Financial Fragility, Instability and the Brazilian Crisis: Minsky Meets Brazil

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DISCUSSION PAPER NO 1
TEXTO PARA DISCUSSÃO NO 1

FINANCIAL FRAGILITY, INSTABILITY AND THE BRAZILIAN CRISIS: A KEYNES-MINSKY-GODLEY APPROACH

FRAGILIDADE FINANCEIRA, INSTABILIDADE E A CRISE BRASILEIRA: UMA ABORDAGEM KEYNES-MINSKY-GODLEY

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2016

Outline

- Minsky's alternative approach
  - Instability Theory
  - Pre-GFC period:
    - Unsustainable global demand and financing patterns
    - Bubble economy
  - Post-GFC period:
    - Commodities bust
    - Global economic slowdown and stagnation
  - Declining Cushions of Safety
    - NFC Ponzi profile since 2007
    - Policymakers misdiagnosed the crisis, which was aggravated by the implementation of IMF-type SAP.
    - Minsky moment and balance sheet recession
- New development strategy
  - Reverting to pre-crisis growth strategies cannot be an option (reliance on external finance, high (and volatile) IR to attract int. investors, appreciated FX)
  - Need to support profitability and balance sheets to promote development
  - Need to adopt policies to support domestic demand
    - Policy goals: full employment and price stability

Alternative Interpretations of the Brazilian Crisis

- Does the Brazilian crisis fit with Minsky's theory of the business cycle?
  - the structure the economy becomes more fragile over a period of tranquility and prosperity. That is, endogenous processes breed financial and economic instability.
  - periods of growth and tranquility validates expectations and existing financial structures, which change the dynamics of human behavior leading to endogenous instability, increasing risk appetite, mispricing of risky positions, and the erosion of margins of safety and liquid positions. That is, over periods of prolonged expansion fragility rise, exposing the economy to the possibility of a crisis
  - a Keynes – Minsky – Godley approach

- Or was it a crisis due to the "New Economic Matrix"?
  - Bad macro policy
  - Subsidized credit and public banks
  - Government budget "out of control"
  - Rising government debt

Minsky's Instability Theory

- Minsky's theory of the business cycle: "an investment theory of the cycle and a financial theory of investment."
  - "an investment theory of the cycle" comes from Keynes.
  - Minsky then added his "**financial theory of investment"** JMK (1975).
    - Two Price system: demand price and supply price
    - Lender's and borrower's risk
    - Investment is financed with a combo of Internal and Borrowed funds.
    - **Kalecki's-Levy view of profits**: Aggregate Profits= $I + Gov_{Def} - S_w + C_p + NX$
    - Minsky's approach to investment has a complex temporal relation. Past, present, and tomorrow are linked.
      - Inv today generates profits, which validates decisions made in the past. Inv. today depends on expected future profitability. That is, the demand price of capital greater than its supply price, including the borrower's and lender's risk..
    - Periods of growth and tranquility validates expectations and existing financial structures, which change the dynamics of human behavior leading to endogenous instability, increasing risk appetite, mispricing of risky positions, and the erosion of margins of safety and liquid positions.
    - over periods of prolonged expansion fragility rise, exposing the economy to the possibility of a crisis. This rise in financial fragility, in turn, has the potential to lead to a slowdown in economic growth, stagnation or even a recession.
- Kregel-Minsky model
  - Provision of liquidity
    - Macro condition
    - Micro condition

Minsky-Kregel Approach

- Portfolio decision determines which assets to buy and how to finance them.
- Private endogenous liquidity grows during booms and these IOUs represent future financial commitments that must be met as they fall due.
- This means that economic units have to generate enough cash flows over time to validate their debt commitments
- Minsky-Kregel's approach: Macroeconomic and microeconomic aspects to financial fragility
  - *Kregel: "All Business Models are Speculative. Physical Production: Buy inputs today to produce output for sale tomorrow…All Require Finance to purchase today something expected to be sold at a profit at some future date."*
  - *Stability requires that the "Cash" required to be able to meet commitment is always available (to cover short cash position*) (Kregel 2014)
  - Macro Condition: Government Deficit to support incomes. It generates income and employment, portfolio and cash flow effects.
  - At the micro level cash flows can be generated by operating, financing and investment activities.

Legacy of past macroeconomic policy

- Relies on external financing for development
- High interest rates to attract investors and fight inflation
- Overvalued currency
  - It harmed the competiveness of domestic industries.
  - It damaged export capacity.
- Reassurance of prior policy stance with nominally flexible exchange rates.
  - it maintained price stability but undermined domestic activity - falling industrial production, declining capacity utilization, and rising unemployment.
- Rising foreign capital inflows
  - It did not lead to increased in productive investment (IMF 2015)
  - Produced rising external private indebtedness
- Chronic current account deficits
  - Domar’s condition (Kregel 2004)
- Chronic fiscal and external deficits and exchange rate volatility.

