

RISING REGIONAL IMPORTANCE OF THE RENMINBI IN THE ASIA-PACIFIC AREA: A PANEL ANALYSIS

Eszter Boros and Gábor Sztanó
Magyar Nemzeti Bank (MNB), the Central Bank of Hungary
Krisztina krt. 55, HU-1013, Budapest, Hungary
Email: borosesz@mn.hu
sztanog@mn.hu

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ABSTRACT

In the past decade, China has taken several steps to make the renminbi (RMB) a globally important currency. Since the RMB was included in the IMF's SDR basket in 2016, several central banks have started using it as a reserve currency. Moreover, the exchange rate regime of the RMB has gradually been modified to add some flexibility, and Beijing has begun to promote cross-border RMB trade settlement. In this paper, we use panel data to analyze how changes in the RMB exchange rate might influence the movement of other currencies in the Asia-Pacific region. We find that the RMB's relative importance has significantly increased from 2015 onwards, i.e. since the date of the last reform of the RMB central parity quoting mechanism. Our results also suggest that the RMB's impact has remained broadly unchanged since the outbreak of the coronavirus pandemic. Contrary to some other findings, the COVID-19 has not reduced the relevance of the Chinese currency in the region.

INTRODUCTION

China has systematically strengthened its economic and political power in the past decades, although the internationalization of the renminbi was only started after the Global Financial Crisis. Beijing set the goal to turn the RMB into a globally used currency in order to extend economic and financial relations in Eurasia and beyond, especially with key trade partners. This plan involved the gradual opening of the capital account, making the RMB convertible in most of the cases. Several other proactive measures followed to increase the RMB's foreign turnover.

Statistical data reveal that cross-border renminbi flows and trade settlements keep rising for the past years, which could have changed the landscape of Asia-Pacific (AP) FX markets as well. So, in this paper, we analyze how changes in the RMB exchange rate might influence the movement of other currencies in the AP region. To be precise, we examine whether the exchange rate

movements of regional currencies are associated with fluctuations in the RMB exchange rate on a daily basis. Different periods are chosen to detect the possible shifts in this relationship. On the one hand, we examine the change which might have occurred after the announcement of the new quoting mechanism of the RMB/USD central parity in August 2015. On the other hand, it is also an interesting question whether there have been any changes since the onset of the pandemic and the resulting global economic turmoil.

Our analysis is structured as follows. The next section highlights some key trends and figures on how China has got more and more integrated in the global economy and how RMB transactions started to flourish. This section also summarizes the steps that China has made to internationalize its currency. After that, we introduce the empirical methodology and the results. The final section concludes.

THE INTERNATIONALIZATION OF THE RMB AND ITS EXCHANGE RATE REGIME

As China became the second largest economy after the U.S. a decade ago and it started to open up its financial markets, the "internationalization of the renminbi" appeared as a priority on its policy agenda. Beijing began to allow the "offshore" circulation of its currency in 2009, and subsequently, the RMB market outside of mainland China expanded to all key regions of the world. In the context of the "reform and opening-up" strategy and turning China into a modern, systemically important economy, the government decided to strengthen the role of the RMB in international trade settlements, investments and global reserves.

This endeavor proved to be vindicated by the rising footprint of China in the global economy. By 2020, the East Asian giant became the largest trade partner of the United States, the European Union as well as the Association of Southeast Asian Nations (ASEAN). China is also an important source of infrastructure finance in many regions, especially in many developing countries in Africa, Central and Southeast Asia. This role is underpinned by the Belt and Road Initiative (BRI) announced by Chinese president Xi Jinping in 2013 to

create an integrated Eurasian economic belt through upgrading physical and digital infrastructure.

The BRI and the connected institutions (such as the Asian Infrastructure Investment Bank, AIIB) are set to mobilize Chinese capital to finance the construction of ports, railways, roads, pipelines, power grids and enhance connectivity in financial markets as well. Although the rise in the cross-border use of the RMB has not been as fast as the increase in China's economic footprint worldwide, the amount of Chinese outward direct investment settled in RMB grew by 39.1% in 2020 (year on year; PBOC 2021). Moreover, the total amount of cross-border payments and receipts settled in the Chinese currency totaled RMB 28.39 trillion (approx. 4.5 trillion USD), which is an increase of 44.3% compared to 2019. This included a part of RMB 4.53 trillion settled between mainland China and the countries of the BRI, amounting to a year-on-year increase of 65.9% (PBOC 2021).

