China's RMB Bilateral Swap Agreements: What explains the choice of countries?

China's RMB Bilateral Swap Agreements: What explains the choice of countries?

Authors: Alicia Garcia-Herrero and Le Xia[1]

May 19, 2013

Abstract

This paper analyzes empirically the determinants behind the choice of countries signing an RMB-denominated Bilateral Swap Agreement (BSA) with China. The gravity motif is predominant (both in terms of country's size and distance from China) but also the trade one, both in terms of exports into China as well as sharing an FTA with China. Institutional soundness also matters since countries which better government and less corruption are more likely to sign an RMB-denominated BSA. This goes against the view that China has used RMB BSAs as a soft power tool in more corrupted countries. However, the fact that China's has a preference for countries with default history and a closer capital account calls for caution.

Keywords: RMB Internationalization, Bilateral Swap Agreements.

JEL: F33, F36, F42.

1. Introduction

After having weathered the 2007-2008 global financial crisis, China's authorities have embarked in a bold project to internationalize its own currency (the RMB). Interestingly, the ongoing internationalization of the RMB looks quite different from some historical precedents (such as the USD or even the JPY). We would highlight two aspects. First, efforts to internationalize the RMB having have started ahead of the full opening (or convertibility) of the capital account. Second, the internationalization process has so far been government-led rather than market-led (Frankel, 2011)

Among the government's efforts to advance towards the RMB internationalization, an important one has been the signature of Bilateral Swap Agreements (BSAs) between the People Bank's of China (PBoC) and some specific countries. Since December 2008, the PBoC has signed or renewed BSAs with 19 central banks, which include both emerging and industrialized countries (accounting more than 300 billion USD all together). Importantly, the PBoC clearly revealed that the main objective of these BSAs is to promote the use of the RMB in trade and investment (the PBoC, 2012), which is very different from the traditional use of BSAs as precautionary arrangement to provide liquidity during a financial crisis. The best example of the latter was the series of BSAs signed by ten ASEAN countries and the three largest East Asian economies (Japan, South Korea and China) under the Chiang Mai Initiative (CMI) in attempt to prevent the reoccurrence of the 1997-1998 Asian Financial Crisis. In the same vein, during the 2008-09 global crisis, the US Fed Reserve also signed a number of temporary BSAs with foreign central banks to ensure these countries' access to dollar liquidity amidst financial market turmoil.

Given the central role of BSAs in the RMB internationalization, their special nature and their relatively large size, it seems important to understand what determines the choice of countries signing such BSAs. In this paper, we attempt to answer this question by using a gravity model. In the next section, we briefly review the steps taken towards RMB internationalization, with special attention to BSAs. Section 3 explains the empirical specification and related data issues. The results are described in Section 4 as well as the robustness checks conducted. Section 5 draws some policy conclusions.

2. Background and literature review

The internationalization of the RMB

The internationalization of the RMB commenced in 2009 as the authorities launched a Pilot Program of RMB Settlement of Cross-Boarder Trade Transactions (the "Pilot Program" henceforth) by which a number of companies in China and abroad could settle their trade in RMB. The Pilot Program was, then, expanded in June 2010 and again in August 2011 to make all enterprises (within and outside China) eligible for cross border RMB settlements. So far, the proportion of RMB-settled trade to China's total trade has increased very quickly to 16.3% in Q1 2013, up from almost zero when the pilot program was rolled out. (Chart 1)

Chart 1
RMB trade settlement grew rapidly
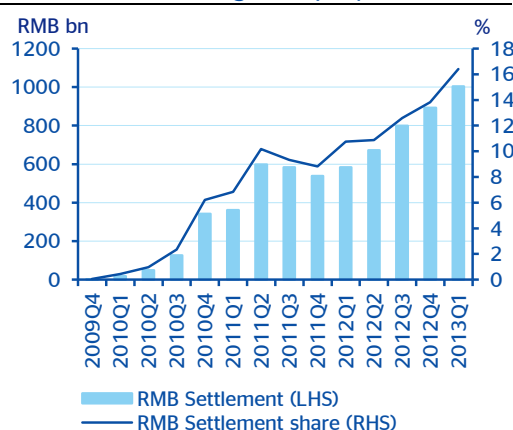
Chart 2
RMB deposit in Hong Kong has increased fast

Source: CEIC and BBVA Research
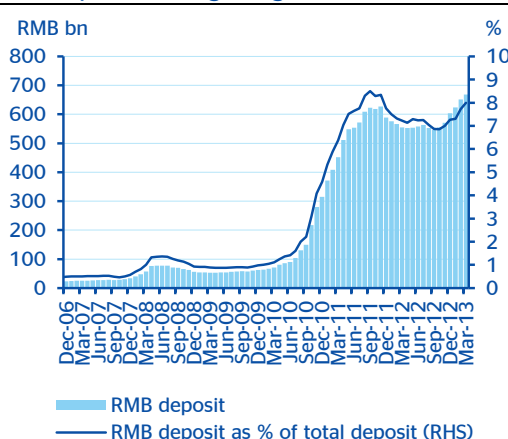
Source: CEIC and BBVA Research

Nevertheless, the Pilot Program is not the only reason why the RMB internationalization has made significant progress in such a short time. Admittedly, the Pilot Program can give the freedom for exporters and importers to choose the currency in their settlement but it can't ensure that the RMB is chosen as currency for invoicing and settling, given the very high persistence in the currency choice for an international transaction (Yu, 2011). Indeed, whether a currency can perform as a settlement vehicle in trade transactions largely depends on both its availability to payers and its acceptance from the part of recipients. Particularly, an offshore importer needs to have access to RMB funds (through either trade credit or currency exchange) so as to use the RMB as payment. On the other hand, a Chinese onshore importer can only settle the transactions in RMB on the premise that its offshore counterparty is willing to receive the RMB.

