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Working Paper

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Discussion Paper, No. 2021/9

Provided in Cooperation with:

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Suggested Citation: Zucker Marques, Marina (2021) : Financial statecraft and transaction costs: The case of renminbi internationalization, Discussion Paper, No. 2021/9, Freie Universität Berlin, School of Business & Economics, Berlin,
<https://nbn-resolving.de/urn:nbn:de:kobv:188-refubium-30516-1>

This Version is available at:

<https://hdl.handle.net/10419/233596>

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Financial statecraft and transaction costs: the case of renminbi internationalization

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School of Business & Economics

Discussion Paper

Economics

2021/9

Financial statecraft and transaction costs: the case of renminbi internationalization

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The scholarly debate on currency internationalization focuses on country characteristics and policies as the main determinants in currency competition. However, this literature has neglected the fact that, given the intertwined nature of the international monetary system, other countries' actions and the functioning logic of international finance can also impact a currency's international status. This article shows that RMB usage has been boosted not only by Chinese statecraft but also by economic actors' recent difficulties in using the dollar. The American financial sanctions against Chinese trade partners, the cyclical instability of international finance, as well as peripheral countries' low inflows of dollars have encouraged firms and banks to use the renminbi as an alternative to the dollar. In addition to contributing to a broader understanding of the drivers of currency internationalization, this article proposes a model that explains the mechanisms that push firms and banks away from the incumbent international currency. I posit that changes in domestic and international conditions influence currency transaction costs, thereby propelling economic actors to increase their use of currencies with relatively lower transaction costs. Interviews with Chinese senior officials from the PBOC and the Ministry of Commerce, manufacturing companies, and bank staff are the main primary sources for this article. I triangulate this information with news reports and speeches both in Chinese and English.

Keywords: International monetary system, renminbi internationalization, financial statecraft, dollar, currency competition

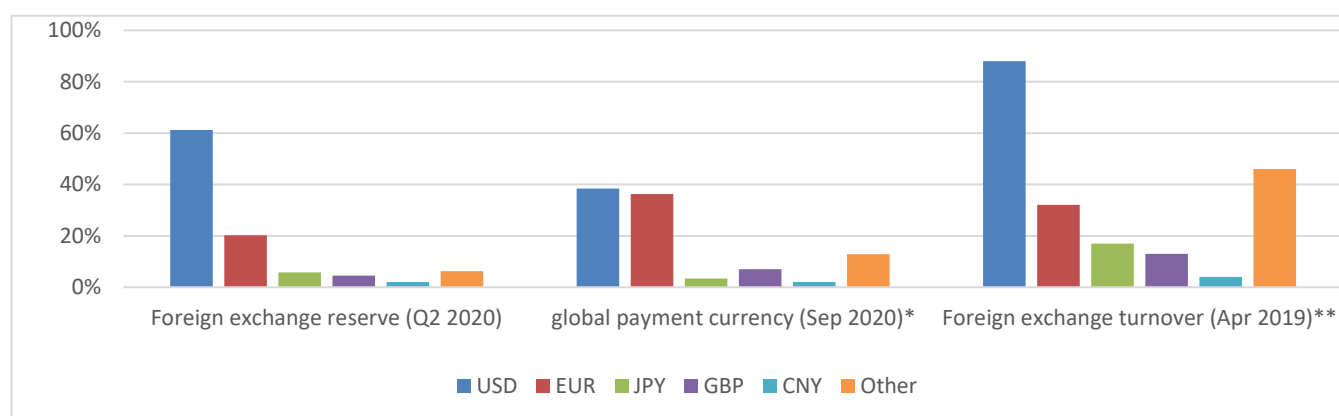
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1. Introduction

There are over 160 domestic currencies in the world,¹ but only a handful of them also play the role of a unit of account, medium of exchange, and store of value beyond their jurisdiction, and therefore can be considered international currencies (Cohen, 1971). The dollar is by far the most widely adopted international currency (see graph 1), but to a lesser degree, the euro, the Japanese yen, the Swiss franc, the British pound, and most recently the renminbi, are also adopted for international transactions.

Graph 1. Asymmetry of currency adoption in the international monetary system.



*Source: IMF, SWIFT, BIS. Note: *Including intra-European transactions; **Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.*

There are many advantages to being at the top of the international monetary hierarchy; from the economic point of view, international seigniorage gains, macroeconomic flexibility, and price stability are the most cited (Cohen, 2012; Eichengreen, 2011; Gopinath, 2015; Papaioannou and Portes, 2008; Zhang and Tao, 2014). In addition, issuing countries can increase their political leverage and international reputation (Cohen, 2012; Helleiner, 2008; Helleiner and Kirshner, 2009; Kirshner, 1995; Norrlof,

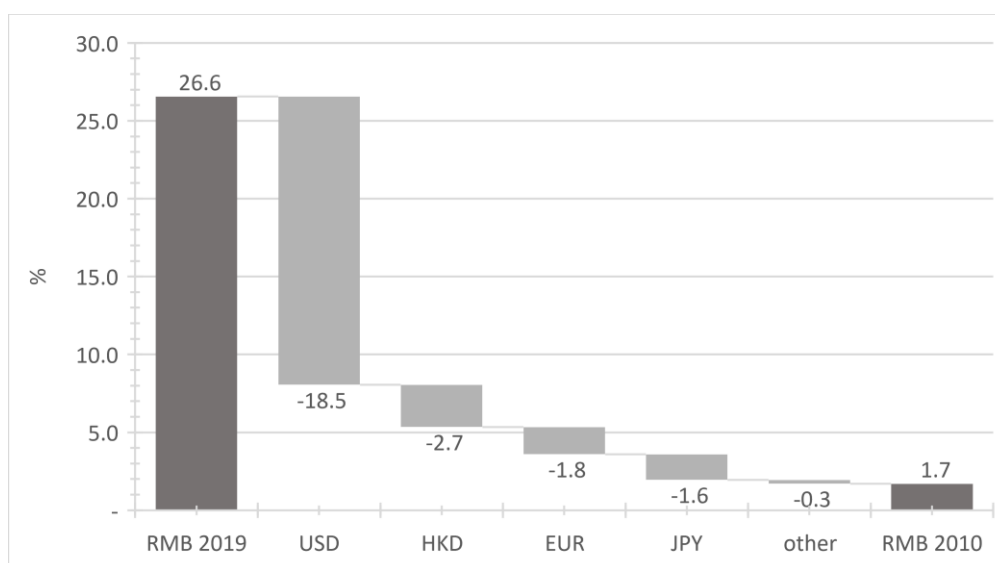
¹ Based on the IBAN.

2014; Strange, 1971). But the international monetary hierarchy is highly path-dependent, so any new entrant to the hall of international currencies faces an uphill battle (Eichengreen et al., 2005; Matsuyama et al., 1993).

Despite this challenge, international use of the renminbi has expanded by an unprecedented degree. Between 2010 and 2019, the renminbi climbed from the world's 35th to the 5th most used payment currency (SWIFT, 2020). During the same period, cross-border renminbi payments increased from 630 billion to 15.86 trillion renminbi, and currently, over 25% of Chinese cross-border payments are denominated in this currency. Moreover, by 2020, more than 70 central banks held renminbi-denominated assets in their portfolio (PBOC, 2020). To date, there is no consensus about the drivers behind renminbi internationalization, despite extensive investigation (Bowles and Wang, 2013; Eichengreen and Kawai, 2014; Prasad, 2017; Subacchi, 2016; Yu, 2014). As Eichengreen and Kawai put it: “whether wider international use of the RMB is a spontaneous market reaction or a manifestation of the PRC’s growing ability and willingness to influence the shape and structure of the global economy is a matter of interpretation” (Eichengreen and Kawai, 2014 p.3).

Most puzzlingly, data on cross-border payments between China and the rest of the world show that the expansion of the renminbi has largely come at the expense of the dollar’s market share. Although the absolute volume of dollar transactions between China and the rest of the world has increased during the period analyzed, its market share contracted by 18.5%, as graph 2 shows.

Graph 2. Changes in RMB cross-border payments and currency market share substitution, 2010-19, (% of total cross-border payments)



Source: Own elaboration based on data from the State Administration of Foreign Exchange (SAFE).