These facts illustrate the growing importance of RMB capital and cash flows for financial markets, especially in the Asia-Pacific region (including the ASEAN), which is closely linked to the Chinese economy. As a significant number of AP currencies is classified as floating or free floating (IMF 2021), it is fair to suppose that changes in the RMB exchange rate will increasingly affect them.

The evolution of the RMB exchange rate is largely determined by the onshore exchange rate regime. While no formal controls prevail over the exchange rate of the offshore RMB (also labelled as CNH), it is very strongly correlated to that of the onshore RMB (CNY). The general reason for this tight co-movement is the ongoing market liberalization and the growing RMB FX turnover (Erhart 2015).

According to the definition of the People's Bank of China (PBOC), the CNY is characterized by a managed floating exchange rate regime based on market supply and demand. The current regime was basically put in place in August 2015 when the PBOC changed the CNY/USD central parity quoting mechanism (Das 2019). This step was preceded by a decade of reforms when China had abolished a hard peg to the USD and gradually edged towards more exchange rate flexibility. Monetary authorities went on to widen the band around the central parity and ended up allowing +/-2% daily fluctuation from March 2014 onwards. The current mechanism of the central parity was clarified in early 2016 (with some fine-tuning since then). As of 2022, banks provide their daily central parity quotes with regard to two factors: the previous day's closing rate and the adjustment needed to account for the overnight changes in cross-rates of the CFETS currency basket (CFETS: China Foreign Exchange Trading System, the onshore interbank currency market). Based on the quotes, the PBOC announces the central parity on a daily basis, and the +/-2% band applies accordingly.

One of the first steps of RMB internationalization was to enable foreign importers to make their trades settled in RMB instead of a third currency. At the beginning of the 2010s, the outflow of currency was limited from China due to capital account restrictions. Therefore, the need for RMB liquidity was mostly connected to trade settlement. As a part of the internationalization policy, the PBOC has established a system of bilateral RMB currency swap agreements with other central banks, especially those that are part of the Belt and Road Initiative and other globally important central banks. This facilitates the provision of RMB liquidity for counterparties and promotes the RMB settlement of bilateral trade. Creating a renminbi hub has become one of the most important initiatives of BRI in the past decade (Song and Xi 2020).

The growing importance of the RMB paved the way for its inclusion into the IMF's SDR basket as of October 2016, acknowledging RMB as a globally important reserve currency. Several authors claimed that incorporating the RMB was making official the fact that many regional central banks had already been using the Chinese currency as an anchor in their execution of monetary policy operations (Uppal and Mudakkar 2020). The current share of the RMB is 10.92% in the SDR basket; the next re-evaluation of weights is due in mid-2022.

Several empirical papers found that the impact of the renminbi on other Asian currencies increased in the last decade. By employing a factor model, Fratzscher and Mehl (2011) found that the RMB had been a key driver of currency movements in Asia since as early as the mid-2000s, and claimed that the international monetary system is now tripolar: the RMB is the third most influential currency after the USD and the EUR. Shu et al. (2014) were more cautious with their findings: although they noted that both onshore and offshore renminbi had an impact on regional currency movements, they argued that the persistence of this influence depended on the progress in liberalizing the Chinese capital account. Recently, a network-based approach has become popular: two papers confirmed the recent increase of the RMB's regional dominance. Zhou et al. (2020) found that shocks originating from the RMB were significant in the relevant network of currencies, and the importance had increased over time. Besides, after examining SWIFT data, Liu et al. (2022) found that RMB shocks were indeed influential in the ASEAN region, but still insignificant in the global market. They noted that the RMB had become an influential regional currency; however, it was still far from global dominance.

All things considered, the growing importance of the RMB is undeniable and its regional impact is increasing gradually as a result of the internationalization efforts of the PBOC.

EMPIRICAL ANALYSIS OF THE IMPACT OF RMB EXCHANGE RATE CHANGES

In the empirical part of the paper, we examine how the relative importance of the RMB changed over time in the AP region. Our work broadly follows the methodology used by Marconi (2017).

