Sovereigns, Upstream Capital Flows, and Global Imbalances

Laura Alfaro   Şebnem Kalemli-Özcan   Vadym Volosovych

Harvard University, NBER

Koc University, Harvard University, NBER, and CEPR

Erasmus University

May 2012

Big Picture: Historical Questions

1. Does foreign capital flow to <u>poor</u> countries?

   No

2. Does foreign capital cause growth?

   Maybe

Big Picture: Historical Questions

1. Does foreign capital flow to <u>poor</u> countries?

   No

2. Does foreign capital cause growth?

   Maybe

Big Picture: Historical Questions

1. Does foreign capital flow to <u>poor</u> countries?

   No

2. Does foreign capital cause growth?

   Maybe

Big Picture: Historical Questions

1. Does foreign capital flow to <u>poor</u> countries?

   No

2. Does foreign capital cause growth?

   Maybe

Big Picture: Recent Debate

1. Many argued that capital flows <u>upstream</u> from fast <u>growing poor</u> nations to stagnant rich countries

2. These fast growing nations accumulate large amount of reserves culminating into <u>global imbalances</u>

   - A common explanation for both phenomena is high saving rates in these emerging economies

Big Picture: Recent Debate

1. Many argued that capital flows <u>upstream</u> from fast <u>growing poor</u> nations to stagnant rich countries

2. These fast growing nations accumulate large amount of reserves culminating into <u>global imbalances</u>

   - A common explanation for both phenomena is high saving rates in these emerging economies

Big Picture: Recent Debate

1. Many argued that capital flows upstream from fast growing poor nations to stagnant rich countries

2. These fast growing nations accumulate large amount of reserves culminating into global imbalances

   - A common explanation for both phenomena is high saving rates in these emerging economies

Literature

1. Recent theoretical literature is concerned with:
   - Why savings are so high in these fast growth nations
   - Why these savings are invested in low growth countries
     - ⋆ (Caballero, Farhi and Gourinchas (2008), Gourinchas and Jeanne (2009), Prasad, Rajan and Subramanian (2006), Carroll and Jeanne (2009), Ju and Wei (2010), Wei and Zhang (2009), Aguiar and Amador (2011) and Buera and Shin (2009).)

2. Empirical literature is thin, not definitive and problematic
   - Capital flows-growth correlations:
     - Form the basis for the theoretical models
     - Rely on measuring the capital flows with current account balance

Literature

1. Recent theoretical literature is concerned with:
   - Why savings are so high in these fast growth nations
   - Why these savings are invested in low growth countries

     ⋆ (Caballero, Farhi and Gourinchas (2008), Gourinchas and Jeanne (2009), Prasad, Rajan and Subramanian (2006), Carroll and Jeanne (2009), Ju and Wei (2010), Wei and Zhang (2009), Aguiar and Amador (2011) and Buera and Shin (2009).)

2. Empirical literature is thin, not definitive and problematic
   - Capital flows-growth correlations:
     - Form the basis for the theoretical models
     - Rely on measuring the capital flows with current account balance

Literature

1. Recent theoretical literature is concerned with:
   - Why savings are so high in these fast growth nations
   - Why these savings are invested in low growth countries

     ⋆ (Caballero, Farhi and Gourinchas (2008), Gourinchas and Jeanne (2009), Prasad, Rajan and Subramanian (2006), Carroll and Jeanne (2009), Ju and Wei (2010), Wei and Zhang (2009), Aguiar and Amador (2011) and Buera and Shin (2009).)

2. Empirical literature is thin, not definitive and problematic

   - Capital flows-growth correlations:
     - Form the basis for the theoretical models
     - Rely on measuring the capital flows with current account balance

Our Argument

- Using current account to test the predictions of neoclassical model on "where and why" capital is flowing is not informative

- Neoclassical model is about private market behavior only

- Current account involves non-market activities and sovereign-to-sovereign transactions: aid and debt flows

Our Argument

- Using current account to test the predictions of neoclassical model on "where and why" capital is flowing is not informative

- Neoclassical model is about private market behavior only

- Current account involves non-market activities and sovereign-to-sovereign transactions: aid and debt flows

Our Argument

- Using current account to test the predictions of neoclassical model on "where and why" capital is flowing is not informative

- Neoclassical model is about private market behavior only

- Current account involves non-market activities and sovereign-to-sovereign transactions: aid and debt flows

Our Paper

- We investigate the patterns of international capital flows with an emphasis on developing countries.

- WE ASK: Does capital flow to "productive" places? A first order question

  ★ Mixed results (Prasad, Rajan and Subramanian 2006, Dollar and Kraay 2006, Alfaro, Kalemli-Ozcan, and Volosovych 2008, Gourinchas and Jeanne 2009)

- Characterizing patterns for developing countries is particularly difficult: Government interventions, restrictions to capital mobility, debt crisis, aid flows, underdev. financial markets, world shocks, data issues!

