

Financial integration: Patterns, effects and challenges.

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Introduction

New Delhi, March 2012: “Mr Kaushik Basu, chief economic advisor, ministry of finance, has said that time is ripe for India to go for greater capital account convertibility to allow Indian enterprises to take advantage of the extremely cheap capital available globally.”

- ▶ Full current account convertibility
- ▶ Partial capital account convertibility

“Pre-mature capital account convertibility can harm economy: RBI” (2012)

“Among the components of capital flows, we prefer long-term flows to short-term flows and non-debt flows to debt flows. Historically, we have used policy levers on the debt side of the flows to manage volatility,” Mr. Subbarao said.” (WSJ, 2011)

Benefits of globalization: Traditional channels

- ▶ Effects of globalization on consumption volatility
 - ▶ International risk-sharing: enables countries to smooth consumption
 - ▶ Especially relevant in developing countries that face very volatile income process
- ▶ Effects of globalization on productivity and growth
 - ▶ Capital deepening: Greater access to capital
 - ▶ More efficient allocation of capital: Reallocation of resources to most productive sectors and firms
 - ▶ International risk-sharing and diversification:
 - ▶ Allows for greater risk tolerance and promotes selection of higher return-higher risk projects
 - ▶ Reduction in firm-specific investment risk spurs innovation and investment

Benefits of globalization: Collateral benefits

- ▶ Financial development:
 - ▶ Strong link between financial development and long-term economic growth (studies by Ross Levine and co-authors)
- ▶ Institutional development
- ▶ Better governance:
 - ▶ Foreign acquisitions of domestic firms spurs technological transfer and improved governance
- ▶ Macroeconomic discipline: “Impossible trinity”

Costs of globalization

- ▶ Potential exposure to financial instability and crisis in its many reincarnations:
 - ▶ “sudden stop” of capital inflows
 - ▶ current account reversals
 - ▶ banking crisis
- ▶ Leads to an increase in volatility more generally
- ▶ Volatility in turn can hurt economic growth
- ▶ Speculative flows can magnify rather than reduce the adverse impact of negative shocks on growth

Outline

- ▶ Measuring financial globalization
 - ▶ Balance of payments accounting
 - ▶ International investment positions
- ▶ Contrasting data patterns in advanced and developing countries
- ▶ Valuation effects
- ▶ Allocation of investment: Lucas's paradox/allocation puzzle
- ▶ Fiscal and external balances: Twin deficits

Global Finance and Global Trade Share

... accounted for by Advanced Economies

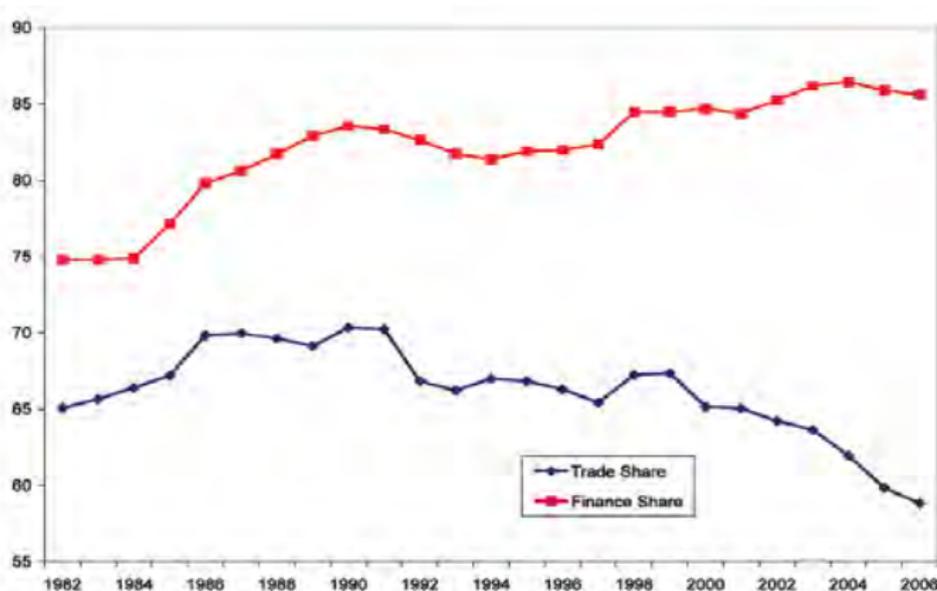


Figure: Source: Lane and Milesi-Ferretti, "The Drivers of Financial Globalization," AER'2008

Measuring financial globalization

- ▶ Explicit and implicit restrictions on capital movements
 - ▶ IMF classification of capital account restrictions
 - ▶ Chinn and Ito' 2007
- ▶ Arbitrage gaps between domestic and foreign rates
- ▶ Volume-based measures:
 - ▶ size of international balance sheet
 - ▶ size of gross capital flows
- ▶ Volumes important in capturing international exposures and linkages

Accounting

- ▶ Balance of Payments (BOP) records cross-border **flows** between residents and non-residents
 - ▶ Current Account (CA) accounts for flows of goods, services, factor income
 - ▶ Financial Account (FA) accounts for flows of financial assets
 - ▶ Capital Account (CapA) accounts for flows of special categories of assets, typically non-market, non-produced, or intangible assets like debt forgiveness, copyrights, trademarks, assets of migrants
- ▶ International Investment Position (IIP) records cross-border **positions** of residents and non-residents

Balance of Payments (BOP) accounting

Current account (CA) can be derived from National Income and Product Accounts (NIPA):

$$GNP = GDP + \text{net receipts of factor income from abroad (NFI)}$$

$$GNP = Y = C + I + G + X - M$$

$$Y - T = C + I + G - T + X - M$$

$$Y - T - C = -(T - G) + I + X - M$$

$$S^p = -S^g + I + X - M$$

$$S - I = X - M$$

$$S - I = CA$$

Current Account

- ▶ CA can also be written as

$$\begin{aligned} GNP &= C + I + G + X - M \\ GDP + NFI &= C + I + G + X - M \\ GDP - C - I - G + NFI &= X - M \\ TB + NFI &= CA \end{aligned}$$

- ▶ Net factor income from abroad, NFI, is

$$\begin{aligned} NFI &= NFI^{Labor} + NFI^{Capital} \\ NFI^{Capital} &= YLD_{At} * A_{t-1} - YLD_{Lt} * L_{t-1} \end{aligned}$$

- ▶ where YLD is the yield rate (interest payments, dividends, profits on FDI), A is the stock of foreign assets and L is the stock of foreign liabilities at the end of period t-1.

Current Account

- ▶ In a closed economy national savings always equal investment
 - ▶ $S = I$
 - ▶ wealth can increase only by accumulating new capital
- ▶ In an open economy wealth can be increased by either
 - ▶ building up the capital stock
 - ▶ acquiring foreign wealth
- ▶ A country with profitable investment opportunities does not have to increase its savings, instead can borrow from abroad
- ▶ CA is important because it measures the size and direction of international borrowing
- ▶ Such transactions are intertemporal in nature because represent a trade-off of current consumption for future consumption.

Financial Account

- ▶ Financial Account (FA) can be written as:

$$FA_t = FLOW_{Lt} - FLOW_{At} - NFLOW_{DERIVt}$$

- ▶ where

$$FLOW_{At} = FLOW_{At}^{FDI} + FLOW_{At}^{PEQ} + FLOW_{At}^{PD} \\ + FLOW_{At}^{OD} + FLOW_{At}^{RES}$$

$$FLOW_{Lt} = FLOW_{Lt}^{FDI} + FLOW_{Lt}^{PEQ} + FLOW_{Lt}^{PD} \\ + FLOW_{Lt}^{OD}$$

$$NFLOW_{DERIVt} = \text{net acquisitions of derivatives}$$

Balance of Payments

- ▶ The balance of payments must add up to zero

$$CA + FA + CapA = 0$$

International Investment Position

- ▶ India-owned assets abroad are:

$$A_t = FDI_{At} + PEQ_{At} + PD_{At} + OD_{At} + RES_{At} + DER_{At}$$

- ▶ Foreign-owned assets in India are:

$$L_t = FDI_{Lt} + PEQ_{Lt} + PD_{Lt} + OD_{Lt} + DER_{Lt}$$

- ▶ Net international investment position (NIIP or NFA) is:

$$NIIP_t = A_t - L_t$$

Stock-Flow relationship

- ▶ Stock position Z evolves according to

$$Z_t = Z_{t-1} + FLOW_{Zt} + VAL_{Zt} + OTHER_{Zt}$$

- ▶ $FLOW_{Zt}$ is the flow term from the balance of payments
- ▶ VAL_{Zt} is the valuation terms that includes changes in Z due to changes in market prices, exchange rates and write-downs
- ▶ $OTHER_{Zt}$ is the residual terms that arises due to gaps between survey data and flow data, gaps between market value and book value (FDI) and data revisions
- ▶ We can define the rate of capital gain as

