Reserve Accumulation, Growth, and Financial Crises

by Gianluca Benigno, Luca Fornaro, and Martin Wolf

Discussion by Samer F. Shousha[1]

Board of Governors of the Federal Reserve System

Financial Friction: Macroeconomic Implications and Policy Options for Emerging Economies

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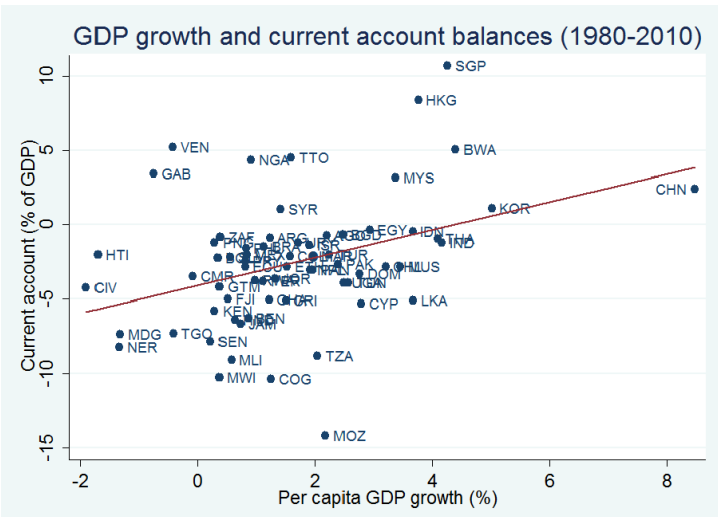
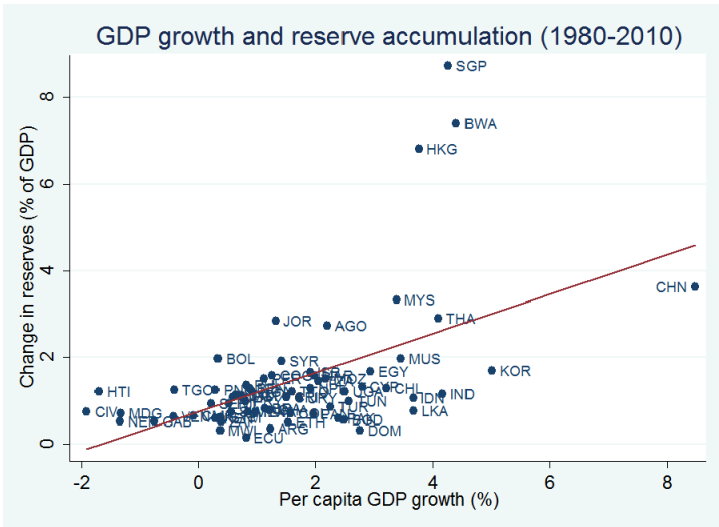
[1]The views expressed herein are solely the responsibility of the author and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.

Motivation

- Stylized facts:
  1. Faster growing economies are associated with higher current account surpluses (lower net capital inflows)
  2. This fact is purely driven by public flows and, more specifically, international reserves accumulation





- This paper: provides a theoretical framework that rationaliozes the fact that reserve accumulation is associated with faster growth

This Paper

- Theoretical framework: studies how public interventions explain the behavior of capital flows in fast growing emerging economies
  1. Tradable sector firms absorb knowledge by importing inputs
  2. Private agents face a foreign borrowing constraint and the economy is exposed to the risk of sudden stops in capital inflows

- Mechanism: combination of growth externalities and financial frictions provides incentive for reserve accumulation
  1. Government uses reserve accumulation to generate a real currency depreciation during tranquil times
  2. Production reallocates toward the tradable sector, stimulating the use of imported inputs and absorption of foreign knowledge
  3. Government's actions are not offset due to sudden stop risk
  4. Knowledge externalities also provide incentives for the government to counteract the loss of access to private credit during crises

