Comments to:

Precaution Versus Mercantilism: Reserve Accumulation, Capital Controls, and the Real Exchange Rate

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What Does the Paper Do?

- Re-evaluates the relationship between External Assets and RER

- New Focus: reserves (external assets held by the public sector)
  - Important component of EM external balance sheet 00's.

- RER
  - Different Public/ Private Assets
  - Different financially closed/open economies

- Very Complete: Theory + Data
  - 75 countries over 1975–2007.3 + GFC, developed/emerging.
  - Several Robustness / cuts of the data / etc.

Recent Trends
Reserve Accumulation

- The rise in international reserves has spurred renewed interest in policy and academic circles about the optimal level of foreign reserves sovereign countries should hold.
  - Widespread phenomenon among **many emerging markets, including countries that hold a large amount of external debt.**
    - reserves 20% of GDP in low- and middle-income countries; 5% in high-income countries (2005).

- The cost of holding reserves has been estimated at close to 1% of GDP (Rodrik, 2006)

  - What are the benefits?

  - Insurance against the risk of external crisis can't account observed cost/reserve levels (Alfaro and Kanczuk, 2009, 2015; Bianchi et al., 2012; Durdu, Mendoza, and Terrones, 2008; and Jeanne and Ranciere, 2009).

Trends: Foreign Reserves to Total External Debt Selected Countries

	1995	2000	2005	2007	2008	2010	2012	Δ (2000-2007)	Δ (2000-2012)
Argentina	16.2%	17.1%	22.0%	38.3%	37.9%	44.5%	35.7%	21.2%	18.6%
Brazil	32.0%	13.6%	28.6%	75.6%	73.7%	81.9%	84.7%	62.0%	71.1%
China	68.0%	117.9%	295.8%	416.0%	519.5%	520.5%	449.3%	298.1%	331.3%
Colombia	33.7%	27.2%	40.2%	48.3%	51.2%	44.0%	46.8%	21.1%	19.6%
Indonesia	12.0%	20.4%	24.5%	38.5%	32.7%	48.0%	44.3%	18.1%	23.8%
India	24.0%	40.6%	113.7%	135.5%	113.3%	103.0%	79.2%	94.9%	38.6%
Malaysia	71.9%	68.3%	135.4%	161.7%	136.2%	125.1%	134.4%	93.4%	66.1%
Mexico	10.3%	23.4%	42.1%	43.8%	46.1%	49.5%	47.1%	20.4%	23.7%
Pakistan	8.4%	6.3%	32.7%	37.6%	18.2%	27.3%	22.1%	31.3%	15.8%
Peru	28.0%	30.1%	48.0%	86.2%	90.0%	104.9%	118.5%	56.1%	88.4%
Philippines	19.8%	25.8%	31.5%	57.1%	64.4%	102.6%	136.5%	31.3%	110.7%
South Africa	17.6%	30.6%	42.9%	47.5%	50.1%	42.8%	36.9%	16.8%	6.2%
Thailand	36.9%	40.9%	88.9%	139.4%	166.7%	167.7%	135.2%	98.5%	94.3%
Turkey	18.8%	20.1%	30.5%	29.6%	25.5%	28.7%	35.3%	9.5%	15.2%
Venezuela	30.0%	37.2%	65.7%	69.3%	79.9%	45.5%	40.9%	32.1%	3.7%

Source: WB, WDI.

Related Trends:
Exchange Rate Management

- Managing exchange rates.

- Calvo and Reinhart (2002) coined the term "fear of floating": the reluctance of the authorities to allow free fluctuations in the nominal (or real) exchange rate.

  - Number of countries actively managing the exchange rate has increased (even "inflation targeters"), IMF (2012), Reinhart (2013).

- Ilzetzki et al (2017): role of reserves to sustain $ anchor.

Choi and Taylor (2017)
General Reactions

- Extremely ambitious paper in a good way!

  - Theory and Data

    - Longer term patters; across different type of countries and regimes.

    - **General Framework:** precaution + mercantilism

- Key differentiation: **"sovereign" versus private type of flows**

  - Right direction!