Given the inertia the international monetary system, and the supremacy of the dollar's status, why did economic actors decide to switch from dollars to renminbi in this period? This article sheds light on this question by collecting in-depth information about actors' decision-making on currency adoption. I draw on 13 semi-structured open-ended interviews with commercial and development banks, manufacturing companies from light and heavy industries as well as senior Chinese policymakers from the central bank and the Ministry of Commerce, which were collected during fieldwork in China in 2018 and 2019. I triangulate this information with surveys, news reports, and leadership speeches both in Chinese and English.

The interviews conducted show that, although PBOC policies contribute to the rising use of the renminbi, they are not the only driver. For many firms and banks, the difficulty in accessing dollar services encouraged them and their commercial partners to use the renminbi as an alternative. Specifically, interviewed actors reported the

American financial sanctions on their commercial partners as a key obstacle. Moreover, the dollar's cyclical liquidity shortage in foreign markets,² as well as limited dollar inflows to peripheral countries, were also acknowledged as an important reason for switching to renminbi transactions.

In addition to systematically identifying economic and political drivers that encouraged actors to substitute the renminbi for the dollar, this article also proposes a model that explains the *mechanisms* that compel economic agents to switch from an incumbent international currency to a new entrant. The model was developed inductively based on primary material collected during fieldwork, and is also informed by insights from the economic literature on transaction costs (Eichengreen et al., 2005; Krugman, 1984; Matsuyama et al., 1993). The model highlights that changes in currency transaction costs, influenced by changes in domestic and international conditions, impel economic agents to increase their use of currencies with relatively lower transaction costs.

This article contributes to two debates on the international political economy. The first one concerns the role of financial statecraft (FS) (Armijo and Katada, 2015; Katada et al., 2017) and the state use of financial and monetary leverage to achieve foreign policy goals. According to Armijo and Katada's (2015) systematization, financial statecraft can be classified as *offensive or defensive* depending on whether the primary goal is, respectively, to influence foreign states, market conditions, and governance regime, or to create domestic policy space. Moreover, FS can be

² In this article, the term "dollar shortage" refers to the difficulty of actors obtaining dollar credits because of lenders' changes in liquidity preference. It does not refer to the scarcity of dollar assets resulting from American chronic current account surpluses during the post-war period, as used in the "Triffin Dilemma" debate (Bordo and McCauley (2018); Triffin (1960).

characterized as *bilateral or systemic* according to whether it is targeted at specific nations or on altering conditions in the overall international system.

Although renminbi internationalization can be placed within these categories, it also illustrates something else: it is an example of what happens when the financial statecraft of different countries *collides*. Specifically, Chinese statecraft is an attempt to neutralize the effect of American statecraft, although the latter was not explicitly aimed at China.

This article also contributes to work on the political economy of networks (Farrell and Newman, 2019; de Goede, 2020), which sheds light on how powerful states can use global networks—such as payment and message systems, the internet, supply chains—to coerce others. Although this literature stream does include consideration of vulnerable actors' responses to coercion, it is largely focused on *the state's* responses. Here, I present an empirical case where an alternative network was created bottom-up and developed organically with the active participation of non-state actors. Although this process was authorized by Chinese policymakers, banks and firms took the lead in creating a payment alternative that could bypass the American sanctions targeted at their commercial partners.

This article is organised as follows: after the introduction, I first show how economists have adopted the concept of transaction costs to analyze international currency status, and then I demonstrate that this concept can be useful for a systematic understanding of the political economic aspects of currency competition. The third section presents the research design and the model that captures the actors' decisions about switching from a dominant international currency to a new entrant, the renminbi, using the concept discussed. Sections 4 and 5 contain the empirical part of the study. I first present evidence of how Chinese policies have reduced renminbi transaction costs

and then how American statecraft and the cyclical instability of international finance have increased the dollar's transaction costs. The final section concludes.

2. The mechanisms of international currency competition

The literature on international currencies is split between the authors who argue the international monetary system tends to unipolarity (Kindleberger, 1967; Krugman, 1984; Matsuyama et al., 1993) and those who defend the claim that a multicurrency system is possible (Eichengreen et al., 2018). What is beyond dispute between the two groups is that the existence of *transaction costs* is the main force behind the tendency towards concentration on one currency.

According to the first group (also referred to as the “traditional” or the “Harvard” view), the international monetary system only has room for one currency because the economic size of the leading economy and its currency's high trading volume dramatically reduces the costs of operating in that currency. In Kindleberger's (1967, p. 11) words: “[...] for better or worse [...] the choice of which language or which currency is made not on merit, or moral worth, but on size”. This view argues that diversifying currency use becomes prohibitively costly for everyone. For the authors subscribing to this view, the impact of the scale of operations in reducing transaction costs is so strong and self-reinforcing that it leads to a “winner takes all” effect and inertia in the use of a key currency.

The second view (referred to as the “new” or “Berkeley” view) also accounts for the importance of market forces in reducing a currency's transaction costs. But these authors recognized that, in addition to the scale of operations, technological development—such as high-speed communication—and the existence of future markets can reduce the cost of exchanging currencies. Moreover, for the “Berkeley” view,

market forces are less self-reinforcing, therefore, more domestic currencies can be adopted internationally at the same time (Eichengreen et al., 2018).

Although the “new” view amplifies the factors reducing international currency transaction costs, such factors are still narrowly defined, and the the state's role is almost an afterthought. While the “traditional” view relies on the “invisible hand” for its explanation, the “new” view is still hesitant in grasping the impact of state actors' actions.

Recent studies have started to shed light on more aspects that shape the transaction costs of currencies abroad and how states play a role in this process. For example, Rhee and Sumulong (2014) show that the construction of an adequate payment infrastructure can reduce the costs of bilateral exchange between non-US dollar currencies, thus eliminating the need to use the dollar to triangulate the operation. Other examples of how policymakers can shape the transaction costs of currencies are provided by Bahaj and Reis (2020) and Eichengreen and Flandreau (2012). They show (for the renminbi and the dollar respectively) that central banks can create institutional arrangements that reduce the cost of credit abroad and therefore jumpstart the use of their currencies.

Governments can also (intentionally or not) increase the cost of using their currency abroad. Cohen (2019) gives historical evidence that Germany in the 1960s and Japan in the 1980s tried to actively prevent the international use of their currencies by impeding non-residents' access to local banking and capital markets, imposing complex regulations, and levying taxes. Recently, although not deliberately, US foreign policy actions—i.e., sanctions on oil-rich countries—have also increased the expected costs of international use of the dollar, as argued by McDowell (2020).

Apart from economic size and trading volume, there are many other economic and political factors shaping currency transaction costs, as demonstrated by the work of Rhee and Sumulong (2014), McDowell (2020), Bahaj and Reis (2020), Eichengreen and Flandreau (2012), and Cohen (2019). But, until now, these factors have only been analyzed individually. The first contribution of this article is to systematize the relevant variables and present a model that incorporates those variables altogether into a coherent analysis.

Furthermore, this article makes a contribution by giving attention to the intertwined nature of the international monetary system. Previous studies have focused on how country characteristics and policies affect the status of their currencies (Bahaj and Reis, 2020; Cohen, 2019; Eichengreen and Flandreau, 2012; McDowell, 2020). There are exceptions, such as Eichengreen et al. (2005), who explain the “original sin” (that is, the difficulty for small countries of issuing foreign debt in local currency) and the concentration of foreign debt in few currencies more as a result of aspects of the international monetary system than of an individual country’s characteristics or policies. This article contributes to the debate by identifying other external forces that do not drive currency concentration, but rather dissipation. In particular, I focus on how other countries' actions and the functioning logic of the international monetary system have contributed to increasing renminbi cross-border use. To be sure, Farrell and Newman (2018) have suggested that the American sanctions on Iran could impel countries to use substitutes, especially the euro. This article not only shows empirically that American statecraft has indeed pressured actors to look to the euro and the renminbi as alternatives, but also shows how the cyclical instability of finance and the limited inflow of dollars in peripheral countries can enhance the status of a new entrant currency, such as the renminbi.

3. Actor's choice of international currencies

Although countries may want to promote their currencies, ultimately, the decision on which currency to adopt lies with firms and banks (Cohen, 2019; Cohen, 2015; Eichengreen et al., 2005). Even in countries like China that have stronger public sector participation in the economy, governments do not manage such micro-level decisions. As such, based on the concept of transaction costs—which is prominent in the debate on currency internationalization—and on the access to a country's payment system, the following section models actors' decision making when switching from an already adopted currency (henceforth incumbent) to a new one (new entrant).