In coordination with the Pilot Program, China's authorities implemented other complementary measures in a bid to increase the availability of RMB funds in the offshore market and raise the foreigners' acceptance of the RMB. In this regard, one important step has been to establish offshore RMB centers outside China. Such a move brings a number of benefits related to the availability of RMB funds offshore.

First, an offshore RMB center can concentrate offshore RMB funds in its neighboring regions, which enables foreign importers to easily find RMB funds if they are willing to participate in a RMB transactions settlement. Second, in such an offshore market the RMB funds can generate certain investment returns for their holders through currency exchange or credit extension (as is the case of Hong Kong's dim sum bond market), which in turn serves to increase the overseas acceptance of the RMB. Third, China authorities can additionally offer a preferential treatment to the offshore markets. For example, the authorities can partially open domestic

capital markets to allow the offshore RMB funds repatriation) so as to further increase the attractiveness of the RMB. This is the case of the RQFII in Hong Kong.

Hong Kong was initially chosen to be the "premier" offshore RMB center given its special relationship with China and its long-standing position as an international financial center. (Garcia-Herrero etc, 2012 a). It was heatedly welcomed by Hong Kong's authorities because of the potential business opportunities for the local economy and financial market. In fact, the development of the RMB offshore market has been very rapid. As of end-February 2013, the offshore RMB deposits in Hong Kong amounted to RMB 652 billion, equivalent to 7.7% of total deposits (Chart 2). Moreover, the stellar rise of offshore RMB businesses has also lured other financial centers to follow suit, which include Singapore, Taipei and even London and Paris (Garcia-Herrero etc, 2012 b).

In addition to the abovementioned measures, the PBoC also sought to lay an institutional foundation for RMB internationalization by establishing BSAs with other foreign central banks. The PBoC engaged in other forms of financial arrangement, including the establishment of bilateral RMB clearing systems or the implementation of direct trading between RMB and other currencies.

BSAs signed by China

BSAs are definitely not new for China. Indeed, the origin of China's BSAs can be traced back to the Chiang Mai Initiative (CMI), through which China signed a set of BSAs with some ASEAN countries, South Korea and Japan. However, the primary objective of these BSAs was to strengthen the defense capability of Asian countries against future financial turbulences and to avoid an event like the 1997-1998 Asian financial crisis. As for the currency of denomination, three out of six were denominated in USD and the other half in RMB (Table 1). However, it should be noted that even for the BSAs denominated in the RMB, their sizes were determined in USD as their objective was to provide USD liquidity during the crisis times. In other words, the USD, rather than the RMB, played the central role in these CMI BSAs signed by China.

Table 1
CMI Bilateral Swap Agreements: China and other ASEAN+3 countries (as of Jan 2010)

Bilateral Swap Agreements (CMI)	One / Two Way	Currencies	Size (USD bn)	Status
China – Thailand	One	USD/Baht	2.0	Concluded: Dec 2001 Expired: Dec 2004
China - Japan	Two	RMB/Yen Yen/RMB	6.0	Concluded: Mar 2002
China - Korea	Two	RMB/Won Won/RMB	8.0	Concluded: Jun 2002
China - Malaysia	One	USD/Ringgit	1.5	Concluded: Oct 2002
China - Philippines	One	RMB/Peso	2.0	Concluded: Aug 2003 Amended: Apr 2007
China - Indonesia	One	USD/Rupiah	4.0	Concluded: Dec 2003 Amended: Oct 2006

Source: Gao and Yu (2009) and Bank of Japan

Since December 2008, China started to sign bilateral RMB-denominated BSAs as part of its plan to internationalize the RMB. The first one was signed with South Korea, amounting to RMB 200 billion with a maturity of 3 years. Prior to its expiration in 2011, China and South Korea renewed it and doubled the size to RMB 400 billion. As of end-March 2013, there are in total 19 countries/regions which have signed RMB-denominated BSAs with China. The latest one has been with Brazil, which was announced in late March.

Compared to the previous BSAs under the CMI framework, these BSAs are denominated and measured in RMB as the counterparty's currency, signaling their independence from the USD (Table 2). As for their objective, in its annual report of 2012, the PBoC revealed that these BSAs are signed as a measure to promote the usage of RMB in cross-border trade and investment transactions. In the same vein, other official counterparts have expressed a similar view regarding the signing of their BSAs with China. For example, the governor of Pakistan's central bank, Mr.

Yaseen Anwar, said that "...it (the BSA) is to enhance the role of the Chinese Yuan in international trade and investment.".

The counterparties of China's RMB BSAs include not only developing countries but also industrialized ones like the UK, Australia and New Zealand. In terms of geographical distribution, the majority of the BSA counterparties concentrate in the Asia-Pacific region, with exceptions from Europe (Iceland, Belarus and Turkey) and South America (Brazil and Argentina). The RMB BSAs generally have a 3-year maturity. The BSAs with South Korea, Hong Kong and Malaysia have been renewed and even expanded in size prior to the expiration. However, the BSAs with Belarus, Indonesia and Argentina expired in 2012 without an announcement that the arrangement would be renewed.

