

BANK FOR INTERNATIONAL SETTLEMENTS

### Is China or India more financially open?

#### **Guonan Ma and Robert McCauley\***

Bank for International Settlements



NIPFP-DEA-JIMF Conference, Rajasthan, India 12-13th December, 2012

\* Views expressed are those of the authors and not necessarily the views of the BIS

### Mainstream de jure and de facto measures

Capital account openness



Sources: IMF *IFS*; IMF *WEO*; the Chinn-Ito index from <u>http://web.pdx.edu/~ito/Chinn-Ito\_website.htm</u>; Lane and Milesi-Ferretti (2007) from <u>http://www.philiplane.org/EWN.html</u>.



# I. Roadmap

### Two widely used measures

- Chinn-Ito index: CN & IN equally closed and not moving
- Lane/Milesi-Ferretti: China more open & both opening

### • Three questions

- Is capital internationally mobile in China and India?
- > Which is financially more open?
- > Are they liberalising over time?

### Eight de facto measures

- Four price-based indicators
- Four non-price indicators



# **Three takeaways**

- Our evidence challenges both mainstream measures
  - None of our measures strongly supports Chinn-Ito verdicts
  - Only 1 or 2 fully back Lane/Milesi-Ferretti conclusions
- On balance, India financially more open than China
  - > All four price-based indicators consistently favour India
  - Non-price measures are mixed
- Both China and India are liberalising over time but still have a long way to go, with two surprises:

India faces consistent inflow pressures but not China

Currency internationalisation: the unheralded rupee matches in some way the much discussed renminbi



# **II. Four price-based measures**

- Cross-border deviations from the law of one price
  - Smaller gap indicates less market segmentation
  - A positive value of the gap suggests the underlying financial contract is priced cheaper onshore
- On/offshore price gaps for four financial markets
  - ✓ FX forward market: (F-NDF)/S
  - ✓ Money market: (i r)
  - ✓ Bond market: (i NDS)
  - Equity market: log(H/A), or log(ADR/M)



# II.1 On/offshore forward currency premium gap

#### Onshore foreign exchange forward less offshore NDF





Sources: Bloomberg; CEIC.



# India's forward premium gap is smaller

#### Table 1: Onshore less offshore foreign exchange forward premiums<sup>1</sup>

As a percentage of the spot

	CNY				INR			
	3-month		12-month		3-month		12-month	
	Full sample	Excl. crisis	Full sample	Excl. crisis	Full sample	Excl. crisis	Full sample	Excl. crisis
Maximum	1.89	1.89	5.67	5.67	1.89	1.89	2.55	2.55
Minimum	-3.07	-1.22	-5.45	-2.90	-9.85	-3.42	-13.64	-5.98
Average	0.33	0.38	1.20	1.31	-0.09	-0.01	0.13	0.03
Average of abs. value	0.46	0.44	1.49	1.48	0.41	0.34	0.74	0.60
Annualised volatility	8.05	6.82	23.03	21.20	11.55	7.59	20.87	13.70
Corr (Ft, NDFt)	1.00	1.00	0.99	0.99	0.99	0.99	0.99	0.99

<sup>1</sup> Daily data of forward premium gap is calculated as the difference between onshore forward and offshore non-deliverable forward as a percentage of spot price. The full sample period is between April 7, 2003 and June 30, 2012 while the period of September to December 2008 is excluded for the sample excluding crisis.

Sources: Bloomberg, CEIC.



# II.2 On/offshore money market yield gap

#### Onshore money market yield less offshore NDF-implied yield<sup>1</sup>



In basis point

<sup>1</sup> Weekly data. For China: 3-month (12-month) NDF, three-month CHIBOR (one-year PBOC bill auction yield before Jul 2008; secondary market yield thereafter), and 3-month (12-month) LIBOR. For India: 3-month (12-month) NDF, 91-day (364-day) treasury bill implicit yield, and 3-month (12-month) LIBOR. <sup>2</sup> -3240 bps on 20 Oct 2008.



# India's yield gap is again smaller

#### Table 2: Onshore money market yield less offshore NDF-implied yield<sup>1</sup>

In basis points

	CNY				INR			
	3-month		12-month		3-month		12-month	
	Full sample	Excl. crisis	Full sample	Excl. crisis	Full sample	Excl. crisis	Full sample	Excl. crisis
Maximum	2117	2117	1336	1336	735	735	552	552
Minimum	-1397	-525	-796	-425	-3904	-1472	-1173	-428
Average	399	427	312	332	31	56	102	112
Average of abs. value	437	438	345	348	206	186	151	146
Annualised volatility	5295	4734	4358	4030	4841	3652	2608	2303
Corr (Onshore, offshore)	-0.12	-0.17	-0.32	-0.38	0.56	0.63	0.65	0.69

<sup>1</sup> Daily data. For China: 3-month (12-month) NDF, three-month CHIBOR (one-year PBOC bill auction yield before Jul 2008; secondary market yield thereafter), and 3-month (12-month) LIBOR. For India: 3-month (12-month) NDF, 91-day (364-day) treasury bill implicit yield, and 3-month (12-month) LIBOR. The full sample period is between May 26, 2003 and June 30, 2012 while the period of September to December 2008 is excluded for the sample excluding crisis.

Sources: Bloomberg, CEIC.