  - (Self serving)

Optimal Reserve Management and Sovereign Debt, Alfaro and Kanczuk (2009)

Conclusions: Final Thoughts

- *Results have normative implications: they suggests that a positive model, that aims to reproduce the stylized facts, would need to focus on **alternative motivations for reserve accumulation***

- *Perhaps the recent reserve holdings observed in emerging markets can be better explained by political economy motivations associated with **exchange rate management policies.***

- *Yet, another issue worth considering is the **interaction between the government's and the private sector's holdings of debt and reserves**.*

Sovereigns, Upstream Capital Flows and Global Imbalances, Alfaro et al. (2012)

- Importance distinguishing private from "sovereign-sovereign flows"

    - *"Our findings show that overemphasizing private saving and **failing to consider public saving, official flows, and governments' current account targeting** as the main drivers of uphill flows and global imbalances **are serious shortcomings of the recent theoretical literature.**"*

Outline Comments

- Suggestion Model / Framework
  - Alternative Policies: **Complements-Substitutes**
    - Vulnerabilities (Precaution)
    - Mechanisms Externalities (Mercantilism)
      - Trade-offs (quantitative - qualitative)

- Suggestions Empirics
  - Few (authors perform many robustness) / relate to framework
  - Time periods: Stronger 2000s / 90s EM crisis.
  - Balance Sample
    - AKV (2009): type of countries/data available early on to achieve balance sample
      - Eastern Europe (footnote) / small countries-islands

Theoretical Framework

- Small open economy model, tradable and nontradable goods.

  - Positive external wealth shock: RER appreciation (standard + prediction).

- Capital account policies—reserve accumulation and capital control—shape the current account balance/trade balance.

  - Reserve accumulation—affects consumption tradables: RER depreciation as public sector increases its external savings (opposite standard prediction)

    - Public savings are offset by private capital flows

    - K controls: change marginal effect of reserve accumulation on RER

- Precautionary/insurance motive: reserves can be used "sudden stop"/crises.

- Mercantilist motive: exports a positive spillover/ externality on growth.

Theoretical Framework (cont.)

- **Objective: Smooth Consumption intertemporal and intratemporal**

- **Manage RER $\rho_t = [\theta^N c_t^T / \theta^T c_2^N]^{1/\sigma}$**

  - $c_1^T + \rho_1 c_1^N + a + \tau(d^*, \kappa) \leq (1+\omega)y^T + \rho_1 y^N + d^* + T_1$

  - $c_2^T + \rho_2 c_2^N + (1+r^*) d^* \leq y_2^T + \rho_2 y^N + (1+r)a + T_2$

- Foreign debt is private (d^* in tradables), subject to a capital control;

- Government issues "assets-reserves, rsrv"; domestic government bond a (?)

  - $rsrv + T_1 \leq a + \tau(d^*, \kappa)$; $T_2 + (1+r)a \leq a + (1+r^*)$ rsrv

  - $c_1^T = (1+\omega)y^T - rsrv + d^*$; $c_2^T = (1+g)y^T(1+r^*)$ rsrv - $(1+r^*) d^*$

- Optimal policy reserves and K controls: degree of learning-by-doing externality and the degree of crisis loss

Suggestions Framework

- Generalize model (more periods /other policies/gov.)

  – Output shocks may be different from wealth shocks

    • Valuation effects

  – Trade-offs government accumulation debt/reserves

    • Alternative policies to reduce vulnerabilities (precaution/insurance)

  – Trade-offs Capital Controls

    • Alternative effect controls (mercantilism)

    • "Effective international rate"

  – Short-term versus long-term

    • Timing of Policies/ Effects

Alternative Policies: Precaution

- Manage RER: Fiscal Policy (g_N)

- Reduce Risk: Sovereign countries have an alternative way of reducing the probability and negative effects of external crisis: reduce the level of sovereign debt.

  - Even when reserve accumulation has positive liquidity benefits in terms of reducing the probability of suffering financial crises and the output costs associated with it,

    - A similar net asset position can be obtained by reducing instead the level of foreign debt

- Empirics: Differentiate private/public liabilities;
  - RER: g_N

Joint Decisions: Reserves versus Debt
A Digression

- In Eaton and Gersovitz (1981): demand for international loans derives from a desire to smooth consumption.

    - Alternative policy to reduce vulnerability: even when reserves have positive liquidity benefits, reducing foreign debt achieves a similar net asset position.

        - + Reserves reduce sustainable debt levels (sovereign's willingness-to-pay incentive problems).

- In more recent models, the sovereign does not use debt primarily as a way to smooth consumption (a departure from the "pure" Eaton and Gersovitz, 1981).

    - Consumption smoothing is mostly achieved through default (contingent debt service, Grossman and Van Huyck, 1988).

    - Debt is predominantly used to front-load consumption, (Aguiar and Gopinath, 2005; Alfaro and Kanzuk, 2005; Arellano, 2008).