$$RVAL_{Zt} = \frac{VAL_{Zt}}{Z_{t-1}}$$

- ▶ The overall rate of return can be defined as

$$ROR_{Zt} = \frac{FI_{Zt}^{Capital} + VAL_{Zt}}{Z_{t-1}}$$

NIIP dynamics

- ▶ Change in NIIP between t and t-1 can be written as

$$NIIP_t - NIIP_{t-1} = (A_t - A_{t-1}) - (L_t - L_{t-1})$$

- ▶ or as

$$NIIP_t - NIIP_{t-1} = NFLOW_{Zt} + NVAL_{Zt} + NOTH_{Zt}$$

- ▶ from BOP: $NFLOW_{Zt} = CA_t$, assuming that $CapA=0$. Then:

$$NIIP_t - NIIP_{t-1} = CA_t + NVAL_{Zt} + NOTH_{Zt}$$

- ▶ writing out CA as the sum of TB and NFI we get

$$NIIP_t - NIIP_{t-1} = TB_t + NFI_t + NVAL_{Zt} + NOTH_{Zt}$$

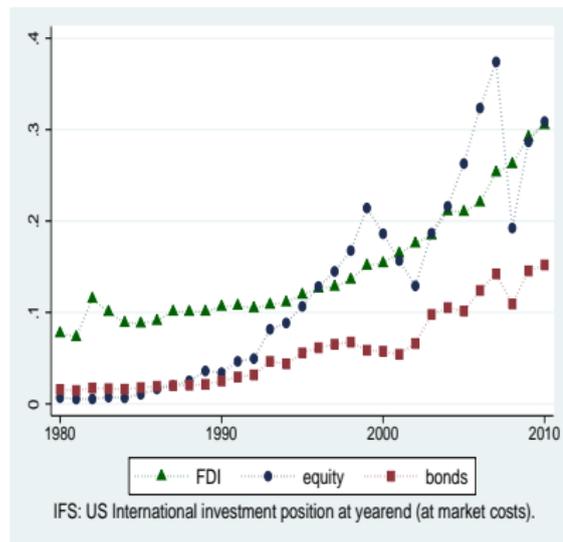
- ▶ Change in NIIP is a sum of: (i) trade balance; (ii) investment income; (iii) capital gains; (iv) residual

Valuation effects

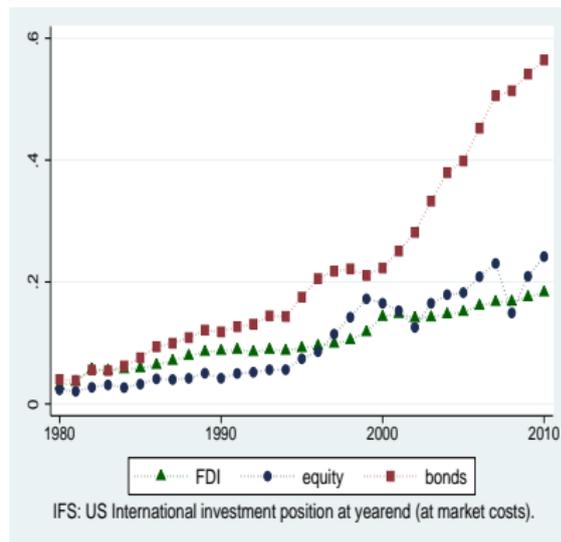
Two strands of literature on valuation effects:

- ▶ Developing countries: Balance sheet losses due to depreciation
 - ▶ Eichengreen and Hausmann (2005), Goldstein and Turner (2005)
- ▶ US: Capital gains due to dollar depreciation
 - ▶ Lane and Milesi-Ferretti (research agenda); Gourinchas and Rey (2007)

US Foreign Positions



(a) US owned assets abroad, % GDP



(b) Foreign assets in US, % GDP

US Foreign Positions

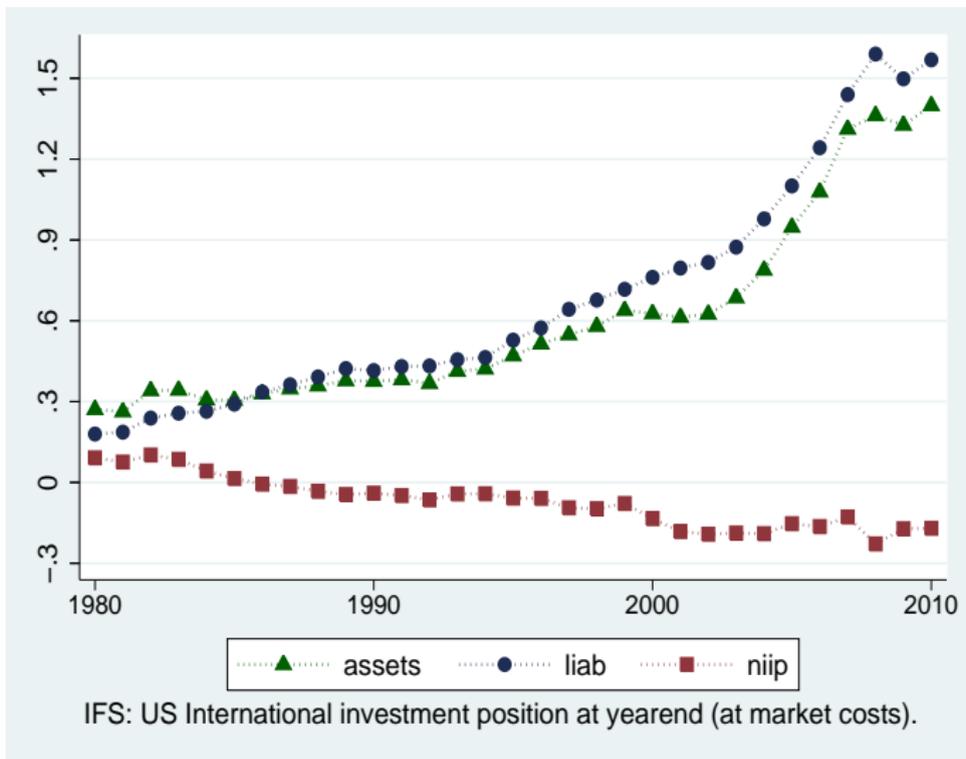
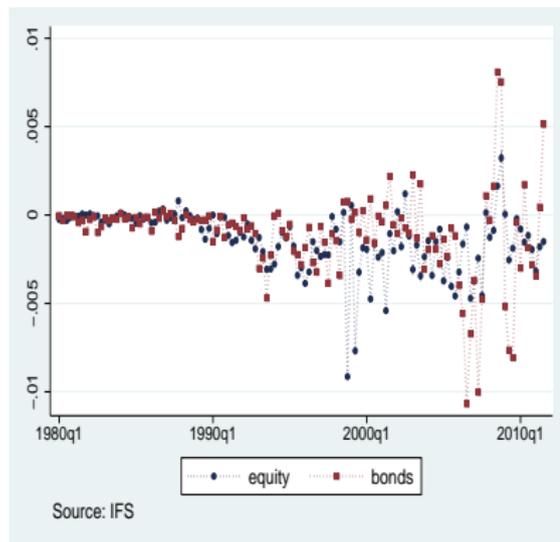
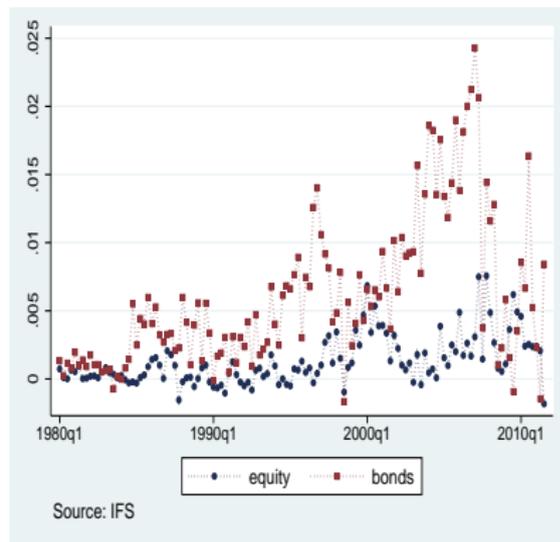