3.1. Research design

Most articles that provide economic models build them from empirical quantitative data. Given the nature of the phenomenon investigated here, this article will not follow this conventional research design, for it is not possible to satisfactorily quantify variations in a currency's transaction costs, nor firms' access to national payment systems. Therefore, this article's model design is based on grounded theory (GT). Broadly speaking, this methodology establishes guidelines for a systematic comparison of qualitative data, and the inductive development of theories (Glaser and Strauss, 2017). Although grounded theory is not widespread in economic research, Finch (2002) and Lee (2005) advocate for broader use of this methodology in the field. According to Finch (2002, p. 214), "Grounded theory procedures provide a basis for economists to make effective use of case studies, and of qualitative and quantitative data in general, by connecting case studies together in order to generalize, and in so doing verify, emerging novel contributions to knowledge".

In terms of data, the construction of this model is based on primary data collected during fieldwork in Shanghai, Beijing, Hangzhou, and Guangdong in 2018

and 2019. For this article, I use information from 13 interviews with individuals including senior officials from the Chinese central bank (the PBOC) and the Ministry of Commerce (MOFCOM), representatives of commercial banks (Bank of China, Bank of Communications, China Construction Bank, and Bank of Kunlun), development banks (China Development Bank, and New Development Bank), as well representatives of light and heavy manufacturing companies.³ I followed a process of theoretical sampling for controlled data collection (Glaser 1978). The objective was to cover a broad variety of economic actors in order to understand diverse motives for international currency choice. The sampling strategy was snowballing (Creswell and Poth, 2018): from initial contacts with academics and the business community I reached the abovementioned interviewees. The sampling size was determined based on the GT principle of “theoretical saturation”, which is when the researcher carries on with subsequent interviews until the point that they no longer contribute to the model's development (Finch, 2002). All the interviews were semi-structured with open-ended questions. I triangulate and complement this primary data with surveys, speeches from the firms’ leadership, news, reports, and secondary literature on currency internationalization in English and Chinese.

3.2. A model for international currency's choice

I posit that there is a higher probability of an economic actor reducing, or abandoning, the use of an incumbent currency when its *relative transaction costs increase*. It is possible to explain this decision in the form of the following basic equation, where TC stands for transaction costs:

³ A list of the interviews can be found in the appendix.

$$(1) \quad \textit{Probability switch to new entrant} = \frac{\Delta TC (\textit{new entrant})}{\Delta TC (\textit{incumbent})}$$

If this ratio decreases, *ceteris paribus*, there is a higher probability that firms and banks will avoid using the given incumbent currency. If this proportion increases or remains the same, actors will continue using the incumbent currency. It is important to emphasize that this is a matter of probability, so even if this ratio increases because the transaction costs of the incumbent currency have increased, it is still possible that some actors will just accept the higher transaction costs and continue with operations in the vehicle currency.

The probability of an actor switching to the new entrant currency also varies depending on the actor's characteristics. In my interviews, two main aspects were relevant: actors' nationality, and the location of the foreign trade or investment partner. When the actor is from a country that issues the newcomer currency, they are more responsive to small changes in the relative transaction costs of that currency. So, a Chinese firm is more susceptible to switch to renminbi operations when the renminbi relative transaction costs decrease than a British company, even if the British company operates in China. The reasons for this discrepancy lie in the accounting system, debt, and revenue structures of each company. Finally, those companies that have trading or investment partners in countries that have difficulty accessing the payment system of the incumbent currency country will have strong incentives to abandon or reduce the use of this currency.

Now that the firm's calculus is explained, let us consider the main factors shaping currency transaction costs:

$$(2) \quad TC_{total} = (TC_{pecuniary} + TC_{time}) * AccessPS$$

The first type of transaction cost has been more studied by the literature on currency internationalization. Pecuniary transaction costs include fees, commissions, interest, bid-ask spreads, etc., in sum, all direct monetary costs related to the cross-border use of a currency. The second type, time transaction costs, refers to how fast firms have access to their assets. The speed of cross-border transfers and the completion of foreign exchange-related bureaucratic tasks are the main components of this category.

A decisive component of a currency's transaction costs is whether foreign firms can access the payment system denominated in that currency. When foreigners cannot access the payment system, then the cost of accessing it tends to infinity. In this case, even if the pecuniary and time transaction costs are very low, the overall transaction costs tend to infinity. As the empirical part of this study will demonstrate, this is the case, for example, for Chinese companies trading with Iranian firms. Undoubtedly, the dollars pecuniary and time transaction costs are very low, but it does not matter because Iran is basically excluded from the dollar payment system. Therefore, in this case, the total dollar transaction costs tend to infinity. In this situation, even if the renminbi pecuniary, time, and information transaction costs are not as low as the dollar's, Iranian firms *can* at least access the renminbi payment system, so the total renminbi transaction costs will be much cheaper compared to those of the dollar.

Until 2009, the total transaction costs of cross-border renminbi use also tended towards infinity because, as I show in section 4.1 of this article, until that year, Chinese banks could not offer renminbi correspondent bank accounts to foreign banks, and the Cross-Border Inter-Bank Payments System (CIPS) did not exist. Therefore, until 2009, the total renminbi transaction costs relative to the dollar tended towards infinity, and the use of the dollar for cross-border transactions was the best option. The

following section will show empirically how the transaction costs of the renminbi have reduced since 2009 while those of the dollar have increased.

4. Chinese statecraft, reducing the transaction costs of cross-border renminbi use

Renminbi internationalization is mostly a company behaviour, *government only gives some encouragement*. (Excerpt from interview with a former director of department from the Chinese Ministry of Commerce,⁴ emphasis added)

We are not pushing for the international use of the renminbi; *we are giving support to market participants* interested in adopting it. (Excerpt from interview with senior PBOC official,⁵ emphasis added)

The above excerpts from interviews with Chinese officials illustrate the policymakers' approach to renminbi internationalization policies: they favor facilitating the conditions for market participants to adopt renminbi for cross-border transactions. As the following subsections will show empirically, designated policies facilitated renminbi adoption by 1) enabling non-residents to access the Chinese payment system, 2) reducing pecuniary transaction costs, and 3) reducing time transaction costs.

4.1 Access to the Payment system

Whether a non-resident can access the Chinese payment system is a crucial element for renminbi cross-border use. One interviewee,⁶ a Bank of China director, observes: "If a location is able or not to accept renminbi is a very important condition. If there is no possibility to open a renminbi account, how are they going to receive renminbi?"

⁴ Beijing, October 2019. Own translation from Chinese.

⁵ Senior Official, Shanghai, November 2018.

⁶ Shanghai, September 2019. Own translation from Chinese.

For the last 30 years, China has been integrated into the world economy, and into the dollar payment system.⁷ However, foreign banks' connection to the renminbi-denominated payment system is a recent phenomenon that has its roots in the Pilot Program of Renminbi Settlement of Cross-border Trade Transactions issued by the PBOC in conjunction with other authorities in 2009. For the first time, banks in China could offer renminbi-denominated correspondent bank accounts to overseas financial institutions, thereby enabling those institutions to make renminbi-denominated transactions for themselves and on behalf of their clients. The same program also selected the Bank of China's Hong Kong and Macau branches to be the first renminbi offshore clearing centers, thus giving overseas financial institutions the possibility to directly access the mainland's payment system from abroad (PBOC et. al, 2009).

Since the pilot program was implemented, an additional 24 renminbi offshore clearing banks have been established covering the 5 continents, as appendix 1 shows. Also, since 2009, renminbi-denominated correspondent bank accounts have surged in number. From 2010 to 2012, Hong Kong's correspondent banking relations denominated in renminbi increased from 200 to 1,100 accounts, as disclosed by the region's monetary authority (Yu, 2012). Bank of China, the country's largest commercial bank, reported that by 2014 alone they had offered over 1,200 renminbi correspondent bank accounts to overseas banks (He, 2014). More recent and comprehensive research from the consulting group Accuity shows the same tendency. Between 2012 and 2016 the worldwide number of RMB correspondent bank accounts increased from 3,600 to 8,800 (Accuity, 2017).