- Nevertheless, our objective: search for broad patterns and explanations that are common across countries and dates by being careful about the measurement

Our Paper

- We investigate the patterns of international capital flows with an emphasis on developing countries.
- WE ASK: Does capital flow to "productive" places? A first order question
  - ⋆ Mixed results (Prasad, Rajan and Subramanian 2006, Dollar and Kraay 2006, Alfaro, Kalemli-Ozcan, and Volosovych 2008, Gourinchas and Jeanne 2009)
- Characterizing patterns for developing countries is particularly difficult: Government interventions, restrictions to capital mobility, debt crisis, aid flows, underdev. financial markets, world shocks, data issues!
- Nevertheless, our objective: search for broad patterns and explanations that are common across countries and dates by being careful about the measurement

Our Paper

- We investigate the patterns of international capital flows with an emphasis on developing countries.
- WE ASK: Does capital flow to "productive" places? A first order question
  - ⋆ Mixed results (Prasad, Rajan and Subramanian 2006, Dollar and Kraay 2006, Alfaro, Kalemli-Ozcan, and Volosovych 2008, Gourinchas and Jeanne 2009)
- Characterizing patterns for developing countries is particularly difficult: Government interventions, restrictions to capital mobility, debt crisis, aid flows, underdev. financial markets, world shocks, data issues!
- Nevertheless, our objective: search for broad patterns and explanations that are common across countries and dates by being careful about the measurement

Our Paper

- We investigate the patterns of international capital flows with an emphasis on developing countries.
- WE ASK: Does capital flow to "productive" places? A first order question
  - ⋆ Mixed results (Prasad, Rajan and Subramanian 2006, Dollar and Kraay 2006, Alfaro, Kalemli-Ozcan, and Volosovych 2008, Gourinchas and Jeanne 2009)
- Characterizing patterns for developing countries is particularly difficult: Government interventions, restrictions to capital mobility, debt crisis, aid flows, underdev. financial markets, world shocks, data issues!
- Nevertheless, our objective: search for broad patterns and explanations that are common across countries and dates by being careful about the measurement

Measurement

How do we measure capital mobility and productivity and are these measures comparable across countries?

- We perform a careful separation of public and private components of capital flows.

- We regress each component on return/productivity/growth differences across countries (several measures).

- We use publicly available data: WDI, PWT, IFS, GDF, OECD-DAC, LM

Measurement

How do we measure capital mobility and productivity and are these measures comparable across countries?

- We perform a careful separation of public and private components of capital flows.

- We regress each component on return/productivity/growth differences across countries (several measures).

- We use publicly available data: WDI, PWT, IFS, GDF, OECD-DAC, LM

Measurement

How do we measure capital mobility and productivity and are these measures comparable across countries?

- We perform a careful separation of public and private components of capital flows.

- We regress each component on return/productivity/growth differences across countries (several measures).

- We use publicly available data: WDI, PWT, IFS, GDF, OECD-DAC, LM

Measurement

How do we measure capital mobility and productivity and are these measures comparable across countries?

- We perform a careful separation of public and private components of capital flows.

- We regress each component on return/productivity/growth differences across countries (several measures).

- We use publicly available data: WDI, PWT, IFS, GDF, OECD-DAC, LM

Results: 1980–2006

1. International capital flows net of aid flows are positively correlated with different proxies of GDP growth and total factor productivity.

2. Aid flows are negatively correlated with growth.

3. Capital flows net of government debt are also allocated according to the neoclassical predictions.

4. Government debt is negatively correlated with growth, in contrast to neoclassical predictions, only if government debt is financed by another sovereign and not by private lenders.

5. Our results generalize to different country samples (developing, developed, whole world), and different time periods (70s, 80s, 90s, 00s).

Results: 1980–2006

1. International capital flows net of aid flows are positively correlated with different proxies of GDP growth and total factor productivity.

2. Aid flows are negatively correlated with growth.

3. Capital flows net of government debt are also allocated according to the neoclassical predictions.

4. Government debt is negatively correlated with growth, in contrast to neoclassical predictions, only if government debt is financed by another sovereign and not by private lenders.

5. Our results generalize to different country samples (developing, developed, whole world), and different time periods (70s, 80s, 90s, 00s).

Results: 1980–2006

1. International capital flows net of aid flows are positively correlated with different proxies of GDP growth and total factor productivity.

2. Aid flows are negatively correlated with growth.

3. Capital flows net of government debt are also allocated according to the neoclassical predictions.

4. Government debt is negatively correlated with growth, in contrast to neoclassical predictions, only if government debt is financed by another sovereign and not by private lenders.