Figure: US gross assets, liabilities and NIIP, % GDP

US Capital flows



(a) US portfolio outflows, % GDP



(b) US portfolio inflows, % GDP

US Foreign Positions and CA

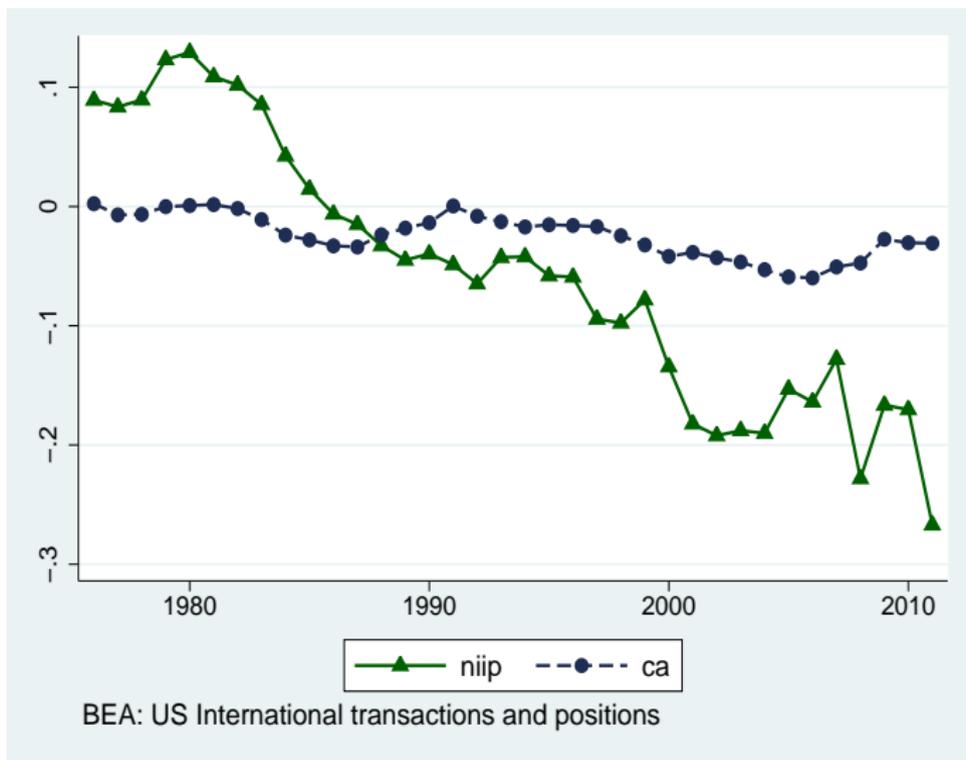


Figure: US NIIP and CA, % GDP

US Valuation effects

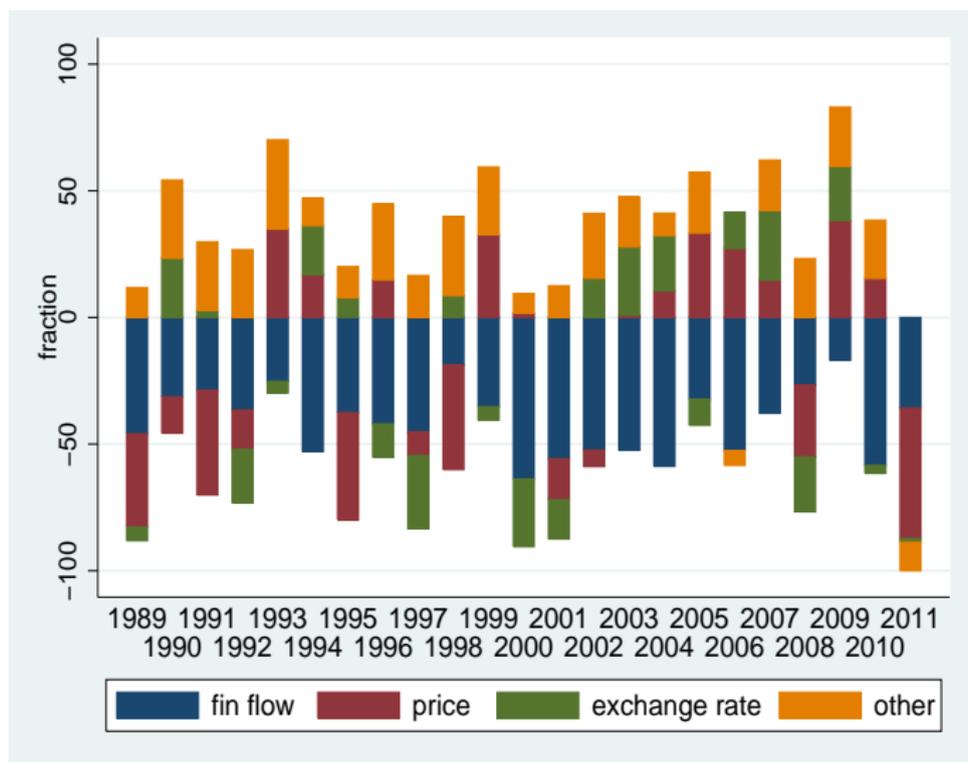
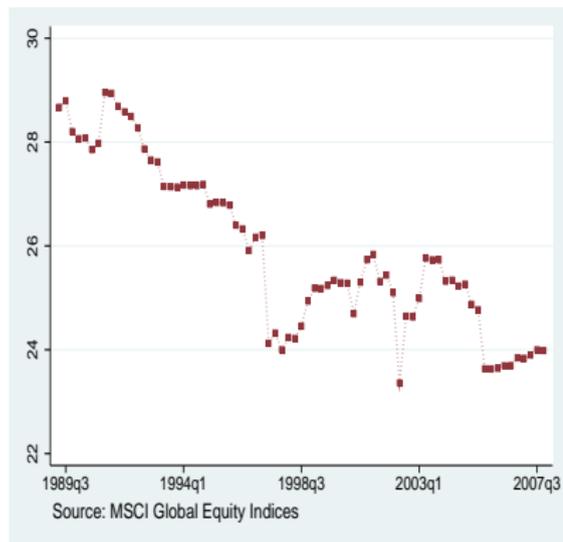
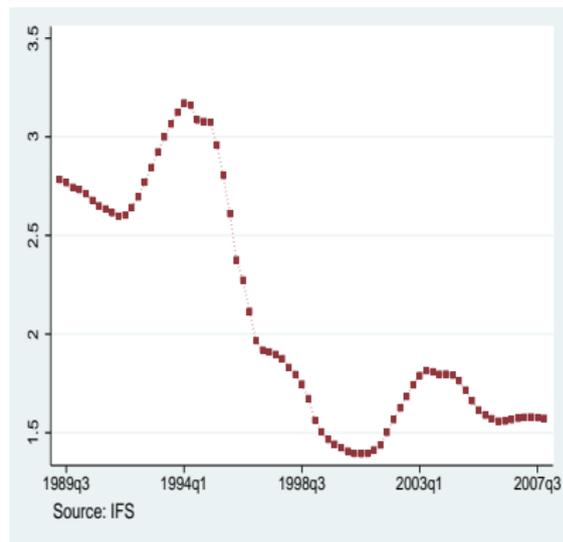


Figure: Changes in US NIIP, CA, and valuation effects

US Returns volatility

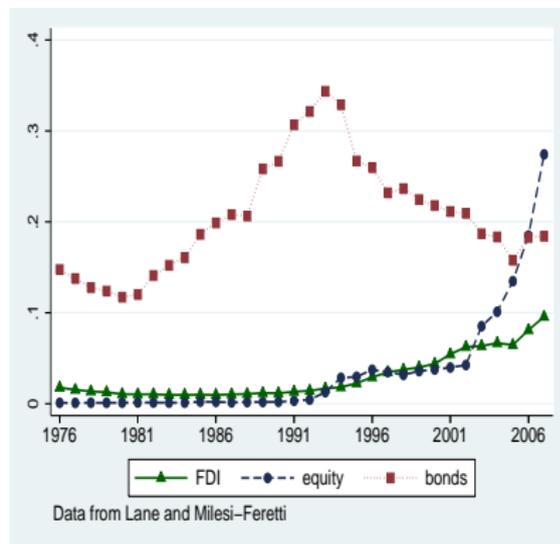
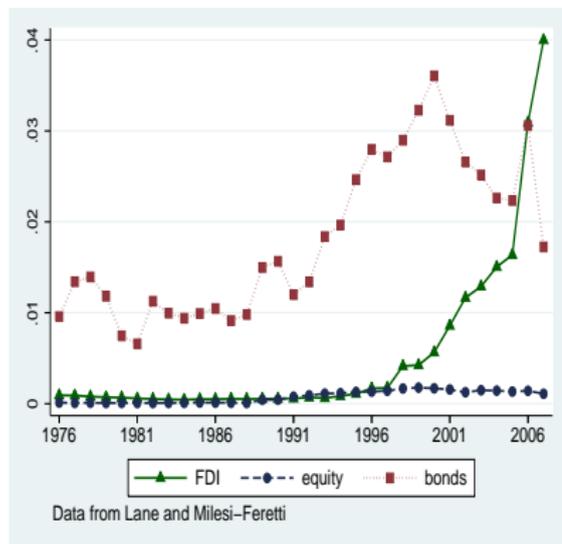