# II.3 On/offshore bond yield gap

#### Domestic government bonds less non-deliverable cross-currency swaps<sup>1</sup>





<sup>1</sup> Three-year maturity.



# Again, India's cross-border gap is smaller

#### Table 3: Onshore less offshore bond yields for the CNY and INR<sup>1</sup>

In basis point

	CI	٩Y	INR				
	Full sample	Excl. crisis	Full sample	Excl. crisis			
Maximum	824.00	824.00	489.18	489.18			
Minimum	-583.00	-368.00	-129.20	-83.40			
Average	213.32	229.77	175.99	176.80			
Average of abs. value	246.61	247.62	178.42	178.49			
Corr (Onshore, offshore)	-38.83	-39.67	58.83	60.08			

<sup>1</sup> Daily data. Bond premium is calculated as the difference between three-year onshore government bond yield and three-year offshore non-deliverable swaps rate. The full sample period is between March 28, 2003 and June 30, 2012 while the period of September to December 2008 is excluded for the sample excluding crisis.

Source: Bloomberg.



### Local-currency CGB yields: Shanghai & HK

Chinese government renminbi bond yields, onshore and offshore



In per cent

Source: Bloomberg.



### II.4 Shanghai premium & Mumbai discount





### $\Delta q_{i, t} = \alpha + \beta q_{i, t-1} + \Sigma \phi_n \Delta q_{i, t-n} + \epsilon_{i, t}$

Table 4: Stock share price premium and convergence of cross-listed companies							
	H-A premium H-A premium		ADR-A premium	ADR-H premium	ADR-India premium		
	41 dual-listed companies	9 triple-listed companies	9 triple-listed companies	9 triple-listed companies	9 dual-listed companies		
	(1)	(2)	(3)	(4)	(5)		
a	-0.262***	-0.378***	-0.381***	-0.051***	0.104***		
	(0.025)	(0.062)	(0.066)	(0.010)	(0.023)		
β	-0.003***	-0.005***	-0.006***	-0.552***	-0.014***		
	(0.000)	(0.001)	(0.001)	(0.009)	(0.002)		
Φ1	-0.020***	-0.012	-0.051***	-0.179***	-0.293***		
	(0.004)	(0.008)	(0.009)	(0.009)	(0.007)		
Φ <sub>2</sub>	-0.048***	-0.037***	-0.038***	-0.089***	-0.174***		
	(0.003)	(0.008)	(0.008)	(0.007)	(0.007)		
Half-life (days)	233.1	128.3	114.0	0.9	48.6		
Adjusted R <sup>2</sup>	0.004	0.004	0.007	0.359	0.101		
DW statistics	2.001	1.988	1.998	2.010	2.023		

# **III. Non-price measures**

- Four non-price indicators of financial integration
- Two old ones:
  - Feldstein-Horioka saving coefficient

Generalised Lane/Milesi-Ferretti indicator
Gross external investment positions

Gross balance of payments flows

- Two new ones:
  - BIS banking data on banking market openness and debt market integration
  - > Three dimensions of currency internationalisation



### **III.1 Feldstein-Horioka regression** China's coefficient falls to 0.3, comparable to EU in the 1990s





### India's coefficient has risen towards unity





# **III.2 Stock version of Lane/Milesi-Ferretti**

#### International investment positions

As a percentage of GDP





# Flow version of Lane/Milesi-Ferretti

#### Gross balance of payment flows<sup>1</sup>



<sup>1</sup> Sum of credit and debit flows of current account and capital account. Sources: IMF *WEO*; CEIC.



# **III.3 Foreign share in banking market**



<sup>1</sup> Foreign bank claims on non-banks in domestic and foreign currency as a percentage of domestic credit and cross-border claims on non-banks. <sup>2</sup> External claims of all reporting banks vis-à-vis the non-bank sector of China/ India.



### **Chinese & Indian banks' footprint in global market**

#### In billions of US dollars As a share of global credit As a share of domestic lending In per cent 2.0 600 1.5 400 1.0 200 0.5 0 0.0 07 08 09 10 11 07 08 09 10 11 07 08 09 10 China China China India India India



Chinese and Indian banks' foreign claims

Graph 11

In per cent

8

2

0

11

### **Involvements in international debt market**

#### International debt securities of China and India

By residence and nationality

Graph 12





# **III.4 Currency internationalisation**

Geography of turnover in renminbi and rupee in April 2010



<sup>1</sup> Futures are traded onshore between residents.





### International banking in domestic currency

RMB deposits in Hong Kong banks and non-resident INR deposits in Indian banks



Source: Hong Kong Monetary Authority; Reserve Bank of India; authors' calculations.



### International bonds in domestic currency

International debt securities outstanding denominated in renminbi and Indian rupee

Graph 16





# IV. Summary: pulling things together

 All four price measures suggest greater integration of India in the global financial system

> The same holds when excluding turbulent episodes

- The BIS consolidated foreign bank share identifies India as financially more open, while Feldstein/Horioka coefficient favours China
- Other measures send mixed messages.....
  - Stock and flow version of Lane/Milesi-Ferretti
  - Dimensions of currency internationalisation
- None strongly supports Chinn-Ito; only one or two lend some backing to Lane/Milesi-Ferretti
- In sum, India financially more open than China. Both are liberalising over time but still have a way to go