- Model generates gross capital flows as in Broner et al (2011) and rationalizes the negative relation between foreign aid and growth

Results - Capital Account Liberalization

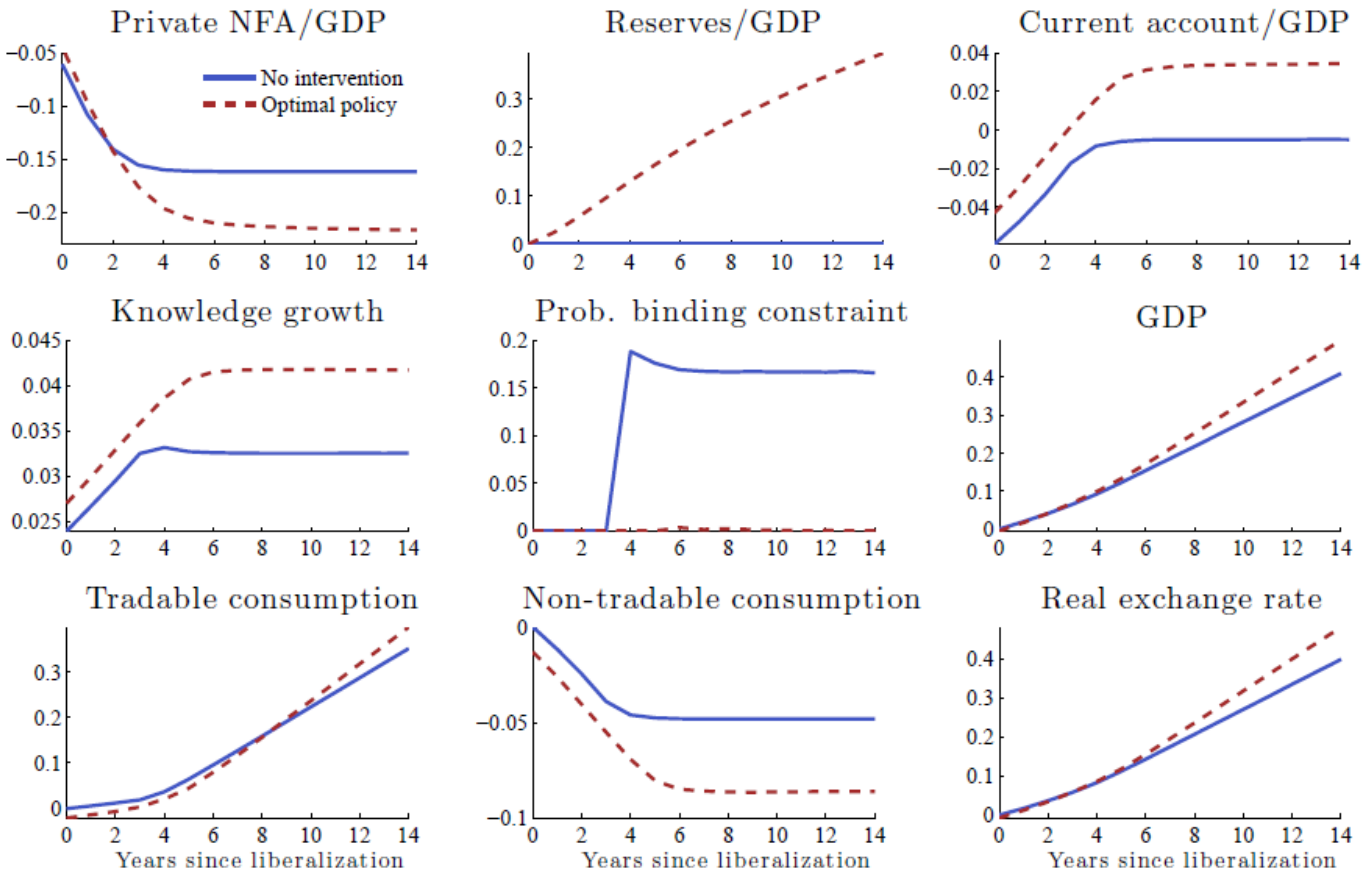


Figure 4: Impact of reserve policy. Notes: GDP, consumption of tradables, consumption of non-tradables and the real exchange rate are all expressed in percentage deviations from their first-period value in the equilibrium without government intervention. NFA refers to net foreign assets.