(a) US equity return, %



(b) US bond return, %

India's Foreign Positions



(c) India owned assets abroad, % GDP (d) Foreign assets in India, % GDP

India's Foreign Positions

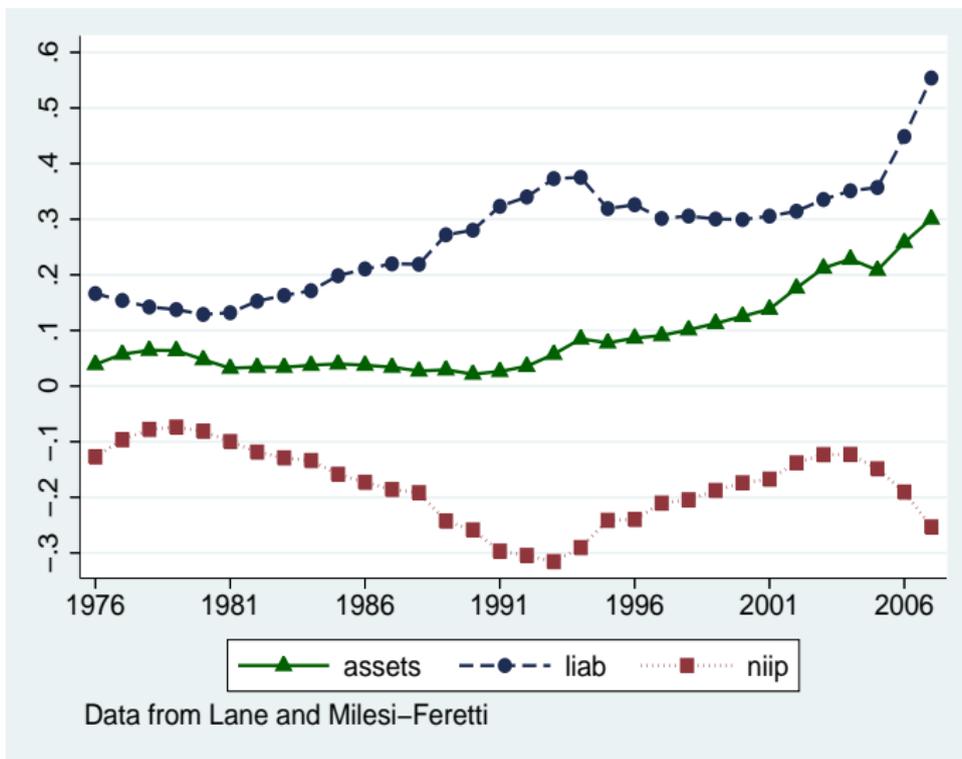


Figure: India's gross assets, liabilities and NIIP, % GDP

India's Foreign Positions and CA

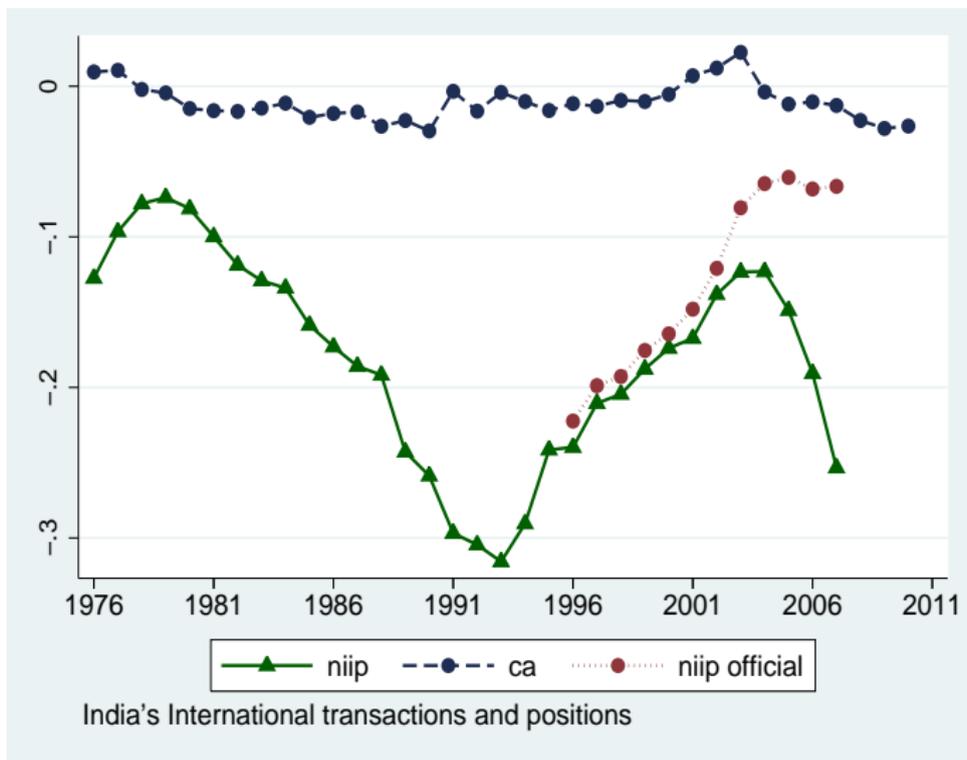


Figure: India's NIIP and CA, % GDP

India's Capital Flows

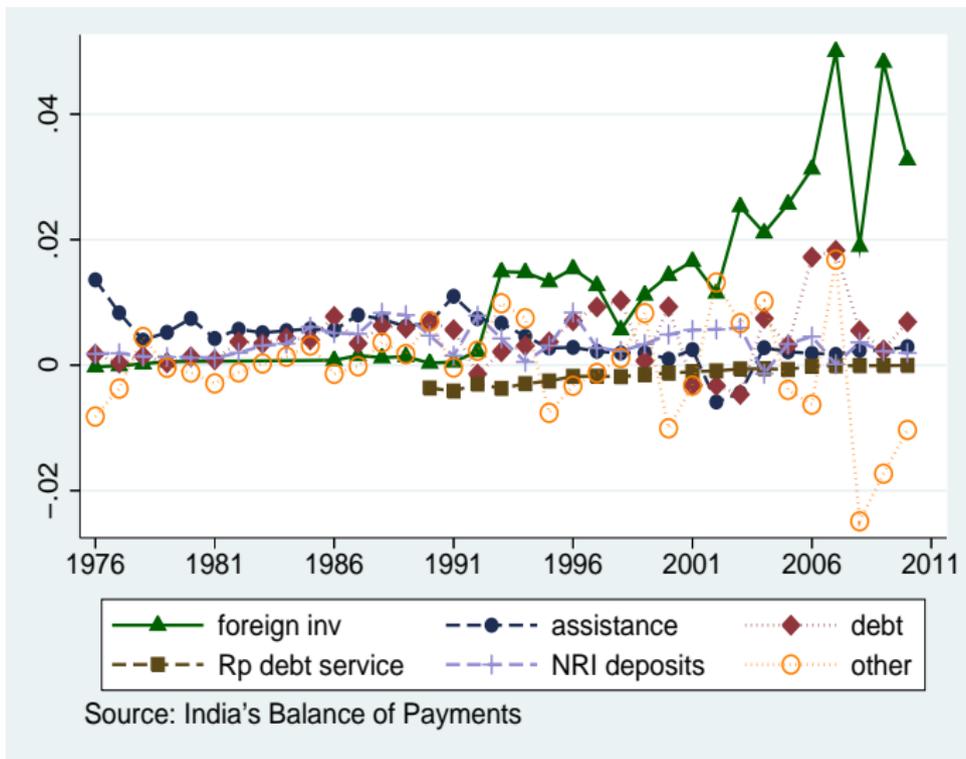
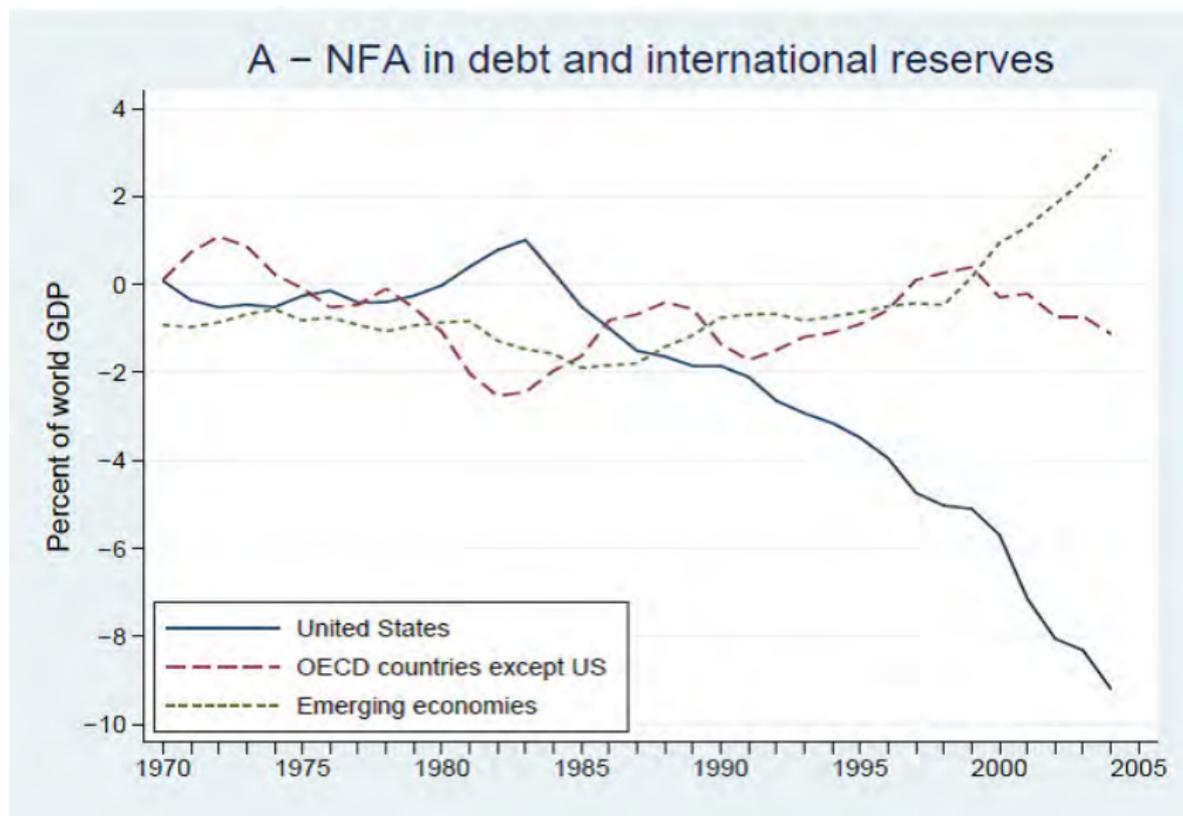


