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The potential of the RMB to be a major invoicing currency in the Asia-Pacific region

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Why internationalize the RMB?

- Chinese citizens can buy and sell goods, services and financial assets internationally, all in RMB.
- Citizens able to lend and borrow internationally in RMB
- Reduce the chance of a currency crisis hitting China even after it has relaxed its capital controls and allowed the currency to be fully convertible.

Steps taken by the Chinese government

- allowed and facilitated RMB to be used to settle trade and denominate offshore financial instruments
- supplied foreign countries with RMB liquidity (e.g. swap lines with foreign central banks)
- gradually relaxed capital controls and make the RMB more convertible
- encourage the formation of an offshore RMB market

Outcomes of such policies

- more and more trade settled in RMB (approx. 18% of China trade by end of 2013)
- more and more RMB deposits held in banks in various offshore centers
- issuance of offshore RMB bonds in various offshore centers
- emergence of offshore RMB loans
- rapid increase in the foreign exchange turnover share of RMB

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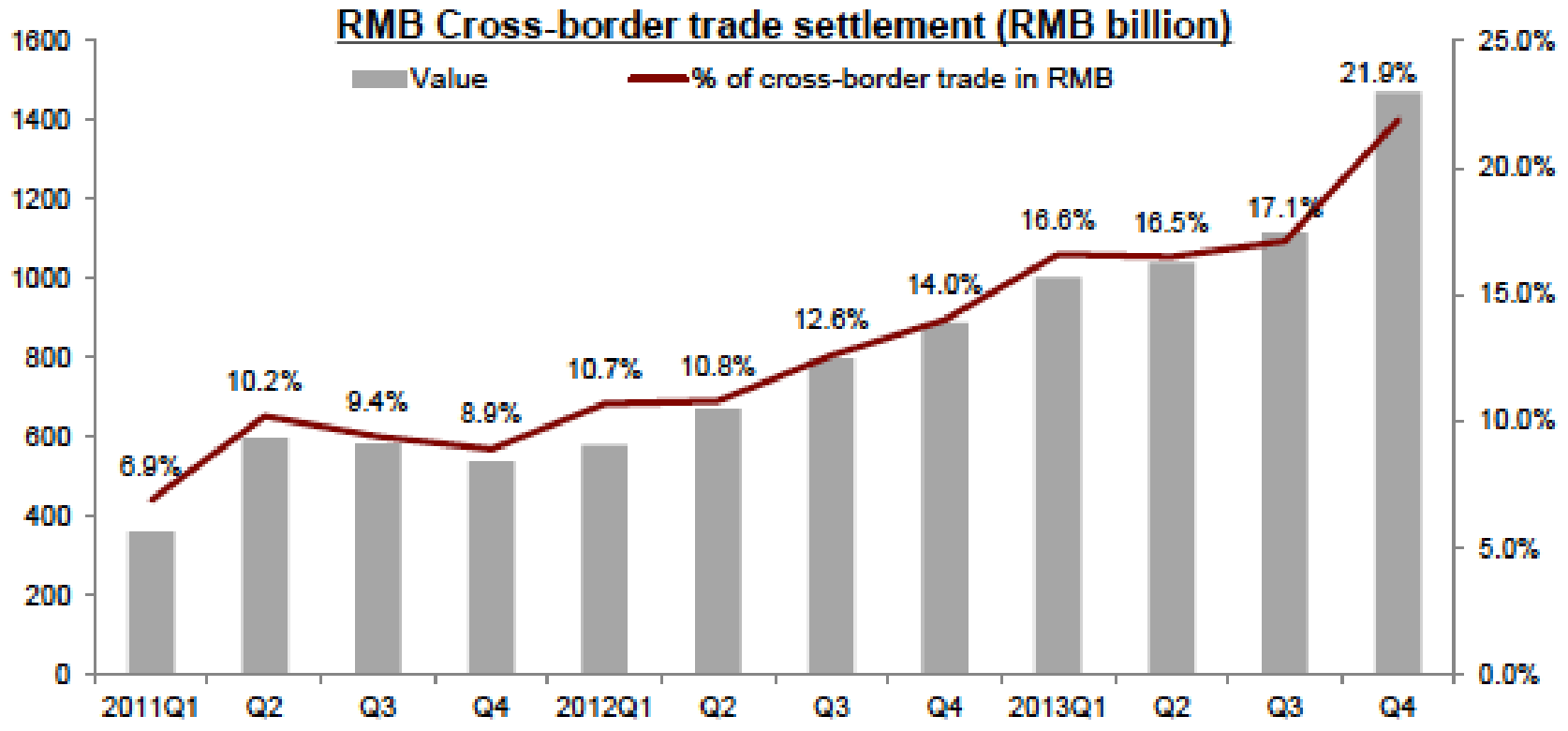
Offshore RMB business in Hong Kong

Offshore RMB business in HK	2010	2011	2012	2013
RMB customer deposits	314.9 bn	588.5 bn	603.0 bn	860.5bn
RMB certificates of deposit outstanding	6.8 bn	73.1 bn	117.3 bn	200.1bn
Total	321.7 bn	661.6 bn	720.2 bn	1060.6 bn
RMB trade settlement handled by banks in Hong Kong (amount during the year)	369.2 bn	1,914.9 bn	2,632.5 bn	3,841 bn
RMB bond issuance (amount during the year)	35.8 bn	107.9 bn	112.2 bn	116.6 bn
RMB bonds outstanding	55.8 bn	146.7 bn	237.2 bn	380.5 bn
RMB loans outstanding	1.8 bn	30.8 bn	79.0 bn	155.6 bn

RMB trade settlement in HK

- In 2013, total amount of trade settled in RMB was 4.63 tr yuan (18%), of which 3.84 tr yuan was handled by HK banks (83%)
- In 2012, total amount of trade settled in RMB was 2.94 tr yuan (USD 474 billion), of which 2.63 tr yuan was handled by HK banks (89%)
- In 2011, total amount of trade settled in RMB was 2.09 tr yuan (USD 336 billion), of which 1.91 tr yuan was handled by HK banks (91%)