Results - Foreign Aid

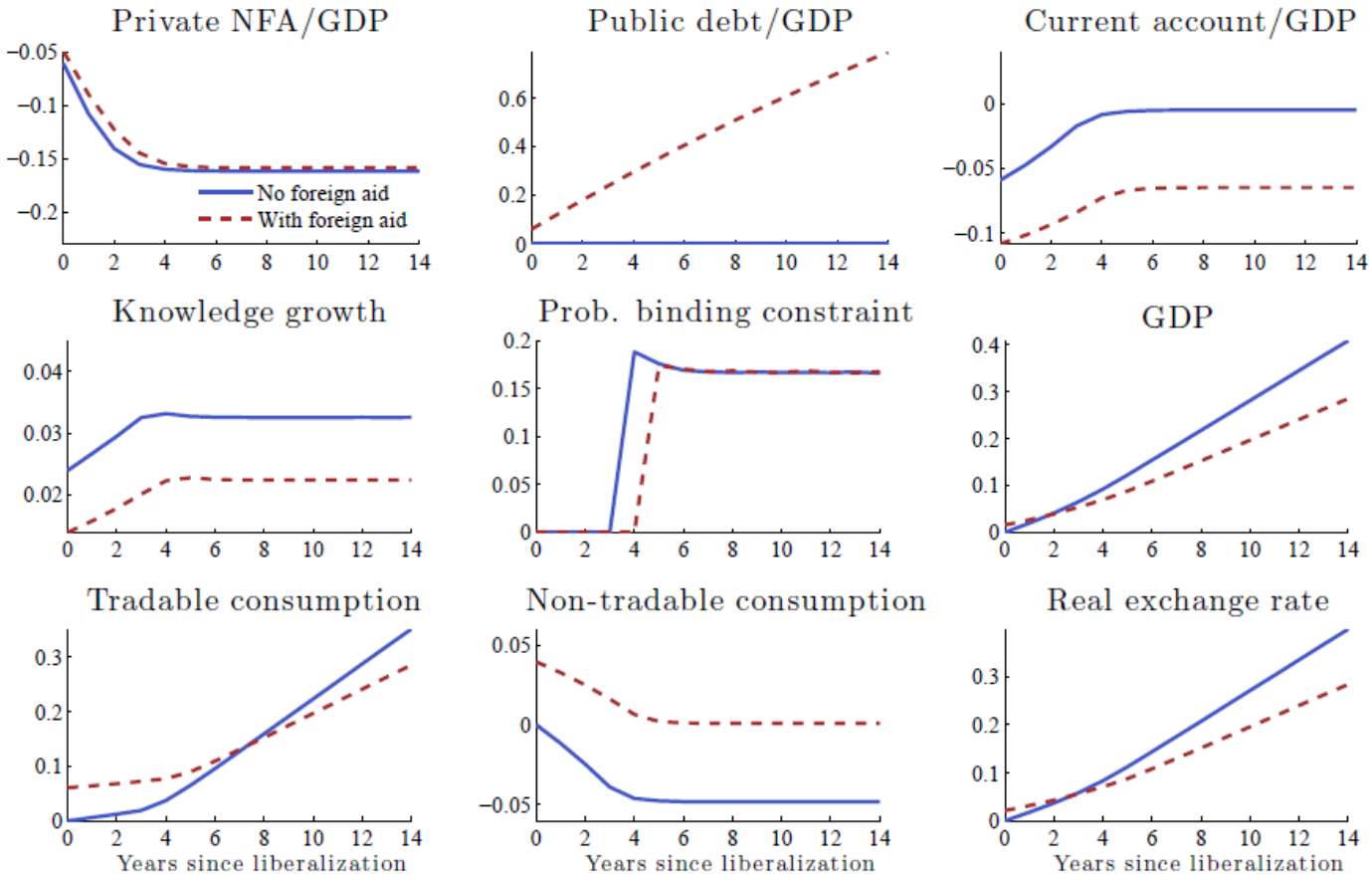


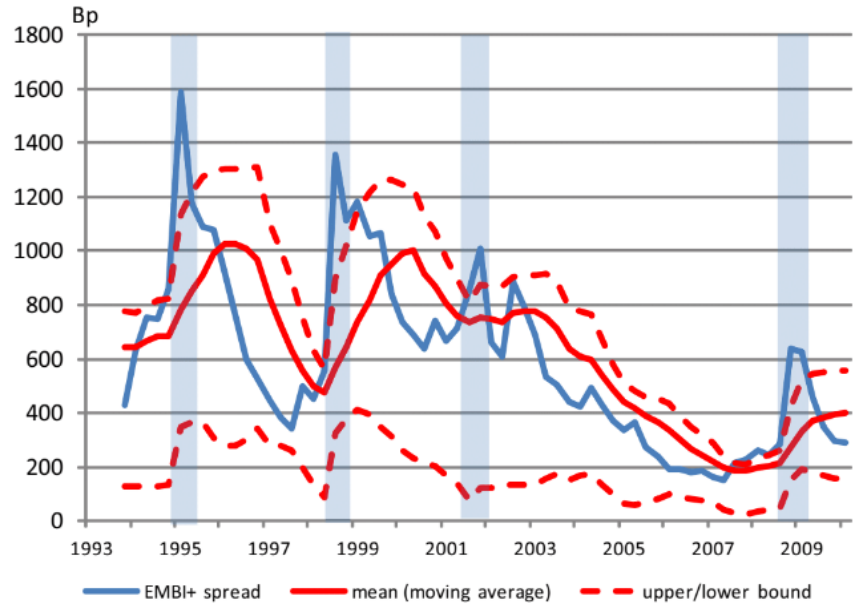
Figure 6: Impact of foreign aid. Notes: GDP, consumption of tradables, consumption of non-tradables and the real exchange rate are all expressed in percentage deviations from their first-period value in the equilibrium without foreign aid. NFA refers to net foreign assets.

Why not capital controls?

- The government pays the interest rate differential to carry international reserves
- Magud, Reinhart, and Rogoff (2018), for example, find that capital inflow controls generally reduce real exchange rate appreciation after surges of capital flows
- Could countercyclical capital controls have a role in this environment? Would they be substitutes or complementaries to reserve accumulation (Bacchetta, Benhima, and Kalantzis, 2013)?

Reserve Accumulation Costs

- There is considerable variation in costs of carrying international reserves, both in the time series and cross section