Debt and Reserves

- In contingent debt service models, reserves and debt (regardless of maturity) are not perfect substitutes
    - Debt and reserves are alternative ways of achieving consumption smoothing, (Alfaro and Kanczuk, 2009).

- A sovereign's choice to default: instantaneous reduction in the costs of rolling debt.
    - Benefit: Higher consumption (particularly when the debt service is large).
    - Cost: lower output + reduction in the possibilities to smooth consumption in future periods (temporary loss access to credit markets).

- Reserves
    - Benefits: Allow to reduce consumption volatility even when excluded from international markets (default or sudden stop) and cannot issue debt.
    - Cost: Sovereign impatience > reserves remuneration (to build reserve stock, an economy has to consume less).
        - Reserve endogenously affect the willingness to default, reducing the amount of "sustainable" debt.

Reserve and Debt: Quantitative Puzzle, not Qualitative

- Even in a model of borrowing, there is a role for reserves: defaultable debt is not contingent enough.

    - Smoothing consumption through increasing debt is less effective than smoothing consumption through defaulting (Grossman and Han, 1999).

    - Since reserves are useful even after defaulting, they can be even more so when the sovereign opts to pay service contingently: "Defaultable" debt and reserves (a risk free bond) complete the market.

- Comparative statics:

- Higher discount factor β: the costs of consuming latter are smaller, and since reserves are a means to postpone consumption, its equilibrium amount increases; while debt decreases.

- Reserves increase with volatility (standard deviation of the endowment process) because they interact with debt to complete the markets (insurance motive becomes more important when endowment volatility is higher).

- Full fledge model effects depend on **calibrated parameters** (AK, 2009).

Implications

- The implication of our paper is that there is indeed a role for reserves in the model (Alfaro and Kanczuk, 2009).

  - (i) extremely volatile endowment process (more than observed in data)

  - (ii) high impatience parameter conflicting with the consumption front-loading in data.

- **The puzzle is a calibrated (quantitative one) not qualitative.**
  - Realistic parameters can't justify observed reserve levels (contagion, sudden stops, contingent reserves, reduction of output costs..).

- Need other motivations…

Alternative Policy (cont.): Local Currency Debt Related Trends: Foreign Participation

- Foreign participation in local currency bond markets in emerging economies:

  - Quantitatively relevant only in the present millennium.(Burger, Warnock and Warnock, 2010; BIS, 2012)

    - Borrowing resources in low interest rate currencies and investing in high interest rate currencies without hedging for exchange rate risk (carry trade activities).

- Local-currency bonds/issuance of debt not indexed or linked to exchange rate independently of the legal framework adopted for its issuance (different definitions: Reinhart and Rogoff, 2011)