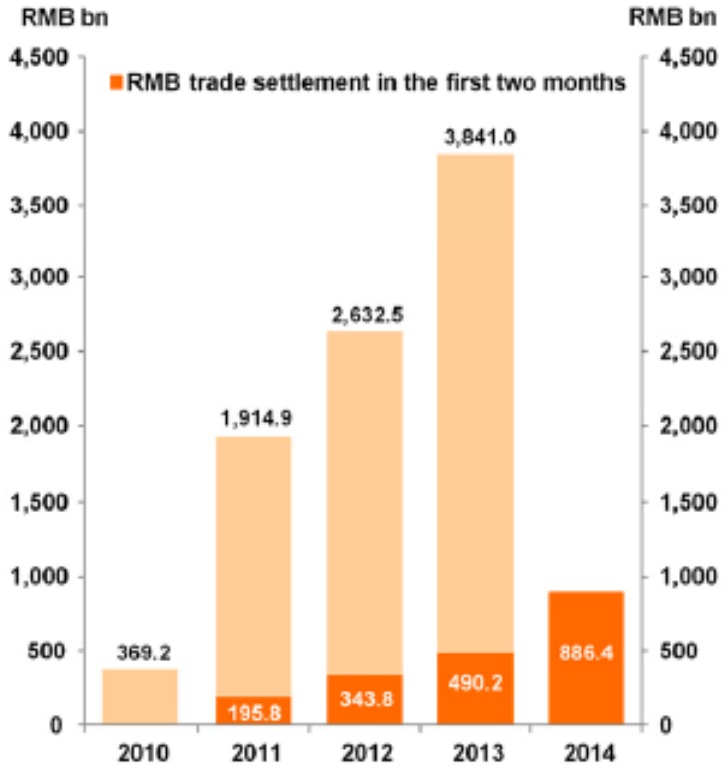
The value of cross-border RMB trade settlement in 2013 jumped 58%, compared to the same period in 2012.



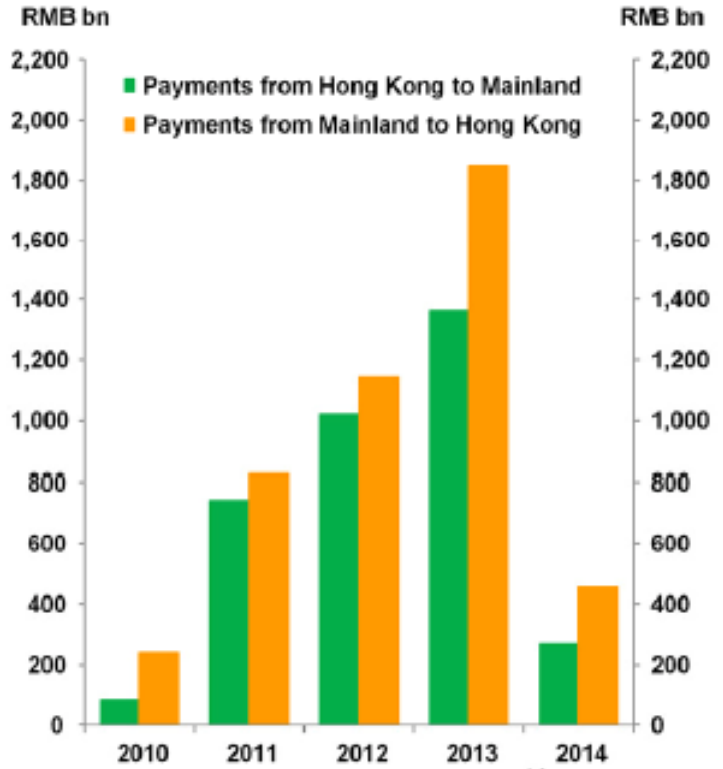
Source: People's Bank of China, BOCHK

CONTINUED EXPANSION IN RMB TRADE SETTLEMENT

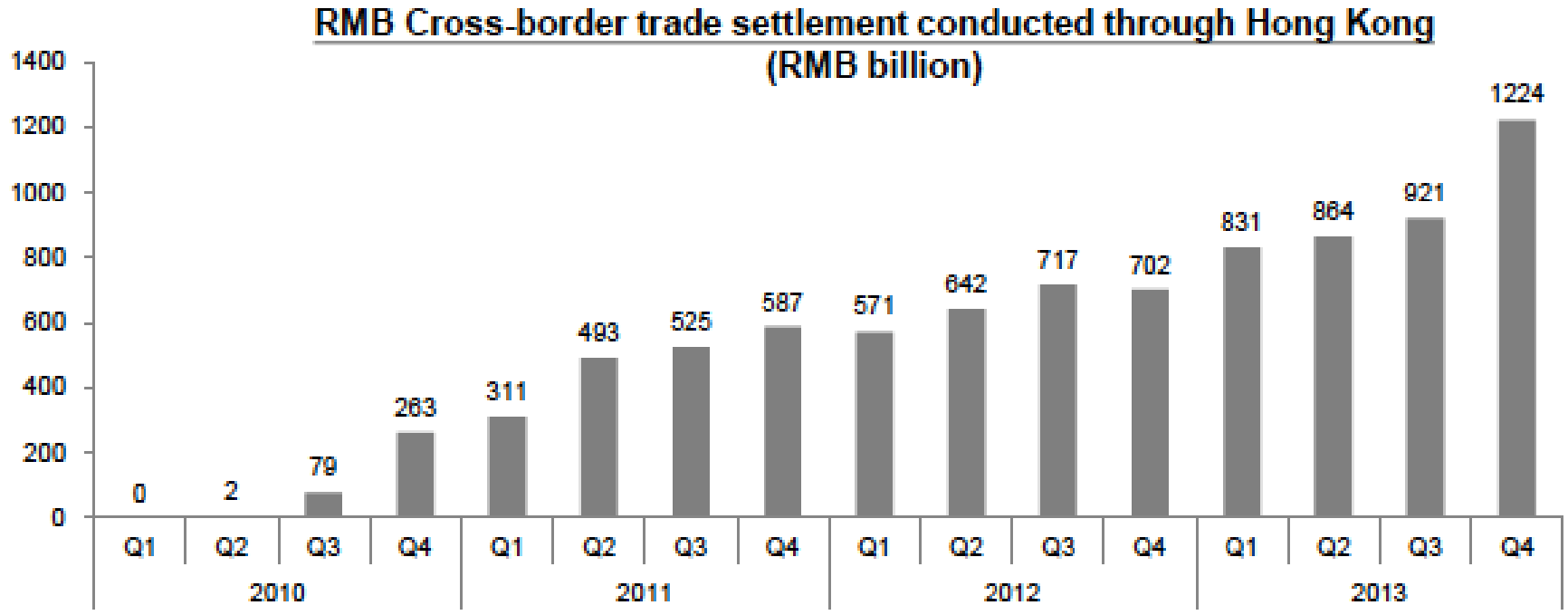
RMB trade settlement handled by banks in Hong Kong



