Is There Really a Renminbi Bloc in Asia?

Masahiro Kawai and Victor Pontines

Discussant comments: Shekhar HK and Ajay Shah

NIPFP

March 6, 2015

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

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

$$d\log\left(\frac{\text{X}}{\text{CHF}}\right) = \alpha + \beta_1 d\log\left(\frac{\text{USD}}{\text{CHF}}\right) + \beta_2 d\log\left(\frac{\text{GBP}}{\text{CHF}}\right) + \beta_3 d\log\left(\frac{\text{JPY}}{\text{CHF}}\right) + \beta_4 d\log\left(\frac{\text{EUR}}{\text{CHF}}\right) + \beta_5 d\log\left(\frac{\text{RMB}}{\text{CHF}}\right) + \epsilon \quad (2)$$

- 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 Kesssler (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 Kesssler (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

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

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

- 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

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

- 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 β_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 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 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 β 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 β coeffiecients 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 $\beta_1 + \beta_2 + \beta_3 + \beta_4 + ... = 1$ is a valid assumption
- If a currency is demonstrating flexibility and and is poorly. identified (low r^2) by some FW type regression then $\beta_1 + \beta_2 + \beta_3 + \beta_4 + ... = 1$ 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 rexpressed term $1 - (\beta_1 + \beta_2 + \beta_3 + \beta_4)$ discovers the true coeffiecient of β_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 others 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 β_5 in the author's methodology and needs to be re-examined

Thank you.