Table 2
China's RMB BSAs with other countries (as of March 2013)

RMB BSAs	Size	Effective Date	Expiration Date
China-South Korea	180 bn RMB/38 Tr Won	Dec-08	Dec-11
Renewed	360 bn RMB/64 Tr Won	Oct-11	Oct-14
China-Hong Kong	200 bn RMB/227 bn HKD	Jan-09	Jan-12
Renewed	400 bn RMB/490 bn HKD	Nov-11	Nov-14
China-Malaysia	80 bn RMB/40 bn MYR	Feb-09	Feb-12
Renewed	180 bn RMB/90 bn MYR	Feb-12	Feb-15
China-Belarus	20 bn RMB/8 tr BYB	Mar-09	Mar-12
China-Indonesia	100 bn RMB/ 175 tr Rupiah	Mar-09	Mar-12
China-Argentina	70 bn RMB/ Equal Amount Peso	Mar-09	Mar-12
China-Iceland	3.5 bn RMB/66 bn ISK	Jun-10	Jun-13
China-Singapore	150 bn RMB/30 bn SGD	Jul-10	Jul-13
China-New Zealand	25 bn RMB	Apr-11	Apr-14
China-Uzbekistan	0.7 bn RMB	Apr-11	Apr-14
China-Mongolia	5 bn RMB	May-11	May-14
Expanded	10 bn RMB	Mar-12	May-14
China-Kazakhstan	7 bn RMB	Jun-11	Jun-14
China-Thailand	70 bn RMB/ 320 bn THB	Dec-11	Dec-14
China-Pakistan	10 bn RMB/140 bn PKR	Dec-11	Dec-14
China-UAE	35 bn RMB/20 bn AED	Jan-12	Jan-15
China-Turkey	10 bn RMB/3 bn TRY	Feb-12	Feb-15
China-Australia	200 bn RMB/30 bn AUD	Mar-12	Mar-15
China-Ukraine	15 bn RMB/19 bn UAH	Jun-12	Jun-15
China-Brazil	190 bn RMB/60 bn BRL	March-13	March//.-16

Source: the PBoC and BBVA Research

Other forms of RMB- related bilateral financial arrangements

Beyond the BSA, China has also engaged in other forms of bilateral financial arrangements with other countries/regions in a bid to facilitate cross-border RMB settlements. For example, the PBoC established bilateral RMB clearing systems with the central banks of Hong Kong, Macao, Taiwan, Singapore and the UK. Under the RMB clearing system, the PBoC usually designates an overseas branch/subsidiary of a Chinese commercial bank as the clearing bank. To a large extent, a bilateral RMB clearing system is an even stronger arrangement in terms of promoting the RMB usage in cross-border settlements since it can help to develop an offshore RMB market in the counterparty country. In the cases of Hong Kong and the UK, the RMB clearing systems and BSAs were established almost in tandem with the BSA. Singapore signed a RMB clearing system two years after the signing of its RMB BSA. Beijing and Taipei, in turn, are now discussing the details of a BSA after the establishment of a RMB clearing system. Macao seems like the exception in the sense that its RMB clearing system was not accompanied with a BSA. This is probably due to the small size of its economy.

Another type of bilateral RMB-related financial arrangement is the direct trading of the RMB with another currency. Previously, the trading of the RMB with another currency in the foreign exchange markets had always used the USD as the intermediary. The direct trading of the RMB was firstly launched against the Japanese Yen (JPY) in 2012. Then Australia and China reached a similar agreement in April 2013.

Compared to a RMB clearing system, the direct trading between the RMB and another currency can be understood as a weaker form of financial arrangements. In fact, it requires market makers in the country where the direct trading takes place to come back to China's onshore forex market to settle their RMB net positions. The most relevant examples of direct trading are that of the Japanese Yen with the RMB and the Australian dollar with the RMB. Besides, China had designated a number of pilot regions in which the direct trading of RMB and the currencies of some small neighboring countries were encouraged (Table 3).

Table 3
Direct trading mechanisms against other currencies

Date	Region	Country	Currency
2011 Jun	Yunnan Province	Laos	Lao Kip (LAK)
2011 Jun	Xinjiang Province	Kazakhstan	Kazakhstan Tenge (KZT)
2011 Jun	Guangxi Province	Vietnam	Vietnamese Dong (VND)
2011 Jul	Shandong Province	Korea	Korea Won (KRW)
2011 Dec	Yunnan Province	Thailand	Thai Baht (THB)
2012 Jun	Nationwide	Japan	Japanese Yen (JPY)
2013 April	Nationwide	Australia	Australian Dollar (AUD)

Source: the PBoC and BBVA Research

In addition, the Chinese government has also leveraged on the financing muscle of its policy banks, in particular China Development Bank (CDB) and the Export-Import Bank of China, to promote the usage of RMB in international lending. For example, in 2010 the CDB denominated half of a US$ 20 billion loan to Venezuela in the RMB so that Venezuela could make purchases of Chinese goods and services in China's own currency. Moreover, the CDB has offered RMB denominated-loans to SMEs in Africa while China's Export-Import Bank has issued RMB-denominated lines of credit to Jamaica and Bolivia. In 2012, the CDB signed a memorandum of understanding with its Brazilian, Russian, Indian, and South African counterparts in the BRICS Summit to boost lending in their own currencies, including –and perhaps most in favor of – the RMB.

Nevertheless, we think that the overseas RMB-denominated loans programs by China's public banks differed in nature from the other financial arrangements described in this section since they are directly affected by the business consideration of the policy banks. Therefore, in our further analysis, we only consider cross-border RMB clearing systems and the RMB direct-trading mechanism of RMB (against Japanese Yen and Australian Dollar) as potentially similar mechanisms to BSA arrangements.

Effectiveness of the RMB BSAs

Regarding the effectiveness of these financial arrangements, Takatoshi (2011) reckons that the effectiveness of these BSAs in terms of promoting the RMB use in cross-border settlement is constrained by the fact that China's capital account still remains closed. In practice, these BSAs have rarely been tapped into after their implementations. The PBoC revealed in its 2011 Annual Report that only RMB 30 bn of total 803.5 bn BSAs were used in that year. In its 2012 Annual Report, in turn, the PBoC mentioned that some BSAs were used but didn't reveal the exact amount.