5. Our results generalize to different country samples (developing, developed, whole world), and different time periods (70s, 80s, 90s, 00s).

Results: 1980–2006

1. International capital flows net of aid flows are positively correlated with different proxies of GDP growth and total factor productivity.

2. Aid flows are negatively correlated with growth.

3. Capital flows net of government debt are also allocated according to the neoclassical predictions.

4. Government debt is negatively correlated with growth, in contrast to neoclassical predictions, only if government debt is financed by another sovereign and not by private lenders.

5. Our results generalize to different country samples (developing, developed, whole world), and different time periods (70s, 80s, 90s, 00s).

Results: 1980–2006

1. International capital flows net of aid flows are positively correlated with different proxies of GDP growth and total factor productivity.

2. Aid flows are negatively correlated with growth.

3. Capital flows net of government debt are also allocated according to the neoclassical predictions.

4. Government debt is negatively correlated with growth, in contrast to neoclassical predictions, only if government debt is financed by another sovereign and not by private lenders.

5. Our results generalize to different country samples (developing, developed, whole world), and different time periods (70s, 80s, 90s, 00s).

The Key Takeaways

1. Sovereign-to-Sovereign transactions shape international allocation of capital to a large extent when we measure capital mobility with current account

   - All growing emerging markets receive private capital flows on net
   - Any explanation of uphill flows and global imbalances must face with the fact that current account net of official transactions is negatively correlated with productivity growth: private capital (FDI and debt) flows downhill according to the standard theory

2. Conventional wisdom of uphill total capital flows (public and private) does not generalize to all emerging markets

   - Average growing emerging market country receives capital flows on net (even when we use current account as the measure)

The Key Takeaways

1. Sovereign-to-Sovereign transactions shape international allocation of capital to a large extent when we measure capital mobility with current account

   - <u>All</u> growing emerging markets receive private capital flows on net
   - Any explanation of uphill flows and global imbalances must face with the fact that current account net of official transactions is negatively correlated with productivity growth: private capital (FDI and debt) flows downhill according to the standard theory

2. Conventional wisdom of uphill total capital flows (public and private) does not generalize to all emerging markets

   - <u>Average</u> growing emerging market country receives capital flows on net (even when we use current account as the measure)

The Key Takeaways

We provide some explanation for a handful of countries in Asia that do export total capital on net

- 3 countries only in 1980–2006: China, Korea, Malaysia (also Singapore and Hong Kong: rich financial centers)
- 5 countries only in 1990–2006: ADD Thailand and Indonesia
- 6 countries only in 2000–2006: ADD India

Why?

K FLOWS

AFRICA=REASON 2=AID

ASIA= REASON 1=RESERVES

GROWTH
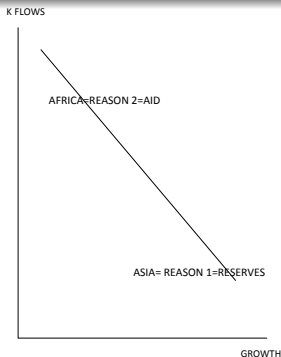
1. Capital outflows from high productivity emerging markets were in the form of reserve accumulation in the last decade

2. Bulk of capital flows into low productivity countries were in the form of aid/official debt in the last three decades

Role of Reserves: Simultaneous Net Lenders and Net Borrowers
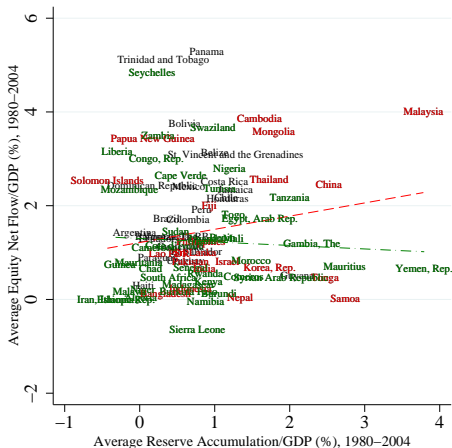
Legend:
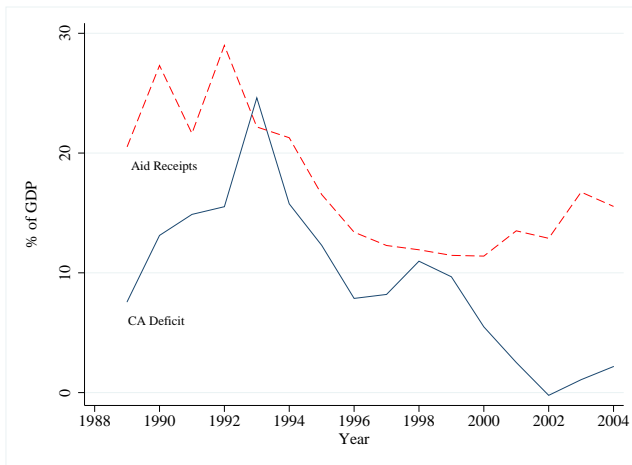Red letters, Red dash line – All Developing Countries in Asia