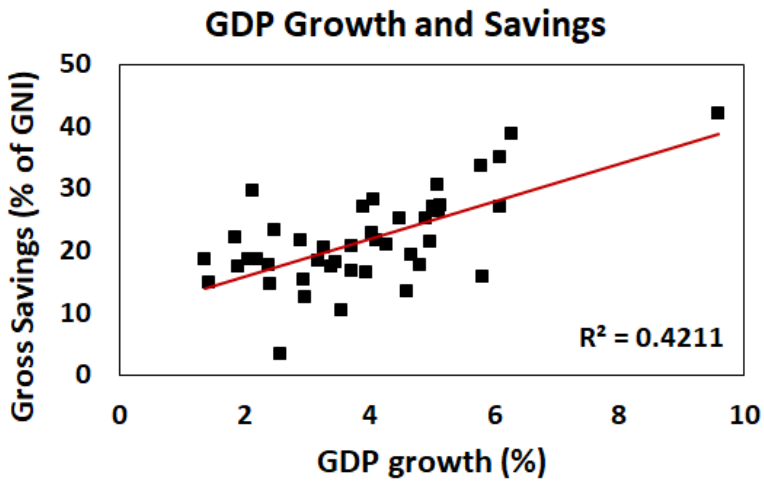


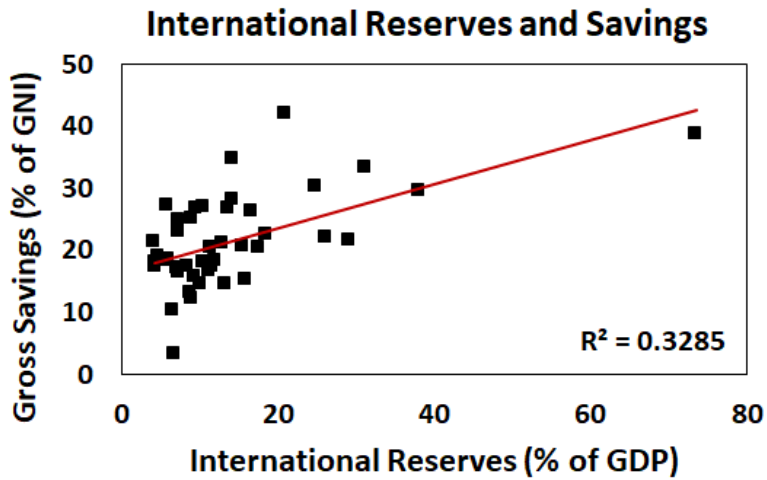
Note: Global EMBI-mean is the eight-quarter moving average of the Global EMBI. Upper/Lower bounds are defined as the EMBI-mean plus(minus) the last eight-quarters standard deviation of the Global EMBI. Quarters of financial stress are dashed (1Q95, Q984Q01, 4Q08)
Source: JP Morgan, Alberola et al. (2016)

- How sensitive are the results to different level of spreads?
- How the optimal policy changes if interest rates jump during crisis? (Could have two values as κ_t)

Reserve Accumulation or Higher Savings?

- Countries with higher savings also have faster growth and more international reserves





Note: The data are sampled quarterly from 1980 to 2019 or the earliest beginning year when data are not available since 1980.
Source: WDI

- Goncalves and Rodrigues (2017) show that the positive association between a depreciated currency and growth vanishes after controlling for the savings rate

- How can we differentiate among both explanations? Can time series and cross sectional variation provide information about that?

Borrowing Constraint

- The borrowing constraint is based on the stock of accumulated knowledge:

$$\phi P^M M_t - D_t - RB_t \leq \kappa_t X_t = \kappa_t (\psi X_{t-1} + M_{t-1}^{\xi} X_{t-1}^{1-\xi})$$

- Somewhat unusual as the stock of knowledge cannot be really seazed in the event of a default
- The presence of X_t in the borrowing constraint also leads to some peculiar dynamics
  - Accumulating more knowledge (expanding tradable sector and imports of inputs) relaxes the borrowing constraint in the future
  - Provides additional incentive for intervention
- How crucial is that for the level of optimal international reserves?

Conclusion

- Contribution:
  - Relevant reserach question
  - Provides a theoretical framework that rationaliozes the association between reserve accumulation and faster growth
    - Develops a model where the tradable sector is the engine of growth through the use of imported inputs
    - Government uses reserve accumulation to generate a real currency depreciation and reallocate production to the tradable sector during tranquil times
    - Knowledge externalities also provide incentives for the government to counteract the loss of access to private credit during crises

- I added some comments/questions:
  - What if capital controls can also be used?
  - Time-varying reserve accumulation costs
  - Is faster growth stemming from reserve accumulation or higher savings?
  - Borrowing constraint specification

A very nice paper! Thank you!