⁷ It is estimated that the Clearing House Payment Company (CHIPS) is responsible for handling 95% of cross-border dollar transactions (Federal Reserve Bank of New York, 2002). By April 2020, almost 10% of CHIP's 5387 members were from Mainland China (CHIPS, (2020).

Not only did the number of correspondent bank accounts and clearing banks expand, but the PBOC also created a new and more efficient channel to connect non-residents to China's payment system. In 2015, the PBOC launched the Cross-border Interbank Payment System (CIPS), which streamlines the transmission of payment messages and funds. With good reason, it is referred to by PBOC officials as the "highway" to renminbi internationalization (CIPS, 2021; PBOC, 2018b).

Chinese policymaking follows a logic of gradualism and experimentation (Brunnermeier et al., 2017); regarding renminbi internationalization policies, the same rationale was applied. Although non-residents could open a renminbi account as early as 2009, the use of these accounts was restricted. In 2009, only 365 firms, from Shanghai and the Pearl River Delta metropolitan area, exporting to partners from ASEAN regions, could use renminbi for cross-border transactions. Over time, Chinese authorities expanded the geographical scope and the type of transactions allowed in these programs. By 2013, all domestic companies could use renminbi for trade payments and for FDI, and banks could offer renminbi loans to projects abroad. In addition, in late 2011, China created the Renminbi Qualified Foreign Institutional Investor program (RQFII) which, by a quota mechanism, gradually granted access to the mainland's capital markets for foreign investors (Central Government Portal, 2009; PBOC et. al, 2013, 2012, 2009; Prasad, 2017).

Although China's capital account opening process is not yet complete (Miao and Deng, 2020), and the international reach of the renminbi's payment system still pales in comparison to the dollar's,⁸ the fact is that within 6 years China has constructed

⁸ By 2016, the number of renminbi correspondent bank accounts overseas represented roughly 10% of the dollar's (Accuity 2017). The number of CIPS participants is 5 times lower than its American analogue, the CHIPS.

channels that allow non-residents to access the mainland's payment system. This initiative was crucial to *enable* economic actors to adopt renminbi.

4.2 Pecuniary transaction costs

The possibility of using renminbi for cross-border operations does not by itself ensure that actors would switch to this currency. The firms and banks interviewed decided to adopt the renminbi because doing so reduces pecuniary and time transaction costs; this section focuses on the former type. Specifically, the primary sources collected show three types of pecuniary costs that could be diminished or even avoided: currency hedging, credit, and commissions and fees. In addition to the Renminbi Settlement of Cross-border Trade Transactions program, which started as a pilot scheme in 2009, other policies have also contributed to the reduction of renminbi pecuniary transaction costs, as this section shows in detail.

4.2.1 Exchange rate risk and hedging cost

Under a fixed exchange rate regime, firms and banks do not have to hedge against exchange rate risks. This was the case for Chinese actors from 1994 to 2005 while the renminbi was pegged to the dollar. In 2005, Chinese policymakers started to allow renminbi daily fluctuations within a range that started with 0.3% and evolved to 2% over time. Since 2015, in addition to daily fluctuations, the PBOC also started tolerating broader accumulated fluctuations (China Daily, 2015; Das, 2019). It is not coincidence that, between May and November 2020, the CNY/USD exchange rate oscillated between 7.12 and 6.57 (data from the China Foreign Exchange Trading Center).

Under the current regulations, it is much more important for some companies to find ways to protect themselves from exchange rate fluctuations. One strategy is to sign forward or option contracts, but it comes with a *fee*. From some firms' point of view,

adopting the renminbi for cross-border transactions is a costless way to gain protection from foreign exchange fluctuation. This motive for adopting the renminbi was mentioned in 6 interviews.⁹

“When renminbi cross-border settlements started to be allowed”, explains an interviewee from a pet products supplier,¹⁰ “we locked our prices in renminbi and asked some of our foreign customers to pay in renminbi. In this way, we could avoid exchange rate changes, which have caused some unexpected losses and gains for us”. She explained that some clients still pay in dollars but then “we [interviewed company] sign a forward contract with the bank to lock the dollar price. This means we have to pay a fee and keep a deposit at the bank to guarantee the contract”.

Hedging against exchange rates was also an important motive for currency choice in bank loans, as an interviewee from the New Development Bank reported:¹¹

We are interested in lending in local currency because we do not want our clients dealing with currency risks. Many of our clients have local revenue and long-term projects. As much as possible, we want them to be able to mitigate this huge risk. One of the solutions is to issue credits in the client’s currency because the bank cannot take that risk either. We have to avoid this currency mismatch in our books, so we neutralize our risk exposure by issuing and lending the same amount in the same currency.

In 2019, a survey conducted by the PBOC with 500 enterprises operating in China (including foreign-owned firms) shows that the main reason for companies

⁹ With 1) accountant from pet products supply company, Shanghai, September 2019; 2) analyst from China Construction Bank, Shanghai September 2019; 3) research analyst from Bank of Communications, Shanghai September 2019; 4) senior official from New Development Bank, Shanghai September 2019; 5) senior official from People’s Bank of China, Shanghai November 2018; 6) former director of department from Ministry of Commerce, Beijing October 2019.

¹⁰ Shanghai, September 2019. Own Translation from Chinese.

¹¹ Senior Official, Shanghai September 2019. Own translation from Portuguese.

choosing renminbi cross-border payments was “mitigating foreign exchange risks”, as 65% of respondents chose this option (PBOC, 2020). A similar pattern was found in the survey conducted with 3,900 Europe-based corporate clients that have business interests in Asia. In the same year, 73% of the participant firms indicated that currency hedging played an important factor in using the renminbi (Commerzbank, 2019).

4.2.3 Credit cost

“From a commercial bank perspective, I think there are two aspects for currency use: first is the currency our clients need to use, and the second is the *credit cost* of currencies” (own emphasis). This excerpt from an interview with a Bank of China director illustrates one more aspect considered by economic actors when choosing a currency, namely, the interest rate.¹²

Interest rates are not homogenous among currencies. As de Paula et al. (2017) explain, the currencies of peripheral countries tend to have higher interest rates when compared to those of central countries. According to the authors, the reason behind this pattern is the lower liquidity premium and the higher exchange rate volatility in peripheral countries, which compel policymakers to increase the domestic interest rate in order to attract foreign capital.

The structurally higher interest rate of peripheral economies, as well as impacting their employment, output, and debt levels, also reinforces their currency’s subordinated position in the international monetary hierarchy. As interviews with bank representatives have shown, under ordinary macroeconomic circumstances, it may be more advantageous to take a loan in hard currencies and sign a forward contract to gain protection from exchange rate volatility, rather than to use domestic currencies directly.

¹² Shanghai, September 2019. Own translation from Chinese.

As a senior official from the New Development Bank noted, “Although we are interested in using local currencies, in many cases it is beneficial to lend and borrow in dollars. Given our bank’s rating,¹³ we can issue dollar debt at a very competitive interest rate and transmit this advantage to local clients”. According to one interviewee,¹⁴ a director from Bank of China, exchange rate tendencies can even amplify the advantage of using hard currencies: “under the situation of renminbi devaluation expectation, offering a loan in the dollar and making a forward or swap contract is the cheaper option for the client”.

Under other conditions, however, the advantages of taking hard currency credit disappear. The cost and availability of credit are intrinsically connected to the cyclical character of capitalist economies. While actors experience easing in financial conditions during expansionary phases of the cycle, in bust phases interest rates soar and borrowing opportunities shrink (Borio, 2012; Kindleberger, 1978; Minsky, 2016). According to an interviewee who is a PBOC senior official in Beijing,¹⁵ the seed of renminbi internationalization lies in the credit crunch for hard currencies during the 2008 crisis:

Initially we did not plan the renminbi internationalization. It was an opportunity that emerged from the global financial crisis. By the time, the PBOC was contacted by many central banks and some governments because the foreign exchange rate of the USD and euro has depreciated by 10% or 20%. So, the market was *very short of liquidity* in USD and Euros, many companies and governments *needed liquidity* and they see at the time RMB was a fairly stable and strong currency. They contacted the PBOC to allow them to use the RMB (own emphasis).

¹³The Japan Credit Rating Agency assigned AAA to New Development Bank’s long-term issuing, which is higher than some individual member countries' credit rating.

¹⁴ Shanghai, September 2019. Own translation from Chinese.

¹⁵ Beijing, October 2019.