Data and Variables

To establish the impact of the CNY exchange rate on AP exchange rate changes, 8 regional currencies are selected: the Australian dollar (AUD), the Indonesian rupiah (IDR), the Indian rupee (INR), the South Korean won (KRW), the Malaysian ringgit (MYR), the New Zealand dollar (NZD), the Philippine peso (PHP) and the Thai baht (THB). These currencies are all classified by the IMF as floating or free floating, so their exchange rates are supposed to be largely market-determined (IMF 2021). All 8 exchange rates, as well as the CNY exchange rate are measured in terms of the USD as a numeraire.

We also use a set of control variables that aim to capture all other factors that may influence the given exchange rate. As a proxy for global risk appetite and market volatility, we include the VIX index (*VIX*), i.e. the Chicago Board Options Exchange's CBOE Volatility Index as it is commonly used in the literature. In order to capture overall emerging market movements, we use EMBI Global and Fred's EM USD index. The first (*EMBI*) is a well-known emerging bond composite that moves along with the risk perception of emerging countries. The second (*DTWEXEMEGS*) is a USD nominal effective exchange index against emerging trade partners, published by the St. Louis Fed. We decided to apply two different variables to control non-Chinese, but emerging market-specific factors: while the exchange rate index directly reflects the overall performance of emerging currencies, the bond index is related to general risk perception in this market.

As not all currencies in our dependent variable are issued by an emerging country, we also incorporate a USD index by Bloomberg that grabs the movement of the USD vis-à-vis the 10 largest currencies (except the USD itself) (*BUSDIN*). We also consider a commodity index published by Bloomberg (*COMM*). Finally, we use the Chinese one-week repo rate to control for Chinese monetary policy shocks and liquidity conditions (*REPO*).

All data are daily closing data and were published by Bloomberg, except the Fed's index that was downloaded from the Fred database by the St. Louis Fed.

Model

In a way similar to Marconi (2017), we estimate a linear model for our panel dataset, which is given by *Equation (1)* as its basic specification:

$$\Delta \log(E_{i,t}) = \alpha + \beta_1 \Delta \log(CNY_t) + \beta_2 X_t + \varepsilon \quad (1)$$

where $E_{i,t}$ denotes the exchange rate of currency i at time t ($i = \text{AUD, IDR, INR, KRW, MYR, NZD, PHP, THB}$). CNY_t is the CNY/USD daily exchange rate – thus, our primary interest in this research is coefficient β_1 . For the sake of brevity, X refers to our control variables introduced under the previous subtitle, using the first differences of logarithms in all cases. Intercept α is common and time-invariant. (Chow tests showed that currency-specific fixed effects were not needed in the model.) Finally, ε denotes the error term.

By obtaining coefficient β_1 for variable CNY, we can establish the significance of the CNY exchange rate regarding the fluctuation of AP currencies. Control variables are intended to separate the RMB-specific impacts from other relevant factors in the global and emerging financial markets. Limitations of this approach are discussed later.

Results and Discussion

To capture the possible changes in the impact of the CNY exchange rate over time, we estimate *Equation (1)* for three periods. First, we consider the whole period since China started to allow the RMB to fluctuate in a slightly wider band. The first complete year in which the band was $\pm 0.5\%$ happened to be 2008, so our initial dataset runs from 1 January 2008 to 7 January 2022 ($t = 3,659$). Note that during this period, the band was further extended in April 2012 ($\pm 1\%$) and in March 2014 ($\pm 2\%$), plus the quoting mechanism of the central parity was changed in August 2015 (with further clarifications in the subsequent months). Thus, this long period involves quite meaningful policy changes, and as such, it serves mainly as a reference point in our research.

In the second case, the estimation is confined to the period since the announcement of the new quoting mechanism in August 2015 (1 September 2015 – 7 January 2022, $t = 1,659$). For the third estimation, we only look at the period of the pandemic, starting from the mass infections in China (1 January 2020, $t = 528$). The latter allows us to investigate whether the fallout of the pandemic instigated any changes in the relationship between AP currencies and the CNY. Our results for the different periods are reported in *Tables 1-3*.