Figure: India's capital flows, % GDP

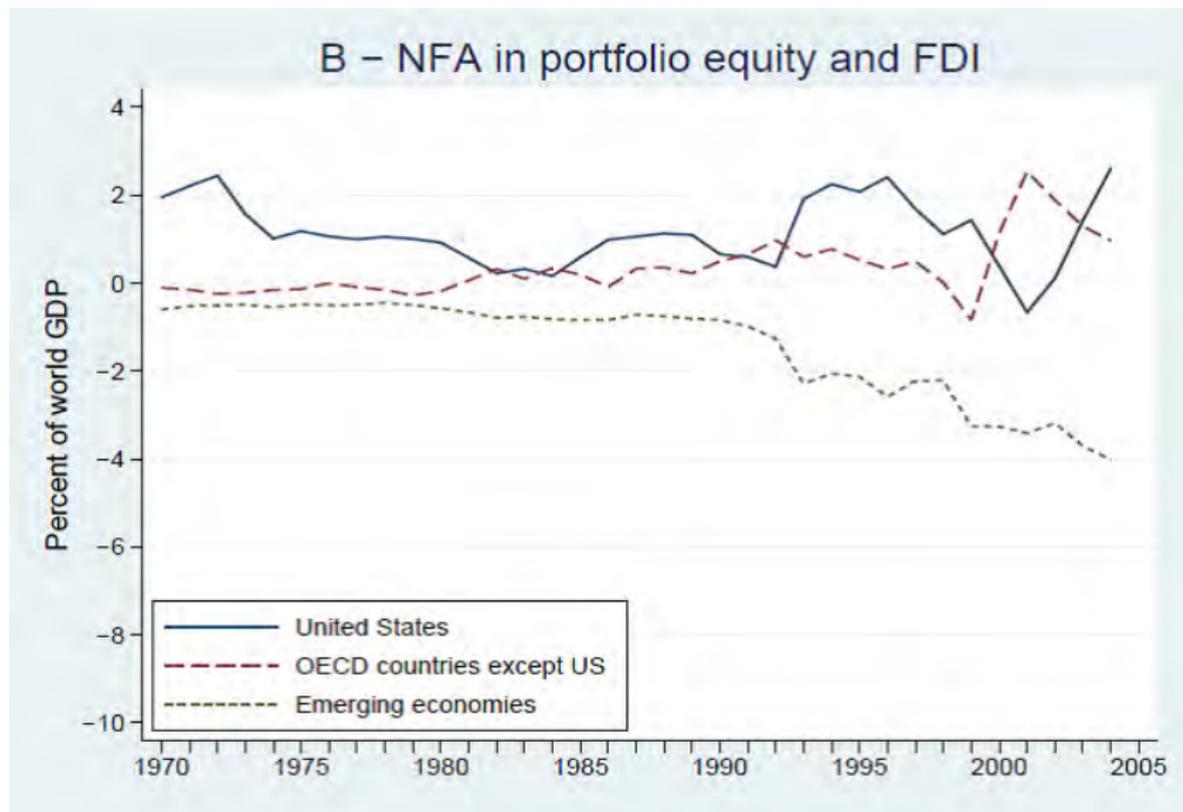
NFA composition in developed and developing countries

Mendoza, Quadrini, Rios-Rull AER' 2008



NFA composition in developed and developing countries

Mendoza, Quadrini, Rios-Rull AER' 2008



NFA composition in developed and developing countries

Kose et al Fin Development' 2007

Chart 2

On the rise

Emerging markets now attract more FDI than other types of flows.

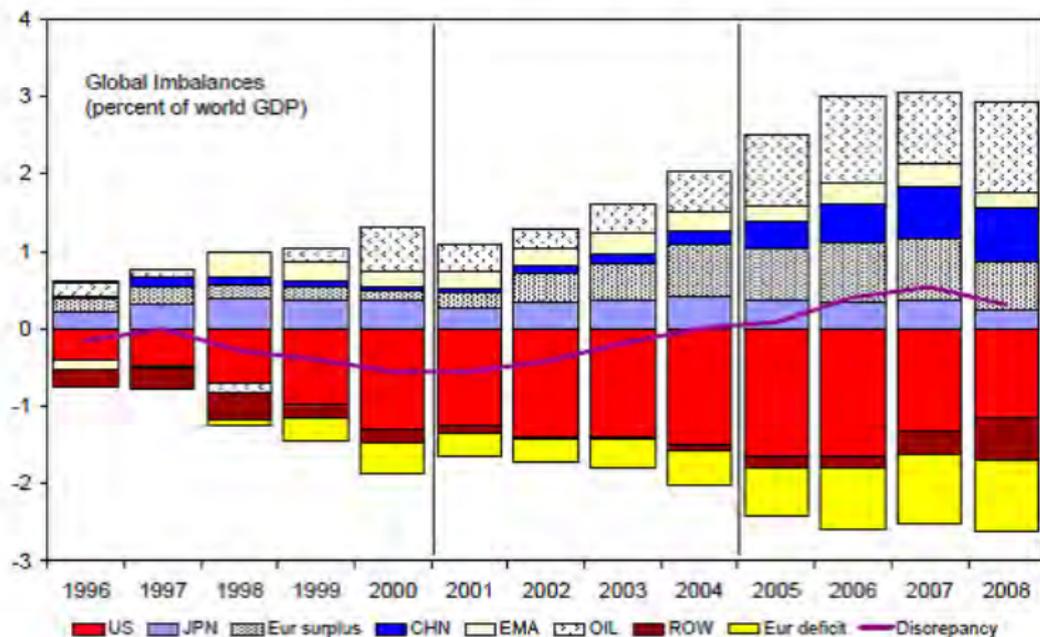
(composition of gross flows to emerging markets, percent of total)



Source: External Wealth of Nations database from Philip R. Lane and Gian Maria Milesi-Ferretti, "The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970-2004," IMF Working Paper No. 06/69 (Washington: International Monetary Fund, 2006).

Global Imbalances

Figure 1. Global Imbalances, 1996-2008



Note: Current account balances (in percent of world GDP). Source: World Economic Outlook, October 2009.

