Comments on Internationalizing Like China[1]

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[1] The views expressed herein are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of San Francisco or the Federal Reserve System.

Internationalization of China RMB bond market

- Documents rapid growth of market during 2010's
- Stylized facts of market development
  - Composition of foreign RMB investment has shifted from sovereigns to private investors
  - Driven by domestic policy, gradual easing of restrictions on foreign ownership
  - By the time private investors were allowed to hold bonds, they were not limited to EM debt portfolios
- Introduces reputation model arguing for gradualism in easing ownership restrictions and increasing borrowing volumes

Dynamic reputation model

- Based on Amador and Phelan (2021)
- Borrower chooses composition of bondholders and volume
- Ex post "default decision" temporary block on capital outflows to avoid costly fire sale repatriation
- Equilibrium exhibits gradual growth in bond market volumes and expansion of breath of lenders
  - At low reputation, borrow only from stable sovereign lenders
  - Won't raise fire sale problem, avoiding temptation to levy capital controls on outflows
  - Positive experiences raise government reputation and reduces premia to attract more "flighty" investors
  - Eventually, market expanded to these investors as well
  - Model exhibits "setbacks" in reputation

- Analogy to proverb of "crossing river by touching all stones"

Model of dynamic reputation building

- Agents
  - Domestic: Government, household, one-pd entrepreneurs
  - Foreign: Stable and "flighty" investors, who require larger haircut given crisis
- Extensive form
  - Long-term investments at each date t
  - Financed by short-term debt that will need to be rolled over in middle of period
  - Prior to rollover, state $s \in H, L$ realized, where H is normal and L crisis
  - Given L, foreign creditors demand collateral to roll over debt, which forces costly liquidation of project

Government

- Two types of governments:
  - Committed: Never imposes capital controls
  - Opportunistic: Decides whether to impose capital controls each L period
- At beginning of t, govt. chooses types of investors allowed to participate in domestic bond market
- With positive probability, government dissolved at end of period
  - No weight on utility of future govts
  - Given H, replaced by same type
  - Given L, replaced by opposite type

Debt rollover problem

- In middle of period t "second generation" rolls over quantity of debt based on state
- Given H, optimally rolls over debt
- Given L, L_t of assets forcibly liquidated
    - Collateral constraint limits debt rollover based on foreign investor type
    - Investors require a haircut $h_t \in h^f, h^s$ for flighty and stable investors respectively, $(h^f > h^s)$
    - No discrimination: All investors offered h^f if flighty investors part of lending group
- Imposing capital controls mitigates rollover costs by reducing interest on rolled over debt

Equilibrium

- Committed government
  - Unique threshold probability of imposing capital controls M^* s.t. only allows stable investors for $M_t \leq M^*$, but both for $M_t \leq M^*$
  - Borrowing responds to "macroprudential" incentives ex ante
- Opportunistic government
  - To obtain debt, can mimic committed government ex ante
  - Given low state, can increase investors' posterior prob that government is committed by not imposing capital controls
  - Corollary: Can only improve reputation in low states
- Unique probability M^* of capital controls s.t. committed government only allows stable for $M_t \leq M^*$, but allows both for $M_t \leq M^*$

Reputation dynamics

- "n steps" of reputation
- $n = N^*$: "Opening step"
  - Government allows in "flighty" investors $(M_n > M^*)$
  - Fraction m_n of governments do not impose capital controls
  - $1 - m_n$ impose controls and begin process again
- $n = N$: "Graduation step"
  - Committed government achieve highest possible reputation
  - Opportunistic governments all impose capital controls and revert back to start of cycle
- Unique equilibrium under homogeneous investors
  - At low n, likely to impose capital controls, because prior you are opportunistic is high
  - As n increases, countries less likely to impose controls as benefits of achieved reputation greater
- With heterogeneous investors timing ambiguous but steps unique
  - Can get immediate opening, or only after "graduation"
  - Country enjoys discrete increase in reputation after opening up

Important paper about establishing reputation for international debt

- Demonstrates reputation building slow and costly process
- Result that reputation can only be built in crisis is intuitive
  - Warren Buffett: "Only see who is skinny-dipping when the tide goes out"
- Historical examples in paper of building or deteriorating borrower reputations through actions
  - Hamilton federalizing states' debt
  - Nixon moving dollar off of gold
  - Others as well: Sec. Paulson on Treasury steps during GFC guaranteeing US agency debt, including foreign held

Theory

- Currency internationalization vs. bond market development/borrower reputation?
  - Amador and Phelan (2021) more narrow; only about borrower reputation (and restrictions on inflows in response)
  - Need monetary model for currency internationalization
    - Option to inflate away debt obligations or reduce through exchange rate devaluation
- Effective myopia of government is important
  - Forward-looking government (long-lived) could open to flighty investors early to signal type
  - Not sure myopia assumption fits China
- Collateral model of bond pricing?
  - Liam and Ma (2021): Only 20% of U.S. nonfinancial debt is "asset-based," 80% based on firm cash flows
  - A priori, would expect China might be similar
  - Would likely have very different dynamic implications, with rapid growth for firms following China's rapid growth

RMB bond market appears to be growing at same pace as rest of China borrowing

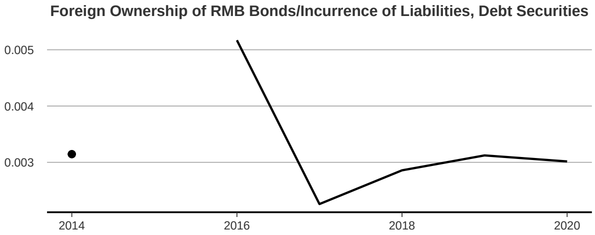

Figure: **RMB borrowing as a share of gross portfolio inflows**

- RMB market proceeded in step with other China inflows
- Scope for discriminating, particularly with capital controls
- Late decade takeoff coincides with reach for yield globally

Other relevant "Chinese characteristics"

- Discrepancies between local and central government debt
    - Reputation for local likely to be inferior
    - Some scope for discrimination across assets
- Closing unprofitable SOEs and reducing financial repression
    - Liu, et al (2021): Closed capital account maintains financial repression and assists low productivity SOEs
    - Gradualism in opening capital account allows for gradual reduction in financial repression
    - Gradual reallocation of capital towards private sector
- China efforts to develop Asian bond markets and be included in SDR basket
    - China efforts to enter SDR basket coincided with 2015 efforts to be included in SDR basket
    - Regional considerations: e.g. Asia Bond Market initiative

China's "test" (2015-16)

- Paper documents how China experienced outflows but failed to impose capital controls in RMB bond market
- But China did intervene in some markets heavily
  - Quotas on domestic capital outflows, including qualified investors and corporations
  - CSRC suspension of 565 billion RMB in planned IPO activity
- Model isolates RMB market activity and suggests that failure to restrict outflows should enhance reputation
  - But supply factors also seem to be at play
  - Major growth in RMB market appears to coincide with "Reaching for yield" in advanced economies
  - Reach for yield would also explain inclusion in advanced economy portfolios

Conclusion

- Very nice paper that I recommend highly
  - Demonstrates that much in China bond market experience matches predictions of reputation-building model
  - Extensions to deal with reserve currency competition and two-way flows
- But complementary explanations for what is going on
  - China efforts to enter SDR
  - Initiatives to close unprofitable SOEs
  - Global factors, such as reach for yield
- Hard to apportion explanatory power between these and posited model