The traditional approach relies on External Financing for Development

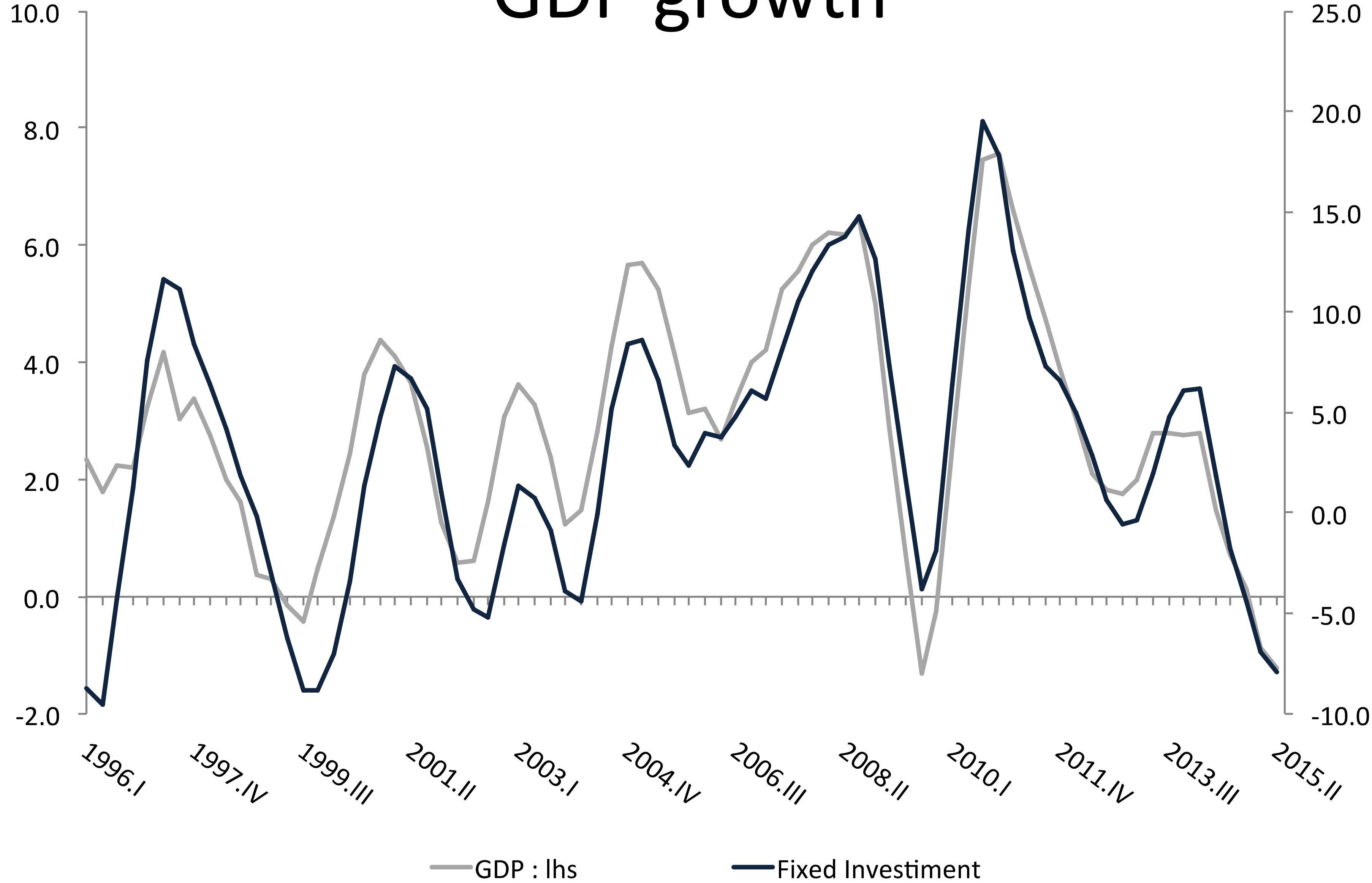
- Assumption that developing economies suffer capital scarcity
- Reliance on external financing.
- Need to attract foreign capital inflows to finance investment
- External surplus equals negative net resource transfer
- Kregel: similarity to a Ponzi scheme of excessive capital flows. The structural instability created by these flows are self-reinforcing
- The more successful in attracting capital flows and generating returns, the more fragile will be the current account position (chronic current account deficits).
- Structural influence on the composition of payment flows. Domar's condition => Similar to a Ponzi scheme, inherently unstable.
- IMF: without BNDES firms' external debt would have been higher. Public banks contributed to reduce external financial fragility (Rezende 2015)
- Traditional policy response: fiscal austerity to reduce domestic absorption. Result: fiscal deficits and government debt keep rising, incomes, employment, and production fell.

