner solutions. They further find that countries with past experiences of currency crises or twin crises tend to adopt a policy combination with a smaller degree of policy divergence. In addition, some studies reveal that the middle ground exchange rate and capital control policies could also confer full monetary policy autonomy and that completely flexible exchange rate regimes or full capital controls may not be necessary. For example, Klein and Shambaugh (2015) find that a soft peg or some degree of exchange rate flexibility grants a similar degree of monetary policy independence as a flexible exchange rate regime does. Cheng and Rajan (2020) find that partial capital controls seem to work just as well as having a completely closed capital account in terms of conferring monetary policy autonomy.

Considering that an intermediate exchange rate regime can help achieve some degree of both stability and flexibility, middle ground policies have been generally preferred and are popular among emerging market and developing countries since the 2000s. Jurek (2018) applies a logistic regression model and estimates the probability of use of an intermediate regime. The findings do not support the bipolar view and confirm that emerging market and developing countries tend not to move away from intermediate regimes. Ilzetzki et al. (2017) have developed a comprehensive and extensive chronology of the history of exchange arrangements for over 190 countries from 1970 to 2016. It is one of the most widely used *de facto* exchange rate classifications. Based on their coarse classification ranging from 1 to 6 (for details, see Annex 1), regimes are labelled as categories 4 (freely floating), 5 (freely falling) and 6 (dual market in which parallel market data is missing) as floating exchange rate regimes, category 1 as fixed regimes, and categories 2 and 3 as intermediate exchange rate regimes. The number of countries under each regime type were counted and their shares computed over time. Figure 3 demonstrates the trends in *de facto* exchange rate regimes based on their classifications from 1990 to 2016. There is a gradual rising share of intermediate regimes and a declining share of floating regimes from the early 2000s up to the global financial crisis of 2008-09. Contrary to the prediction by the "bipolar" view, there is no evidence of the disappearance of intermediate regimes. Rather, they constitute a significant proportion of existing exchange rate regimes.

FIGURE 3 TRENDS IN *DE FACTO* EXCHANGE RATE REGIMES

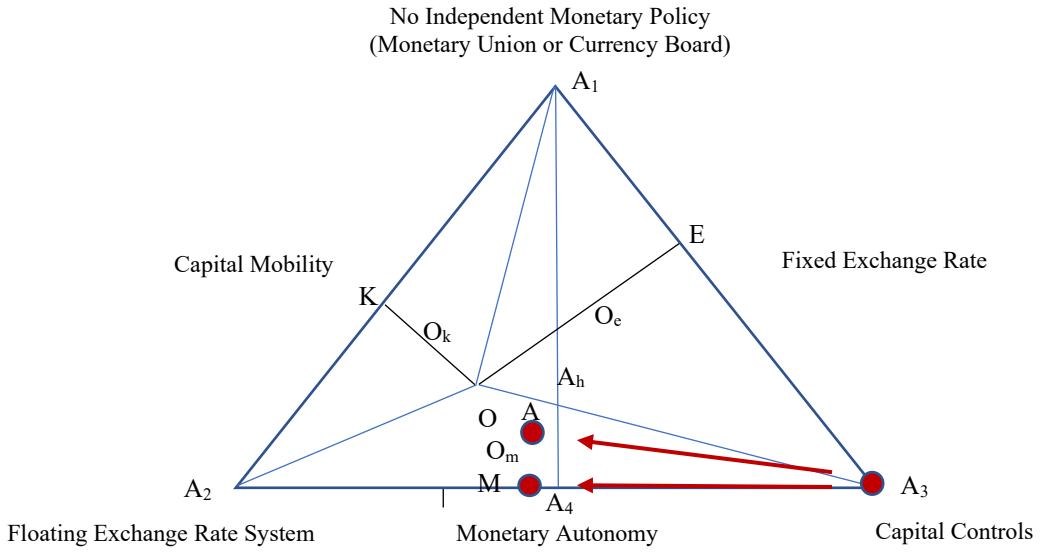


Data source: Ilzetzki et al. (2017).

How Has China Managed the Trilemma in Its Economic Policymaking?

Maintaining exchange rate stability and monetary policy autonomy has been among the core economic policy objectives in China since its initial economic reforms. However, at different stages of its reform process, China has been managing the constraints imposed by the trilemma differently through its choice of macroeconomic policies. Prior to the 2005 exchange rate regime reforms, China had pegged its exchange rate to the US dollar. The capital account also remained highly controlled, implying that China could maintain its monetary policy independence (right corner of the triangle, point A_3, in Figure 4). To maintain a stable exchange rate, in the face of high rates of export-driven growth and large current account surpluses in the early 2000s, China undertook large interventions in the foreign exchange market. By the mid-2000s, the RMB was significantly undervalued (Prasad and Ye, 2012) and international reserves surged. However, China managed to avoid rapid credit growth and inflation that could have been caused by such excess liquidity through sterilisation operations in an environment where there were few other opportunities for investment for Chinese savers other than government bonds and People's Bank of China (PBoC) bills.