According to another interviewed PBOC senior official from Shanghai,¹⁶ allowing the cross-border transaction of renminbi was a solution designed to support trade during times of constrained international financial conditions; as he put it, “with the dollar shortage of the period, trading directly in a local currency supported the maintenance of trade and investment relations with commercial partners”.

Chinese policymakers cannot mitigate the cyclical instability of foreign currencies in international markets. Nonetheless, as interviews with PBOC senior officials demonstrate, in a constrained macroeconomic situation they could provide the renminbi as an alternative for cross-border transactions. Over time, the PBOC has also built overseas institutions—namely, *swap agreements* and *renminbi offshore clearing centers*—which ease renminbi credit constraints abroad and smooth its credit cyclicity.

Currency swap agreements establish credit lines between central banks. By the end of 2020, China had negotiated 39 of these agreements, with a total value of 3.7 trillion RMB (PBOC, 2020).

Different from the FED swap agreements, which were designed specifically for financial market stability, officially the PBOC swap lines were also designed to facilitate trade and investment in renminbi (PBOC, 2020). As an interviewee from the Bank of Communications,¹⁷ one of the five largest commercial banks in China, explains:

Until now, one problem that exists specially in regions like east-Asian countries, when we sell products there is no way to use RMB for settlement if there is no SWAP agreement between China and the country. There is not enough renminbi to settle the transaction if they do not have enough RMB reserves. Having the

¹⁶ November 2018.

¹⁷ Research analyst, Shanghai September 2019. Own translation from Chinese.

renminbi swap agreement helps bringing more convenience when carrying out trade and investment in RMB.

Song and Xia (2020) and Bahaj and Reis (2020) show that there is a correlation between signing a PBOC swap agreement and using renminbi for cross-border payments (measured by SWIFT messages). Bahaj and Reis (2020) find that signing renminbi swaps increases the probability of a country using RMB by 20%. For the authors, such arrangements increase renminbi liquidity abroad and set a ceiling for working capital credit cost abroad. An interview with a PBOC senior official gives more evidence of the swap role as a liquidity supplier:¹⁸ “Swap agreement is mainly for confidence [...] telling the markets that [...] [it] does not matter how much your demand is, I have this line of credit from PBOC, and they can provide us with RMB”.

Swap agreements are not the only arrangements that can ease renminbi credit conditions overseas. In addition to serving as a gateway to the mainland’s payment system, as section 4.1 explains, renminbi offshore clearing banks can also help to put a ceiling on renminbi credit cost abroad. This is because—similarly to foreign central banks that sign swap agreements—renminbi offshore clearing banks also have access to PBOC liquidity. According to one interviewed senior PBOC official,¹⁹ “When they [clearing banks] need liquidity, they can come to us (PBOC), and then we can provide RMB liquidity directly to them”. Moreover, renminbi offshore clearing bank activities can also reduce the bid-ask spread of renminbi assets negotiated in offshore markets. As explained by the same PBOC senior official, offshore clearing banks act as “a market maker, a liquidity provider for the local market, for the renminbi”.

¹⁸ Beijing, October 2019.

¹⁹ Beijing October 2019.

4.2.4 Fees

Exempting overseas investors from fees and taxes is another approach used by Chinese policymakers to encourage renminbi desirability. For instance, in November 2018, China's State Administration of Taxation exempted overseas institutional investors from bond market taxes for 3 years. According to the authorities, the goal was to push forward the opening-up of China's bond market (Liangyu, 2018). This decision makes renminbi-denominated investments, which already offer higher yields compared to those in advanced economies, even more profitable.

Foreign central banks willing to hold renminbi assets in their portfolios also receive pecuniary incentives. As explained by an interviewed PBOC senior official,²⁰ central banks that issue international reserve currencies offer asset management services to other central banks, governments, and international organizations. For instance, if Korea has dollar-denominated reserves, they are maintained by the FED, but if they are in renminbi, the administration is carried out by the PBOC. However, according to the PBOC senior official, "Differently from other central banks, like the FED, we [the PBOC] do not charge them [other central banks and international organizations] for this service [reserve management]. Added to that, we offer one of the best return rates of the market." Although it is not plausible that central banks, foreign governments, and international organizations would decide to hold renminbi-denominated reserves purely because fees are not charged, nevertheless, considering other factors altogether—such as Chinese government bonds high returns and renminbi inclusion in SDR²¹—the omission of these fees brings additional advantages to renminbi holders.

²⁰ Shanghai. October 2018.

²¹ 3,7% p.a. at the time of the interview.

According to PBOC (2020) information, by December 2019, at least 70 foreign central banks held renminbi assets in their portfolio. Although the total volume represents a small fraction of worldwide reserves—2.13% in September 2020, according to IMF—from December 2016 until September 2020, this volume increased by 2.7 times.²²

Using renminbi was able to diminish operation fees not only because of waived exemptions for foreign investors but also because of the new currency pairs offered in China's interbank market, which allowed actors to reduce their costs from conversion fees.

Before 2010, if any firm or bank wanted to trade RMB for a non-USD currency, they had no choice but to use the dollar as a vehicle currency, as there was no direct trading between RMB and other local currencies, with the exception of the Hong Kong dollar. In 2010, this situation was reversed: the renminbi started to be directly quoted against the Malaysian ringgit and the Russian ruble in the mainland's interbank market, and soon other currencies followed suit. Between 2011 and 2018, an additional 23 currencies were available for direct trading in renminbi, as table 1 shows.

²² From approximately 90 billion USD (equivalent) in December 2016 to 244 billion USD (equivalent) in September 2020, according to IMF/ COFER data.

Table 1. Currencies available for RMB direct trading

Since	Currency
2010	Malaysian ringgit, Russian ruble
2011	Vietnamese dong*, Kazakhstani tenge*
2012	Japanese yen,
2013	Australian dollar
2014	New Zealand dollar, Great Britain pound, euro, Singapore dollar,
2015	Swiss franc
2016	South African rand, Korean won, Saudi riyal, United Arab Emirates dirham, Mexican peso, Turkish lira, Norwegian krone, Swedish krona, Danish krone, Polish zloty, Hungarian forint, Canadian dollar
2017	Cambodia riel*, Mongolia tugrik*
2018	Thai baht

*Source: CFETS (2021), PBOC (2020). *Regional trade, only available in neighboring provinces.*

Having direct quotations between the renminbi and non-USD currencies can lower pecuniary transaction costs to investors and traders because they can reduce conversion fees (Prasad, 2017). One of the interviewees reported that some of their clients in southeast Asia started to adopt renminbi because of this quotation arrangement,²³ as he put it: “they would need to exchange their currency to a foreign currency anyway. According to the Chinese policy, they (clients) could exchange their local currency to renminbi and then diminish a bit in exchange fees.” Official information from the Bank of Korea (2021) corroborates my interviewee’s statement:

as the won-yuan direct trading replaced the previous system of two stage trading, consisting of the initial won-dollar trade and the subsequent yuan-dollar trade, *trading costs fell* and big companies took the lead in using the yuan to pay more

²³ Former manager in a Chinese ship building company, Shanghai, November 2018. Own translation from Chinese.

trade settlements, which also raised the ratio of yuan-based payments for trade settlements to China. (own emphasis).

For some currencies, such as the Thai baht, conversion fees were even eliminated. To encourage the Belt and Road Initiative (BRI),²⁴ Chinese policymakers decide to remove renminbi-Thai baht trading fees for 30 months (CFETS, 2018).

Table 2. Direct trade RMB to non-USD currencies on the Chinese foreign exchange spot market.

	Volume (trillion yuan)	Ratio of total onshore interbank spot market (%)
before 2010	ni	less than 0.5%
2014	1.05	4.7
2015	1.42	4.6
2016	1.13	2.9
2017	1.40	3.3
2018	1.60	3.2
2019	2.30	4.2

Source: PBOC (2015, 2016, 2017, 2018a, 2019, 2020)

As table 2 shows, the trading between RMB and non-USD still represents a small fraction of overall foreign exchange transactions. Nonetheless, including new currency pairs in the foreign exchange market allows actors to reduce pecuniary costs, thereby encouraging renminbi use.

4.3 Time transaction costs

In addition to the reduction of hedging costs, credit costs, and fees, some interviewees also reported that saving time was an important consideration when switching to

²⁴ BRI is a Chinese-led initiative which aims at infrastructure development along the route of the historic Silk Road.

renminbi operations. Specifically, adopting the renminbi could result in less time spent on bureaucratic tasks, and cross-border payments could be accelerated.