Figure: Current account deficits in selected regions

The Nature of Financial Globalization in Developed Countries

- ▶ Extensive cross-border trade among advanced economies
- ▶ Widespread financial innovations (ABS, hedge-funds, etc.)
- ▶ US emerges as the “world banker”: holds risky assets and riskless liabilities (long equity, short debt)
- ▶ potentially exposes itself to large valuation changes

The Nature of Financial Globalization in Developing Countries

- ▶ More cautious participation in financial innovations
- ▶ Currency risk is still significant
- ▶ Generally experienced improvements in NIIP
- ▶ Shift towards equity financing of liabilities (FDI, and especially portfolio equity)
- ▶ Accumulation of safe foreign assets (de-leveraging after the Asian crisis)
- ▶ Long debt, short equity

Valuation effects as a risk-sharing mechanism

Gourinchas, Rey, Truempeler JIE' 2012

| Country | Valuation | Equity | | | Direct Investment | | | Debt | | | Loans | | |
|-------------------|-----------|--------|--------|--------|-------------------|-----------|------|--------|-------|------|--------|-------|------|
| | | Claims | Liab. | Net | Claims | Liability | Net | Claims | Liab. | Net | Claims | Liab. | Net |
| U.S. | -863 | -2,398 | -1,245 | -1,153 | -161 | -218 | 56 | -120 | -86 | -34 | 149 | -119 | 268 |
| Euro area | -185 | -1,171 | -1,677 | 506 | -607 | -273 | -334 | -461 | -135 | -326 | -394 | -363 | -31 |
| U.K. | 542 | -567 | -851 | 284 | -423 | -337 | -86 | -176 | -515 | 339 | -332 | -337 | 5 |
| Japan | 65 | -244 | -420 | 176 | 7 | 46 | -39 | -66 | 126 | -193 | 419 | 298 | 121 |
| Switzerland | -53 | -197 | -220 | 23 | 28 | 77 | -49 | -45 | -6 | -39 | 13 | 2 | 11 |
| Canada | 17 | -261 | -189 | -71 | -78 | -131 | 53 | -24 | -41 | 18 | -7 | -25 | 18 |
| Other advanced | -3 | -434 | -401 | -33 | -221 | -234 | 14 | -135 | -142 | 8 | -101 | -111 | 10 |
| Brazil | 292 | -2 | -207 | 205 | 7 | -67 | 74 | 8 | -15 | 23 | -3 | 7 | -9 |
| India | 20 | 0 | -18 | 18 | 0 | -24 | 24 | -25 | 0 | -24 | -1 | -3 | 3 |
| Russia | 317 | -1 | -209 | 208 | -220 | -350 | 130 | -18 | -18 | 0 | -50 | -29 | -21 |
| Emerging Asia | 245 | -54 | -246 | 192 | -10 | -67 | 57 | -24 | -8 | -16 | -35 | -48 | 13 |
| China | -158 | 1 | 13 | -12 | 16 | 64 | -48 | -61 | -2 | -59 | -22 | 17 | -39 |
| Hong Kong | 101 | -258 | -237 | -21 | -300 | -421 | 122 | 7 | 2 | 5 | -8 | -4 | -4 |
| Singapore | -56 | -80 | -74 | -5 | -27 | -22 | -6 | -31 | 0 | -31 | -15 | 0 | -15 |
| Rest of the World | -282 | | | -314 | | | 32 | | | 329 | | | -329 |

Table 3: The Geography of Wealth Transfers, 2007:4-2008:4. Decomposition of the valuation change into a net equity, net direct investment, net debt and net bank loans components. FDI as in official figures; US FDI at current cost. Billion of US dollars.

Geography of wealth transfers during crisis, 2007-09

Gourinchas, Rey, Truempter JIE' 2012

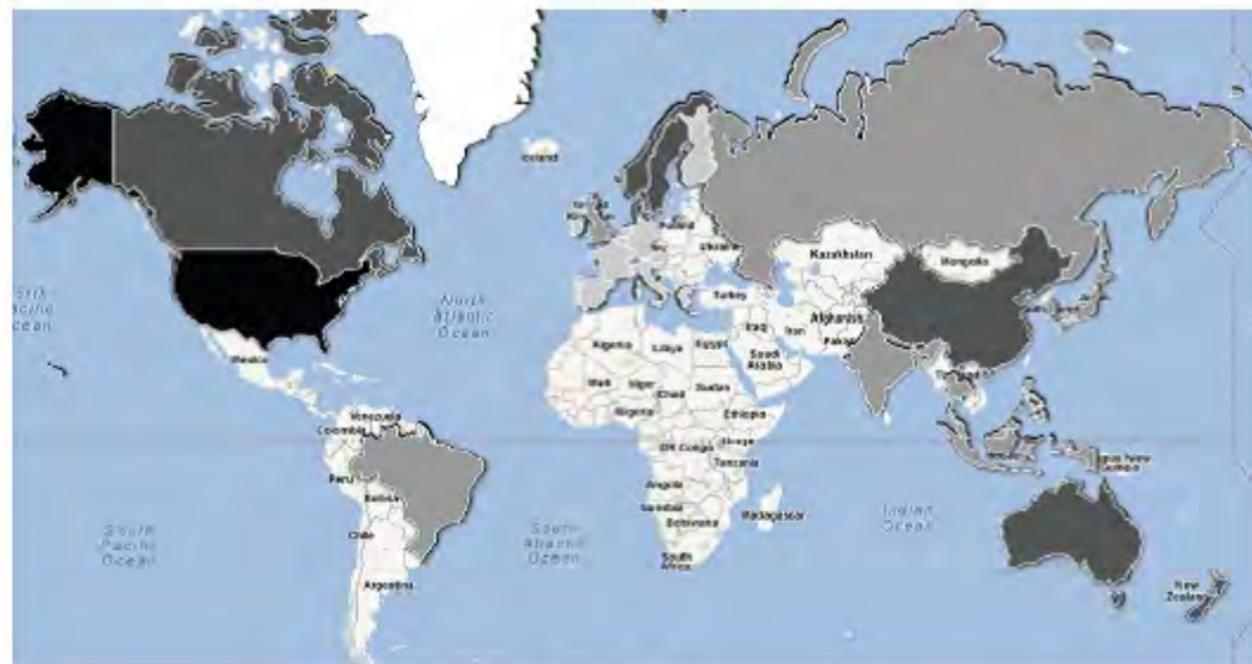


Figure 1: Heat Map of Valuation Gains and Losses

The figure reports total valuation gains/losses. ■ Losses in excess of \$400bn. ■ Losses between \$10bn and \$400bn. ■ Gains between \$10bn and \$400bn. ■ Gains in excess of \$400bn.

Geography of wealth transfers during crisis, 2007-09

Gourinchas, Rey, Truempfler JIE' 2012



(a) Portfolio Equity

Geography of wealth transfers during crisis, 2007-09

Gourinchas, Rey, Truempter JIE' 2012



(b) Portfolio Debt

The figure reports total valuation gains/losses. Losses in excess of \$400bn. Losses between \$10bn and \$400bn. Gains between \$10bn and \$400bn. Gains in excess of \$400bn.

Geography of wealth transfers during crisis, 2007-09

Gourinchas, Rey, Truempfler JIE' 2012



(a) Direct Investment

Geography of wealth transfers during crisis, 2007-09

Gourinchas, Rey, Truempter JIE' 2012



(b) Currency Gains/Losses

The figure reports total valuation gains/losses. Losses in excess of \$400bn. Losses between \$10bn and \$400bn. Gains between \$10bn and \$400bn. Gains in excess of \$400bn.