FIGURE 4 A GRAPHICAL ILLUSTRATION OF CHINA'S EVOLUTION TO INTERMEDIATE REGIMES

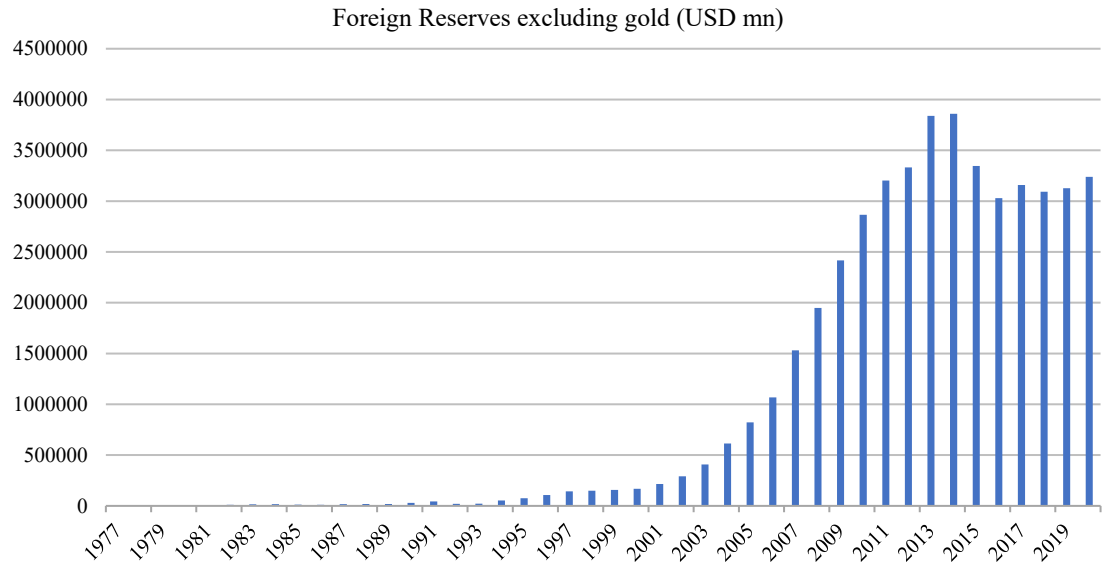


Source: Authors' compilation.

One result of such a regime was the creation of distortions in the banking sector (Prasad and Ye, 2012). Since interest rates were not the primary tool of monetary policy, credit growth was contained through government-mandated targets and other administrative measures. Banks were guided by PBoC fiat rather than market signals in their credit decisions. Pervasive capital controls promoted inward foreign direct investment (FDI) while discouraging other forms of investment, particularly foreign portfolio investment in the debt market. They also protected the banking system from foreign competition. China's management of the macroeconomic trilemma pre-2005 was to maintain exchange rate stability and a largely closed capital account in return for monetary policy independence, build up massive foreign exchange reserves (Figure 5) and create distortions in the domestic banking system.