We do not hold such a negative view as Takatoshi in this matter. In fact, RMB BSAs do not necessarily have to be used fully to promote the RMB internationally. This is specially the case for those BSAs offerred to off-shore RMB financial centers as a way to provide the RMB liquidity

in case there was a shortage of it. For example, the Hong Kong Monetary Authorities (HKMA) announced the usage of its RMB BSA in late 2011 when the strong demand for the offshore RMB drained the market liquidity fiercely. As such, the RMB BSA has helped to stabilize the nascent money market of the offshore RMB and has thereby contributed to the ensuing rapid development of offshore RMB businesses in Hong Kong. This case showed that the RMB BSAs, at least for those with international financial centers, have more than a symbolic meaning.

Previous studies in BSA country selection

Although the RMB BSAs and similar financial arrangements are widely cited as one important step for RMB internationalization, there is still scant literature on these financial arrangements, in particular on the determinants of the selection of the counterparty countries.

The only related empirical analysis we are aware of is that of Aizenman and Pasricha (2010) who explore the selection criterion for the FED to establish BSAs to a number of emerging markets at the height of the 2008-2009 global financial crisis. They find that the US tended to provide a BSA to an emerging country with closer financial and trade ties, a higher degree of financial openness as well as a relatively better sovereign credit history..

It is noted that the conclusions of Aizenman and Pasricha (2010) must not be directly extended to the RMB BSAs signed between China and other countries given their different objectives. These RMB BSAs aim to promote the usage of RMB in trade transaction settlements rather than provide temporary liquidity in the crisis moment. However, it still offers a good reference from a methodological point of view.

3. Empirical Specification

We use a simple logistic regression model to identify the determinants of China's RMB BSAs based on a gravity model. We select the gravity model because of its proven good performance in explaining bilateral trade flows (Feenstra etc, 2001). The dependent variable is a dummy, which equals 1 if the country has signed an RMB BSA or similar financial arrangement (bilateral RMB clearing systems and direct trading mechanisms against the RMB) with China and equals 0 if not. We shall include 18 of the 19 countries which have signed a bilateral RMB arrangement (we drop Uzbekistan due to data constraints). We add those with either a direct trading mechanism against the RMB (basically Japan since the other one with such arrangement, Australia, already has a BSA) or a clearing system (Taiwan and the UK since the third one with such arrangement and no BSA, Macao, lacks the necessary data). We consider five main motifs which could explain the selection of these RMB BSAs and choose a number of related variables (the definitions of variables and their sources are referred to appendix 1). It should be noted that these motifs may be valid independently on whether it is China to choose with whom to engage in a BSA or it is the counterpart country.

The first is the gravity motif, which is represented by its two core variables: distance and size. We use the distance between Beijing and the other country's capital as a proxy (DISTANCE). Economic size is proxied by the country's nominal GDP in USD (GDP). The distance variable has an important interpretation as a motif based on the fact that Asian countries are obviously closer to China. In other words, if distance is found significant in increasing the likelihood of signing RMB BSAs, it would be tantamount to the RMB internationalization being more of a regional than a global process, at least as relates to BSAs. This is what several scholars have argued (Takatoshi, 2011 and Yu and Gao, 2009).

The second motif is trade. We use two variables for this. The first is the share of a country's exports into China as a percentage of total exports (EXP) to account for it. We also include a dummy variable which is equal to one if a country is in a Free Trade Area (FTA) with China and zero otherwise (FTA).

The third is a financial motif, which is proxied by two key variables. One is a country's FDI into China as the percentage of China's total inward FDI (FDI) and the other on is the openness of the capital account (CAOP), following Aizenman and Pasricha (2009). We would expect that both variables should foster the use of RMB for cross border settlement.

The fourth motif is macroeconomic soundness which we proxy with two variables. The first is inflation (INF). Although one could understand inflation as a measure of macroeconomic instability, it is also true that high inflation is generally associated with a weak currency, which in turn is associated with a higher share of trade invoiced in foreign currency. This is why we do not have a clear a-priori on the sign of the coefficient for inflation but we do think it is still relevant to be tested. The second measure of macroeconomic soundness is the riskiness of a country for its creditors, proxied by a dummy variable which takes the value of 1 if a country has defaulted in the past (DEFAULT).

Finally, we look into the importance of an institutional motif. This seems very relevant to us since the signing of some BSAs has been interpreted as a maneuver from the part of China to relate with countries that are institutionally riskier and perhaps more corrupted and, thus, easier to influence or, simply, closer to China in terms of institutional quality. To capture this, we use four variables. The first two proxies the quality of institutions in a certain country while the other two look at how close their quality of institutions is to that of China. For the absolute indicators, we focus on two: first, a measure of government quality (GOVQUALITY), which includes an index measuring the quality of the Rule of Law and another one for Government Effectiveness. The higher the index the better is the government quality. The second one is a measure of corruption (CORRUP) which increases the more pervasive corruption is. For the institutional indicators relative to China, we take the absolute value of the difference between a certain country's measure of government quality and that of China and the same for corruption

(DIF- GOVQUALITY and DIF-CORRUP).   The hypothesis to be tested here is whether China prefers to sign BSAs with countries that are more similar to China in the way their Government operates. Being a cross-section analysis, we take five-year averages of all of these potential determinants for five years right before the signature of each of the specific BSAs.