Geography of wealth transfers during crisis, 2007-09

Bilateral valuation gains and losses on the net equity portfolio

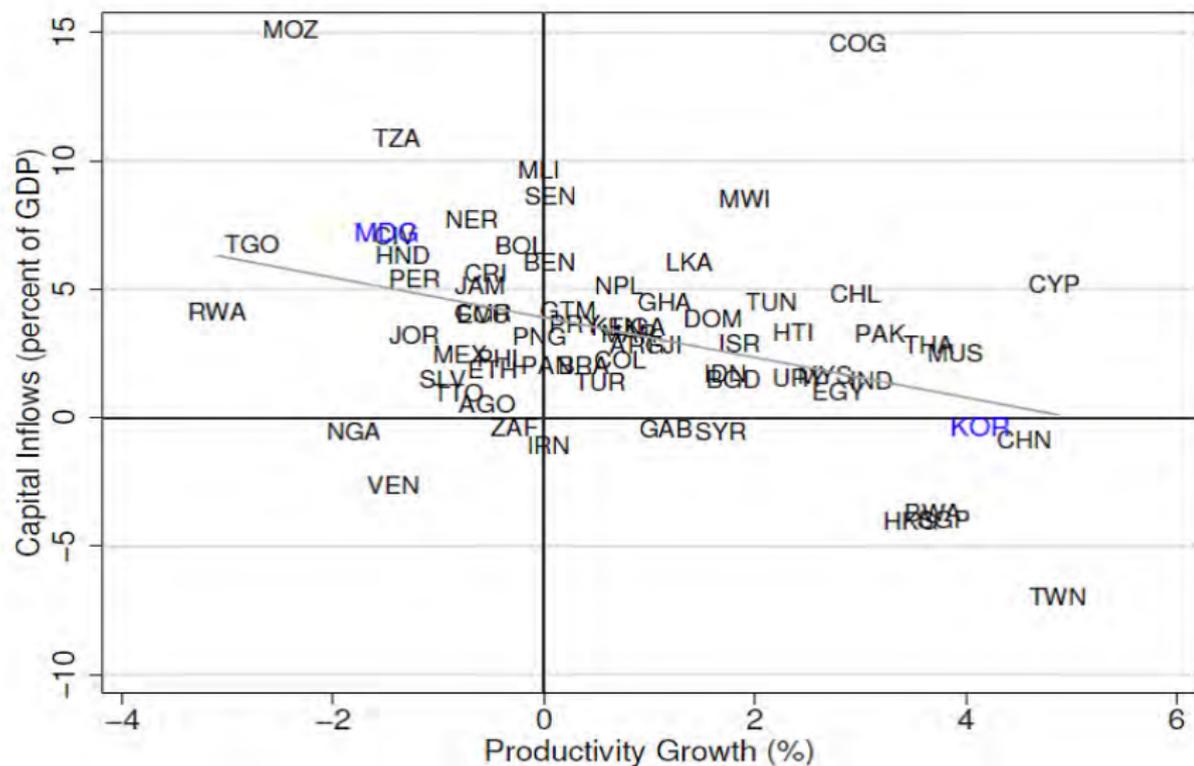
| | Brazil | Canada | China | Em. Asia | Euro | H.K. | India | Japan | Oth. adv. | Russia | SGP | Switz | U.K. | U.S. |
|------------|---------|---------|---------|----------|---------|---------|---------|---------|-----------|---------|--------|---------|---------|------------|
| Brazil | 0 | -4,079 | 613 | -2,710 | -36,836 | -7 | 0 | -3,948 | -4,062 | -1 | -256 | -1,070 | -9,537 | -100,903 |
| Canada | 4,079 | 0 | 1,160 | 7,864 | 41,309 | 2,763 | 1,727 | 7,233 | 3,063 | 1,927 | 1,211 | 707 | 35,989 | -89,550 |
| China | -613 | -1,160 | 0 | -13,372 | -29,698 | -64,464 | -7 | -11,264 | -1,309 | -7 | -1,407 | -623 | -23,307 | -36,921 |
| Em. Asia | 2,710 | -7,864 | 13,372 | 0 | -46,681 | 6,134 | 3,557 | 406 | -7,059 | -75 | -9,175 | -1,383 | -22,144 | -113,855 |
| Euro | 36,836 | -41,309 | 29,698 | 46,681 | 0 | 22,587 | 46,897 | 52,977 | -48,374 | 37,099 | 2,930 | -40,352 | 53,355 | -302,371 |
| H.K. | 7 | -2,763 | 64,464 | -6,134 | -22,587 | 0 | 1,160 | -7,547 | -5,406 | 11 | -5,422 | -811 | 8,031 | -53,478 |
| India | 0 | -1,727 | 7 | -3,557 | -46,897 | -1,160 | 0 | -4,536 | -4,156 | 0 | -8,074 | -312 | -25,972 | -52,801 |
| Japan | 3,948 | -7,233 | 11,264 | -406 | -52,977 | 7,547 | 4,536 | 0 | -494 | 3,428 | 4,067 | -328 | -29,373 | -93,657 |
| Other adv. | 4,062 | -3,036 | 1,309 | 7,059 | 48,374 | 5,406 | 4,156 | 494 | 0 | 6,113 | -707 | 10,273 | 12,967 | -23,622 |
| Russia | 1 | -1,927 | 7 | 75 | -37,099 | -11 | 0 | -3,428 | -6,113 | 0 | -528 | -3,431 | -11,482 | -54,779 |
| SGP | 256 | -1211 | 1407 | 9175 | -2930 | 5422 | 8074 | -4067 | 707 | 528 | 0 | -355 | -811 | -25,941 |
| Switz. | 1,070 | -707 | 623 | 1,383 | 40,352 | 811 | 312 | 328 | -10,273 | 3,431 | 355 | 0 | -14,341 | -45,710 |
| U.K. | 9,537 | -35,989 | 23,307 | 22,144 | -53,355 | -8,031 | 25,972 | 29,373 | -12,967 | 11,482 | 811 | 14,341 | 0 | -225,292 |
| U.S. | 100,903 | 89,550 | 36,921 | 113,855 | 302,371 | 53,478 | 52,799 | 93,657 | 23,622 | 52,801 | 25,941 | 45,710 | 225,292 | 0 |
| Sum | 162,796 | -19,455 | 184,151 | 182,058 | 103,346 | -30,475 | 149,185 | 149,678 | -72,849 | 118,715 | 9,746 | 22,365 | 198,669 | -1,218,880 |

Allocation of investment

- ▶ Neoclassical model predicts that countries that enjoy higher productivity growth should receive more net capital inflows
- ▶ Data suggests the opposite pattern (Lucas AER'2000)
- ▶ Key question: Why doesn't capital flow from less productive (rich) countries to more productive (poor) countries?

Allocation of investment

Gourinchas and Jeanne REStud' 2011



Private vs public flows

Alfaro, Kalemli-Ozcan, Volosovych WP' 2011

- ▶ international capital flows *net of government debt* are positively correlated with growth and allocated according to the neoclassical predictions
- ▶ international capital flows net of official aid flows, which are mostly accounted as debt, are also positively correlated with productivity growth consistent with the predictions of the neoclassical model
- ▶ public debt flows are negatively correlated with growth only if government debt is financed by another sovereign and not by private lenders
- ▶ however, evidence on private flows and growth relationship remains mixed.

Level of financial markets development

Mendoza, Quadrini, Rios-Rull AER' 2008

- ▶ exists tremendous heterogeneity in the levels of domestic financial markets development across countries (risk and depth)
- ▶ this gaps persisted despite the globalization of capital markets
- ▶ model differences in domestic development as
 - ▶ the agents' ability to divert a fraction of their income: limits the feasibility of state contingent contracts
 - ▶ the ability to claim limited liability: restricts the capacity to borrow
- ▶ more financially developed economies see their NFA positions decline in the long-run
- ▶ more financially developed economies invest in foreign risky assets and finances this investment with debt (i.e. US)
 - ▶ its NIIP position features a large negative position in riskless bonds and a positive position in risky assets

Other factors

Lane and Milesi-Ferretti AER' 2008

- ▶ Trade openness
 - ▶ gains to portfolio integration are increasing in the share of tradable consumption
 - ▶ trade linkages improve information flows
 - ▶ trade transaction directly generate cross-border financial flows through trade credit, export insurance, etc.
- ▶ Domestic economic development
 - ▶ in the presence of fixed costs of international asset trade, wealthier economies will engage more
 - ▶ if risk aversion is declining in the level of wealth and external investment is riskier, external investment will be increasing in the level of development

Other factors

Lane and Milesi-Ferretti AER' 2008

- ▶ Country size
 - ▶ larger economies allow for more *domestic* portfolio diversification
- ▶ Capital account restrictions
 - ▶ have negative effect on international portfolio investment
- ▶ EU integration
 - ▶ removal of restrictions and exchange rate risk led to a surge in cross-corder holdings
- ▶ Financial centers
 - ▶ have larger external positions

Other factors

Lane and Milesi-Ferretti AER' 2008

Estimate the following reduced form specification:

$$F_i = \alpha + \beta_1 * TRADE_i + \beta_2 * FINDEV_i + \beta_3 * GDPPC_i + \beta_4 * POP_i + \beta_5 * CAPOPEN_i + \beta_6 * EURO + \beta_7 * FINCENTER_i + \varepsilon_i$$

where

- ▶ F are financial asset and liability positions as a share of GDP
- ▶ TRADE is trade volume to GDP ratio
- ▶ FINDEV is the sum of stock market capitalization and bank deposits as a share of GDP
- ▶ CAPOPEN is the de jure index of capital account openness developed by Menzie Chinn and Hiro Ito (2007)