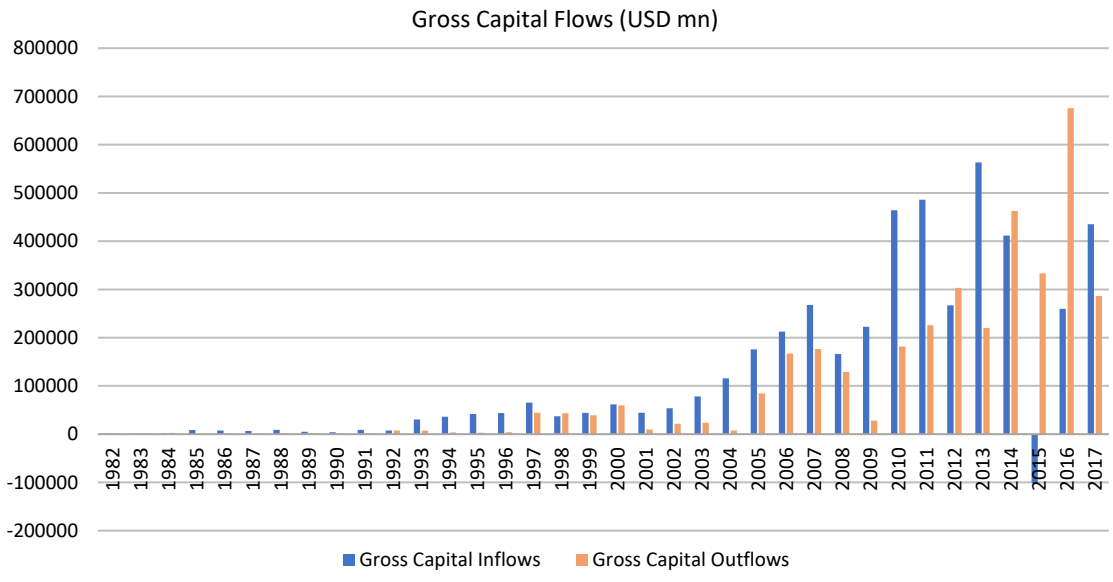
China gradually opened up its financial sector. Since the 1980s, inward FDI has been slowly liberalised followed by the opening up of outward FDI from China. Beginning in 2002, China has begun to attract more portfolio investments with the introduction and subsequent liberalisation of the Qualified Foreign Institutional Investors (QFII) programme, which allowed licensed international institutional investors to convert foreign currencies into RMB and invest and trade in RMB-denominated securities in China's stock markets. This opening, which began with strictly controlled limits, has since continued, and by 2020, all limits had been removed. Other modalities for onshore investments in RMB-denominated securities such as the Shanghai-Hong Kong Stock Connect (2014), Shenzhen-Hong Kong Stock Connect (2016) and Bond Connect (2017) enabled foreign investors to invest in securities through Hong Kong. In July 2015, the PBoC simplified the procedures for foreign central banks, international financial institutions and sovereign wealth funds to access the onshore interbank market, and removed the investment quota limit on these entities. Gross capital inflows to China grew significantly over the past two decades (Figure 6).

FIGURE 5 CHINA: FOREIGN EXCHANGE RESERVES



Source: CEIC.

FIGURE 6 GROSS CAPITAL FLOWS INTO CHINA

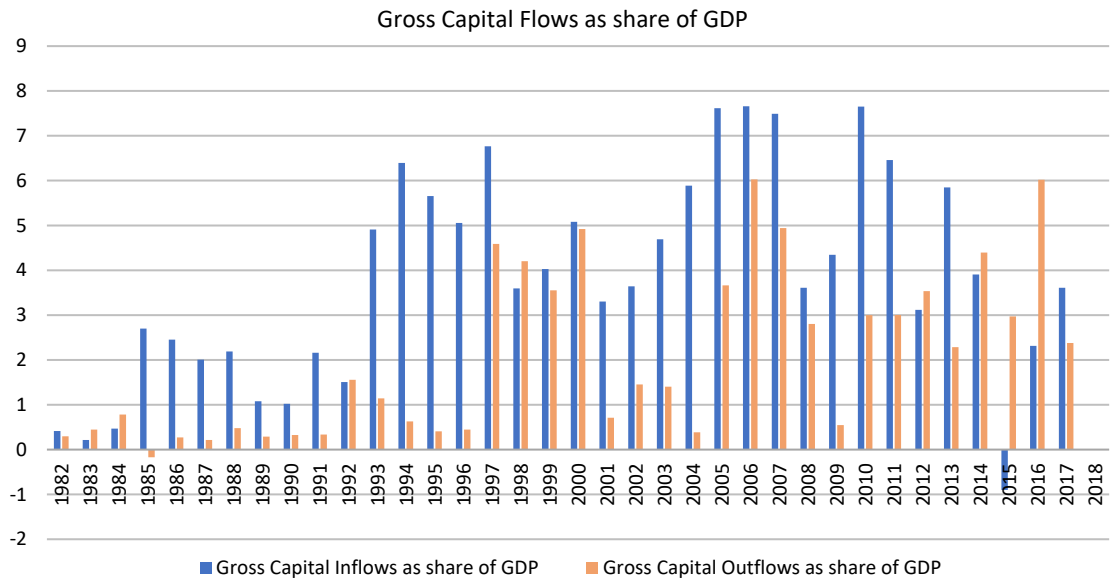


Source: CEIC.

While all the aforementioned steps covered inflows of investment to China, steps were also taken to liberalise the outflow of investments from China (Figure 7). From 2006, the Chinese government has introduced the qualified domestic institutional investor (QDII) scheme, allowing qualified Chinese enterprises to invest in financial products overseas within allowable quotas. In November 2014, RMB QDII (RQDII) programme was introduced. As of end-March 2021, the accumulated approved investments under the QDII programme were reported at about US$135 billion, from about US$9 billion in April 2006.