4.3.1. Reducing bureaucracy

According to the PBOC survey, the second most-cited reason for companies choosing renminbi for cross-border transactions is the “simplification of settlement process”.

Over 43% of respondents selected this motivation (PBOC 2020). Interviews²⁵ with firms and a bank representative show that, by adopting renminbi, economic actors can avoid or at least reduce administrative work related to Chinese foreign exchange controls, which otherwise would be much stricter if hard currencies were adopted.

In China, the State Administration of Foreign Exchange (SAFE) is the institution responsible for supervising and regulating foreign exchange activities. SAFE’s supervisory activities are conducted within commercial banks, which host SAFE officials (Sun, 2020). During an interview with an analyst from the state-owned commercial bank,²⁶ China Construction Bank, it was explained how SAFE activities may affect cross-border operations: “Independently of the currency, SAFE officials have to check the authenticity of the operation. But if it is in renminbi, they will not control the amount or conduct a more stringent review. So, if the company adopts renminbi, payments are received in the account faster”.

An interviewee,²⁷ who is a former manager at a Chinese-owned ship building company, described SAFE’s foreign exchange settlement process (结汇), which is necessary for companies who receive hard currency as “extremely troublesome”. In his

²⁵ 1) Former manager at a Chinese-owned ship building company, Shanghai, November 2018;
2) CFO at a foreign-owned outsourcing and supply chain company, Zhuhai, October 2018;
3) analyst at China Construction Bank, Shanghai, September 2019.

²⁶ September 2019. Own translation from Chinese.

²⁷ November 2018. Own translation from Chinese.

words: “You must enter in a system, then complete a declaration form. You must present a schedule for every payment you are supposed to receive. If your client delays the payment, you must complete a new declaration form all over again. It requires a lot of routine and procedural work. *But if you receive in renminbi, then the procedure is much simpler*” (emphasis added). The impact of China’s foreign exchange controls on currency choice was summarized by an interviewed company CFO:²⁸ “The more and more difficult Chinese authorities make it for people accepting dollars, it happens to push more and more people to use the renminbi”.

The use of local currency for cross-border transactions to avoid foreign exchange bureaucratic work is not exclusive to the Chinese case. A similar pattern is found in South America by Fritz (2018). With the establishment of a regional payment system between Brazil and Argentina, some Brazilian firms started to adopt the real instead of dollars to avoid the time-consuming procedures established by the monetary authority.

4.3.2 Making fast payments

As a branch director from the Bank of China explains: “One of the key factors of RMB internationalization is the convenience of clearing, with CIPS, the settlement is in real-time”. She adds: “CIPS make the transaction more convenient, it speeds the liquidation, what is important for clients with high timeliness requirements” (Bank of China, 2019).

As mentioned in section 4.1, until 2015, correspondent banking relations (CBR) were the major channel for connecting non-residents to the mainland’s payment system. With CBR, however, there were technical barriers that hampered the efficiency of

²⁸ Foreign-owned outsourcing and supply chain company, Zhuhai, October 2018.

renminbi cross-border transactions. One of them concerns the incompatibility of Chinese characters with SWIFT codes, which is the message network mostly adopted in the banking industry. It is not by accident that, in 2013, 15% of renminbi cross-border payments were rejected by SWIFT, whereas this rate is only 3% for the dollar. A high rate of rejection in financial messages mean that transactions can take longer to conclude (Global Capital, 2013). Another issue that delayed renminbi cross-border transactions is related to time-zone differences. China Standard Time is eight hours ahead of Greenwich Mean Time and thirteen hours ahead of Eastern Standard Time. For this reason, there was no overlap between China's central bank clearing house (CNAPS) working hours and European and US business hours, making it impossible to carry out same-day transactions with these regions.

The construction of a Cross-border Interbank Payment System (CIPS) solved both problems. First, CIPS operates with the internationally accepted ISO20022 message standard that is compatible with English and Chinese languages. Moreover, since CIPS phase-2 was launched in 2018, it operates 24 hours during normal business days, covering financial center business hours in all continents. In sum, with CIPS, all renminbi cross-border transactions happen in real time.

Table 3 summarizes the Chinese policy initiatives discussed in this section, and their impact on reducing renminbi transaction costs. As interviews with firms and banks demonstrated, the possibility of reducing transaction costs was the reason for many actors switching to renminbi cross-border operation.

Table 3- Summary of policies reducing renminbi transaction costs

Transaction Cost	Policies	Impact
Access to the payment system	Authorize mainland banks to offer renminbi-denominated correspondent bank accounts to overseas financial institutions.	Allow non-residents' financial institutions access to the mainland payment system.
	Establish Renminbi Offshore Clearing Banks	Allow non-residents to open a renminbi-denominated account, enabling them to pay and receive renminbi
	Construct Cross-border Interbank Payment System (CIPS)	
Pecuniary Transaction Costs	Renminbi trade and investment settlement scheme	Avoid currency hedging costs
	The signing of Swap agreements with overseas central banks	Set a ceiling for renminbi credit cost overseas
	Establish Renminbi Offshore Clearing Banks	Set a ceiling for renminbi credit cost overseas Reduction of bid-ask spreads for renminbi-denominated assets in overseas markets
	Tax exemption for institutional investors	Increase investors' return
	Management fee exemption for central banks holding renminbi reserves	
	Direct trading between renminbi and non-USD currencies	Reduces foreign exchange conversion fees
Time Transaction Cost	Renminbi trade and investment settlement scheme	Reduces time spent on bureaucratic tasks
	Cross-border Interbank Payment System (CIPS)	Reduces time for the cross-border transfer. Instant payments

5. The increase of dollar transaction costs

Although the Chinese policies for reducing renminbi transaction costs are an important explanation for the rise of the renminbi in cross-border transactions, they are not the only explanatory factor. In the words of an interviewed senior PBOC official: ²⁹ “In the use of any currency, there is also a path dependence. If you are used to USD for your transaction, you tend to be dependent on it, until you see very much disadvantage to do so”. This section will show some difficulties that actors encounter in dollar cross-border operations, how these adversities impact the currency transaction costs, and how

²⁹ Beijing, October 2019.

actors respond to the dollar's higher transaction costs.

There are two causes of increases in dollar transaction costs. The first one is the American financial sanctions that have limited some countries' ability to access the dollar-based payment system. The second one is related to the cyclical and structural dollar shortage in international markets, which makes the dollar's interest rate rise, leading to higher pecuniary transaction costs.

5.1 Limited access to the American payment system

For a long time, the USA has adopted many forms of economic statecraft to put pressure on foreign states. In addition to the traditional sticks, i.e., trade embargos, aid suspension, punitive taxation, and the well-known carrots, i.e., subsidies, preferential tariffs, investments guarantee, since the beginning of the 21st century, the USA has also included financial sanctions in their statecraft toolkit. These are different from other forms of statecraft inasmuch as the successful use of financial sanctions depends on the centrality of the dollar in global finance, and on the fact that the key nodes of the international payment and message systems are under American jurisdiction.³⁰ In practical terms, these conditions allow the USA to freeze accounts or block transfers from and to selected countries, banks, firms, or individuals (Drezner, 2019, 2015; Farrell and Newman, 2019).

The Trump administration has escalated the use of financial sanctions, and the case of Iran is the prime example of his approach. In 2015, the United Nations Security Council signed the Joint Comprehensive Plan of Action (JCPOA) with Iran, popularly known as the Iranian nuclear deal, which limited the country's uranium-enrichment

³⁰ Such as the Clearing House Interbank Payments System (CHIPS) and the Society for Worldwide Interbank Financial Telecommunication (SWIFT).

activities in return for the lifting of financial sanctions. In 2018, however, the USA unilaterally withdrew from the JCPOA, and introduced what the US Department of the Treasury called “the toughest U.S. sanctions ever imposed on Iran”. As well as restricting Iranian financial institutions from the dollar payment system, the USA has also pressured the global provider of the financial message, the SWIFT, to disconnect Iranian banks. As a result, Iran is practically banned from the dollar payment system. Although formally there are payment channels for humanitarian purposes, many banks, afraid they could be fined, adopt the “zero risk” approach and refuse to make any transaction with the country (Drezner, 2019; Mallard et al., 2020; U.S. Department of the Treasury, 2018).

