The Evolution of Offshore Renminbi Trading: 2016 to 2019

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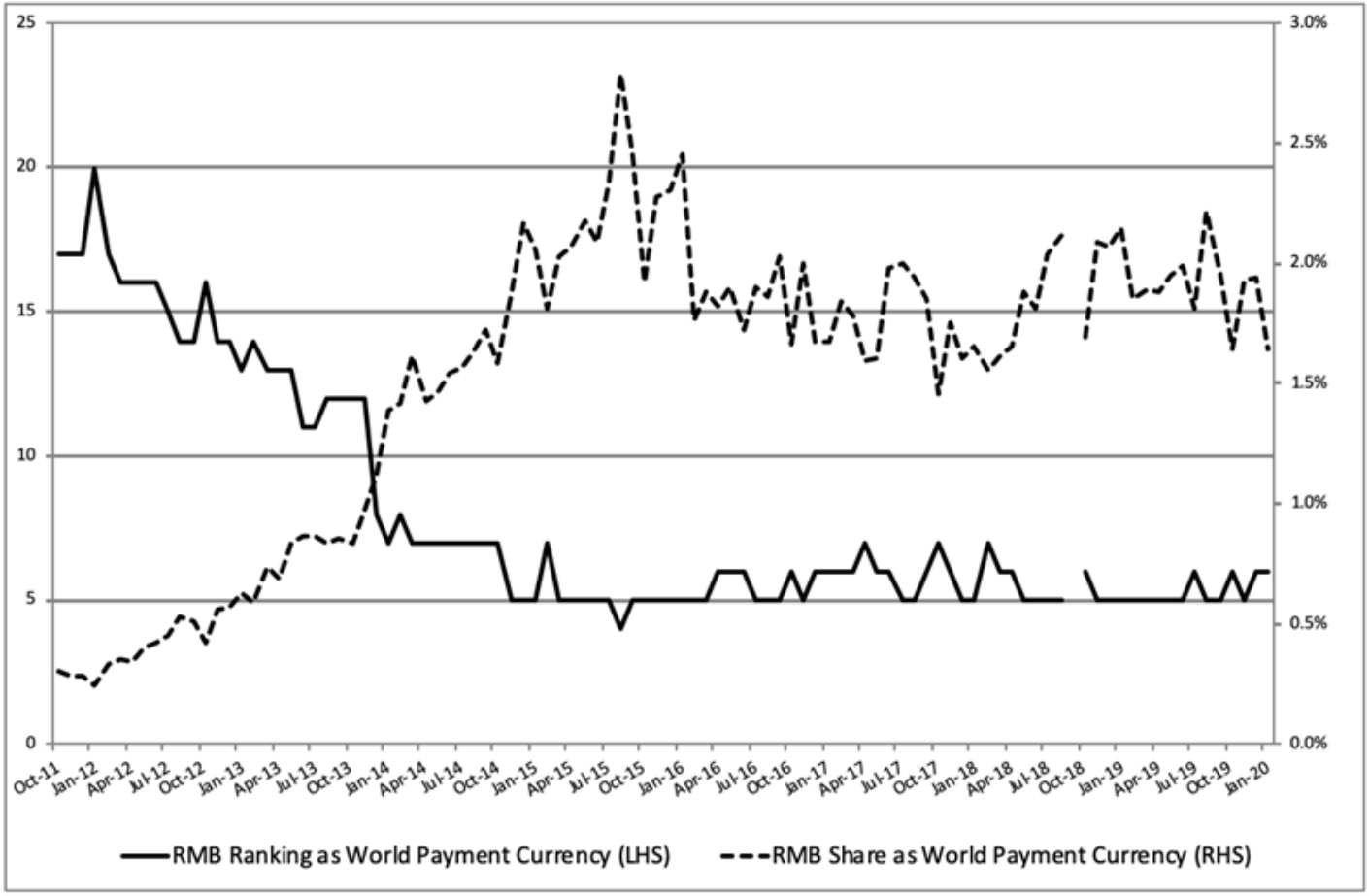
Motivation

- Major institutional events: RMB cross-border trade settlement in 2009; RMB in the basket SDR currencies in 2016;
- China's Policies: RMB clearing banks; currency swap agreements; RQFII
  - Q1) Does the growth of offshore RMB markets follow a specific geographical evolution pattern?
  - Q2) Will offshore RMB trading converge to a geographical pattern similar to that of the global FX trading?
- Main reference: Cheung, McCauley and Shu (2019), who analyzed the BIS Triannial survey in 2013-2016
- What has changed in 2016-2019?
- New aspect: What are the roles of markets forces vs. Geopolitical factors?