Selected Asian Countries: Foreign Holdings in Local Currency Government Bonds
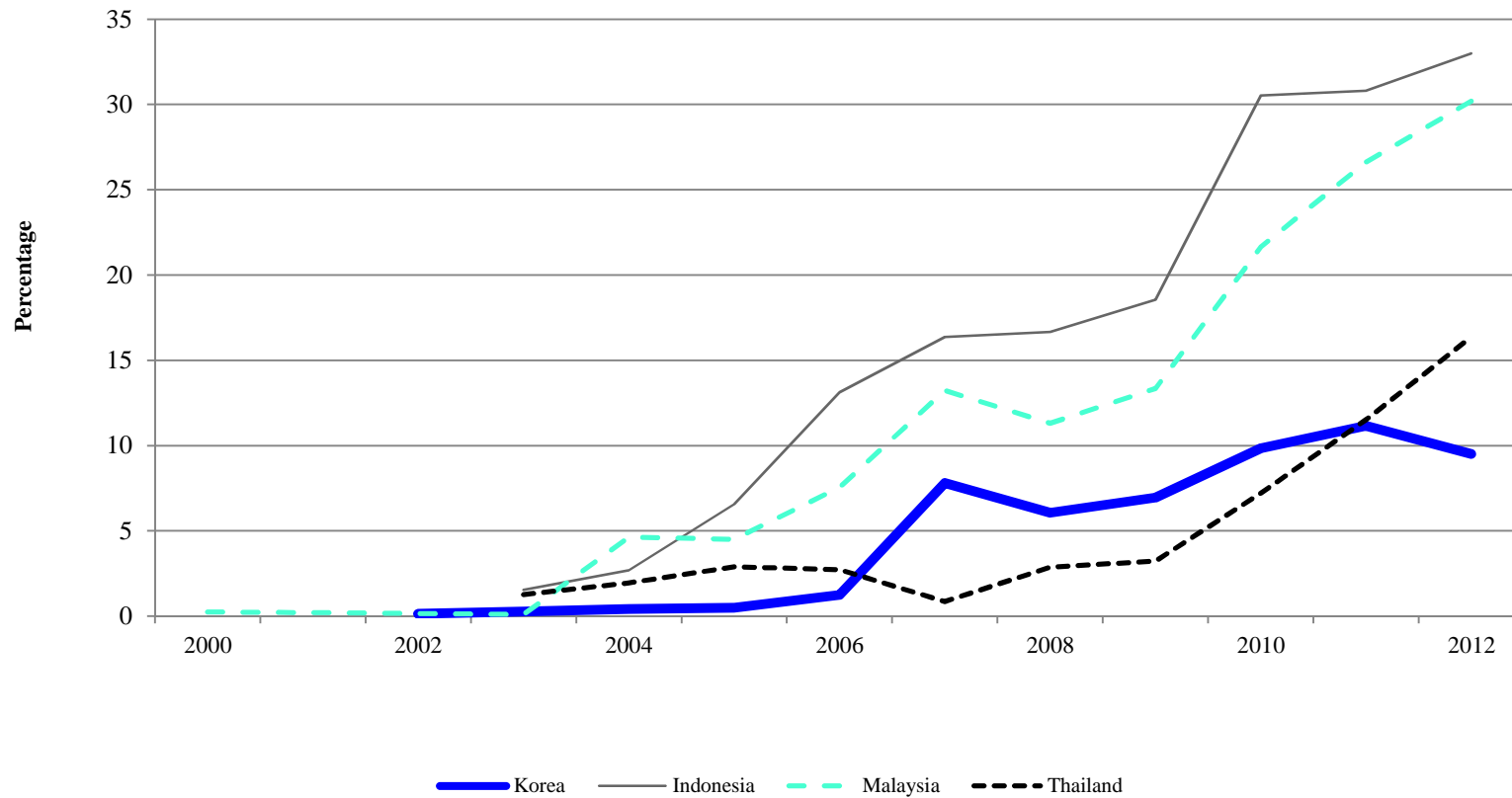
Brazil-Total Federal Domestic Debt and Non-Resident Participation
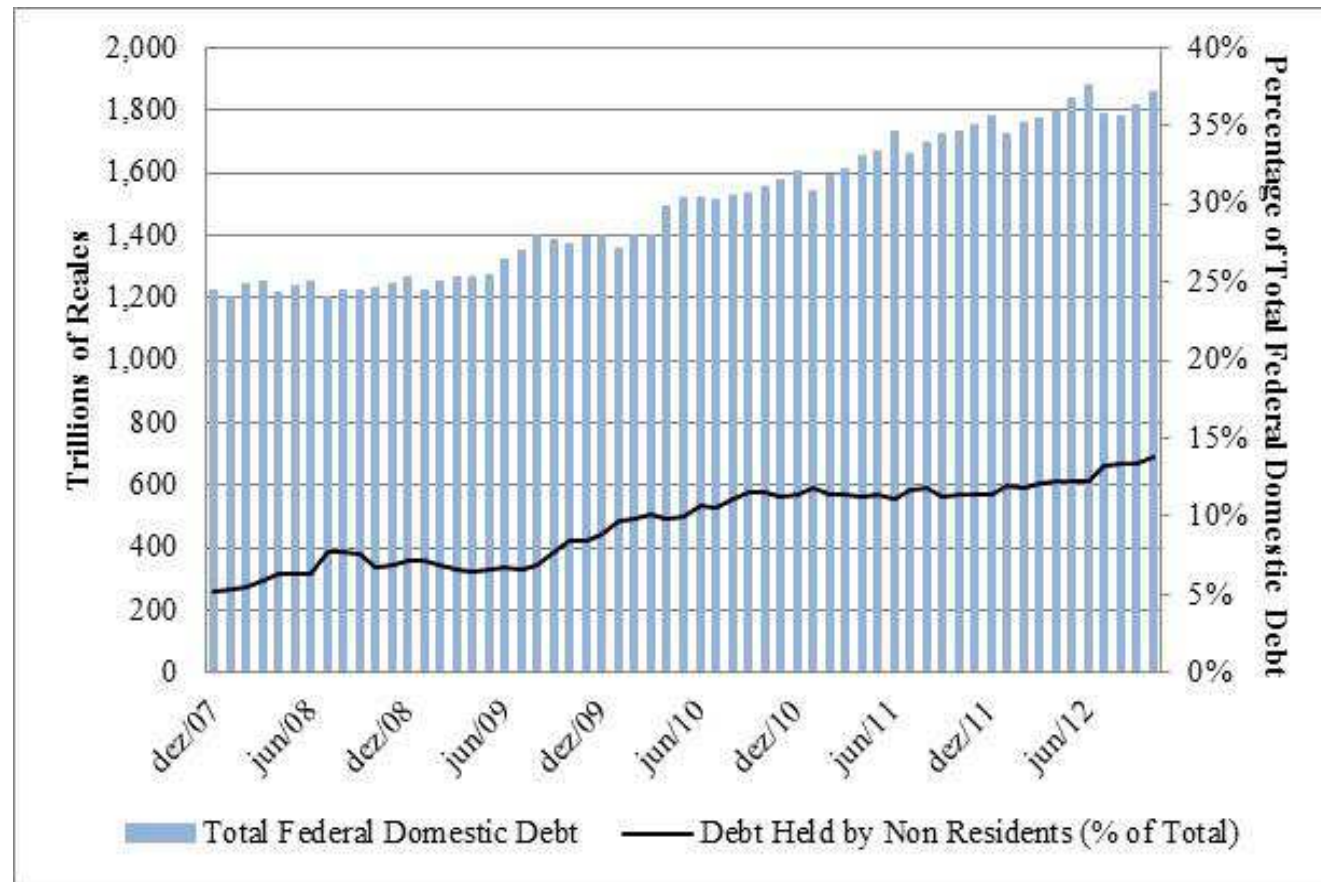
Alternative Policies (cont.): Valuation Effects
Domestic Debt + Reserves