The number of approved institutions also increased from 6 from July 2006 to 173 as of March 2021.[2]

FIGURE 7 GROSS CAPITAL FLOWS TO CHINA AS % OF GDP

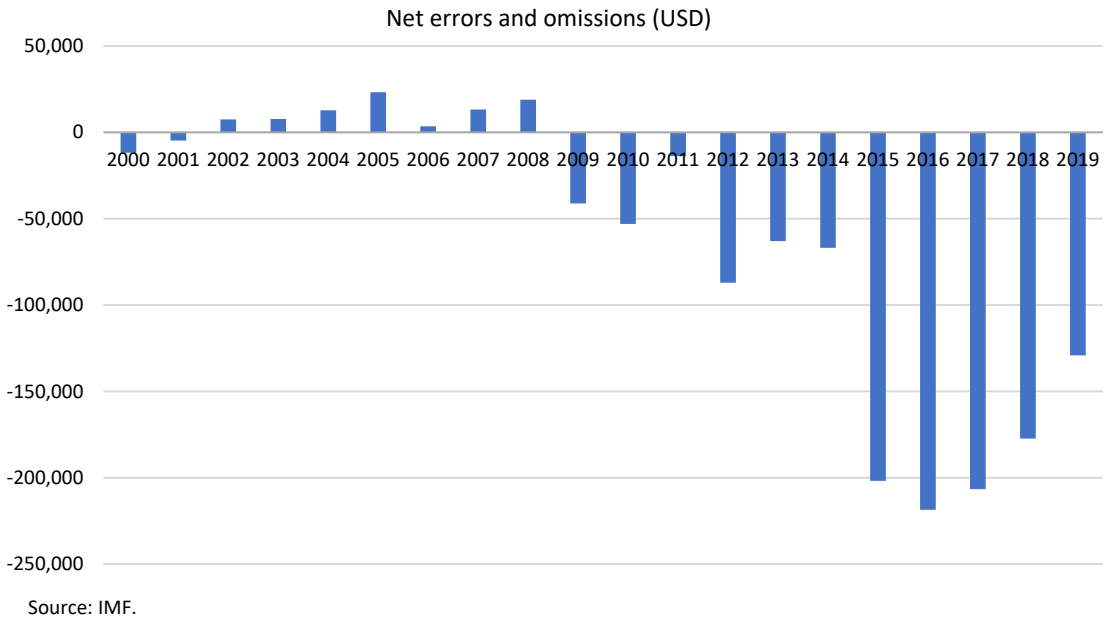


Source: CEIC.

The gradual internationalisation of the RMB, a process that has accelerated since the global financial crisis, further opened up China's financial markets. When China permitted cross-border trade settlement in RMB, offshore bond issuances in RMB grew, while foreigners were permitted to hold RMB deposits offshore, and cross-border payment and clearance systems were established. Other developments such as bilateral currency swap agreements entered into with several countries and inclusion of the RMB in the IMF's SDR also contributed to greater internationalisation of the RMB and further opening up of China's capital account (Srinivas and Cheng, 2021a and 2021b). There is also evidence that even as capital controls have been gradually liberalised, existing controls were gradually becoming less effective, particularly as the RMB's internationalisation has accelerated. For example, the errors and omissions entry in China's balance of payments accounts have been increasing over the years, a sign of the increasing leakage from existing controls (Figure 8). Therefore, China's capital account was effectively becoming even more open than what the liberalised rules may have permitted.

[2] The data is sourced from the CEIC database, originally from the State Administration of Foreign Exchange.

