Comments on "Making Sense of China's Excessive Foreign Reserves," by Yi Wen

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Main stylized facts are well known

- China's trade surpluses have grown dramatically until most recently
- China has accumulated a large stock of dollar-denominated foreign reserves ($2.4 trillion)
- Chinese government pursuing export-led development strategy to absorb large movement out of agriculture (400 million)
- US runs a large overall trade deficit, in large part attributable to bilateral deficit with China
- US government grumpy about perceived undervaluation of renminbi
- Chinese government doesn't want to talk about it

This paper explains current pattern of global imbalances based on precautionary savings

- China has underdeveloped financial markets and lacks social safety nets
- Consumers exposed to substantial idiosyncratic uncertainty, which is increasing in income
- Also exposed to severe borrowing constraints which preclude going into debt in bad periods
- Rationally respond by saving a lot
- Build up rainy day stock against future downturns
- Marginal propensity to save is actually *increasing* in growth rate (matching empirics)

What is new?

- Large literature explaining south-north capital flows
  - Caballero, Farhi, Gourinchas (2008): Chinese households demand dollar assets as "store of value"
  - Mendoza, et al (2009): Countries with more developed financial markets borrow dollars and use them for direct investment back into countries with less-developed financial markets
  - Ju and Wei (2010): Similar asset flow pattern results in superior investment by developed-country firms with better corporate governance
- Also papers that explain size of net flows (i.e. increased savings rate)
  - Carroll and Jeanne (2009) In environments of rapid income growth and increasing employment risk can get outflows from EMEs to DCs.
  - This paper similar, but gets closed-form solutions through quasi-linear utility

Theoretical framework

- Small open-economy model
- Households borrowing and short-sale constrained
- Households hold proceeds of export earnings as precautionary savings
- Could be government bonds instead
- Utility function quasi-linear
  - $U_t \equiv \theta_t(i) log[c_t(i)] - aN_t(i)$
- where $\theta_t(i)$ is a preference shock and $N_t(i)$ represents hours worked
- Optimal consumption concave in cash on hand x
- When $\theta(i) \leq \theta^*$ mpc is less than one and agent accumulates assets
- When $\theta(i) > \theta^*$ mpc is one and agent does not save

Very interesting paper

- Careful execution of commonly-told story
- Empirical support: Fernald and Rogers (2002)
  - Find that domestic Chinese residents pay about 4 times as much for domestic-only A shares than foreigners pay for foreign-only B shares
  - As in this paper, attribute difference to availability of alternative investments
  - Confirmed in Mei, Scheinkman, and Xiong (2009)
- Extension suggests financial repression sufficient to induce imbalances, exchange rate manipulation not required
  - Paper concludes exchange rate policies "irrelevant" for imbalances
- Structural model allows for some speculation about potential impact of easing of capital controls

Relationship between income growth and savings in model not monotonic

- Above some cutoff, "$\overline{g}^*$", theory says savings declining in income growth
- Calibration puts $\overline{g}^*$ at 25%
- How certain can we be that China is above "$\overline{g}^*$"?
  - From appendix, we get $\overline{g}^*(1+\overline{g}^*) = \frac{-H(1-H)}{\frac{\partial H}{\partial \overline{g}^*}}$
  - where H is the mps of household
  - Chinese growth rates are very high during post 1990 period (say 9%)
  - We know that China's mps is small (say 50%)
  - These figures and above equation imply that if $-\partial H/\partial \overline{g}^* \leq 0.33$, China's current growth is larger than $\overline{g}^*$
- This seems likely to me, as 0.33 seems large
- Key is estimation of σ, magnitude of idiosyncratic risk

Might China be on decreasing side of g^*?

- σ directly determines magnitude of precautionary savings
- Data limitations preclude direct estimation
  - Paper sets σ such that China has model-implied Gini coef for consumption inequality roughly equal to observed Ginis for inequality in consumption and health expenditures for EMEs
- Problematic if class mobility is low (heterogeneous labor)
  - Doctor in Beijing probably does not consider consumption levels of rural unskilled, nor vice versa
  - Heathcoate, Perri and Violante (2010): large increases in wage volatility over the last 40 years concentrated in certain income groups in US; differences across groups very persistent
  - Likely to be even more true in China?
- Result may be upward bias in σ and erroneous inference that China on increasing side of g^* (or away from flat part)

Number of reasons to believe precautionary savings could fall with income

- Multiplicative preference shocks may not be reasonable
  - Desire to ensure provision of "basic needs" health care, food, etc. likely quite strong
  - But can be satisfied with relatively modest stock of savings
- Important because wealthy account for bulk of savings
  - Do we not think that rich would be more capable of circumventing capital controls?
  - e.g. Buying real estate in Hong Kong
- Decision rule also implies that capital constraints will be in place forever
  - Well-documented positive correlation between capital account openness and income
  - As China grows, both *de facto* and *de jure* capital controls may decrease
  - If opening is imminent, optimal precautionary stock should decrease

General model extension doesn’t yield much role for exchange rates

- Introduces domestic sector, potentially allowing for responses to exchange rate changes
  - Agents might respond to exchange rate changes by investing in capital in domestic sector
  - Ruled out as residents can only use export proceeds to purchase domestic assets
  - Can work in either sector, but this impact is small
- Is this reasonable?
  - Paper discusses how agents (in principle) can swap foreign exchange for domestic bonds
  - What precludes them from financing domestic capital purchases by selling domestic bonds?
  - Domestic financial sector modeled is really suppressed
  - Again, reasonable for poorer households, but possibly less reasonable as wealth increases

Capital control elimination may induce exchange rate depreciation, rather than appreciation

- Agents in model may swap low-yielding domestic assets for higher-yielding foreign assets
- Potentially resulting in capital outflows, rather than inflows
- Recall that households are forbidden from investing domestically
- But growth is really high; somebody must be investing domestically
- What about SOEs?
    - Large portion of savings is retained earnings by SOEs
    - Difficult to believe these firms face financial constraints similar to those faced by households

Conclusion

- Very interesting paper that explains a lot of patterns in Chinese data based upon assumption that domestic financial sector is really repressed
  - Due to repressed financial sector, agents run large surplus and invest in low-yielding foreign assets
  - Hold precautionary savings against idiosyncratic risk
- Have no doubt that this is some portion of story
- However, still concerned about fact that households really hold domestic bonds, rather than foreign assets
- Other entities, such as SOEs, also hold these assets
  - These entities are likely to be less constrained
  - At a minimum, they can certainly invest domestically
- Perhaps expected return on government debt is not so bad
  - Most expect a renminbi appreciation subsequent to liberalization
  - Sufficient appreciation would imply that rates of return on renminbi assets were competitive ex post