- Debt denomination: useful means of smoothing consumption
  - Asset positions in domestic currency: good hedge to international shocks, Cole and Obstfeld (1991), and Heathocote and Perri (2013).

- Negative international shock: debt services become lower and consumption increases; whole invariant distribution of shocks: more stable consumption level and higher welfare

- To achieve consumption smoothing, the sovereign would have to increase *debt*.
  - Strategy is limited by a sustainability ceiling (default).
  - Reserves allow to improve net asset position

- Implications: Reserves remains high during bad times (Alfaro and Kanczuk, 2015).
  - Contrary to the usual argument, reserves would not be an insurance to be "used" in bad times (not to buy consumption goods that deplete the stock of reserves);
  - Aizenman and Hutchison (2010) "fear of reserve loss": EM reluctance to deplete reserves GFC

Mercantilism

- Export externalities: learning by doing

- Rodrik (2008): RER depreciation promotes economic growth, through its positive impact on the share of tradables relative to the nontradables

- Woodford (2008), Henry (2008):

  – No consensus on the channels: larger aggregate savings, externalities from specialization in tradables,...; other effects.

  – Empirical issues: omitted variables, reverse causality, etc.

- Mostly country, industry analysis
  – Few firm level data results (availablity)

RER, Productivity, Innovation
Alfaro, Cuñat, Fadinger, Liu (2017)

- Evaluate manufacturing firms' responses to changes in the real exchange rate (RER) using detailed firm-level data for a large set of countries for the period 2001-2010.
    - Emerging Asia: real depreciations are associated with faster growth of firm-level TFP, sales and cash-flow, higher probabilities to engage in R&D and export.
    - No significant effects for firms from industrialized economies.
    - Negative effects for firms in other emerging economies (less export-intensive and more import-intensive).
        - Consistent with paper (but not exporting per se).

- Estimate + quantitatively evaluate the different mechanisms by providing counterfactual simulations of different RER movements.
    - Dynamic model: real depreciations raise the cost of importing intermediates, increase demand and the profitability to engage R&D, relax borrowing constraints and enable firms to overcome the fixed-cost hurdle for financing R&D and trade.
        - Effects on physical TFP growth, different across regions, **non-linear and asymmetric.**

Capital Controls – Data
Intensive Margin

- Capital control index: Agree with concerns, but 1-0 may be "harsh" (e.g. Chile/Mexico).

- New Data Base Intensive-Extensive margins (Alfaro, Du, Fernandez, Schreger)
  - PRELIMINARY
  - 21 E.M., quarterly 1995-2015 (daily also partially available)
  - IMF AREAR, local sources, other papers, etc.
  - Focus NOT on "authorizations"
    - Quantitative-intensive (URR, Taxes, etc.);
    - Correlate to indexes of "effectiveness".
    - Complement with macro prudential measures (Vegh and Vulletin, etc.).