FIGURE 8 ERRORS AND OMISSIONS IN CHINA'S BOP

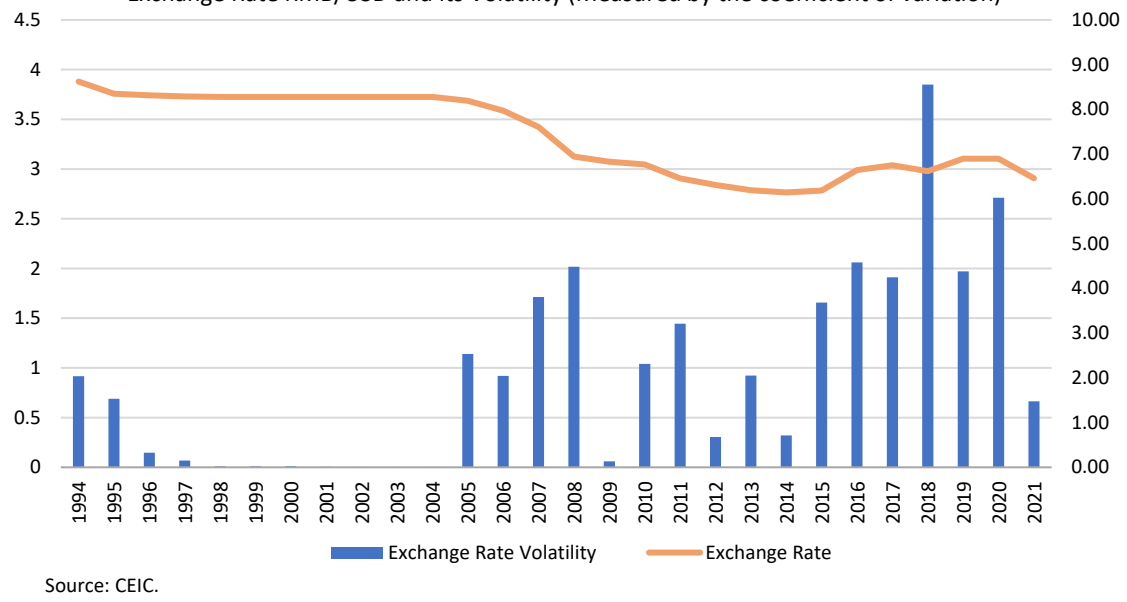


Source: IMF.

On the exchange rate front, however, the situation remained somewhat different. After the US-dollar peg was formally removed in 2005, the RMB was pegged to a basket of currencies. It was intended to gradually gain relatively somewhat more, but still limited flexibility.[3] As shown in Figure 9, China has indeed gained a larger extent of exchange rate flexibility as indicated by greater exchange rate volatility since 2005 compared to the hard peg period. However, between 2005 and 2014, the RMB was the least volatile currency when compared to all major freely floating currencies. Evidence also shows that even though it was China's stated policy that the RMB's value would be determined in relation to a basket of currencies, the value of the RMB continued to rely heavily on the US dollar as its anchor currency (Kawai and Liu, 2015). This limited exchange rate flexibility, market expectations of continued strengthening of the RMB, continued current account surpluses and continued large interventions in the foreign exchange markets by the authorities to manage the value of the currency led to a rapid increase in foreign exchange reserves. International reserves increased from 14% of GDP in 2000 to a peak of 48% in 2010, though they subsequently declined to 40% of GDP in 2013, in line with a fall in current account surpluses to 2% of GDP from its peak of 10% of GDP due to the global financial crisis. This large accumulation of reserves led to a rapid increase in China's monetary base, suggesting that China's monetary policy has been increasingly influenced by external conditions and independence was declining.

[3] This regime continued despite the temporary introduction of a US dollar peg again during the depths of the global financial crisis.

FIGURE 9 RMB EXCHANGE VERVUS THE US DOLLAR: VOLATILITY



Source: CEIC.

The increasing openness of China's capital account and concomitant greater integration with global financial markets as well as a relatively more flexible but still strongly controlled exchange rate meant that China is moving away from a corner solution of the trilemma to a more intermediate regime, and therefore, is giving up some monetary policy autonomy. Evidence, based on analyses of both short-term interest rates and monetary aggregates as instruments of monetary policy, shows that China's choices on the exchange rate regime and capital account led to decreased monetary policy independence in the mid-2010s (Kawai and Liu, 2015). China, therefore, had begun to move from A_3 to A_5 upwards along the bottom side of the triangle in Figure 4, gaining greater capital account openness, but losing some degree of monetary policy independence, while having limited flexibility in its exchange rate. Going forward, as China's integration with global financial markets further increases, China would have to give up either even more monetary policy autonomy if it hopes to continue to have strong control over its exchange rate or exchange rate stability if it wishes to have greater monetary policy autonomy.

Several studies have documented the impact of China's policy moves as related to the trilemma. Han et al. (2011), Sen (2014) and Wu (2015) provide evidence that China's policy moves conform to the trilemma hypothesis. Angrick (2018) shows that while China's monetary policy autonomy was indeed constrained, as per the trilemma, it was foreign exchange reserve losses rather than the fixed exchange rate system that caused these restrictions. Li et al. (2021) conclude that the trilemma holds true only weakly in China as the central bank can offset exchange rate volatility by using central bank securities (as opposed to the monetary base) to compensate for the flow of reserves. Kawai and Liu (2015) provide evidence of declining monetary policy autonomy in China and suggest that to regain autonomy, the monetary authority needs to substantially increase exchange rate flexibility even as the capital account is opened further.

More recently, China's capital account has been significantly liberalised further with almost no controls on inward foreign portfolio investments (Figures 6 and 7). As of 2020, there have been no limits to the amounts that can be invested through this scheme. The QFII and RQFII schemes have also been merged as of 2020. Procedures to allow repatriation of profits from the investments made through the scheme have been simplified over time. China is also now much more integrated into global financial markets. With the world's second-largest onshore bond market and the third-largest sovereign bond market (larger than those of Germany, France and Spain combined), foreign investors can no longer ignore China. Chinese government bonds have been included in three major global indices since 2019 – the Bloomberg Barclays Aggregate Bond Index, JP Morgan GBI-EM Index and FTSE Russell World Government Bond Index. Chinese equities are also a part of major global equity indices. China's efforts to internationalise the RMB are continuing (Srinivas and Cheng, 2021a and 2021b). The inclusion of the RMB in the IMF's SDR basket encourages more international RMB holdings. Even though global central banks and other sovereign investors currently hold just 2% of their reserves in RMB, this is expected to increase going forward. Despite ongoing tensions in US-China relations, regulatory crackdowns on high profile technology firms in China and weakness in some large real-estate firms, foreign portfolio investment in China is currently at record highs, reaching 2.5% of GDP as of December 2020. This inflow has contributed to the appreciation of the RMB. All of these steps have pointed to much greater openness in China's capital account.