Role of Aid: Tanzania

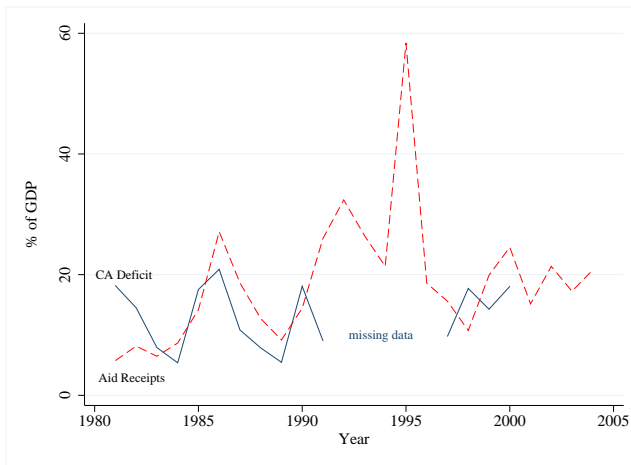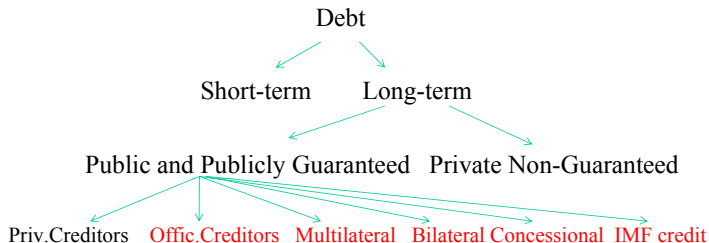Figure: Current Account Balance (Net capital flows) and Aid Receipts

Role of Aid: Zambia

Figure: Current Account Balance (Net capital flows) and Aid Receipts

Decomposition

$$CA = (\Delta FDIA + \Delta EQA + \Delta PrivDA + \Delta OA$$
$$- \Delta FDIL - \Delta EQL - \Delta PrivDL - \Delta OL + EO)$$
$$+ (\Delta RES + \Delta PubDA - \Delta PubDL - IMF - EF)$$

$$CA = (Change\ in\ Private\ Assets - Change\ in\ Private\ Liabilities) +$$
$$(Change\ in\ Public\ Assets - Change\ in\ Public\ Liabilities)$$

Components of External Debt

Debt

Short-term Long-term

Public and Publicly Guaranteed Private Non-Guaranteed

Priv.Creditors Offic.Creditors Multilateral Bilateral Concessional IMF credit

- Correlation (Loans Aid, Offic. Multilateral, Bilateral Concessional IMF) > 0.80
- Some of PPG debt components are also recorded under aid flows.

13

Methodology

How to separate private and public/official capital flows?

1. Remove all aid flows (developing countries only)
2. Investigate FDI+Equity separately from Debt flows
3. Decompose Debt flows into private and public debt

Samples

- Several country/time samples over 1970–2006.
- Show results for 1980–2006 (holds for 1990–2006): restrictions to foreign capital mid 90s

  ⋆ All non-OECD developing (122 countries), defined as non-OECD with GDP pc less than 15,000 in 2000 USD on average (excludes Singapore and Hong Kong; Obstfeld, 2004).

  ⋆ Benchmark sample of non-OECD developing (75 countries): countries with data on CA, its main components and GDP per capita available during 90 percent of the time over 1980–2006; no islands; no oil-resource rich countries.

  ⋆ Non-OECD developing countries with capital stock data (63 countries): a subset of benchmark sample where we have data on capital stocks from PWT.

Samples

- Several country/time samples over 1970–2006.
- Show results for 1980–2006 (holds for 1990–2006):
  restrictions to foreign capital mid 90s

  ⋆ All non-OECD developing (122 countries), defined as
    non-OECD with GDP pc less than 15,000 in 2000 USD on
    average (excludes Singapore and Hong Kong; Obstfeld,
    2004).

  ⋆ Benchmark sample of non-OECD developing (75 countries):
    countries with data on CA, its main components and GDP
    per capita available during 90 percent of the time over
    1980–2006; no islands; no oil-resource rich countries.

  ⋆ Non-OECD developing countries with capital stock data
    (63 countries): a subset of benchmark sample where we
    have data on capital stocks from PWT.

Samples

- Several country/time samples over 1970–2006.
- Show results for 1980–2006 (holds for 1990–2006):
  restrictions to foreign capital mid 90s

  ⋆ All non-OECD developing (122 countries), defined as
    non-OECD with GDP pc less than 15,000 in 2000 USD on
    average (excludes Singapore and Hong Kong; Obstfeld,
    2004).

