

# Is There Really a Renminbi Bloc in Asia?

Masahiro Kawai and Victor Pontines

Discussant comments: Shekhar HK and Ajay Shah

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# The paper addresses an important question

- ▶ China is a heavyweight in the global economy: Second largest economy, second biggest international net creditor and world's largest trader
- ▶ The ascent of the RMB as a global currency has been quick: Rank 35 in BIS (2001) to Rank 9 in BIS (2013), over two percent of daily global forex turnover
- ▶ World's fifth largest settlement currency, as of Feb 2015
- ▶ Given this rapid rise of the RMB, the paper evaluates whether the RMB is an important international currency as a unit of account in the official sector/ anchor for exchange rate stabilisation for other countries

# The question in theory, should be an easy one

What does COFER say?

- ▶ 11.5 Trillion dollars of global reserves
- ▶ 60-65% USD, 20-25% EUR, 3-5% JPY and GBP
- ▶ 5-7% Other currencies
- ▶ Liao and McDowell (2014) create an extensive list of RMB adopters between 2010-2013 and find that 28 countries adopted the RMB
- ▶ Their estimate of global RMB holdings 48-156 Billion USD  
0.4-1.4% of global reserves
- ▶ RMB is a serious reserve component for at least 10 countries
- ▶ A telling correlation: UN GA voting patterns predict RMB adoption

# Summary-I

$$d \log \left( \frac{X}{\text{CHF}} \right) = \alpha + \beta_1 d \log \left( \frac{\text{USD}}{\text{CHF}} \right) + \beta_2 d \log \left( \frac{\text{GBP}}{\text{CHF}} \right) + \beta_3 d \log \left( \frac{\text{JPY}}{\text{CHF}} \right) + \beta_4 d \log \left( \frac{\text{EUR}}{\text{CHF}} \right) + \epsilon \quad (1)$$

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- ▶ The Frankel-Wei regression is the preferred method by which most other papers in this field have tackled this question
- ▶ Adding the RMB term as a regressor introduces multicollinearity
- ▶ The literature tries to overcome this problem by three broad techniques
  - ▶ *Subramaniam and Kessler (2013), Henning (2012)*: Choosing periods of “RMB flexibility”
  - ▶ *Ho, Ma and McCauley (2005)*: Using USD as numeraire and extracting USD weight
  - ▶ *Balasubramaniam et al. (2011)*: Using orthogonalised RMB returns from the USD as a regressor

# Summary-II

- ▶ The authors analyse all the three techniques through painstaking replication of the original papers and find that the corrections utilised for multicollinearity are unsatisfactory
  1. *Subramaniam and Kessler (2013), Henning (2012)*: There are no periods of RMB flexibility
  2. *Ho, Ma and McCauley (2005)*: Parameter instability over a rolling regression framework, indicative of multicollinearity
  3. *Balasubramaniam et al. (2011)*: Parameter instability over a rolling regression framework, indicative of multicollinearity

# Summary-III

$$d \log \left( \frac{\text{RMB}}{\text{NZD}} \right) = \alpha + \beta_1 d \log \left( \frac{\text{USD}}{\text{NZD}} \right) + \beta_2 d \log \left( \frac{\text{GBP}}{\text{NZD}} \right) + \beta_3 d \log \left( \frac{\text{JPY}}{\text{NZD}} \right) + \beta_4 d \log \left( \frac{\text{EUR}}{\text{NZD}} \right) + \omega \quad (3)$$

$$d \log \left( \frac{X}{\text{NZD}} \right) = \alpha + \beta_1 d \log \left( \frac{\text{USD}}{\text{NZD}} \right) + \beta_2 d \log \left( \frac{\text{GBP}}{\text{NZD}} \right) + \beta_3 d \log \left( \frac{\text{JPY}}{\text{NZD}} \right) + \beta_4 d \log \left( \frac{\text{DEM}}{\text{NZD}} \right) + \beta_5 \hat{\omega} + \epsilon \quad (4)$$

- ▶ The authors use a modified version of the FW regression to test for the presence of a RMB bloc. They make two key changes. Firstly they choose the NZD as the numeraire instead of the CHF/SDR/USD (3)
- ▶ Similar to Balasubramaniam et al. (2011) they extract the residuals from the first equation and setup a new FW regression with the RMB residuals entering the model (4)

# Summary-IV

$$d \log \left( \frac{X}{\text{NZD}} \right) - \hat{\omega} = \alpha + \beta_1 d \log \left( \frac{\text{USD}}{\text{NZD}} \right) - \hat{\omega} + \beta_2 d \log \left( \frac{\text{GBP}}{\text{NZD}} \right) - \hat{\omega} + \beta_3 d \log \left( \frac{\text{JPY}}{\text{NZD}} \right) - \hat{\omega} + \beta_4 d \log \left( \frac{\text{DEM}}{\text{NZD}} \right) - \hat{\omega} + \nu$$

- ▶ They further modify this equation by expanding the  $\hat{\omega}$  term and finally estimate equation (5) based on the assumption that the coefficients in equation (4),  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 = 1$  with the true estimate of  $\beta_5$  being  $1 - (\beta_1 + \beta_2 + \beta_3 + \beta_4)$
- ▶ They benchmark these set of modified FW regressions with the other methods using a rolling regression framework and find that estimates provided by equation (5) show lesser parameter instability and outperform other methods.

# Results and conclusion

- ▶ Overturns results of Subramanian and Kessler (2013) and Henning (2012), any evidence of supporting a RMB bloc in Asia needs to be examined carefully
- ▶ A simple and novel methodology for measuring the RMB coefficient
- ▶ US dollar continues to be the most dominant anchor currency in East Asia
- ▶ The RMB has become important, but it has a long way to go before it supplants the dollar. However, it seems to have reduced the influence the yen had in Asian currency arrangements



# Major issue

Is the methodology robust?

- ▶ The most important issue in the paper is the assumption made in estimating equation (5)
- ▶ The authors assume that the  $\beta$  estimates in equation (4) add up to one
- ▶ This is a problematic assumption
- ▶ As seen in Balasaubramian et al (2011) and noted in Subramanian and Kessler (2013), the use of a residual series as a regressor in a FW regression makes the  $\beta$  coefficients sum up to values greater than 1

# Key intuition

- ▶ If a currency is pegged to some basket of major floating currencies and is well identified (high  $r^2$ ) by some FW type regression then  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \dots = 1$  is a valid assumption
- ▶ If a currency is demonstrating flexibility and is poorly identified (low  $r^2$ ) by some FW type regression then  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \dots = 1$  may not hold
- ▶ When Ho, Ma and McCauley (2005) use a version of this technique, they were looking at East Asian currencies who were well identified pegs to the USD
- ▶ The utilisation of the parameter restriction to identify the USD weight is valid and can be confirmed with a linear hypothesis test

## Does the parameter restriction hold for flexible ERRs?

- ▶ Unless the authors suitably demonstrate that the parameter restriction of  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 = 1$  holds for equation 4, for all rolling time periods, using a linear hypothesis test, it is difficult to accept that the reexpressed term  $1 - (\beta_1 + \beta_2 + \beta_3 + \beta_4)$  discovers the true coefficient of  $\beta_5$
- ▶ When this assumption is tested using a linear hypothesis test (small sample exact test), the parameter restriction only holds for currencies which have been known to employ hard pegs/well identified basket pegs ( $r^2 > 0.85$ )
- ▶ For all other countries, the parameter restriction of  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 = 1$  does not hold

This critical assumption is central to the extraction of  $\beta_5$  in the author's methodology and needs to be re-examined

Thank you.