Flows of RMB trade settlement between Hong Kong and the Mainland



- The volume of cross-border RMB trade settlement conducted through Hong Kong increased 46% from RMB 2.6 trillion in 2012 to RMB 3.8 trillion in 2013



Source: Hong Kong Monetary Authority (HKMA)

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Top 10 Regions – RMB Payment (billion USD)

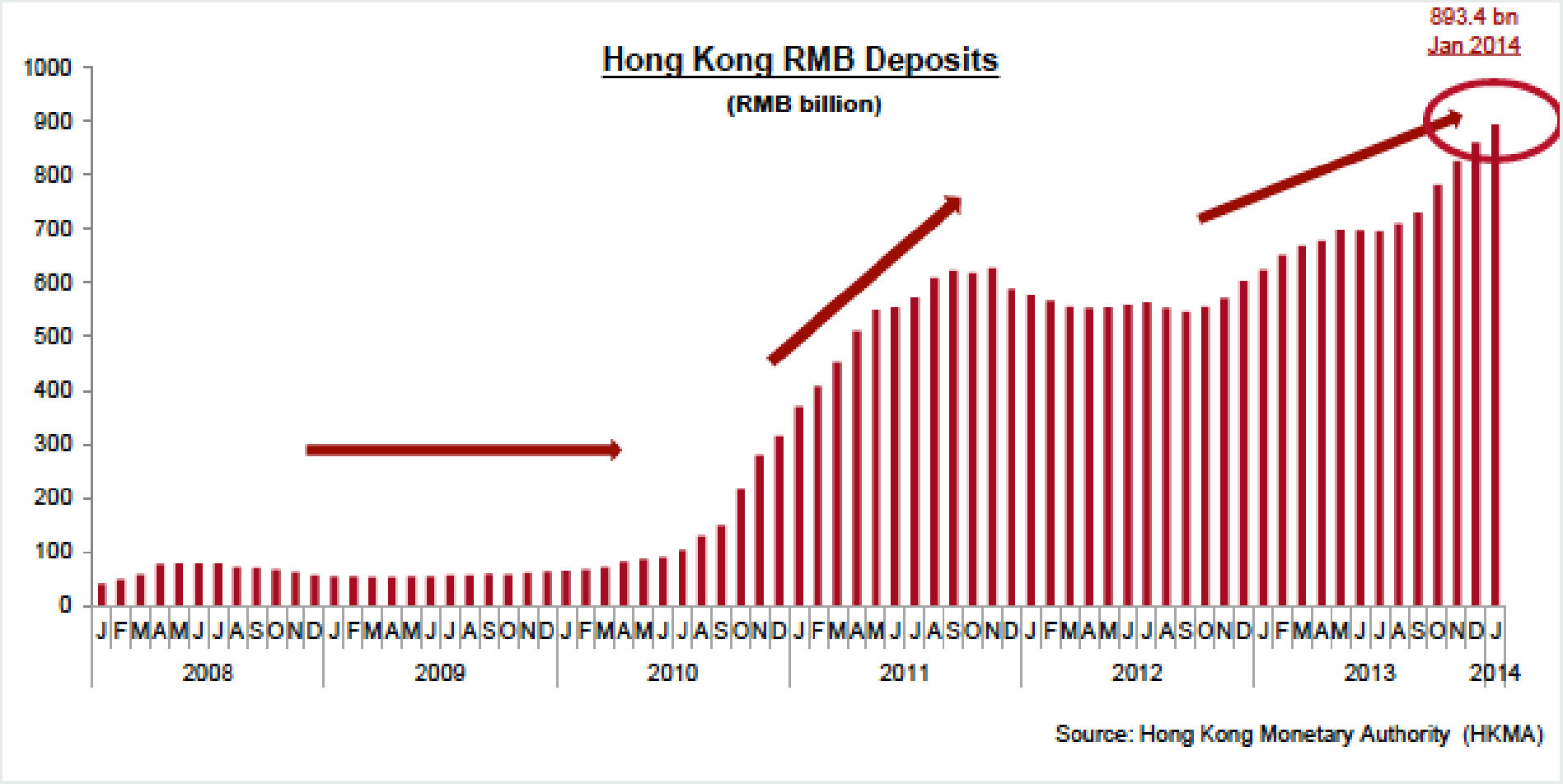
Region	2H2013			2H2012			YoY Growth
	Rank	Value	%	Rank	Value	%	
Hong Kong	1	20,592	78.6%	1	8,244	85.1%	150%
UK	2	1,473	5.6%	3	370	3.8%	298%
Singapore	3	1,038	4.0%	2	379	3.9%	174%
Taiwan	4	620	2.4%	10	39	0.4%	1470%
France	5	473	1.8%	5	94	1.0%	406%
US	6	467	1.8%	4	105	1.1%	344%
Australia	7	287	1.1%	11	37	0.4%	667%
Luxembourg	8	201	0.8%	6	71	0.7%	183%
Germany	9	194	0.7%	7	56	0.6%	249%
South Korea	10	113	0.4%	18	10	0.1%	1073%
Total		26,201*	100%		9,682*	100%	171%

*Note: SWIFT recorded both sides of an transaction. To adjust the value to equate to the same reporting convention used by BIS, the total value should be divided by two.

Source: SWIFT

RMB deposits in HK (and beyond)

- As of March 2014, the amount of RMB deposits in banks in HK was RMB 944.9 billion
- As of end of 2013, the amount of RMB deposits in banks in HK was RMB 860.5 billion
- As of end of 2012, amount of RMB deposits in banks in HK was RMB 603 billion
- As of end of 2011, amount of RMB deposits in banks in HK was RMB 589 billion


Hong Kong RMB Deposits
(RMB billion)
893.4 bn
Jan 2014
1000
900
800
700
600
500
400
300
200
100
0
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J
2008
2009
2010
2011
2012
2013
2014
Source: Hong Kong Monetary Authority (HKMA)

Source: Asiamoney, CBC, City of London, HKMA, Luxembourg for Finance, Monetary Authority of Macao, Monetary Authority of Singapore, Last updated January 10, 2014