The Recent Brazilian Experience

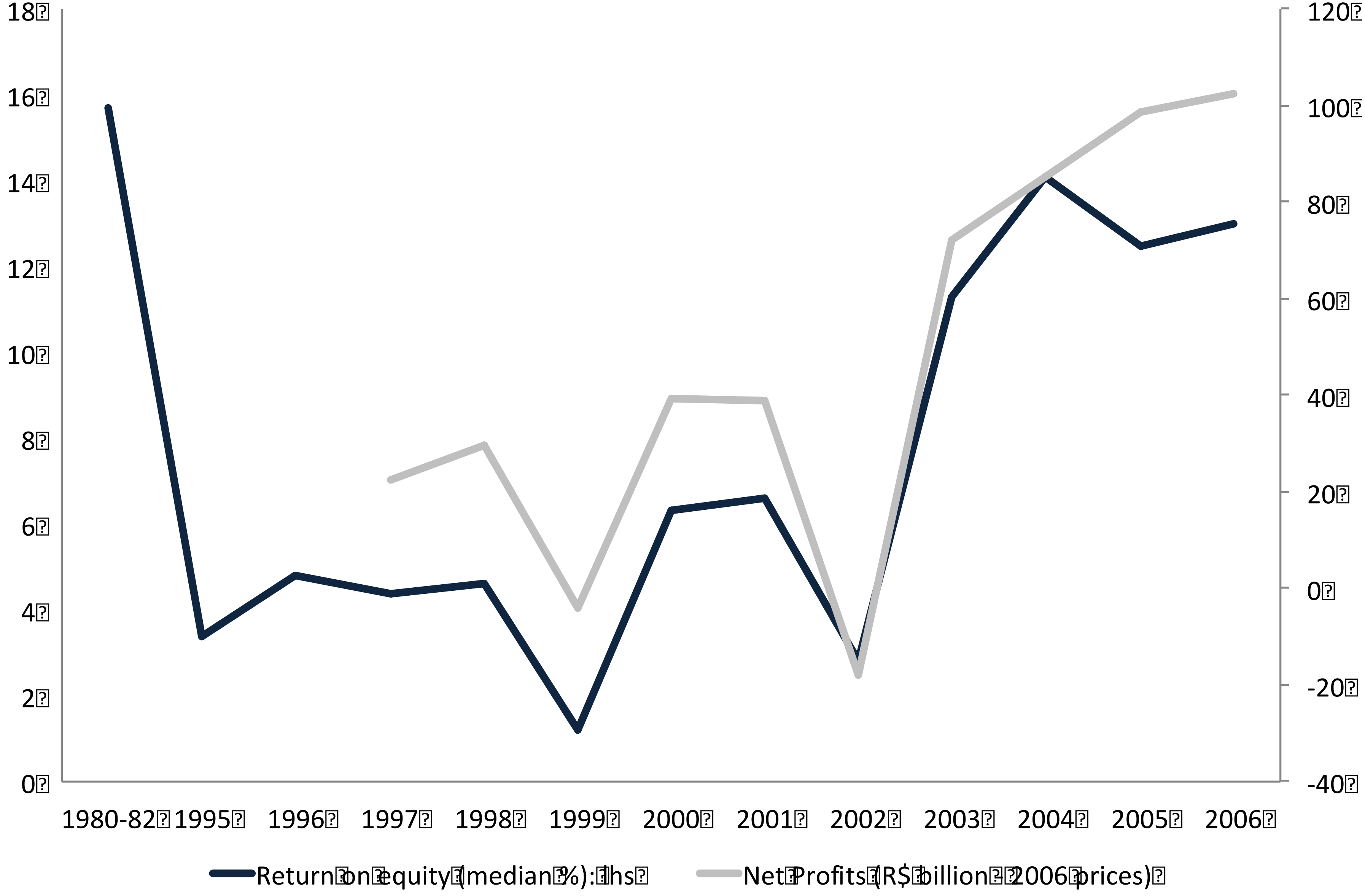
Background

- Brazil experienced a favorable macroeconomic environment:
  - Monetary Sovereignty, non-convertible currency (since Jan 1999)
  - Reduced External Vulnerability - Net External Creditor.
  - Macroeconomic stability (Inflation relatively low)
  - Growth based on domestic expansion
  - Healthy financial system
  - Historically Low Unemployment Rates.
  - Historically Low Interest Rates.
  - Economic Growth primarily based on the expansion of domestic consumption and investment.
  - Increase in real incomes (wage and salaries).
  - Credit Expansion (mainly consumption, auto and housing).
  - Improved income distribution (middle class is increasing +25 M people between 2003-2009).
  - Active role played by the Government (PAC, social programs, state enterprises, public banks, etc).
  - Success of counter-cyclical policies to deal with the 2007-2008 GFC