Figure 1. The RMB as a Global Payments Currency



Source: SWIFT RMB Tracker (various issues).

Table 1. FX Average Daily Turnover, Economic Size, and International Trade Volume

	Turnover Share (%)	Turnover/GDP (%)	Turnover/Trade (%)
USD	88.30	27.98	138.27
EUR	32.28	15.80	22.13
JPY	16.81	22.42	75.44
GBP	12.79	29.65	72.49
AUD	6.77	31.31	90.11
CAD	5.03	19.51	35.66
CHF	4.96	46.73	56.97
CNY	4.32	2.09	6.17
HKD	3.53	63.67	19.70
NZD	2.07	66.84	163.27

Note: The Table lists the top ten most actively traded currencies in the 2019 BIS triennial survey, and their FX average daily turnover shares, daily turnover to GDP ratios, and daily turnover to international trade ratios. Data on FX turnover are from BIS (2019), and data on GDP and international trade volume from Q2 2018 to Q1 2019 are from, respectively, IFS and IMF DOTS

The Basic Specification

$$\Delta Y_{i,19} = \alpha + \beta Z_{i,16} + \gamma \Delta X_{i,19} + \delta W_{i,16} + \mu D_i + \zeta BT_{i,19} + \lambda BT_{i,19} * D_i + \varepsilon_i \quad (1)$$

- $Y_{i,19}$ share of RMB trading for the i-th jurisdiction
- $X_{i,19}$ jurisdiction i's share of global FX trading
- $Z_{i,16}$ gap between jurisdiction i's share of offshore RMB trading and its share of global FX trading
- $W_{i,16}$ jurisdiction i's RMB turnover as a share of its total FX turnover
- D_i disputes: the dummy variable D_i assumes a value of one for financial centers in the US, Japan, Korea, Singapore and Australia
- $BT_{i,19}$ sum of its imports from and exports to China normalized by its total international trade volume between April 2018 to March 2019

Trade disputes and confrontational episodes

- The US: trade dispute with the Trump administration (tariffs).
- Japan: territorial dispute surrounding “Diaoyu/Senkaku Islands”
- Korea: dispute regarding the decision to deploy THAAD
- Singapore: dispute regarding the ties with Taiwan
- Australia: dispute regarding the investigation of the source of COVID-19

- These are only examples of events that triggered “trade actions” against businesses or industries
- Note however: These events are temporary! Joe Biden announced to re-evaluate president Trump’s tariffs on imports from China upon taking office

Table 2. Changes in Shares of Offshore RMB Trading

Variables	(1)	(2)	(3)	(4)
$Z_{i,16}$	0.005		-0.175***	-0.163***
	(0.14)		(2.90)	(8.43)
$\Delta X_{i,19}$	0.377***		-0.244	-0.062
	(4.53)		(1.29)	(0.83)
$W_{i,16}$	-0.001		0.423***	-0.006
	(0.01)		(3.26)	(0.07)
D_i		-0.054*	-0.079***	-0.043***
		(1.90)	(3.73)	(4.39)
$BT_{i,19}$		0.027	0.008	0.001
		(1.47)	(1.23)	(0.40)
$BT_{i,19}*D_i$		0.181	0.240***	0.148***
		(1.55)	(3.29)	(3.36)
Constant	0.000	-0.001	-0.002**	-0.000
	(0.35)	(0.78)	(2.16)	(0.88)
Adjusted R^2	0.15	0.45	0.70	0.89
#Observations	50	50	50	49

Note: The Table presents results on geographical diffusion of offshore RMB trading between 2016 and 2019. See the text for definitions of variables. OLS estimates and their robust t-statistics (in parentheses) are reported. The results in the absence of the Hong Kong observation are reported under Column (4). *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Marginal dispute effects

- For a country, engaging in a dispute with China, the estimated marginal effect of the dispute on the change in offshore RMB trading share is given by

$$\hat{\mu} + \hat{\lambda} BT_{i,19}$$

and its standard error $\left[var(\hat{\mu}) + BT_{i,19}^2 var\left(\hat{\lambda}\right) + 2BT_{i,19} cov\left(\hat{\mu}, \hat{\lambda}\right)\right]$

- US: -0.043 (0.011)
  Japan: -0.028 (0.008)
  Korea: -0.023 (0.007)
  Singapore: -0.048 (0.013)
  Australia: -0.007 (0.007)