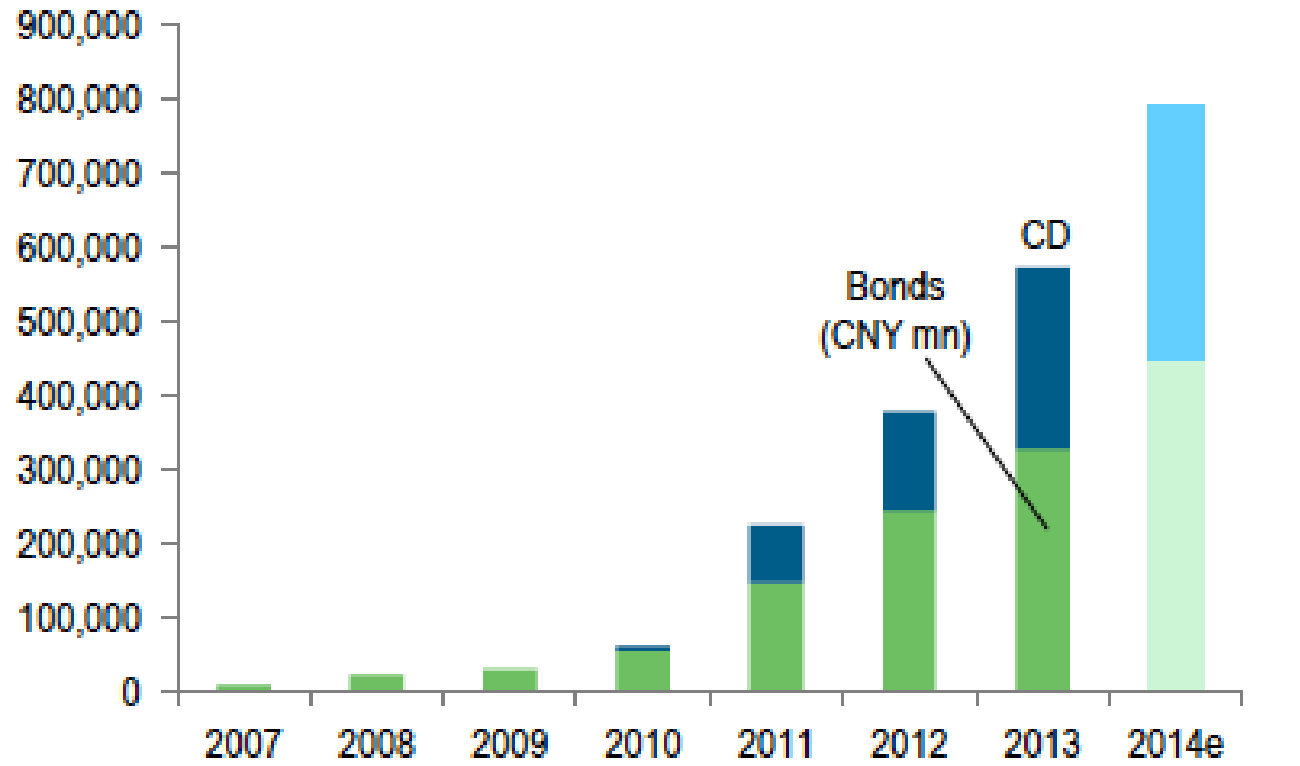
Dim Sum Bonds Issuance

- At the end of 2013, the outstanding amount of dim sum bonds issued in HK was RMB 380.5 billion.

- Total amount of dim sum bonds issued in 2013 was RMB 116.6 billion

Figure 4: Dim Sum market size set to exceed CNY 750bn

Outstanding Dim Sum bonds and CDs



Source: Bloomberg, Standard Chartered Research

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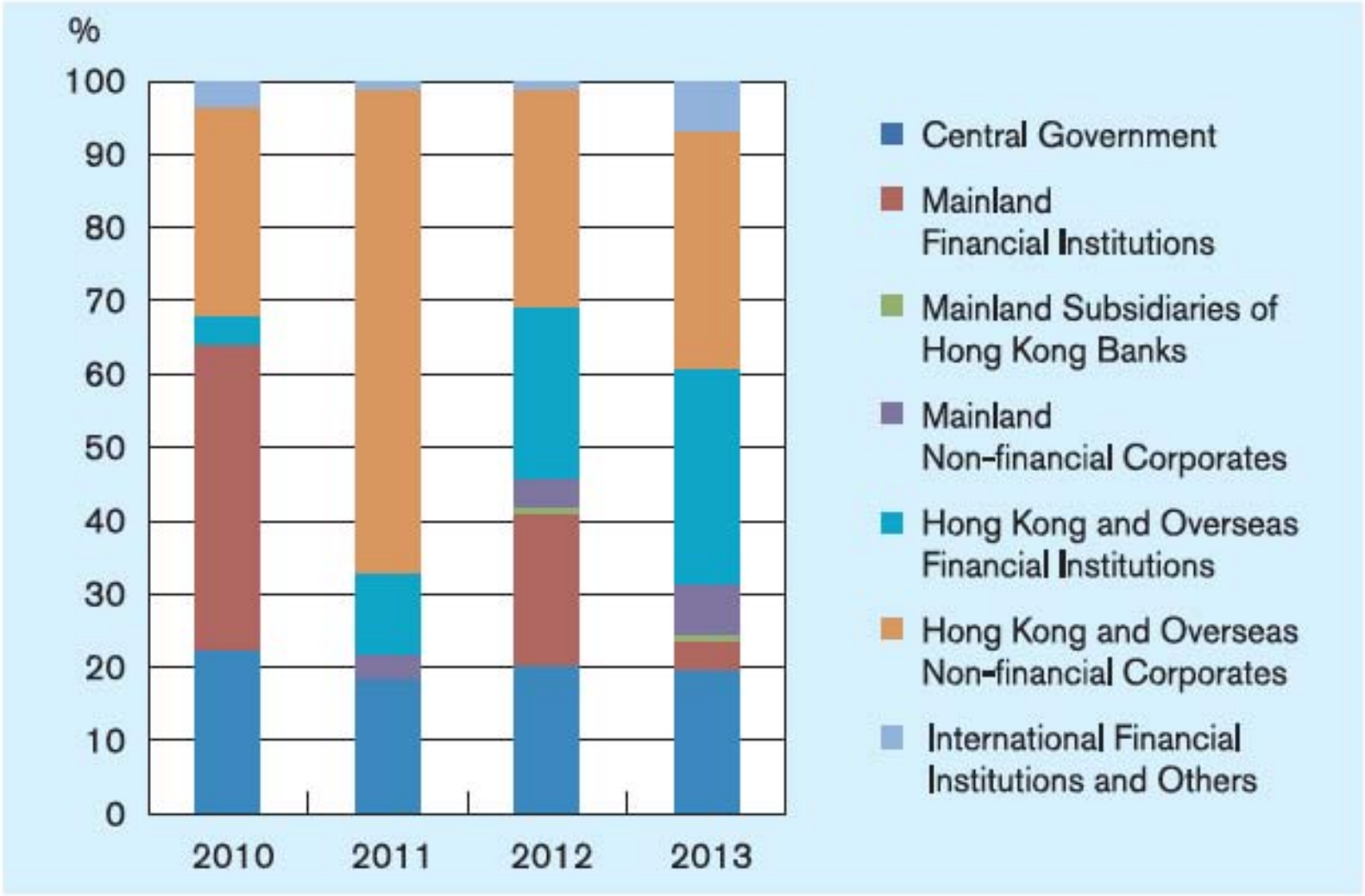
Dim sum bond issuer distribution