  ⋆ Benchmark sample of non-OECD developing (75 countries):
    countries with data on CA, its main components and GDP
    per capita available during 90 percent of the time over
    1980–2006; no islands; no oil-resource rich countries.

  ⋆ Non-OECD developing countries with capital stock data
    (63 countries): a subset of benchmark sample where we
    have data on capital stocks from PWT.

Table: Net Capital Flows and Growth, 1980–2006

	(1)	(2)	(3)	(4)
Sample	All Developing Countries		Developing Countries with Capital Stock Data	
Dependent Variable	Net capital flows (-CA/GDP)	Aid-adjusted net capital flows ([-CA-Aid]/GDP)	Net capital flows (-CA/GDP)	Aid-adjusted net capital flows ([-CA-Aid]/GDP
Average per capita GDP growth	.106 (.253)	.776*** (.274)		
Productivity catch-up relative to the U.S.			−2.876** (1.288)	3.371** (1.496)
Obs.	122	122	63	63

Table: Net Capital Flows and Main Components, 1980–2006

Country Sample: Benchmark Developing

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	Net capital flows (-CA/GDP)	Aid-adjusted net capital flows ([-CA-Aid]/GDP)	Net private capital flows (Equity/GDP)	Net private & public debt flows (Debt/GDP)	Net public debt flows (PPG/GDP)	Net public debt flows ([PPG-Res.]/GDP
Avg. p.c. Growth	−.364[+] (.241)	.423* (.227)	.162** (.074)	−.088 (.110)	−.212*** (.087)	−.374*** (.100)
Obs.	75	75	75	75	75	75

Table: Net Debt Flows and Growth: Decomposition

Country Sample: Benchmark Developing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable	Net total PPG ext. debt flows	Net multilat. PPG ext. debt flows	Net bilat. PPG ext. debt flows	Net official PPG ext. debt flows	Net conces-sional PPG ext. debt flows	Net private PPG ext. debt flows	Net flows of total ext. debt from private
Avg. p.c. GDP growth	−.212*** (.087)	−.195*** (.072)	−.084* (.044)	−.279*** (.095)	−.223** (.090)	.066** (.020)	.125** (.057)
Obs.	75	75	75	75	75	75	75

Private Capital Flows (Equity and Debt) and Growth

coef = .1620406, (robust) se = .07428386, t = 2.18
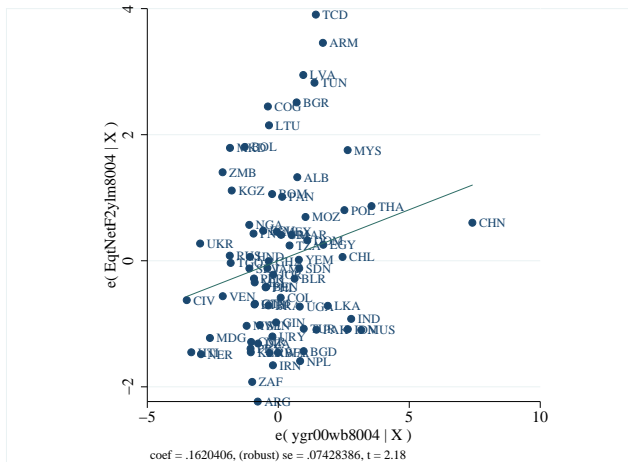
Public Debt-Reserves and Growth
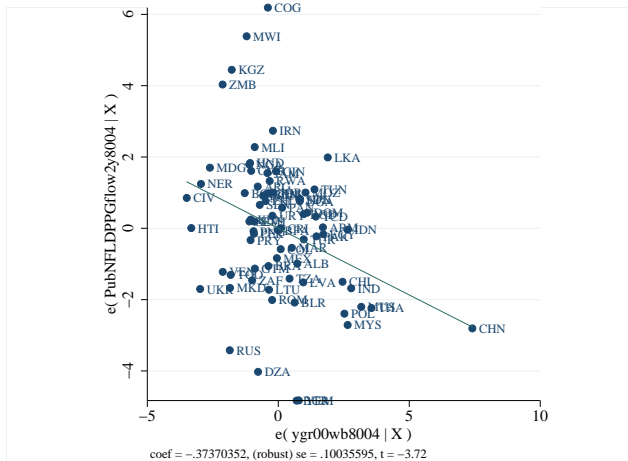
Does Capital Flow Uphill?

- There seems to be no puzzling uphill behavior of capital flows once current account is adjusted to remove aid flow
- Private equity and debt flows downhill (private non guaranteed debt plus PPG debt from private creditors)
- The negative correlation between debt, aid and growth is entirely driven by sovereign to sovereign lending
- Lending by the private sector to governments and borrowing by private sector follow the neoclassical model.