On the exchange rate front, the RMB is being permitted to move much more freely against other major global currencies. China's international reserves have hardly changed over the past five years (Figure 5) and there have been no significant direct interventions in foreign exchange markets since 2016.[4] This is especially noteworthy during 2021 when the RMB has been allowed to appreciate significantly (from RMB7.2/US dollar to about RMB6.3/US dollar). This is in stark contrast to 2016 when China ran down its international reserves by almost US$1 trillion in trying to support the RMB. This indicates that China has been more tolerant of significant moves in the RMB's exchange rate.

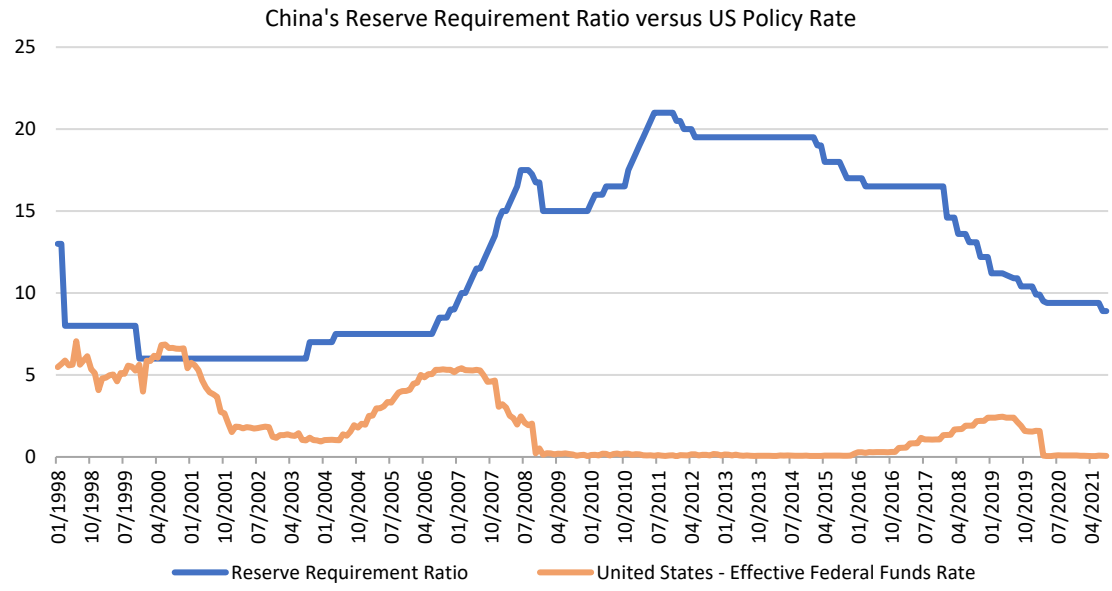
This combination of policy choices – of continued opening up of its capital account and greater flexibility in its exchange rate – demonstrates the choices that China is making within the monetary trilemma. It chooses to permit greater flexibility in its exchange rate in return for greater monetary policy autonomy, even as it further opens up its capital account. China seems to be gradually moving to the bottom left corner of the triangle in Figure 1, and taking on a more US-style approach to its macroeconomic policies by choosing to have a more open capital account, greater exchange rate flexibility and monetary policy independence. China has yet to be in a corner solution to the issue and the partial nature of each of the three elements shows that it is still in an intermediate solution to the Mundellian trilemma.

Indeed, after the exchange rate regime reform in 2005, China has enjoyed greater monetary policy autonomy due to a more flexible exchange rate. This is partly reflected by the fact that one of China's main monetary policy rates – reserve requirement ratio – has been deviating from the US main monetary policy rate – effective federal funds rate post-

[4] "Why has China learned to relax about its currency", *The Economist*, 19 June 2021.

2005 (Figure 10) indicating China's capability in preserving policy rate differential and maintaining monetary policy stance regardless of US stance. In particular, when the United States was undertaking unconventional expansionary monetary policy and the nominal interest rate reached zero after the global financial crisis, China managed to raise reserve requirement ratios several times after 2010 in an anticipatory move to curb potential inflation, a sign that China had sufficient policy instruments to manage domestic economy autonomously.

FIGURE 10 POLICY RATE DIFFERENTIAL



Source: CEIC.