4. Regression results

Tables 5 presents the results of our logit regressions which aim to identify the reasons behind a country signing a BSA with China. We show five different specifications with different regressors as not all can be included together due to their high correlation (Appendix 2)

In all the specifications where the gravity motif is included, its relevance is confirmed. In fact, the coefficients of GDP size and distance are statistically significant with the expected signs, which implies that a larger economic size and the closeness to China increases the likelihood of a country's signing an RMB BSA with China. These results obviously substantiate our choice of the gravity model.

The trade motif is also found very relevant in explaining the country choice for an RMB BSA. A country's exports to China marginally contribute to the signing of an RMB BSA and the signing of an FTA with China even more so (at least in a more significant way). This result may be explained in two ways. First, the PBoC (or the Chinese Authorities as a whole) might intentionally promote the idea of a RMB BSA with its largest exporters so that they are more likely to accept the RMB in bilateral trade settlements, confirming the idea that exports into China are more relevant than imports from China in determining the choice of countries for BSAs.

The financial motif has a more mixed result than the trade one. The amount of FDI into China is not found significant in increasing the likelihood of signing an RMB BSAs. Financial /openness, in turn, is found significant, but with the opposite sign as we would have expected based on Aizenman and Pasricha's findings for the US BSAs. The negative coefficient for financial openness implies that countries with a closer capital account tend to be more likely to sign a BSA with China.

In line with the financial motif, macroeconomic soundness also offers mixed results. Inflation is not found significant, reflecting the opposite forces which may be influencing the signing of a BSA, on the one hand discouraging it due to macroeconomic instability but, on the other hand, encouraging it (since hard currency is more needed for invoicing trade).   However, China seems to be attracted to countries with a history of default, which would goes against the macroeconomic soundness motif.

As for the institutional motif, our results do not support the view that China has been using RMB internationalization, and in particular RMB denominated BSAs, to get closer to countries institutionally more similar to China. On the contrary, countries with a better government and less corruption are found to be more prone to signing a BSA with China. In the same vein, the less similar to China, institutionally, the higher is the likelihood of a BSA being signed with China.

Finally, to test the robustness of the results, we also include two additional cases (Venezuela and Philippine) although, admittedly, the objectives of their RMB arrangements have been different. Philippine has a CMI RMB-denominated BSA but has not been replaced by a new RMB BSA. Venezuela is included given the large loan received from CDB, which were partially denominated in RMB. We do not have enough information on other loans granted by the CDB for sovereign countries. The results, as shown in Appendix 3, hardly change.

Table 5
Determinants of China's RMB BSAs with other countries (as of March 2013)

No. of Obs.		(1) 118	(2) 118	(3) 118	(4) 118	(5) 118
Gravity Motif	GDP	0.458* (2.12)				
	DISTANCE	-1.197* (-1.79)	-1.520** (-2.17)	-1.587** (-2.28)	-1.909** (-2.52)	-1.753** (-2.49)
Trade Motif	EXP	3.707* (1.70)	4.644* (1.82)	3.116 (1.45)	4.394* (1.71)	3.232 (1.49)
	FTA	1.704** (2.05)	1.905** (2.17)	2.026** (2.35)	1.820** (2.07)	2.034** (2.35)
Financial Motif	FDI	44.44 (0.83)	60.28 (0.98)	66.43 (1.02)	66.10 (0.85)	70.64 (0.95)
	CAOP		-0.837** (-2.41)	-0.556* (-1.76)	-0.796** (-2.47)	-0.655** (-2.16)
Macro-economic Soundness	INF	-0.049 (-0.52)	-0.000 (-0.07)	-0.043 (-0.52)	-0.001 (-0.10)	-0.001 (-0.07)
	DEFAULT	1.598 (1.46)	3.092*** (2.58)	2.424** (2.12)	2.928** (2.56)	2.447** (2.26)
Institutional Motif	GOVQUALITY		1.701*** (2.69)			
	DIF-GOVQUALITY			1.269* (1.95)		
	CORRUP				-1.525*** (-3.05)	
	DIF-CORRUP					1.428*** (2.75)
	_cons	6.327 (1.03)	10.71* (1.74)	10.81* (1.76)	14.24** (2.15)	11.74* (1.94)
	R^2	0.376	0.413	0.367	0.430	0.407

t statistics in parentheses.
* p < 0.1, ** p < 0.05, *** p < 0.01.
Source: BBVA Research

5. Conclusions

As an important step to advance in RMB internationalization, the PBoC has signed a series of RMB-denominated BSAs with other countries. Using a gravity model, we explore empirically the factors behind the choice of countries for which such RMB BSAs have been signed. As one would expect, we confirm the gravity motif since both a country's economic size and its distance from China increase the likelihood of a country signing a BSA with China. The trade motif (both the relative size of a country's exports to China and the existence of a free-trade agreement (FTA) is also crucial for the choice of countries signing BSAs. FDI relations do not seem to matter though, nor the macroeconomic soundness of the country with which China signs an RMB BSA.

Finally, our empirical analysis does not confirm the view that China has been using RMB internationalization, and in particular BSAs, to engage with institutionally riskier or more corrupted countries, not even with countries that are closer to China institutionally or corruption wise. We do find, however, that riskier countries (in terms of default history) and with a closer capital account are associated with BSAs. In other words, China does seem to prefer countries with sovereign default history and financial closeness in its choice of partners for RMB BSAs but not necessarily the ones with serious corruption or a poor institutional framework. These results should, of course, be considered preliminary since China continues to sign new BSAs at a very fast pace but it does offer a first answer to a frequently debated

question of the underlying reasons behind China's choice of countries to expand the use of the RMB overseas.

As for future research, given that trade is found to be the key driving force for BSAs as was intended by the Chinese authorities, it would be interesting to look at the actual effects of signing a BSA, namely whether the authorities' objective has actually been achieved in terms of trade promotion. Another potentially rich venue for research is to have more detailed information of the actual motivations behind the signature of an RMB denominated BSA by conducting interviews which can feed a case study.