# Savings Calculation (Loayza, Schmidt-Hebbel, Serven, 2000)

Macro Data: Private savings is calculated as a residual.

- Private Savings: Total Savings (Y-C) - Government Savings

- Government Savings: Gov. revenue-gov. expenditure + grants + other revenue + reserves - capital transfers abroad

- Government Savings: Cash surplus + reserves

Gov Savings and Growth
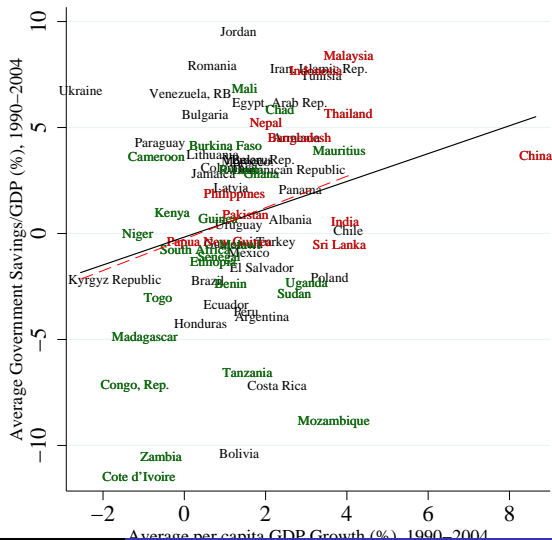
Private Savings and Growth
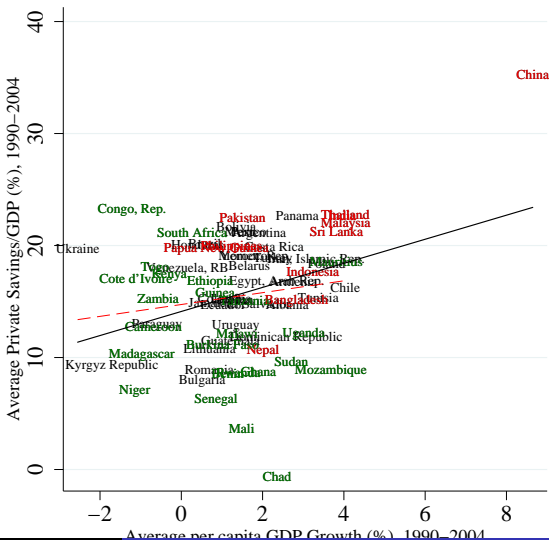
Ricardian Equivalence

Results may imply violation of Ricardian Equivalence; expected
given the incomplete capital markets in developing countries

- Perfect capital markets
- Infinite horizons
- Non-distortional taxes

All required for RE, none hold for emerging markets

Robustness: EXTENSIVE

- Valuation effects
- CA, NFA, BOP vs LM data
- Different definitions of debt flows (yearly changes versus first and last year)
- Different samples, time and country
- Different measure of reserves
  - ⋆ Reserve and related assets: reserve assets, exceptional financing, IMF credit
  - ⋆ Reserve assets: liquid external assets
- Other control variables, partial correlation plots

If you need details...

- Appendix A: Data and details of decomposition
- Appendix B: Various samples, explanations, justifications, coverage
- Appendix C: Multiple regressions
- Appendix Table 7: Detailed look in country coverage
- Appendix Table 8: Internal consistency: Regional decomposition of total capital flows and components, 1980–2005
- Appendix Table 9: Country by country decomposition of capital flows and components, 1990–2005
- Appendix Table 10: Country by country decomposition of capital flows and components, 2000–2005
- Appendix Table 11: Regressions with developed countries added
- Appendix Table 12: Detailed decomposition for high aid countries
- Appendix Table 13: Regressions with different definitions of debt flows
- Appendix Table 14: Correlations of aid and public debt flows
- Appendix Table 15: Multiple regressions and reconciling with Lucas paradox
- Appendix Tables 1R and 2R: Replicating and reconciling results from the literature
- Appendix Figures 1R, 2R, and 3R: Replicating and reconciling results from the literature
- Appendix Figures 5, 8: Partial Correlation Plots
- Appendix Figure 6: Partial Correlation Plots with Population normalization
- Appendix Figure 7: Sample with capital stock data from PWT

Conclusion

- Sovereign-to-sovereign transactions determine international allocation of capital to a large extent.

- Although the distinction between private and public flows is not without issues, after a careful separation we find that not only FDI and portfolio equity but also private debt follows to high growth emerging markets

- Government debt is negatively correlated with growth-only if government debt is financed by another sovereign and not by private lenders.

- Savings and growth correlations tell the same story where public savings is robustly positively correlated with growth as oppose to private.

- These facts constitute a challenge for the existing theories.