Therefore, China's approach to addressing the monetary trilemma has gradually evolved from a corner solution with the policy combination 2 as in Table 1 (full capital controls plus a conventional fixed peg arrangement in exchange for complete monetary policy autonomy; Ok=1, Oe=0 and Om=0) to an intermediate regime as in policy combination 3 (limited capital mobility with partial capital controls plus a managed floating with no predetermined path for the exchange rate to maintain complete monetary policy independence; 0< Ok <1, 0< Oe <1, and Om=0). As visualised in Figure 4, we can see China was originally at point A_3 before 2005 with a corner solution of a fixed exchange rate regime combined with tight capital controls and full monetary autonomy. Gradually, it moved along the bottom edge of the triangle to point A_4, which represents an intermediate regime choice with partial capital mobility and some exchange rate flexibility, in which case China managed to maintain full monetary policy autonomy as desired. However, China may not be able to preserve complete monetary policy autonomy with greater capital account openness and still maintains somewhat inflexible exchange rates trading off China's capability to exert independent monetary policy. Thus, the path from A_3 to A_5 might more realistically reflects China's experiences evolving towards intermediate regimes, in which case China still manages to pursue a fairly significant, though not complete, degree of monetary autonomy.

Conclusion

China has moved from a closed capital account and fixed exchange rate to a much more open capital account and more flexible exchange rate in the last 20 years. In doing so, it has faced the constraints dictated by the trilemma of international economics. Its policies on capital account openness and exchange rates have influenced the degree of monetary policy autonomy that it had. This choice of policies also has an impact on China's objectives to further internationalise the RMB.

From a situation in which China had monetary policy autonomy in return for a closed capital account and a fixed exchange rate, it is now moving into a situation where it maintains monetary policy independence in return for a much more open capital account and a more flexible exchange rate. It is clear that the authorities are prioritising maintaining a high degree of monetary policy autonomy and are willing to let the RMB float more freely. This process is likely to have an important positive impact on the degree and speed of further internationalisation of the RMB. Greater ability for international investors to access Chinese capital markets and a more market-determined exchange rate have been important issues to address before greater acceptance of the RMB as a global currency. China has been moving in this direction.

Notwithstanding, China is still very much in an intermediate solution to the trilemma. The capital account is still not fully open (strict limits on the flow of capital from China continue) and the authorities still maintain substantial ability to influence the evolution of the exchange rate. This implies that the authorities are trading off some loss of monetary policy autonomy in return for steps that contribute to the greater internationalisation of the RMB. Given the various economic issues facing China currently, this present policy choice of an intermediate policy regime is potentially more attractive than a corner solution of a fully flexible exchange rate and/or a fully open capital account. Moving to either a fully flexible exchange rate and/or a fully open capital account will require policy reforms in other areas, such as further strengthening the financial sector to be able to take on volatility that inevitably accompanies such regimes. China has learned valuable lessons from the experiences of other developing countries that were subject to such economic volatility as a result of their policy choices on exchange rates and capital account openness. China has therefore chosen the path that it has.

References:

Aizenman, J and Ito, H. (2012). *Trilemma Policy Convergence Patterns and Output Volatility* (Working Paper No. 17806; Working Paper Series). National Bureau of Economic Research. https://doi.org/10.3386/w17806.

Aizenman, J and Ito, H. (2014). Living with the trilemma constraint: Relative trilemma policy divergence, crises, and output losses for developing countries. *Journal of International Money and Finance*, 49, 28–51. https://doi.org/10.1016/j.jimonfin.2014.05.005.

Angrick, S. (2018). Global liquidity and monetary policy autonomy: An examination of open-economy policy constraints. *Cambridge Journal of Economics*, 42(1), 117–135.

Calvo, G. A and Reinhart, C. M. (2002). Fear of Floating. *The Quarterly Journal of Economics*, 117(2), 379–408.

Cheng, R and Rajan, R. S. (2020). Monetary trilemma, dilemma, or something in between? *International Finance*, 23(2), 257–276. https://doi.org/10.1111/infi.12363.

Eichengreen, B. (1993). *International Monetary Arrangements for the 21st Century* (Centre for International and Development Economics Research (CIDER) Working Paper No. C93-021). University of California at Berkeley. https://econpapers.repec.org/paper/ucbcalbcd/c93-021.htm.

Frankel, J. A. (1999). *No Single Currency Regime is Right for All Countries or At All Times* (Working Paper No. 7338; Working Paper Series). National Bureau of Economic Research. https://doi.org/10.3386/w7338.

Ghosh, A. R., Gulde, A.-M., Ostry, J. D and Wolf, H. C. (1997). *Does the Nominal Exchange Rate Regime Matter?* (Working Paper No. 5874). National Bureau of Economic Research. https://doi.org/10.3386/w5874.