The Augmented Specification

$$\Delta Y_{i,19} = \alpha + \beta Z_{i,16} + \gamma X_{i,19} + \delta W_{i,16} + \mu D_i + \zeta BT_{i,19} + \lambda BT_{i,19} * D_i + \tau Q_i + \varepsilon_i \quad (2)$$

- Q_i the additional explanatory variables

Three main policies	Links with China	Economic attributes
Local RMB clearing bank	Bilateral FDI flows	Real GDP growth
Bilateral currency swap	FTA	Equity market cap.
RQFII quota	CFETS	International bond market
	Belt & Road	Financial development
	Distance	

Table 3. Changes in Shares of Offshore RMB Trading: China's Policies

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(P)
$Z_{i,16}$	-0.175***	-0.196***	-0.151***	-0.176***	-0.176***	-0.184***	-0.151***
	(2.90)	(3.05)	(5.11)	(2.97)	(2.88)	(3.01)	(5.11)
$\Delta X_{i,19}$	-0.244	-0.265	-0.223**	-0.242	-0.248	-0.248	-0.223**
	(1.29)	(1.41)	(2.13)	(1.30)	(1.29)	(1.33)	(2.13)
$W_{i,16}$	0.423***	0.489***	-0.116	0.435***	0.423***	0.448***	-0.116
	(3.26)	(3.37)	(1.32)	(3.36)	(3.24)	(3.43)	(1.32)
D_i	-0.079***	-0.081***	-0.057***	-0.080***	-0.079***	-0.079***	-0.057***
	(3.73)	(4.05)	(5.24)	(3.76)	(3.71)	(3.87)	(5.24)
$BT_{i,19}$	0.008	0.005	0.011*	0.006	0.010	0.009	0.011*
	(1.23)	(1.01)	(1.91)	(0.76)	(1.24)	(1.22)	(1.91)
$BT_{i,19}*D_i$	0.240***	0.250***	0.163***	0.247***	0.239***	0.241***	0.163***
	(3.29)	(3.63)	(3.83)	(3.34)	(3.27)	(3.44)	(3.83)
RQFII 2019		-0.003					
		(1.00)					
RQFII Size 2019			0.003***				0.003***
			(6.95)				(6.95)
Swap 2019				-0.001			
				(0.76)			
Swap Size 2019					0.003		
					(0.96)		
Clearing Bank 2019						-0.002	
						(0.96)	
Constant	-0.002**	-0.002**	-0.002**	-0.002	-0.003**	-0.002**	-0.002**
	(2.16)	(2.24)	(2.08)	(1.28)	(2.03)	(2.26)	(2.08)
R-Squared (adj)	0.70	0.71	0.85	0.69	0.69	0.70	0.85
Observations	50	50	50	50	50	50	50

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, *** indicate variables significant at 10%, 5%, and 1% level respectively.

Table 4. Changes in Shares of Offshore RMB Trading: Links to China

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(P)
$Z_{i,16}$	-0.175***	-0.171***	-0.164***	-0.172***	-0.174***	-0.169**	-0.175***
	(2.90)	(2.91)	(3.24)	(2.77)	(2.83)	(2.68)	(2.90)
$\Delta X_{i,19}$	-0.244	-0.222	-0.197	-0.236	-0.242	-0.234	-0.244
	(1.29)	(1.20)	(1.25)	(1.21)	(1.25)	(1.20)	(1.29)
$W_{i,16}$	0.423***	0.382***	0.403***	0.409***	0.418***	0.416***	0.423***
	(3.26)	(2.85)	(3.69)	(3.02)	(2.99)	(3.14)	(3.26)
D_i	-0.079***	-0.075***	-0.076***	-0.078***	-0.078***	-0.078***	-0.079***
	(3.73)	(3.74)	(4.23)	(3.60)	(3.68)	(3.60)	(3.73)
$BT_{i,19}$	0.008	0.006	0.023	0.011	0.009	0.008	0.008
	(1.23)	(0.98)	(1.47)	(1.49)	(1.03)	(1.13)	(1.23)
$BT_{i,19}*D_i$	0.240***	0.228***	0.234***	0.235***	0.238***	0.238***	0.240***
	(3.29)	(3.31)	(3.70)	(3.15)	(3.24)	(3.16)	(3.29)
FDI Share 2018		0.020					
		(1.04)					
FTA 2019			-0.005				
			(1.27)				
CFETS 2019				0.001			
				(0.60)			
Log_Distance					-0.029		
					(0.16)		
Belt & Road 2019						-0.001	
						(0.71)	
Constant	-0.002**	-0.002**	-0.003**	-0.003*	0.000	-0.002	-0.002**
	(2.16)	(2.19)	(2.10)	(2.01)	(0.02)	(0.99)	(2.16)
R-Squared (adj)	0.70	0.71	0.73	0.69	0.69	0.70	0.70
Observations	50	50	50	50	50	50	50

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, *** indicate variables significant at 10%, 5%, and 1% level respectively.