RMB financing activities in HK

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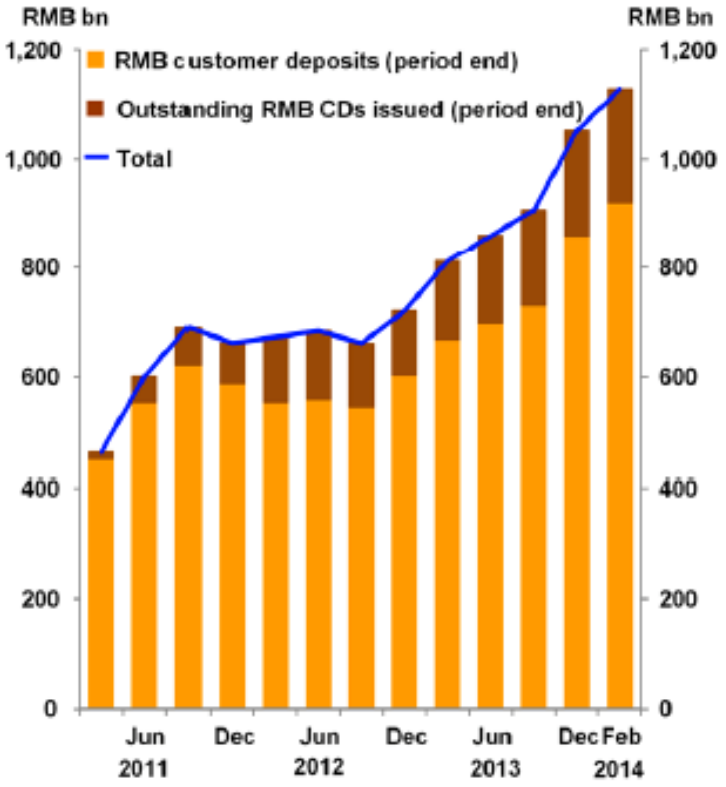
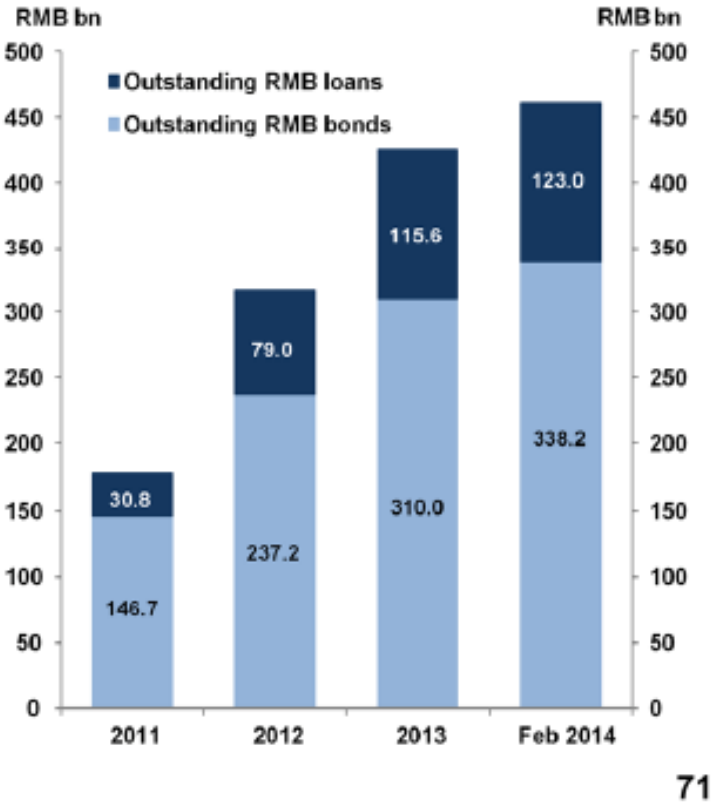
VIBRANT RMB FINANCING ACTIVITIES

RMB customer deposits and certificates of deposit (CDs)



RMB financing activities



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Currency distribution of global foreign exchange market turnover
Net-net basis[1], percentage shares of average daily turnover in April[2]

Currency	2004	
	Share	Rank
USD	88.0	1
EUR	37.4	2
JPY	20.8	3
GBP	16.5	4
CHF	6.0	5
AUD	6.0	6
CAD	4.2	7
SEK	2.2	8
HKD[3]	1.8	9
NOK[3]	1.4	10
CNY[3]	0.1	29

Currency	2013	
	Share	Rank
USD	87.0	1
EUR	33.4	2
JPY	23.0	3
GBP	11.8	4
AUD	8.6	5
CHF	5.2	6
CAD	4.6	7
MXN[3]	2.5	8
CNY[3]	2.2	9

- Bilateral currency swap agreements: 23 countries and regions, RMB 2,568 billion
- Several central banks/monetary authorities have already borrowed RMB funds from the currency swaps

Source: People's Bank of China, BOCHK

Importance of invoicing currency status

- “A currency is internationalized when market participants --- residents and non-residents alike --- conveniently use it to trade, to invest, to borrow and to **invoice** in it outside the currency’s home country.” (Robert McCauley, BIS Quarterly Review Dec 2011)

Three functions of an international currency

- **Unit of account** (government: as pegging currency; private sector: for trade invoicing, denomination of financial products)
- **Medium of exchange** (government: as intervention currency; private sector: for trade settlement)
- **Store of value** (government: as reserve currency; private sector: for denomination of deposits and securities)
- These three functions are inter-related. One function reinforces the other two functions.

Settlement currency vs. invoicing currency

- An **invoicing currency** serves as a **unit of account**
- A **settlement currency** serves as a **medium of exchange**
- For most currencies, the settlement currency is almost always the invoicing currency.
- For RMB, it is quite different. In 2012, of all merchandize trade settled in RMB, only 56% was invoiced in RMB, and it is likely that most of it involved (Mainland) China-Hong Kong trade.