Determinants of external positions

Lane and Milesi-Ferretti AER' 2008

| | (1) All countries FA | (2) All countries FL | (3) Advanced economies FA | (4) Advanced economies FL | (5) Emerging markets FA | (6) Emerging markets FL |
|------------------|-------------------------------|-------------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| TRADE | 0.20 [0.11]* | 0.13 [0.08] | 0.43 [0.17]** | 0.11 [0.19] | 0.18 [0.15] | 0.18 [0.11] |
| FINDEV | 0.33 [0.08]*** | 0.15 [0.06]** | 0.67 [0.25]** | 0.18 [0.26] | 0.33 [0.10]*** | 0.14 [0.07]* |
| GDP per capita | 0.23 [0.05]*** | 0.16 [0.04]*** | 0.63 [0.22]** | -0.07 [0.23] | 0.18 [0.06]*** | 0.14 [0.05]*** |
| Population | -0.07 [0.04]* | -0.13 [0.03]*** | 0.04 [0.06] | -0.08 [0.06] | -0.13 [0.05]** | -0.14 [0.04]*** |
| CAOPEN | -0.05 [0.04] | -0.04 [0.03] | 0.02 [0.19] | -0.22 [0.21] | -0.07 [0.05] | -0.05 [0.04] |
| Europe | 0.76 [0.15]*** | 0.53 [0.11]*** | 0.73 [0.17]*** | 0.54 [0.18]** | | |
| Financial Center | 0.62 [0.22]*** | 0.61 [0.17]*** | 0.20 [0.25] | 0.63 [0.27]** | | |
| Constant | 0.93 [1.01] | 4.10 [0.77]*** | -7.79 [2.95]** | 6.04 [3.19]* | 2.29 [1.32]* | 4.37 [0.98]*** |
| Observations | 67 | 67 | 21 | 21 | 46 | 46 |

Twin Deficits: Fiscal and Current Account

- ▶ Recall one of the definitions of current account:

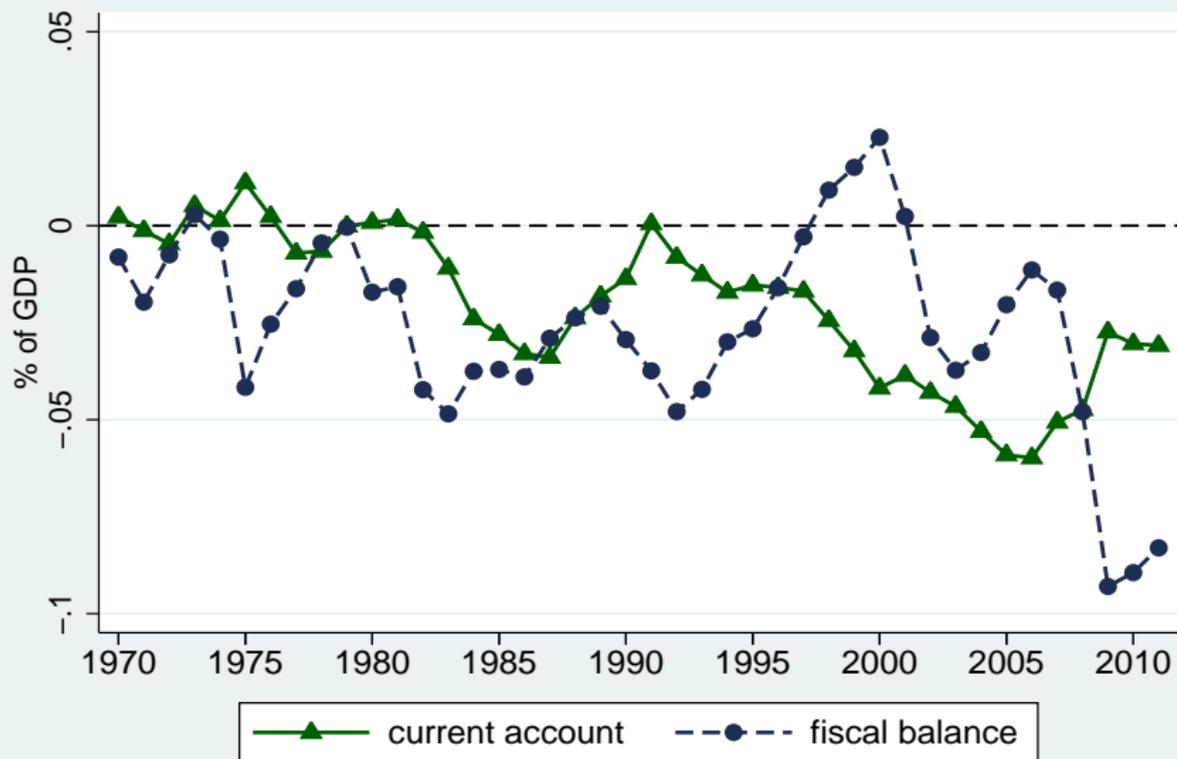
$$CA = S^p + S^g - I$$

- ▶ where

$$S^g = T - G = \textit{Fiscal Balance}$$

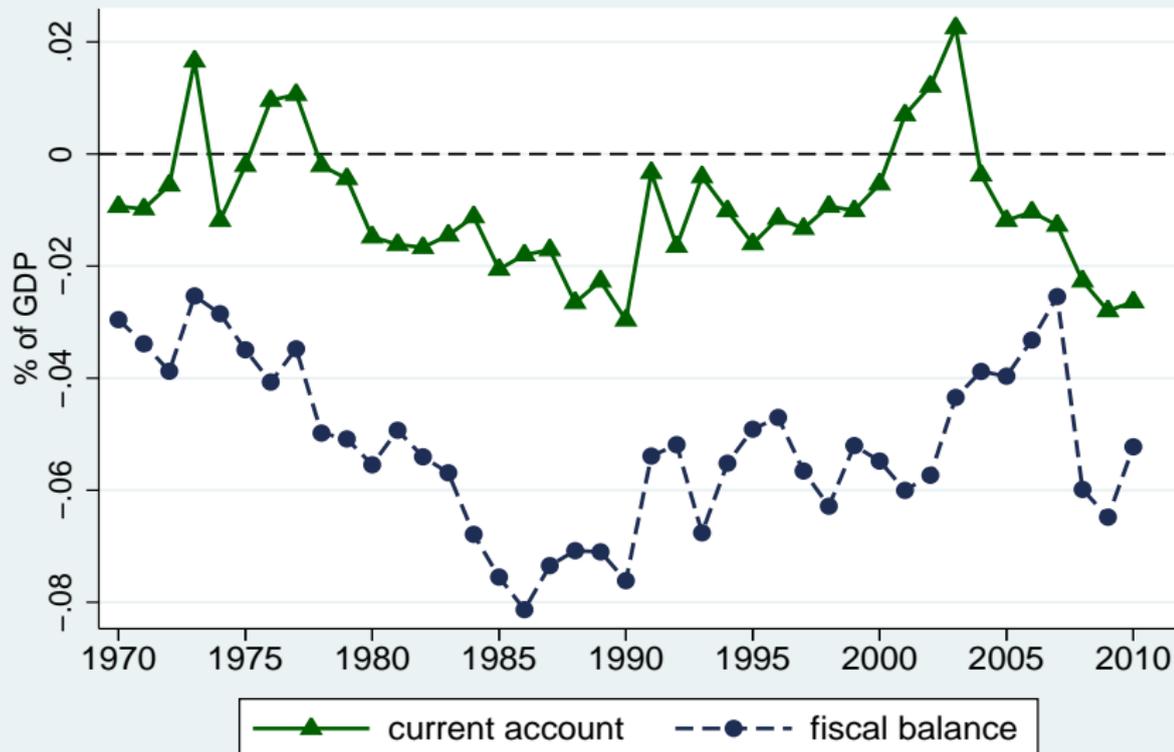
- ▶ Twin deficits: larger fiscal deficit, through its effect on national saving, leads to a larger current account deficit.

Twin deficits: US



Source: BEA

Twin deficits: India



Source: RBI

Twin Deficits: Changes in T

- ▶ Changes in lump-sum taxes: Ricardian Equivalence
 - ▶ any tax cut is saved by private sector in anticipation of higher taxes in the future
 - ▶ therefore, national savings remain unaffected by the timing of lump-sum taxes

Twin Deficits: Changes in G

- ▶ Changes in government spending
 - ▶ temporary increase in government consumption reduces private consumption for a given Y
 - ▶ consumption smoothing implies that the fall in private consumption is smaller than increase in public consumption
 - ▶ therefore, both fiscal balance and current account deteriorate: twin deficits

Twin Deficits: Failure of Ricardian Equivalence

Failure of Ricardian Equivalence:

- ▶ households face borrowing constraints
 - ▶ any tax cuts are consumed instead of saved
- ▶ exist intergenerational effects
 - ▶ people that benefit from taxes are not the same who have to pay for them in the future
 - ▶ this reduces incentive to save tax cuts today
- ▶ taxes are not lump-sum, but distortionary
 - ▶ lower taxes today reduce the relative price of current consumption in terms of tomorrow's consumption
 - ▶ ... leading to higher current consumption
 - ▶ therefore, both fiscal balance and current account deteriorate: twin deficits

Conclusion

- ▶ A dramatic increase in globalization and financial integration
- ▶ Shifting composition of countries' NIIP
- ▶ Large valuation effects, especially during crisis
- ▶ Some evidence on “twin deficits”