Appendix 1

Table 6
Definitions of Variables

Variable	Definition	Source
GDP	Log value of a country's GDP in USD	The World Bank
DISTANCE	Distance between China and the host country (capital-to-capital)	Kristian Skrede Gleditsch, accessible at http://privatewww.essex.ac.uk/~ksg/data-5.html
CREDIT-GDP	The ratio of a country's total credit to its GDP	The World Bank
EXP	The share of exports to China to the host country's total exports	UN Comtrade Database
IMP	The share of imports from China to China's total exports	UN Comtrade Database
FTA	A dummy variable which equals 1 if China and the counterpart share a Free Trade Agreement and equals 0 otherwise	Ministry of Commerce of China
FDI	A country's FDI into China as percentage of China's total inward FDI	CEIC
OFDI	A country's FDI from China as percentage of China's total outward FDI	CEIC
CAOP	The Chinn-Ito Index for capital account openness. A higher value of the index stands for more capital account openness	The Chinn_Ito Index for capital account openness, accessible at http://web.pdx.edu/~ito/Chinn-Ito_website.htm
Foreign_reserve	The amount of a country's foreign reserve	The World Bank
Default	A dummy variable which equals 1 if a sovereign default happened between 1983-2010 and equals 0 otherwise.	The Moody's "Special Comment: Sovereign Default and Recovery Rates, 1983-2010"
INF	The five-year average inflation rate prior to the BSA signing	The World Bank
GOVQUALITY	The rule_of_law index by the World Bank for which higher value stands for better rule of law.	The World Bank Governance Indicators (2011)
DIF-GOVQUALITY	The absolute value of the difference between China's rule_of_law index and that of the other country	The World Bank Governance Indicators (2011)
CORRUP	The Corruption index for which higher value stands for higher level of corruption	The World Bank Governance Indicators (2011)
DIF-CORRUP	The absolute value of the difference between China's Corruption index and that of the other country	The World Bank Governance Indicators (2011)

Source: BBVA Research

Appendix 2

Table 7
Correlations of independent variables

	GDP	Credit GDP	Distance	EXP	IMP	FTA	FDI	OFDI	CAOP	Inflation	Foreing-reserve	Default	GOVQUALITY	DIF-GOVQUALITY	CORRUP	DIF-CORRUP
GDP	1.00															
Credit_GDP	0.46	1.00														
Distance	-0.20	-0.16	1.00													
EXP	0.00	-0.07	-0.33	1.00												
IMP	0.14	0.01	-0.28	0.50	1.00											
FTA	0.12	0.02	-0.22	0.21	0.32	1.00										
FDI	0.14	0.16	-0.35	0.36	0.58	0.28	1.00									
OFDI	-0.21	-0.09	-0.12	0.16	0.12	0.00	0.15	1.00								
CAOP	0.28	0.38	-0.02	-0.08	-0.04	0.01	0.12	-0.13	1.00							
Inflation	-0.12	0.00	0.05	-0.01	-0.07	-0.03	-0.02	0.41	-0.16	1.00						
Foreign -reserve	-0.44	0.25	-0.33	0.11	0.27	0.04	0.22	-0.06	0.04	-0.04	1.00					
Default	-0.00	-0.19	0.22	-0.04	0.16	0.08	-0.05	-0.07	-0.07	-0.03	0.02	1.00				
GOVQUALITY	0.49	0.68	-0.14	-0.05	-0.21	0.07	0.21	-0.21	0.63	-0.18	0.13	-0.26	1.00			
DIF-GOVQUALITY	0.46	0.63	-0.09	-0.03	-0.06	0.02	0.22	-0.07	0.52	0.05	0.10	-0.21	0.83	1.00		
CORRUP	-0.44	-0.66	0.36	0.05	-0.23	-0.10	-0.23	0.20	-0.60	0.13	-0.12	0.20	-0.95	-0.86	1.00	
DIF-CORRUP	0.46	0.63	-0.05	-0.02	0.23	0.08	0.23	-0.10	0.53	-0.04	0.12	-0.17	0.88	0.94	-0.95	1.00

Source: BBVA Research

Appendix 3

Table 8
The Regression results when Philippine and Venezuela are treated as having BSAs with China

No. of Obs.		(1) 118	(2) 118	(3) 118	(4) 118	(5) 118
Gravity Motif	GDP	0.458** (2.12)				
	DISTANCE	-1.197* (-1.79)	-1.520** (-2.17)	-1.587** (-2.28)	-1.909** (-2.52)	-1.753** (-2.49)
Trade Motif	EXP	3.707* (1.70)	4.644* (1.82)	3.116 (1.45)	4.394* (1.71)	3.232 (1.49)
	FTA	1.704** (2.05)	1.905** (2.17)	2.026** (2.35)	1.820** (2.07)	2.034** (2.35)
Financial Motif	FDI	44.44 (0.83)	60.28 (0.98)	66.43 (1.02)	66.10 (0.85)	70.64 (0.95)
	CAOP	-0.320 (-1.21)	-0.837** (-2.41)	-0.556* (-1.76)	-0.796** (-2.47)	-0.655** (-2.16)
Macro-economic Soundness	INF	-0.049 (-0.52)	-0.000 (-0.07)	-0.043 (-0.52)	-0.001 (-0.10)	-0.001 (-0.07)
	DEFAULT	1.598 (1.46)	3.092*** (2.58)	2.424** (2.12)	2.928** (2.56)	2.447** (2.26)
Institutional Motif	GOVQUALITY		1.701*** (2.69)			
	DIF-GOVQUALITY			1.269* (1.95)		
	CORRUP				-1.525*** (-3.05)	
	DIF-CORRUP					1.428*** (2.75)
	_cons	6.327 (1.03)	10.71* (1.74)	10.81* (1.76)	14.24** (2.15)	11.74* (1.94)
	R^2	0.376	0.413	0.367	0.430	0.407

t statistics in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: BBVA Research

Bibliography

Aizenman Joshua and Gurnain Kaur Pasricha, 2009. "Selective Swap Arrangements and the Global Financial Crisis: Analysis and Interpretation," NBER Working Papers 14821, National Bureau of Economic Research, Inc.