- Controls: not widespread/ (few changes/remain in place for long time).
  - More frequently use / more intensive (Brazil-outlier)
  - Reserve requirements have been used much more.

Capital Controls: Brazil
Alfaro, Chari, and Kanczuk (2017)

Date	Change in Bovespa (%) 2 days after	Debt Event	Equity Event	Event	Effective Date
3/12/08	-0.30%	1	0	IOF tax=1.5% on fixed income investments made by non-residents	3/17/08
10/22/08	-10.23%	1	0	IOF tax=0% on fixed income investments	10/23/20008
10/19/09	-2.61%	1	1	IOF tax=2% introduced on equities and fixed income securities	10/20/09
11/18/09	0.44%	0	1	Tax=1.5% on American Depositary Receipts (ADRs) converted into local stocks	11/19/09
10/4/10	0.22%	1	0	IOF tax=4% on fixed income bonds and derivatives; 2% for equities	10/5/10
10/18/10	-1.86%	1	0	IOF tax=6% on fixed income bonds and derivatives; 2% for equities	10/19/10
3/28/11	1.20%	1	0	IOF tax=6% on overseas loans and bonds with maturities up to 1 year	3/29/11
4/6/11	-0.46%	1	0	IOF tax to overseas bonds and bonds with maturities up to 2 years	4/7/01
7/26/11	-1.06%	0	1	Tax of 1% on foreign exchange derivatives; legislation allow tax to be increased up to 25%	7/27/11
12/1/11	1.32%	0	1	IOF tax=0% on variable income instruments traded on the exchange and certain debentures	12/2/11
2/29/12	2.99%	1	0	IOF tax to cover overseas loans and bonds with maturities up to 3 years	3/1/12
3/9/12	2.53%	1	0	IOF tax to cover overseas loans and bonds with maturities up to 5 years	3/12/12
5/21/12	-3.48%	1	0	IOF tax=1.5% for individual borrowers (from 2.5%)	5/22/12
6/13/12	0.82%	1	0	IOF tax to overseas loans and bonds with maturities up to 2 years	6/14/12
12/4/12	0.16%	1	0	IOF tax to overseas loans and bonds with maturities up to 1 year	12/5/12

Effects Capital Controls: Brazil

- Alfaro, Chari and Kanczuk (2017) evaluate the effects of capital controls on firm-level stock returns and real investment using data from Brazil.
  - Event-study methodology around the dates when the various capital control measures were announced using stock prices and firm level data.

- Significant decline in cumulative abnormal returns following changes in capital controls: consistent with **increase in the cost of capital**.

- Controls on equity perceived worse than controls on debt flows
  - Markets view **equity and debt** flows as different.

- Firm characteristics:
  - The largest exporting firms (>$100 million) less affected by controls.
  - Dependent on external finance.

- Increase **volatility, uncertainty**; (fall in real investment)

Effects of Capital Controls

- Renewed interest: focus on **aggregate variables** (to examine the optimality of macro-prudential regulation)**, abstract from firm-level heterogeneity.**
  - Capital controls have differential effects across different type of firms.
  - **Important** to consider firm **heterogeneity**, and controls effects on **investment** and **innovation** (for which **capital market access crucial**), Varela (2016), Forbes (2007), Alfaro, Chari and Kanczuk (2017)

- **Unclear K controls: prudential efforts to reduce the volatility of foreign capital**
  - Work Klein (2012), Fernández, et al. (2013):
    - Not countercyclical / optimal? Are they increasing resilience?
    - **Is it optimal mercantilism or political economy?**

- More empirical research before selling them as the "yellow cream".

Framework Precaution and Mercantilism: Policy Options Complements or Substitutes?

- Tighten fiscal policy
  - Procyclical policies in poor countires (Kaminsky, Reinhart and Vegh, 2005; Vegh and Vuletin, 2012); Cyclicality of borrowing costs faced in international financial markets

- Reduce Debt/ Currency Denomination

- Trade barriers (implicit/explicit): Effects? (Intra-Firm Trade/GVC, Alfaro and Charlton, 2009; Alfaro, Antras, Chor and Conconi, 2017).

- Macro prudential (Mendoza: papers limit debt not impose K controls).

- Reserves

- Capital controls

- Monetary Policy

  ➢ **How do they interact?**

Final Thoughts

- Paper has a great research agenda

  - Unified Framework to think about policy options

  - Unified empirics to think about effects

- Analysis very complete/well done

- Enjoyed reading the paper!