- Therefore, **it is likely that only a very small fraction of China's trade with foreign countries was invoiced in RMB** even in 2013.
- For foreigners, accepting RMB invoicing is a deeper commitment than accepting RMB settlement, as they have to bear the exchange rate risk.

- Whether a currency is used for trade invoicing is more determined by economic fundamentals.
- Whether a currency is used for trade settlement may be determined by short-term considerations, such as expected appreciation.
- **The long term prospect of trade settlement business in HK is not guaranteed once people stop expecting RMB to appreciate**.

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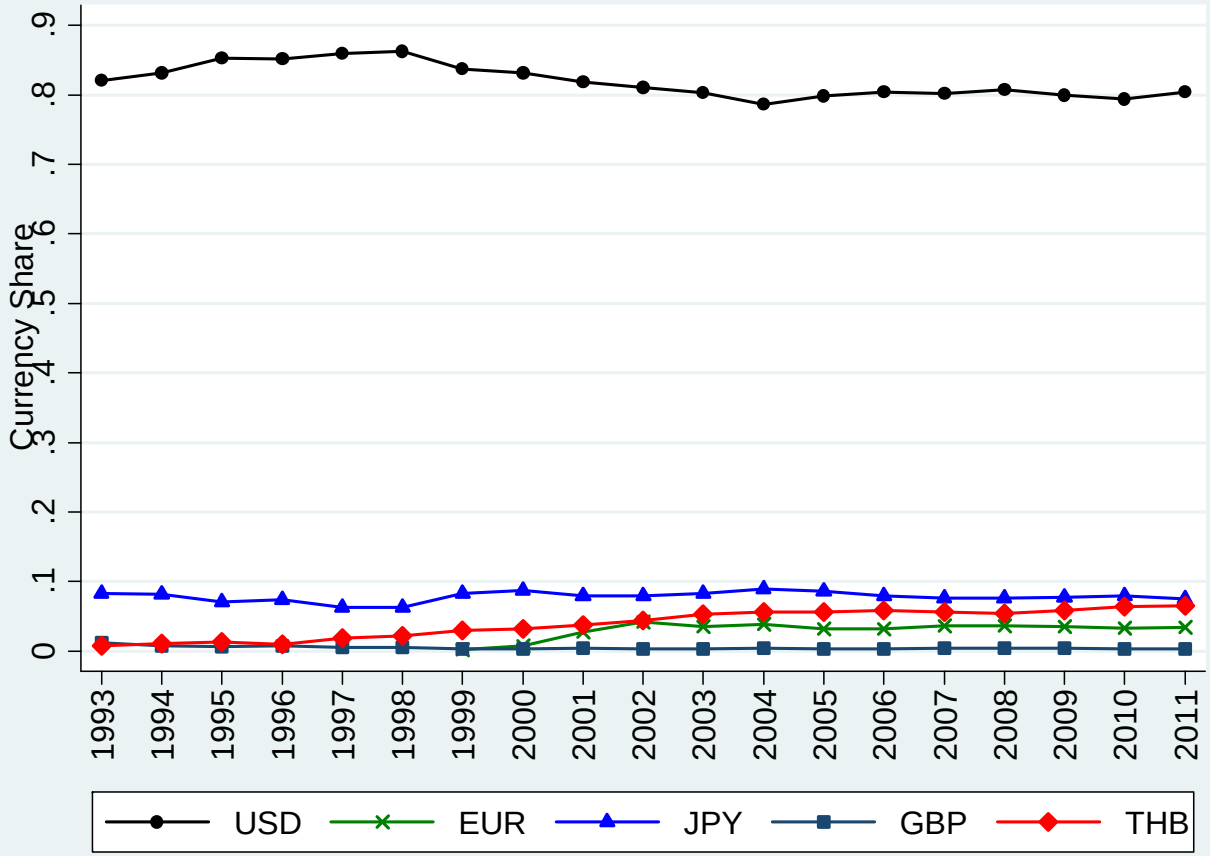
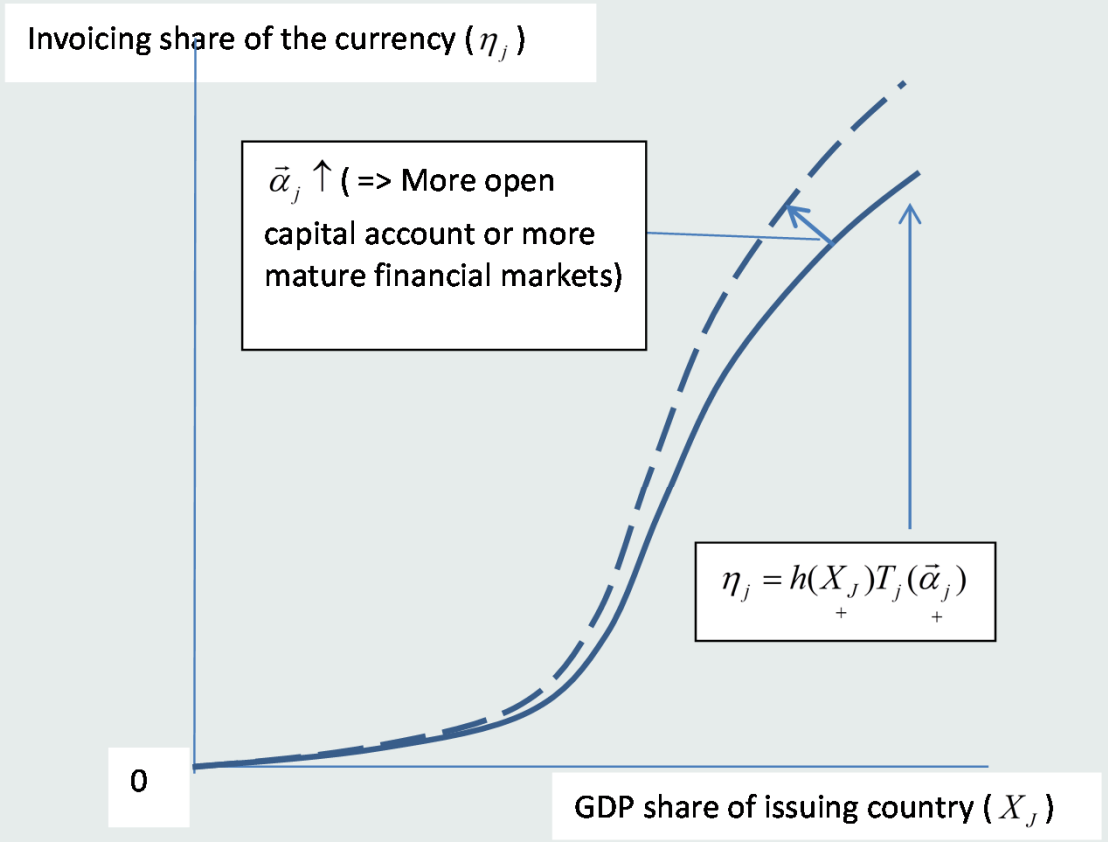
Major Invoicing Currencies in Thailand's Trade over Time