Table 1: Pooled model results for 2008-2022

	coeff.	std.err	t-ratio	p-value
Constant	0.000	0.000	0.054	0.957
CNY	0.051	0.020	2.600	0.009***
VIX	0.003	0.001	6.722	0.000***
EMBI	0.018	0.002	9.049	0.000***
DTWEXEMEGS	0.492	0.013	36.92	0.000***
BUSDIN	0.174	0.007	23.42	0.000***
COMM	-0.025	0.004	-6.811	0.000***
REPO	-0.001	0.000	-1.953	0.051
F-statistic: 974.3 p-value: 0.000*** Adj. R-squared: 0.203				

Table 2: Pooled model results for August 2015-2022

	coeff.	std.err	t-ratio	p-value
Constant	0.000	0.000	-0.763	0.446
CNY	0.107	0.019	5.600	0.000***
VIX	0.002	0.001	4.206	0.000***
EMBI	0.026	0.003	8.947	0.000***
DTWEXEMEGS	0.318	0.016	20.18	0.000***
BUSDIN	0.207	0.010	20.18	0.000***
COMM	-0.011	0.005	-2.192	0.028**
REPO	-0.001	0.000	-3.273	0.001***
F-statistic: 460.8 p-value: 0.000*** Adj. R-squared: 0.211				

Table 3: Pooled model results for 2020-2022

	coeff.	std.err	t-ratio	p-value
Constant	0.000	0.000	1.192	0.233
CNY	0.103	0.035	2.944	0.003***
VIX	0.001	0.001	1.165	0.244
EMBI	0.045	0.005	9.923	0.000***
DTWEXEMEGS	0.185	0.028	6.561	0.000***
BUSDIN	0.302	0.020	15.43	0.000***
COMM	-0.019	0.008	-2.484	0.013**
REPO	-0.001	0.000	-2.550	0.011**
F-statistic: 186.7 p-value: 0.000*** Adj. R-squared: 0.251				

Source of *Table 1-3*: Own estimations. Variables are used as first differences of logarithms.

Significance codes: *** $p < 0.01$, ** $p < 0.05$

The results show that in the full sample (*Table 1*), the Chinese currency has a significant impact on the daily exchange rate changes of the 8 regional currencies. The estimated coefficient suggests that ceteris paribus, a 1% change in the CNY exchange rate is expected to be coupled with a 0.05% change in the AP currencies' exchange rates. The positive sign shows that changes tend to happen in the same directions. It is important to note that all control variables, except the one-week Chinese repo rate, are significant. The signs of the β_2 coefficients show reasonable relationships (with all other things unchanged). Investors' expectations of higher volatility (higher *VIX*) seem to come along with the depreciation of AP currencies (due to risk aversion). The same is true for the emerging market bond composite (*EMBI*): higher emerging market yields also point to increased risk perception, and thus, the devaluation of our currencies. As for the coefficients of the USD indexes (*DTWEXEMEGS* and *BUSDIN*), their higher value indicates the appreciation of the USD in both cases, which is reasonably coupled with the depreciation of the selected AP currencies. At the same time, higher commodity prices (*COMM*) might involve an appreciation in the AP region as these economies usually benefit from price increases of raw materials. (The significance and the signs of the β_2 coefficients remain almost the same in our models over time. One notable exception is *REPO*, which we discuss below.)

As we noted earlier, the exchange rate mechanism of the CNY changed substantially in August 2015 (before the SDR inclusion in 2016). Our sample with observations between September 2015 and January 2022 (*Table 2*) shows that the coefficient of the *CNY* was not only significant, but it also increased, even doubled. This outcome is similar to the results of Marconi (2017) although the time series in her sample were certainly shorter. Thus, we can establish that the new central parity quoting mechanism, which was a step closer to market demand and supply, helped to extend the regional impact of the Chinese currency.

Note that in this period, *REPO* became significant. In other words, the one-week repo interest rate set by the PBOC directly appeared as a relevant factor in the Asia-Pacific FX markets. This hints at the growing international importance of Beijing's monetary policy. (From September 2015 onwards, higher repo rates tend to be accompanied by the appreciation of AP currencies against the USD.) This finding is generally in line with the strengthened role of China in the global economy and the process of RMB internationalization.