In the view of a PBOC senior official interviewed,³¹ during the Trump administration, the USA “started to weaponize the dollar”. She explains in detail as follows:

They [USA] have the power to impose sanctions because of the US financial system dominance in the international monetary system. According to their domestic law, their judges can order any financial institution located in the USA to provide the necessary information they demand [...] These laws have come a long way, but they have been rarely used before. But in recent years, especially after Trump, I think for the financial society it is very clear they started to weaponize the dollar and their financial sanctions against Iran, North Korea... They [USA] have the laws, they have the power, any other country is too weak to countermeasure.

Considering the case of Iran along with 20 other countries that have been damaged by the American financial sanctions,³² some scholars have already discussed the possibility that the financial sanctions could impact the international status of the dollar (Drezner, 2019, 2015; Farrell and Newman, 2019; Farrell and Newman, 2018;

³¹ Beijing, October 2019.

³² See the US Department of the Treasury for a complete list of sanctioned countries.

McDowell, 2020). So far, this American statecraft has not threatened the dollar dominance, but it has produced spillover effects for the adoption of other currencies, including the renminbi. Chinese policymakers are aware of this tendency, as a speech from a former PBOC vice-governor, Yin Yong, demonstrates:

We also have seen that due to changes on international geopolitics, in particular some countries abusing their currencies dominant positions, seeking unilateral benefits, using domestic law to engage in a long-arm jurisdiction, such as imposing unilateral international financial sanctions, etc. These practices have prompted many countries and regions to turn their eyes to more responsible currencies, and *the renminbi has also become an option for them* (Sina Finance 2018, own translation, emphasis added).

In order to preserve business opportunities, firms and banks have explored various possibilities for making and receiving payments from sanctioned countries. According to my fieldwork material, the strategies varied depending on the size and sector of the organizations. Smaller businesses tend to find more rudimentary solutions, as was the case for an interviewed Chinese-owned manufacturing company³³. According to the company's sales staff, the company has Iranian clients but after the escalation of the US bilateral sanctions in 2018, it became impossible for their clients to pay directly from Iran, so they started to use a neighboring country as a depot for payment transactions. At the time of the interview, they declared they were exploring the possibility of receiving direct payments in renminbi from Iran. The experience reported by this company parallels what is happening on a much larger scale in countries that are affected by financial sanctions. Looking to the case of Iran, for example, since the US sanctions escalated, networks of cross-border smugglers and money collectors have emerged to support the country's imports and exports (Hafezi, 2019).

³³ Sales staff at an industrial pump company, Hangzhou, November 2018.

Bigger companies, such as oil companies, have more sophisticated solutions. The China National Petroleum Corporation (CNPC), for instance, uses their controlled bank, the Bank of Kunlun, to make payments to sanctioned countries. In July 2010, the US Treasury barred the Bank of Kunlun from the American payment system due to their financial relations with Iranian institutions (Bank of Kunlun, 2010). According to an interviewee who is an accounting manager at Bank of Kunlun,³⁴ the American treasury's decision did not prevent the bank from continuing to make transactions with Iran, Russia, or other oil and gas exporting countries, because the bank started to rely on the euro and the renminbi for cross-border operations. As this manager explained, since they were banned from American payment systems, they are not under the jurisdiction of American law, and this allows them to continue making transactions with their clients as long as this was done in other currencies. He added that sanctioned countries that accumulate renminbi claims can either offset them by the value of imported goods or accumulate claims on Chinese government bonds. Further, according to the interviewee, the Bank of Kunlun's renminbi operations for international transactions is an increasing trend.

There are not many gateways for Chinese companies to access sanctioned countries' payment systems apart from the Bank of Kunlun. According to an interviewed PBOC senior official: "In China, the commercial banks are so careful about not offending or breaking any rule, because [they know] if they are punished or sanctioned without base, China does not have strong enough power to counter the measures that the USA would do against us". An interviewee from the China Construction Bank reported that, "we, the big-four, large state-owned banks are not allowed to do business with Iran now". She explained that, in early 2018, a chemical

³⁴ Beijing, November 2019. Own translation from Chinese.

company needed a loan to import from Iran, but that because of the tightening of sanctions throughout the year, the bank decided to shelve the loan agreement. According to her, “Later, I heard the company went through with Bank of Kunlun”.

Although the Trump administration has pushed actors to find alternatives to the dollar, concerns about relying on this currency are of long-standing for some organizations, especially those connected to oil imports, as an interviewee from the China Development Bank (CDB) reported.³⁵ In 2005, the CDB started to finance imports of commodities, including oil, for Chinese enterprises. As the official explained, because of the increased use of sanctions by the US on oil-exporting companies, the bank was aware that using the dollar could bring commercial risks. As he put it, “using dollars means being at the hands of the US”. So, for more than 10 years, the bank has been trying to diversify the use of currencies for their foreign operations as much as they can, including euro and renminbi loans. However, as the official explained, there are limits to the adoption of the renminbi: not all buyers are interested in receiving renminbi payments given the still relatively small size of renminbi trading in international markets. So, the bank continues to have a large amount of dollar operations.

It is not only firms, but also commercial banks, and development banks that have decided to expand their renminbi use as a solution to the difficulty of accessing the dollar system. As the case of Russia exemplifies, the same pattern can be seen with central banks. In 2014, when the US treasury first imposed sanctions on Russia for its Crimea operations, Russia started a “de-dollarization” process. Between 2017 and 2018, the central bank of Russia completely reallocated its foreign assets portfolio. In 2017,

³⁵ Foreign relations official, Beijing October 2019.

Russian USD denominated foreign claims accounted for roughly 50%, which declined to a mere 10% in the following year. At the same time, euro-denominated claims increased from 26% to 40%, and renminbi-denominated from 4% to 29% (Bank of Russia, 2018; McDowell, 2020).

Although the US use of sanctions has not yet put at risk the dominance of the USD, it has impelled states, firms, and banks to look to alternative currencies. The possible impact of American statecraft on the euro has already been suggested by Farrell and Newman (2018), and the European initiative to create a payment mechanism (the INSTEX) to bypass American sanctions has already received some attention in the media (Deutsche Welle, 2019; Girardi, 2019). As shown in this section, the renminbi has also been adopted as an alternative to the dollar. Even though the Chinese state is sanctioning this process, to a large extent, firms and banks have been actively creating the routes to this development.

5.2 Pecuniary transaction costs

5.2.1. Cyclical dollar shortage in the 2008 crisis

During the 2008 crisis, the international monetary system witnessed a dollar shortage in interbank and foreign exchange markets. Either because financial institutions were concerned about their future dollar funds or the creditworthiness of their counterparts, after the Lehman Brothers bankruptcy in September 2008 financial institutions were unwilling to extend dollar credit to each other. Their behavior reflected interest rate levels, which soared in the last quarter of 2008 (McCauley and McGuire, 2009).

This crisis affected banks' capacity to lend even to financially healthy enterprises. As Ivashina and Scharfstein (2010) show, between the last quarter of 2007 and 2008, bank lending decreased by 79% for large corporate borrowers. As banks,

especially non-US ones, heavily rely on short-term debt rather than time-deposits to fund their credit operations, the freezing of interbank markets undermined banks' abilities to expand or even roll over debts for their clients.

The impact of the temporary dollar credit crunch was especially harmful to international trade. Many authors have already pointed out that, as well as the decline in demand during the 2008 crisis, inadequate trade finance supply and costly interest rates were also responsible for export decline (Amiti and Weinstein, 2011; Auboin, 2009; Coulibaly et al., 2013). According to Auboin (2009), during the crisis, the letter of credit spread for emerging economies increased from an average of 10-16 points to 250-500. As most of the global trade depends on some form of trade finance, it is not surprising that studies estimate that 15% to 20% of international trade decline was due to credit shock (Clark, 2014).

While the banking credit crunch was a global phenomenon, emerging market economies faced additional challenges—capital outflows, the volatility of exchange rates, and foreign reserves decline—that accentuated their dollar shortage problem. Unlike developed economies, which had a readily available dollar liquidity supply through the FED SWAP agreements (Board of Governors of the Federal Reserve System, 2020), most emerging market economies had much less access to short-term crisis finance.