Determinants of a firm's invoicing currency

- 1. Coalescing Effect --- a firm tends to invoice in the same currency as its competitors. The larger is a country, the more foreigners will invoice in its currency so as to compete with domestic firms.
- 2. Thick Market Externalities --- a firm tends to invoice in a currency that is widely used --- just as one likes to be able to speak a language that is widely spoken. The more widely-traded is a currency, the more it is used to invoice trade.

Figure 5. Thick Market Externalities, Coalescing Effect, and Tipping Phenomenon



$h(X_J)$ represents coalescing effect

$T_i(\vec{\alpha}_i)$ represents thick market externalities.

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Two analyses

- The determinants of the invoicing share of a currency (e.g. USD, euro, GBP, JPY, etc.) in a typical ASEAN country's bilateral trade with other countries, 1993-2011.
- The determinants of euro's invoicing share in the bilateral trade between different country-pairs, 1998-2010.

Determinants of extent of RMB invoicing in a country's trade with China

1. China's GDP as a percentage of world GDP
2. Trade with China as a percentage of total trade of the country
3. The extent to which the country's currency is pegged / linked to the RMB

4. “Thick market externalities” of RMB
   - The degree of convertibility of the RMB
   - The degree of capital controls by China
   - The maturity and stability of the financial system of China
- “Thick market externalities” can roughly be captured by “FX turnover share / GDP share” of China.

Global Foreign Exchange Market Turnover Share and GDP Share

	1998	2001	2004	2007	2010	2013
	Global Foreign Exchange Market Turnover (%)					
USD	43.4	44.9	44.0	42.8	42.4	43.5
EUR	--	19.0	18.7	18.5	19.5	16.7
GBP	5.5	6.5	8.3	7.4	6.4	5.9
JPY	10.9	11.8	10.4	8.6	9.5	11.5
RMB	0.007	0.004	0.048	0.23	0.43	1.1
	Ratio of Foreign Exchange Turnover Share to GDP Share					
USD	1.5	1.4	1.6	1.7	1.9	2.0
EUR	--	1.0	0.8	0.8	1.0	1.0
GBP	1.1	1.4	1.6	1.5	1.8	1.7
JPY	0.8	0.9	0.9	1.1	1.1	1.4
RMB	0.002	0.001	0.011	0.036	0.046	0.096

Table 5. Determinants of Currency Invoicing Share in Thailand's Trade: Inclusion of Thick Market Externalities in the Logistic Model

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Sample	Import (1)	Export (2)	Import (3)	Export (4)	Import (5)	Export (6)	Import (7)	Export (8)
Issuer's GDP share	24.441***	26.088***	23.755***	23.356***	21.891***	21.066***	23.130***	24.323***
	(1.087)	(1.133)	(1.157)	(1.308)	(1.313)	(1.492)	(1.122)	(1.272)
Issuer's share in Thailand total trade	2.881***	2.975***	5.006***	6.022***	5.245***	6.351***	3.144***	3.454***
	(0.242)	(0.315)	(0.528)	(0.538)	(0.497)	(0.429)	(0.260)	(0.341)
Issuer's share in partner's total trade	3.668***	2.830***	3.783***	3.566***	3.779***	3.596***	3.698***	2.915***
	(0.252)	(0.386)	(0.321)	(0.432)	(0.314)	(0.427)	(0.263)	(0.356)
EX comovement with THB	0.608***	0.858***	0.222	0.167	0.264*	0.240**	0.669***	0.918***
	(0.115)	(0.066)	(0.137)	(0.119)	(0.137)	(0.101)	(0.129)	(0.072)
EX volatility	-1.129***	-1.923***	-0.930***	-1.570***	-0.443**	-0.852***	-0.744***	-1.307***
	(0.213)	(0.247)	(0.192)	(0.239)	(0.211)	(0.209)	(0.197)	(0.199)
Ratio of FX turnover share to GDP share			1.191***	1.826***	0.923***	1.425***		
			(0.291)	(0.356)	(0.225)	(0.270)		
Issuer's capital market depth					0.784**	1.069***	0.504**	0.772***
					(0.343)	(0.198)	(0.239)	(0.181)
Constant	-6.615***	-6.489***	-8.47***	-9.042***	-9.472***	-10.456***	-7.495***	-7.901***
	(0.224)	(0.318)	(0.507)	(0.533)	(0.741)	(0.463)	(0.486)	(0.354)
R-square	0.727	0.726	0.750	0.789	0.757	0.802	0.732	0.735
# Observations	1704	1649	1215	1190	1215	1190	1704	1649

Notes: Standard errors, clustered within trading partners, are reported in parentheses.
*** p <0.01, ** p < 0.05, * p < 0.1.

Table 8. Determinants of Euro's Share in a Country's Export Invoicing

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Eurozone's share in exporter's total trade	1.273***	1.319***	**1.144*** **	1.223***	1.184***	1.215***	1.298***
	(0.072)	(0.069)	**(0.078)**	(0.072)	(0.074)	(0.075)	(0.076)
Eurozone' share in exporter's total trade × ratio of exporter's size to Eurozone		- 3.675***	**- 3.889*** **	- 3.356***	-1.980**	-1.371	-1.712**
		(0.759)	**(0.732)**	(0.670)	(0.932)	(0.979)	(0.749)
EU dummy (exporter = EU member)			**0.117*** **	0.084***	0.069***	0.063**	0.082***
			(0.028)	(0.026)	(0.026)	(0.026)	(0.028)
# years after introduction of Euro				0.021***	0.0249** *	0.025***	0.031***
				(0.003)	(0.004)	(0.004)	(0.003)
# years after introduction of Euro × ratio of exporter's size to Eurozone					-0.212**	-0.208**	- 0.247***
					(0.101)	(0.100)	(0.077)
Preferred hedging currency						-0.062*	-0.040
						(0.032)	(0.032)
Diff. in bid-ask spread btw euro and USD							-0.564
							(1.722)
Constant	-0.0348	-0.0287	**-0.0271**	- 0.163***	- 0.149***	- 0.171***	- 0.224***
	(0.030)	(0.029)	**(0.028)**	(0.032)	(0.033)	(0.035)	(0.033)
R-square adjusted	.601	.639	**.666**	.725	.729	0.733	0.877
# Observations	210	210	**210**	210	210	210	144

Notes: Standard errors are reported in parentheses. *** p <0.01, ** p < 0.05, * p < 0.1.