Regarding the third subsample covering the pandemic period (*Table 3*), the coefficient of the *CNY* is still significant and does not change substantially. This result is relatively positive from the viewpoint of the renminbi: the outbreak of the coronavirus crisis initially threatened with a severe economic slowdown and a fall in international financial transactions; however, these obstacles did not prevent the renminbi from maintaining its role in the Asia-Pacific region. This finding is remarkable because for instance, Fang and Cao (2021) found that the influence of the Chinese currency weakened in the countries of the Belt and Road Initiative during the pandemic. In light of their result, we might conclude that South and Southeast Asia, along with Australia and New Zealand, represent the core area of the growing economic power of China. Strengthening trade, investment and financial ties with these countries will be a key interest of Beijing, and the region will continue to be the mainstay of the BRI and the connected Maritime Silk Road in the future.

Overall, our results suggest that the importance of the RMB has increased in the Asia-Pacific FX markets since 2015, and the pandemic has not broken its influence, either.

Limitations

Explaining changes in the foreign exchange market is undoubtedly a difficult task as several unobservable factors may influence price movements. The CNY exchange rate is also dependent on the explanatory variables that we used, so the question of endogeneity may arise. Through comparing the model specifications with and without the *CNY* variable, we could ensure that the explanatory power increased, and the significance of

the CNY also confirms that it plays a significant role in the exchange rate changes of the selected AP currencies.

CONCLUSIONS AND OUTLOOK

China has grown at an enormous pace during the past decades and its financial reforms have paved the way to becoming one of the most important superpowers in the world. China's regional impact is indisputable in several areas of international relations, most notably as a result of the Belt and Road Initiative. However, the academic literature about its relative importance in global financial markets is still relatively scarce as the country is still on the way to opening-up its financial markets. The gradual introduction of RMB convertibility, flexibility and its inclusion into the IMF's SDR basket all contributed to strengthening the global and regional importance of the Chinese currency.

In our paper, we presented a simple panel regression framework that aimed to uncover the relationship between daily exchange rate changes of the RMB and those of 8 Asia-Pacific currencies (with floating or free-floating regimes according to IMF classification). Our results show that the renminbi became more relevant in the region after 2015, compared to earlier years. This suggests that the reform of the central parity quoting mechanism in the onshore FX market was a significant step by China to better reflect market valuations. This, in turn, helped the RMB to take a more pronounced role in influencing exchange rate changes in the region. While the pandemic has posed severe challenges to global and regional financial integration, the Chinese currency succeeded in maintaining its significance, at least in the neighborhood of the East Asian giant, i.e. Southeast Asia and the Pacific.

Looking ahead, announcements and policy frameworks show that China will stick to the policy of "reform and opening up" and accelerate the measures which are necessary for a further increase in cross-border RMB transactions. These policies are quite complex, ranging from the reduction of investment restrictions (the so-called "negative lists") to the creation of a new macroprudential policy framework for outbound RMB investments. As a result of such policies, onshore investors gain more opportunities to tap foreign financial markets, through initiatives like the Shenzhen-Hong Kong Stock Connect or the Shanghai-London Stock Connect Scheme. International investment banks have recently been granted licenses to start operations in mainland China. Last but not least, one should not forget about the substantial progress China has made in terms of digitalizing its currency and adapting it to the requirements of the digital age. Quite large-scale tests of the Chinese central bank digital currency (labelled as DC/EP or e-CNY) have been taking place since 2020. This project has the potential to create some favorable features of the RMB which might be necessary for its global acceptance and use in the long run.

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DATA SOURCES

- Bloomberg. Tickers are available upon request. Downloaded from the terminal on 08.01.2022
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AUTHOR BIOGRAPHIES

Eszter BOROS, PhD is an International Expert at the International Relations Directorate of the Central Bank of Hungary. She joined the MNB in 2016 as a Methodology Expert in banking supervision. In 2020, she became an International Expert specializing in economic analysis with a focus on China and the RMB, as well as EU-China relations and Eurasian cooperation. She earned her PhD from Corvinus University of Budapest in 2021. Her email address is borosesz@mnbb.hu

Gábor SZTANÓ has been an Economist at the Monetary Policy and Financial Market Analysis Directorate of the Central Bank of Hungary since 2014 and he is a member of the financial market monitoring team. He earned his master's degree in Economics from Corvinus University of Budapest, specializing in Bank and Public Finance and currently is a PhD candidate at CUB. His main field of research is monetary policy in emerging countries. His email address is sztanog@mnb.hu

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