Conclusion

- Sovereign-to-sovereign transactions determine international allocation of capital to a large extent.

- Although the distinction between private and public flows is not without issues, after a careful separation we find that not only FDI and portfolio equity but also private debt follows to high growth emerging markets

- Government debt is negatively correlated with growth-only if government debt is financed by another sovereign and not by private lenders.

- Savings and growth correlations tell the same story where public savings is robustly positively correlated with growth as oppose to private.

- These facts constitute a challenge for the existing theories.

Conclusion

- Sovereign-to-sovereign transactions determine international allocation of capital to a large extent.

- Although the distinction between private and public flows is not without issues, after a careful separation we find that not only FDI and portfolio equity but also private debt follows to high growth emerging markets

- Government debt is negatively correlated with growth-only if government debt is financed by another sovereign and not by private lenders.

- Savings and growth correlations tell the same story where public savings is robustly positively correlated with growth as oppose to private.

- These facts constitute a challenge for the existing theories.

Conclusion

- Sovereign-to-sovereign transactions determine international allocation of capital to a large extent.

- Although the distinction between private and public flows is not without issues, after a careful separation we find that not only FDI and portfolio equity but also private debt follows to high growth emerging markets

- Government debt is negatively correlated with growth-only if government debt is financed by another sovereign and not by private lenders.

- Savings and growth correlations tell the same story where public savings is robustly positively correlated with growth as oppose to private.

- These facts constitute a challenge for the existing theories.

Conclusion

- Sovereign-to-sovereign transactions determine international allocation of capital to a large extent.

- Although the distinction between private and public flows is not without issues, after a careful separation we find that not only FDI and portfolio equity but also private debt follows to high growth emerging markets

- Government debt is negatively correlated with growth-only if government debt is financed by another sovereign and not by private lenders.

- Savings and growth correlations tell the same story where public savings is robustly positively correlated with growth as oppose to private.

- **These facts constitute a challenge for the existing theories.**

Discussion

Our results can shed light on various theories; there is much more nuance to the direction of capital flows than is commonly appreciated.

- The explanation for the outlier behavior of few growing countries that are net exporters lies in government behavior

- In our developing Asia sample of 23 only 3 countries (China, Korea, Malaysia) are net exporters of K (Thailand and Indonesia joins after mid 1990s).

- They also accumulate reserves

- <u>Four set of theories for the Asian Countries:</u> Weak Financial Development, Self-Insurance, Mercantilistic motive, Government

Facts and Theories

- Weak financial development, high private savings (Buera and Shin, 2009; Song, Storesletten, Zilibotti, 2011)

  - ⋆ Cannot explain private capital goes in, public capital goes out to be invested in other sovereigns. (Ju and Wei, 2010: two way flows)

- Self-insurance: Gosh and Ostry, 1997; Durdu, Mendoza, Terrones, 2009; Alfaro and Kanczuk, 2009: insurance against sudden stops cannot explain reserve build up

- Mercantalisim: Dolley-Garber, 2004; Aizenman and Lee, 2008; Korinek and Serven, 2010: learning by doing in export sector

- Government: Amador and Aguiar (2009): NFA of government (Reserves minus PPG Debt) positively correlated with growth

Facts and Theories

- We find this positive correlation is due to public to public lending (not lending to gov. per se)

- Krishnamurthy and Vissing-Jorgensen (2010): Foreign demand for US treasuries is due to demand from foreign official institutions.

- Favulukis, Ludvigson, Nieuwerburgh (2011): Incomplete markets model consistent with this demand for safe assets from officials

Central Banks in EM: Exchange Rate Management
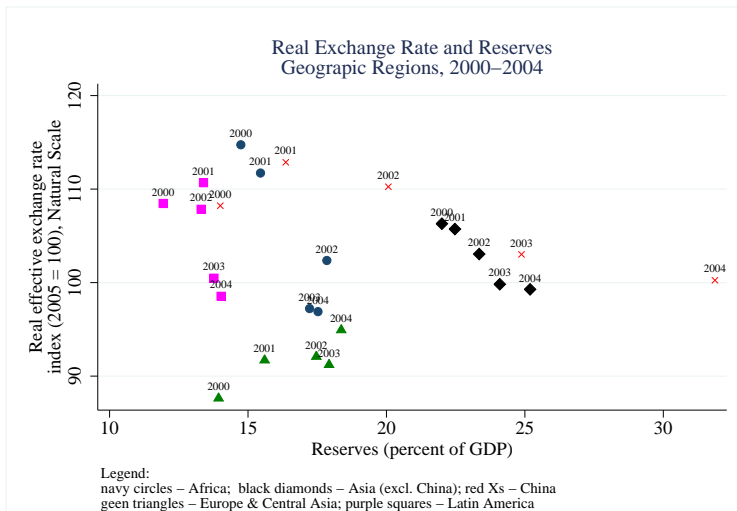
Calvo-Reinhart, 2002: fear-of-floating
Recently fear-of flooding