Table 5. Changes in Shares of Offshore RMB Trading: Characteristics of Jurisdictions

Variables	(1)	(2)	(3)	(4)	(5)	(P)
$Z_{i,16}$	-0.175***	-0.176***	-0.157***	-0.175***	-0.178***	-0.183***
	(2.90)	(2.90)	(3.64)	(2.87)	(2.78)	(5.43)
$\Delta X_{i,19}$	-0.244	-0.229	-0.160	-0.244	-0.250	-0.184*
	(1.29)	(1.20)	(1.18)	(1.28)	(1.27)	(1.79)
$W_{i,16}$	0.423***	0.428***	0.153	0.422***	0.431***	0.139
	(3.26)	(3.30)	(1.22)	(3.22)	(3.10)	(1.19)
D_i	-0.079***	-0.080***	-0.065***	-0.079***	-0.079***	-0.061***
	(3.73)	(3.83)	(3.96)	(3.68)	(3.72)	(4.72)
$BT_{i,19}$	0.008	0.007	-0.001	0.008	0.008	-0.004
	(1.23)	(1.02)	(0.13)	(1.21)	(1.22)	(0.82)
$BT_{i,19}*D_i$	0.240***	0.249***	0.214***	0.240***	0.241***	0.208***
	(3.29)	(3.42)	(3.44)	(3.25)	(3.29)	(4.05)
GDP Growth 2018-2016		-0.011				
		(1.00)				
Equity Mkt/GDP 2018			0.005***			0.007***
			(3.34)			(4.05)
Int. Bond Mkt /GDP 2018				0.003		
				(0.30)		
Fin Dev Index 2018					0.001	0.008***
					(0.39)	(4.43)
Constant	-0.002**	-0.002	-0.003***	-0.002**	-0.003	-0.008***
	(2.16)	(1.60)	(3.53)	(2.06)	(1.40)	(5.01)
R-Squared (adj)	0.70	0.70	0.81	0.69	0.69	0.86
Observations	50	50	50	50	50	50

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, *** indicate variables significant at 10%, 5%, and 1% level respectively.

Table 6. Changes in Shares of Offshore RMB Trading: A Synthetic Formulation

Variables	(1)	(2)	(3)	(4)	(P)
$Z_{i,16}$	-0.175***	-0.151***	-0.157***	-0.178***	-0.168***
	(2.90)	(5.11)	(3.64)	(2.78)	(6.81)
$\Delta X_{i,19}$	-0.244	-0.223**	-0.160	-0.250	-0.197**
	(1.29)	(2.13)	(1.18)	(1.27)	(2.08)
$W_{i,16}$	0.423***	-0.116	0.153	0.431***	-0.062
	(3.26)	(1.32)	(1.22)	(3.10)	(0.96)
D_i	-0.079***	-0.057***	-0.065***	-0.079***	-0.055***
	(3.73)	(5.24)	(3.96)	(3.72)	(5.63)
$BT_{i,19}$	0.008	0.011*	-0.001	0.008	0.002
	(1.23)	(1.91)	(0.13)	(1.22)	(0.43)
$BT_{i,19}*D_i$	0.240***	0.163***	0.214***	0.241***	0.176***
	(3.29)	(3.83)	(3.44)	(3.29)	(4.24)
RQFII size		0.003***			0.002**
		(6.95)			(2.60)
Equity mkt			0.005***		0.004**
			(3.34)		(2.04)
Financial Development				0.001	0.006***
				(0.39)	(3.11)
Constant	-0.002**	-0.002**	-0.003***	-0.003	-0.006***
	(2.16)	(2.08)	(3.53)	(1.40)	(3.35)
R-Squared (adj)	0.70	0.85	0.81	0.69	0.89
Observations	50	50	50	50	50

Notes: OLS estimates. Robust t-statistics in parentheses; *, **, *** indicate variables significant at 10%, 5%, and 1% level respectively.

Robustness and Further Analyses

- Other SDR countries
- Period from 2013-2016 (+Chow test)
- Levels vs. changes of BT
- Other interaction

Summary and Conclusions

- For 2016-2019, we confirm the previously reported convergence to the geographical trading pattern of all currencies
- The pattern of changes in this period is further affected by (geopolitical) disputes and trade intensity
- China-specific RQFII investment quota arrangements and offshore market's equity market capitalization and level of financial development play a role