Feenstra, Robert C., James R. Markusen, and Andrew K. Rose, 2001,. "Using the Gravity Equation to Differentiate among Alternative Theories of Trade.", the Canadian Journal of Economics, Vol. 34, No. 2.,

Frankel, Jeffrey, 2011, Historical Precedents for Internationalization of the RMB, Maurice R. Greenberg Center for Geoeconomic Studies and International Institutions and global Governance Program, Council on Foreign Relations, November

Gao, Haihong and Yongding Yu, 2009, "Internationalization of the Renminbi", BoK-BIS Seminar in Seoul.

Garcia Herrero, Alicia, Stephen Schwartz, Le Xia, Chunzi Zhang y Qun Liao, 2011, "RMB cross-border settlement: origins, mechanics and opportunities" , BBVA Research, China CITIC Bank and CITIC Bank International.

Garcia Herrero, Alicia, Stephen Schwartz, and Le Xia, 2012a, "As RMB internationalization advances, new headwinds call for policy steps", Economic Watch, BBVA Research

Garcia Herrero, Alicia, Yingyi Tsai, Le Xia,, 2012b, "RMB Internationalization: what is it for Taiwan" , BBVA Research

Tudela Merxe, Duggar Elena, Metz Albert and Ooserveld Bart, 2011, "Special Comment: Sovereign Default and Recovery Rates, 1983-2010", Moody's

The People's Bank of China, "The PBoC Annual Report 2010".

The People's Bank of China, "The PBoC Annual Report 2011"

The People's Bank of China, "The PBoC Annual Report 2012"

The Worldwide Governance Indicators, 2011, the World Bank Group

Yu, Yongding, 2012, "Revisiting the internationalization of the Yuan", working paper, Asia Development Bank Institute

Working Papers

2013

13/01 **Hugo Perea, David Tuesta y Alfonso Ugarte:** Lineamientos para impulsar el Crédito y el Ahorro. Perú.

13/02 **Ángel de la Fuente:** A mixed splicing procedure for economic time series.

13/03 **Ángel de la Fuente:** El sistema de financiación regional: la liquidación de 2010 y algunas reflexiones sobre la reciente reforma.

13/04 **Santiago Fernández de Lis, Adriana Haring, Gloria Sorensen, David Tuesta, Alfonso Ugarte:** Lineamientos para impulsar el proceso de profundización bancaria en Uruguay.

13/05 **Matt Ferchen, Alicia Garcia-Herrero and Mario Nigrinis:** Evaluating Latin America's Commodity Dependence on China.

13/06 **K.C. Fung, Alicia Garcia-Herrero, Mario Nigrinis Ospina:** Latin American Commodity Export Concentration: Is There a China Effect?

13/07 **Hugo Perea, David Tuesta and Alfonso Ugarte:** Credit and Savings in Peru.

13/08 **Santiago Fernández de Lis, Adriana Haring, Gloria Sorensen, David Tuesta, Alfonso Ugarte:** Banking penetration in Uruguay.

13/09 **Javier Alonso, María Lamuedra y David Tuesta:** Potencialidad del desarrollo de hipotecas inversas: el caso de Chile.

13/10 **Ángel de la Fuente:** La evolución de la financiación de las comunidades autónomas de régimen común, 2002-2010.

13/11 **Javier Alonso, María Lamuedra y David Tuesta:** Potentiality of reverse mortgages to supplement pension: the case of Chile.

13/12 **Javier Alonso y David Tuesta, Diego Torres, Begoña Villamide:** Proyecciones de tablas generacionales dinámicas y riesgo de longevidad en Chile.

13/13 **Alicia Garcia Herrero and Fielding Chen:** Euro-area banks' cross-border lending in the wake of the sovereign crisis.

13/14 **Maximo Camacho, Marcos Dal Bianco, Jaime Martínez-Martín:** Short-Run Forecasting of Argentine GDP Growth.

13/15 **Javier Alonso y David Tuesta, Diego Torres, Begoña Villamide:** Projections of dynamic generational tables and longevity risk in Chile.

13/16 **Ángel de la Fuente:** Las finanzas autonómicas en boom y en crisis (2003-12).

13/17 **Santiago Fernández de Lis, Saifeddine Chaibi, Jose Félix Izquierdo, Félix Lores, Ana Rubio and Jaime Zurita:** Some international trends in the regulation of mortgage markets: Implications for Spain.

13/18 **Alicia Garcia-Herrero and Le Xia:** China's RMB Bilateral Swap Agreements: What explains the choice of countries?

2012

12/01 **Marcos Dal Bianco, Máximo Camacho and Gabriel Pérez-Quiros:** Short-run forecasting of the euro-dollar exchange rate with economic fundamentals. / *Publicado en Journal of International Money and Finance, Vol.31(2), marzo 2012, 377-396.*

12/02 **Guoying Deng, Zhigang Li and Guangliang Ye:** Mortgage Rate and the Choice of Mortgage Length: Quasi-experimental Evidence from Chinese Transaction-level Data.