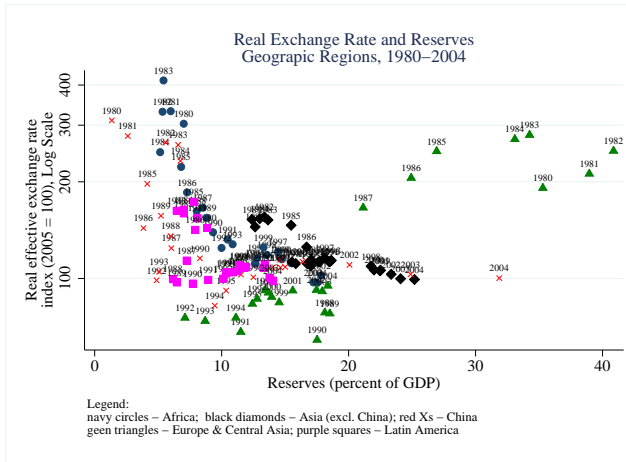Figure: Real Exchange Rate and Reserves in Developing Countries

Figure: Real Exchange Rate and Reserves in Developing Countries

## Comparison to Literature: Sample size is critical

- Gourinchas and Jeanne (2009): Consistent results
  - ⋆ We have a bigger sample including net borrower eastern Europe
  - ⋆ Our 63 country sample is their 68 minus Botswana (resource rich), Gabon (resource rich), Taiwan (no data), Hong Kong (not poor), Singapore (not poor)
  - ⋆ If we add Singapore and Hong Kong we get their result in their sample.
  - ⋆ In our bigger sample that includes eastern Europe, it does not matter to have Singapore and Hong Kong.

Comparison to the Literature: Sample size is critical

- Prasad, Rajan, and Subramanian (2006): Consistent results

  ⋆ They remove countries with Aid/GDP more than 10 percent, but some countries all capital flows are in the form of aid although ratio to GDP is less, when we remove all aid flows from capital flows in their sample we get our results.

  ⋆ In their smaller sample without Eastern Europe, removing all aid countries deliver our results.

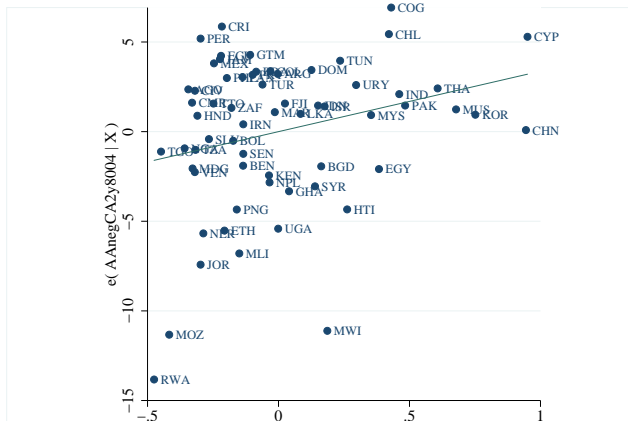 ⋆ In our bigger sample that includes eastern Europe, it does not matter what type of aid adjustment you do.

Sample: Developing Countries with Capital Stock Data
Dependent variable is Net capital flows (-CA/GDP)

coef = −2.8760381, (robust) se = 1.2883144, t = −2.23
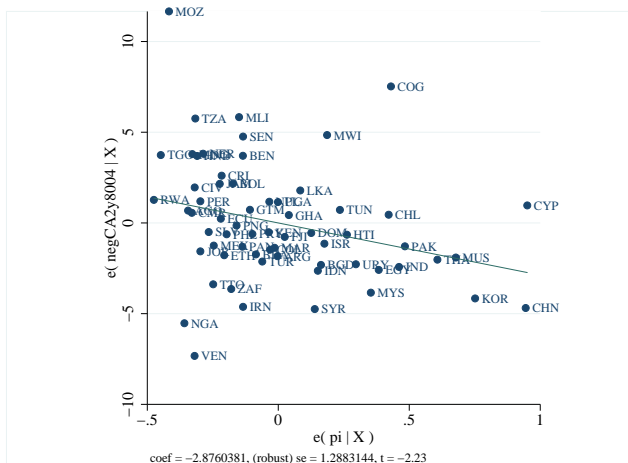
Sample: Developing Countries with Capital Stock Data
Dependent variable is Aid-adjusted net capital flows ([-CA-Aid]/GDP)

Replication: Net capital flows (-CA/GDP) vs.
Average per capita GDP Growth Relative to the U.S.

coef = -.01286478, (robust) se = .00367214, t = -3.5