Han, J., Shaoyi, C and Yanzhi, S. (2011). *Capital Inflows and the Impossible Trinity in China*. 17.

Ilzetzki, E., Reinhart, C. M and Rogoff, K. S. (2017). *The Country Chronologies to Exchange Rate Arrangements into the 21st Century: Will the Anchor Currency Hold?* (No. 23135; NBER Working Papers). National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/23135.html.

International Monetary Fund. (2012). The Liberalization and Management of Capital Flows—An Institutional View. *Policy Papers*, 2012(23). https://doi.org/10.5089/9781498339612.007.

Jeanne, O. (2012a). Capital Flow Management. *American Economic Review*, 102(3), 203–206. https://doi.org/10.1257/aer.102.3.203.

Jeanne, O. (2012b). *Capital Account Policies and the Real Exchange Rate* (Working Paper No. 18404; Working Paper Series). National Bureau of Economic Research. https://doi.org/10.3386/w18404.

Jeanne, O and Korinek, A. (2010). Excessive Volatility in Capital Flows: A Pigouvian Taxation Approach. *American Economic Review*, 100(2), 403–407. https://doi.org/ 10.1257/aer.100.2.403.

Jurek, M. (2018). Choosing the Exchange Rate Regime-a Case for Intermediate Regimes for Emerging and Developing Economies. *Economics and Business Review*, 4(4), 46–63. https://doi.org/10.18559/ebr.2018.4.3.

Kawai, M and Liu, L.-G. (2015). Trilemma Challenges for the People's Republic of China. *Asian Development Review; Manila*, 32(1), 49–89.

Klein, M. W. (2012). *Capital Controls: Gates versus Walls* (Working Paper No. 18526). National Bureau of Economic Research. https://doi.org/10.3386/w18526.

Klein, M. W and Shambaugh, J. C. (2015). Rounding the Corners of the Policy Trilemma: Sources of Monetary Policy Autonomy. *American Economic Journal: Macroeconomics*, 7(4), 33–66.

Korinek, A. (2011). The New Economics of Prudential Capital Controls: A Research Agenda. *IMF Economic Review*, 59(3), 523–561.

Levy-Yeyati, E and Sturzenegger, F. (2005). Classifying exchange rate regimes: Deeds vs. words. *European Economic Review*, 49(6), 1603–1635. https://doi.org/10.1016/ j.euroecorev. 2004.01.001.

Li, H., Xu, Y. and Zhuang, Y. (2021). China's trilemma: Monetary policy autonomy in an economy with a managed floating exchange rate. *Asian-Pacific Economic Literature*, 35(1), 99–107.

Masson, P. (2001). Exchange rate regime transitions. *Journal of Development Economics*, 64(2), 571–586.

Mundell, R. A. (1963). Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates. *Canadian Journal of Economics and Political Science/Revue Canadienne de Economiques et Science Politique*, 29(4), 475–485. https://doi.org/ 10.2307/139336.

Prasad, E and Ye, L. (2012). The. Renminbi's Role in the Global Monetary System. *Brookings*. https://www.brookings.edu/research/the-renminbis-role-in-the-global-monetary -system/.

Sen, S. (2014). Financial integration and national autonomy: China and India. *Review of Keynesian Economics*, 2(1), 20–44.

Srinivas, P. S and Cheng, R. (2021a). Renminbi Internationalisation (I): A Historical Review and China's Policy Measures. *EAI Background Brief*, 2.

Srinivas, P. S and Cheng, R. (2021b). Renminbi Internationalisation (II): Progress and Prospects. *EAI Background Brief*, 3.

Williamson, J. (2002). The Evolution of Thought on Intermediate Exchange Rate Regimes. *The Annals of the American Academy of Political and Social Science*, 579, 73–86.

Wu, Y. (2015). The Open-Economy Trilemma in China: Monetary and Exchange-Rate Policy Interaction under Financial Repression. *International Finance*, 18(1), 1–24.

ANNEX 1

ILZETZKI, REINHART AND ROGOFF EXCHANGE RATE REGIME (THE COARSE CLASSIFICATION CODES)

1	No separate legal tender
1	Pre-announced peg or currency board arrangement
1	Pre-announced horizontal band that is narrower than or equal to +/-2%
1	De facto peg
2	Pre-announced crawling peg
2	Pre-announced crawling band that is narrower than or equal to +/-2%
2	De facto crawling peg
2	De facto crawling band that is narrower than or equal to +/-2%
3	Pre-announced crawling band that is wider than or equal to +/-2%
3	De facto crawling band that is narrower than or equal to +/-5%
3	A moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time)
3	Managed floating
4	Freely floating
5	Freely falling
6	Dual market in which parallel market data is missing

Source: Ilzetzki, Reinhart, and Rogoff (2017).