12/03 **George Chouliarakis and Mónica Correa-López:** A Fair Wage Model of Unemployment with Inertia in Fairness Perceptions. / *Updated version to be published in Oxford Economic Papers: http://oep.oxfordjournals.org/.*

12/04 **Nathalie Aminian, K.C. Fung, Alicia García-Herrero, Francis NG:** Trade in services: East Asian and Latin American Experiences.

12/05 **Javier Alonso, Miguel Angel Caballero, Li Hui, María Claudia Llanes, David Tuesta, Yuwei Hu and Yun Cao:** Potential outcomes of private pension developments in China (Chinese Version).

12/06 **Alicia Garcia-Herrero, Yingyi Tsai and Xia Le:** RMB Internationalization: What is in for Taiwan?.

12/07 **K.C. Fung, Alicia Garcia-Herrero, Mario Nigrinis Ospina:** Latin American Commodity Export Concentration: Is There a China Effect?.

12/08 **Matt Ferchen, Alicia Garcia-Herrero and Mario Nigrinis:** Evaluating Latin America's Commodity Dependence on China.

12/09 **Zhigang Li, Xiaohua Yu, Yinchu Zeng and Rainer Holst:** Estimating transport costs and trade barriers in China: Direct evidence from Chinese agricultural traders.

12/10 **Maximo Camacho and Jaime Martinez-Martin:** Forecasting US GDP from small-scale factor models in real time.

12/11 **J.E. Boscá, R. Doménech and J. Ferria:** Fiscal Devaluations in EMU.

12/12 **Ángel de la Fuente and Rafael Doménech:** The financial impact of Spanish pension reform: A quick estimate.

12/13 **Biliana Alexandrova-Kabadjova, Sara G. Castellanos Pascacio, Alma L. García-Almanza:** The Adoption Process of Payment Cards -An Agent- Based Approach. / *B.Alexandrova-Kabadjova, S. Martinez-Jaramillo, A. L. García-Almanza y E. Tsang (eds.) Simulation in Computational Finance and Economics: Tools and Emerging Applications, IGI Global, cap. 1, 1-28 (Ver: IGI Global).*

12/14 **Biliana Alexandrova-Kabadjova, Sara G. Castellanos Pascacio, Alma L. García-Almanza:** El proceso de adopción de tarjetas de pago: un enfoque basado en agentes.

12/15 **Sara G. Castellanos, F. Javier Morales y Mariana A. Torán:** Análisis del uso de servicios financieros por parte de las empresas en México: ¿Qué nos dice el Censo Económico 2009? / *Publicado en Bienestar y Política Social, Vol. 8(2), 3-44. Disponible también en inglés: Wellbeing and Social Policy, Vol. 8(2), 3-44.*

12/16 **Sara G. Castellanos, F. Javier Morales y Mariana A. Torán:** Analysis of the Use of Financial Services by Companies in Mexico: What does the 2009 Economic Census tell us?

12/17 **R. Doménech:** Las Perspectivas de la Economía Española en 2012.

12/18 **Chen Shiyuan, Zhou Yinggang:** Revelation of the bond market (Chinese version).

12/19 **Zhouying Gang, Chen Shiyuan:** On the development strategy of the government bond market in China (Chinese version).

12/20 **Angel de la Fuente and Rafael Doménech:** Educational Attainment in the OECD, 1960-2010.

12/21 **Ángel de la Fuente:** Series enlazadas de los principales agregados nacionales de la EPA, 1964-2009.

12/22 **Santiago Fernández de Lis and Alicia Garcia-Herrero:** Dynamic provisioning: a buffer rather than a countercyclical tool?

12/23 **Ángel de la Fuente:** El nuevo sistema de financiación de las Comunidades Autónomas de régimen común: un análisis crítico y datos homogéneos para 2009 y 2010.

12/24 **Beatriz Irene Balmaseda Pérez y Lizbeth Necoechea Hasfield:** Metodología de estimación del número de clientes del Sistema Bancario en México.

12/25 **Ángel de la Fuente:** Series enlazadas de empleo y VAB para España, 1955-2010.

12/26 **Oscar Arce, José Manuel Campa y Ángel Gavilán:** Macroeconomic Adjustment under Loose Financing Conditions in the Construction Sector.

12/27 **Ángel de la Fuente:** Algunas propuestas para la reforma del sistema de financiación de las comunidades autónomas de régimen común.

12/28 **Amparo Castelló-Climent, Rafael Doménech:** Human Capital and Income Inequality: Some Facts and Some Puzzles.

12/29 **Mónica Correa-López y Rafael Doménech:** La Internacionalización de las Empresas Españolas.

12/30 **Mónica Correa-López y Rafael Doménech:** The Internationalisation of Spanish Firms.

12/31 **Robert Holzmann, Richard Hinz and David Tuesta:** Early Lessons from Country Experience with Matching Contribution Schemes for Pensions.

12/32 **Luis Carranza, Ángel Melguizo and David Tuesta:** Matching Contributions for Pensions in Colombia, Mexico, and Peru: Experiences and Prospects.

12/33 **Robert Holzmann, Richard Hinz y David Tuesta:** Primeras lecciones de la experiencia de países con sistemas de pensiones basados en cotizaciones compartidas.

12/34 **Luis Carranza, Ángel Melguizo y David Tuesta:** Aportaciones compartidas para pensiones en Colombia, México y Perú: Experiencias y perspectivas.

BBVA Research's publications can be viewed on the following website: http://www.bbvaresearch.com

Contact details:

BBVA Research
43/F Two International Finance Centre
8 Finance Street Central
HONG KONG
Phone: +852 2582 3111
E-mail: research.emergingmarkets@bbva.com.hk
www.bbvaresearch.com