Companies, banks, governments, and central banks all tried to find solutions to mitigate this dollar shortage. From an individual perspective, some firms were able to rely on credit from suppliers (Coulibaly et al., 2013). From a governmental standpoint, many countries, including China, used public banks to ease trade finance conditions (Chauffour and Farole, 2009; Malouche, 2009).

Another institutional response to the credit crunch was to allow the cross-border use of local currencies. As explained in section 4.2.3, interviews with PBOC senior officials and leadership speeches show that the catalyst for renminbi cross-border transactions was the 2008 credit crunch.³⁶ Although dollar credit conditions improved after 2009, instability is an intrinsic characteristic of capitalist economies, and “it” can always happen again (Minsky, 2016). But for the next time, the possibility for firms and banks to use the renminbi as an alternative is already open.

5.2.2. Non-cyclical dollar shortage in peripheral countries

Another dollar-related tendency that contributes to renminbi adoption is the dollar shortage in peripheral economies. According to Bai Yi, senior staff from Huawei, adopting the renminbi for cross-border operations solved the problem of customers’ repayment *in countries with dollar shortages*. He cited the case of America Movil, which in 2012 issued RMB 1 billion bonds in Hong Kong to repay Huawei’s equipment purchases (Global Capital, 2012; PBOC, 2014). Companies and banks from peripheral countries with current account deficits may have worse financial conditions for taking dollar credit. When these companies have commercial ties with China, as America Movil does, it may be less expensive to use the renminbi directly.

Table 4 below summarizes the types of event that increase the transaction costs of using the dollar. As section 5 demonstrates, the increased adoption of the renminbi cannot be explained exclusively by the Chinese policies, but is also due to the higher pecuniary transaction costs related to the cyclical instability of international finance and dollar shortage in peripheral countries. Moreover, the imposition of US financial sanctions on Chinese trade partners impelled some companies to rely on the renminbi payment network. Although these events have not threatened the dollar's prominence in

³⁶ 1) Shanghai, November 2018, and 2) Beijing, October 2019.

international markets, it has produced spillover effects on the adoption of other currencies, including the renminbi.

Table 4- Summary of events increasing dollar transaction costs

	Events	Impacts
Access to Payment System	Financial Sanctions	Restrict non-residents access to the dollar-payment system and global message system
Pecuniary Transaction Costs	Cyclical Instability of Finance	Increases borrowing costs during the crisis
	Low inflow of dollars on peripheral economies	Increases borrowing costs for peripheral economies

6. Conclusion

Despite the challenges for new entrants into the hall of international currencies, in the last 10 years, the renminbi has expanded its international use, climbing from the 35th to the 5th most used currency for international payments. In addition, despite the advantages of the dollar as the incumbent monetary power, renminbi cross-border operations between China and the rest of the world have increased at the expense of the dollar share. Why have actors decided to change from an already established and competitive currency to a new entrant? This article finds that, apart from China's policies to promote renminbi internationalization, various obstacles to using the dollar for international operations are impelling economic actors to search for new alternatives, the renminbi being one of these. Among these obstacles, the most notable are American financial sanctions on Chinese commercial partners, the cyclical instability of international finance, and the dollar shortage in peripheral countries.

This article not only sheds light on external factors for countries that lead to currency internationalization of new entrants, but also posits a model that explains the mechanisms of currency competition. I show that changes in currencies' transaction

costs induce actors to readjust their choices, by giving preference to a currency with lower transaction costs.

More than ever before, “this is the golden age of economic statecraft” (Drezner, 2015 p. 755), and this article gives evidence for a novel aspect of how nations are employing statecraft. Armijo and Katada (2015) have shown how states can defend themselves from or influence other states and market conditions. I show here that states have also begun to create tools to *neutralize* the side-effects of other countries' financial statecraft. Furthermore, this article also shows that financial statecraft is much more organically developed than previously thought. For instance, Farrell and Newman (2019) have demonstrated how states with authority over strategic networks can impose financial statecraft, and have also pointed out that affected states may find alternatives to mitigate their vulnerability. I show that commercial actors play an active and creative role in this process. Although sanctioned and supported by the Chinese state, to a large extent firms and banks were themselves responsible for crafting new channels through which to bypass American financial statecraft.

This research brings insight to the prospects for renminbi internationalization, the dollar's status, and the efficiency of American statecraft. As yet, there is no indication that the dollar's dominance is jeopardized. However, the tendency of firms, banks, and states to find channels to bypass financial sanctions can put the efficiency of this coercive measure at risk. Regarding the renminbi's status, as yet, neither the Chinese efforts nor the problems with using the dollar in the international context have been sufficient to project the renminbi to the position of a new incumbent currency. In fact, overthrowing the dollar's status does not seem to be the Chinese leadership's goal. The PBOC leadership has repeatedly announced that renminbi use in the international market should be around 10-15%, reflecting the country's weight in the world economy.

This does not mean, however, that Chinese policymakers' actions have been innocuous. On the contrary, renminbi cross-border use has had the very practical effect of shielding the country from external shocks and threats, allowing the Chinese development process to continue.

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Appendix 1

Table 1. Offshore Renminbi Clearing Centers

Region	Since	Bank
1 Hong Kong	Dec. 2003	Bank of China (Hong Kong)
2 Macau	Sept. 2004	Bank of China Macau Branch
3 Taiwan	Dec. 2012	Bank of China Taipei Branch
4 Singapore	Feb. 2013	Industrial and Commercial Bank of China Singapore Branch
5 United Kingdom	June 2014	China Construction Bank (London)
6 Germany	June 2014	Bank of China Frankfurt Branch
7 South Korea	July 2014	Bank of Communications Seoul Branch
8 France	Sept. 2014	Bank of China Paris Branch
9 Luxembourg	Sept. 2014	Industrial and Commercial Bank of China Luxembourg Branch
10 Qatar	Nov. 2014	Industrial and Commercial Bank of China Doha Branch
11 Canada	Nov. 2014	Industrial and Commercial Bank of China (Canada)
12 Australia	Nov. 2014	Bank of China Sydney Branch
13 Malaysia	Jan. 2015	Bank of China (Malaysia)
14 Thailand	Jan. 2015	Industrial and Commercial Bank of China (Thailand)
15 Chile	May 2015	China Construction Bank Chile Branch
16 Hungary	June 2015	Bank of China Limited Hungarian Branch
17 South Africa	July 2015	Bank of China Johannesburg Branch
18 Argentina	Sept. 2015	Industrial and Commercial Bank of China (Argentina)
19 Zambia	Sept. 2015	Bank of China (Zambia)
20 Switzerland	Nov. 2015	China Construction Bank Zurich Branch
21 United States	Sept. 2016	Bank of China New York Branch
22 Russia	Sept. 2016	Industrial and Commercial Bank of China (Moscow)
United Arab 23 Emirates	Dec. 2016	Agricultural Bank of China Dubai Branch
24 United States	Feb. 2018	JP Morgan Chase & Co.
25 Japan	Oct. 2018	Bank of China Tokyo Branch
	May 2019	Mitsubishi UFJ Bank
26 Philippines	Sept. 2019	Bank of China Manila Branch

Source: PBOC (2019, 2020).

Table 2. Interviews conducted during fieldwork

Institution	Role	Place	Date	Language of interview
Ministry of Commerce	Former director of department	Beijing	Oct. 2019	Chinese
People's Bank of China	Senior official	Shanghai	Nov. 2018	Chinese and English
People's Bank of China	Senior official	Beijing	Oct. 2019	English
Bank of China	Branch director	Shanghai	Sep. 2019	Chinese
Bank of Communications	Research analyst	Shanghai	Sep. 2019	Chinese
China Construction Bank	Analyst	Shanghai	Sep. 2019	Chinese
Bank of Kunlun	Accounting manager	Beijing	Oct. 2019	Chinese
Pet products supplier (Chinese owned)	Accounting manager	Shanghai	Sep. 2019	Chinese
Ship building company (Chinese owned)	Former manager	Shanghai	Nov. 2018	Chinese and English
Outsourcing company (Foreign Owned)	CFO	Zhuhai	Oct. 2018	English
Industrial pump company (Chinese Owned)	Sales staff	Hangzhou	Nov. 2018	English
New Development Bank	Senior official	Shanghai	Sep. 2019	Portuguese
China Development Bank	Foreign relations official	Beijing	Sep. 2019	English

Source: the author

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