Table 9. Determinants of Euro's Share in a Country's Import Invoicing

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	(1)	(2)	(3)	(4)	(5)	(6)
Eurozone's share in importer's total trade	1.238***	1.301***	**1.219*** **	1.248***	1.202***	1.202***
	(0.063)	(0.058)	**(0.071)**	(0.068)	(0.070)	(0.071)
Eurozone' share in importer's total trade × ratio of importer's size to Eurozone		-4.190***	**-4.248*** **	-3.918***	-2.393***	-2.394***
		(0.607)	**(0.603)**	(0.585)	(0.812)	(0.862)
EU dummy (importer = EU member)			**0.048***	0.0328	0.0169	0.017
			(0.025)	(0.024)	(0.024)	(0.025)
# years after introduction of Euro				0.0116***	0.0158***	0.016***
				(0.003)	(0.003)	(0.003)
# years after introduction of Euro × ratio of exporter's size to Eurozone					-0.233***	-0.233***
					(0.087)	(0.087)
Preferred hedging currency						0.000
						(0.028)
Constant	-0.00664	-0.00218	**0.00102**	-0.0717**	-0.056*	-0.056*
	(0.026)	(0.023)	**(0.023)**	(0.028)	(0.029)	(0.031)
R-square adjusted	.659	.725	**.729**	.749	.757	0.756
# Observations	199	199	**199**	199	199	199

Notes: Standard errors are reported in parentheses.
*** p <0.01, ** p < 0.05, * p < 0.1.

Table 12. Required GDP Share of China (%) to Achieve Given Renminbi Invoicing Share in the Thailand-China Trade

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	Ratio of FX Turnover Share to GDP Share			
RMB Invoicing Share in Thailand's Imports	0.046 (as of 2010)	0.5	1.00	1.50
10%	8.371	6.095	3.588	1.081
20%	11.785	9.509	7.002	4.495
25%	12.996	10.720	8.213	5.706
30%	14.054	11.778	9.271	6.764
40%	15.914	13.637	11.131	8.624
50%	17.620	15.344	12.838	10.331
RMB Invoicing Share in Thailand's Exports	0.046 (as of 2010)	0.5	1.00	1.50
10%	12.405	8.856	8.856	1.038
20%	15.877	12.328	12.328	4.510
25%	17.109	13.560	13.560	5.742
30%	18.185	14.636	14.636	6.818
40%	20.077	16.528	16.528	8.710
50%	21.813	18.264	18.264	10.446

Notes: Calculations are based on the empirical models with logistic transformation, as reported in columns (3) and (4) of Table 5. It is assumed that all independent variables other than GDP share and FX turnover share will remain at their current levels.

Table 13. Required GDP Share of China (%) to Achieve Given Renminbi Invoicing Share in the Thailand-ASEAN Trade

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	Ratio of FX Turnover Share to GDP Share			
RMB Invoicing Share in Thailand's Imports	0.046 (as of 2010)	0.5	1.00	1.50
10%	21.541	19.265	16.758	14.251
20%	24.955	22.678	20.172	17.665
25%	26.166	23.890	21.383	18.876
30%	27.223	24.947	22.441	19.934
40%	29.083	26.807	24.301	21.794
50%	30.790	28.514	26.007	23.501
RMB Invoicing Share in Thailand's Exports	0.046 (as of 2010)	0.5	1.00	1.50
10%	25.032	21.483	17.574	13.665
20%	28.504	24.955	21.046	17.137
25%	29.736	26.186	22.277	18.368
30%	30.812	27.262	23.353	19.444
40%	32.703	29.154	25.245	21.336
50%	34.439	30.890	26.981	23.072

Notes: Calculations are based on the empirical models with logistic transformation, as reported in columns (3) and (4) of Table 5. It is assumed that all independent variables other than GDP share and FX turnover share will remain at their current levels.

Table 14. The Potential Invoicing Shares of the RMB in the Trade of Some Asia-Pacific Countries, Based on Projection from the Euro's Experience

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	Export		Import	
	2008 Data	2010 Data	2008 Data	2010 Data
Australia	**3.8**	**8.3**	**3.6**	**8.5**
Indonesia	**7.1**	**8.2**	**7.4**	**8.6**
Korea	**6.7**	**10.2**	**6.7**	**10.5**
Malaysia	**10.3**	**12.6**	**10.9**	**13.4**
Philippines	**9.2**	**9.9**	**9.8**	**10.6**
Singapore	**9.8**	**10.7**	**10.4**	**11.3**
Thailand	**9.1**	**11.1**	**9.6**	**11.7**

Notes: Calculations are based on the empirical models reported in Column (3) of Tables 8 and 9. The projections using the 2008 and 2010 data of China-equivalent of the independent variables are reported.

The potential of the RMB to be an invoicing currency in Asia-Pacific region

- In 2012, the estimated amount of China's trade with ASEAN countries that could potentially be **invoiced** in RMB was approx. RMB 760 billion >> RMB 86 billion (assuming 5% actual RMB invoicing share)
- In 2012, the estimated amount of trade of Asia-Pacific region (excl. HK and Japan but incl. ASEAN, S. Korea, Australia and NZ) that could potentially be **invoiced** in RMB was approx. RMB 1600 billion >> RMB 210 billion (assuming 5% actual RMB invoicing share)

- Main reasons for the failure to realize the potential was lack of thick market externalities (TME) due to 1. China's capital controls and lack of capital account convertibility of RMB; 2. the immature financial system of China.
- There needs to be free flow of funds between offshore and onshore markets in order to achieve TME.

Conclusion

- China needs to **relax its capital controls, allow full convertibility of RMB and reform its financial sector much more deeply** in order for the offshore RMB market to achieve the required thick market externalities for it to become a major invoicing currency in the Asia-Pacific region and beyond.
- **Free flow of funds between onshore and offshore markets** is essential for the development of the offshore RMB market.

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Extra material