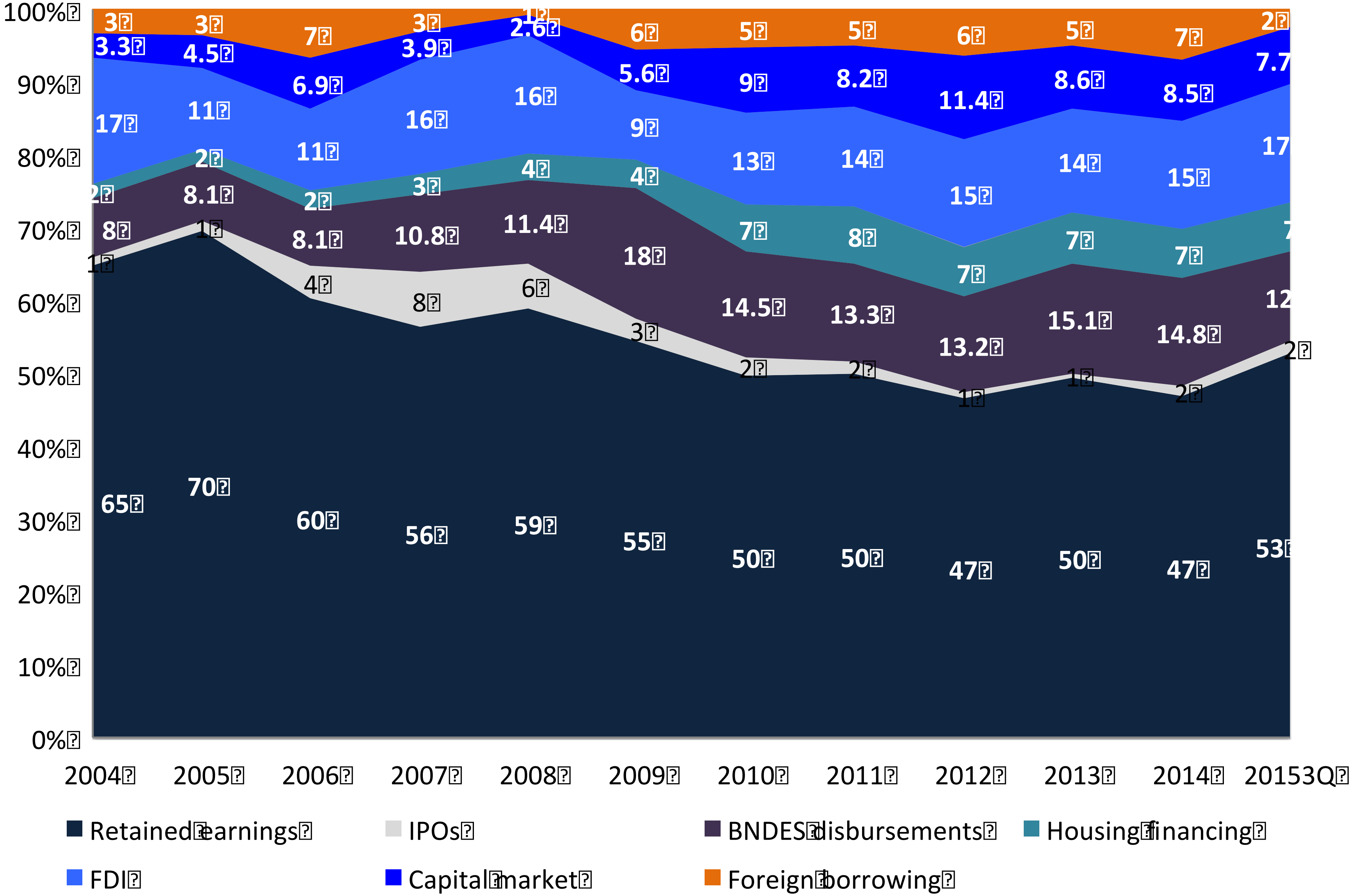
Business cycle: fixed investment and GDP growth



Net profits and profitability

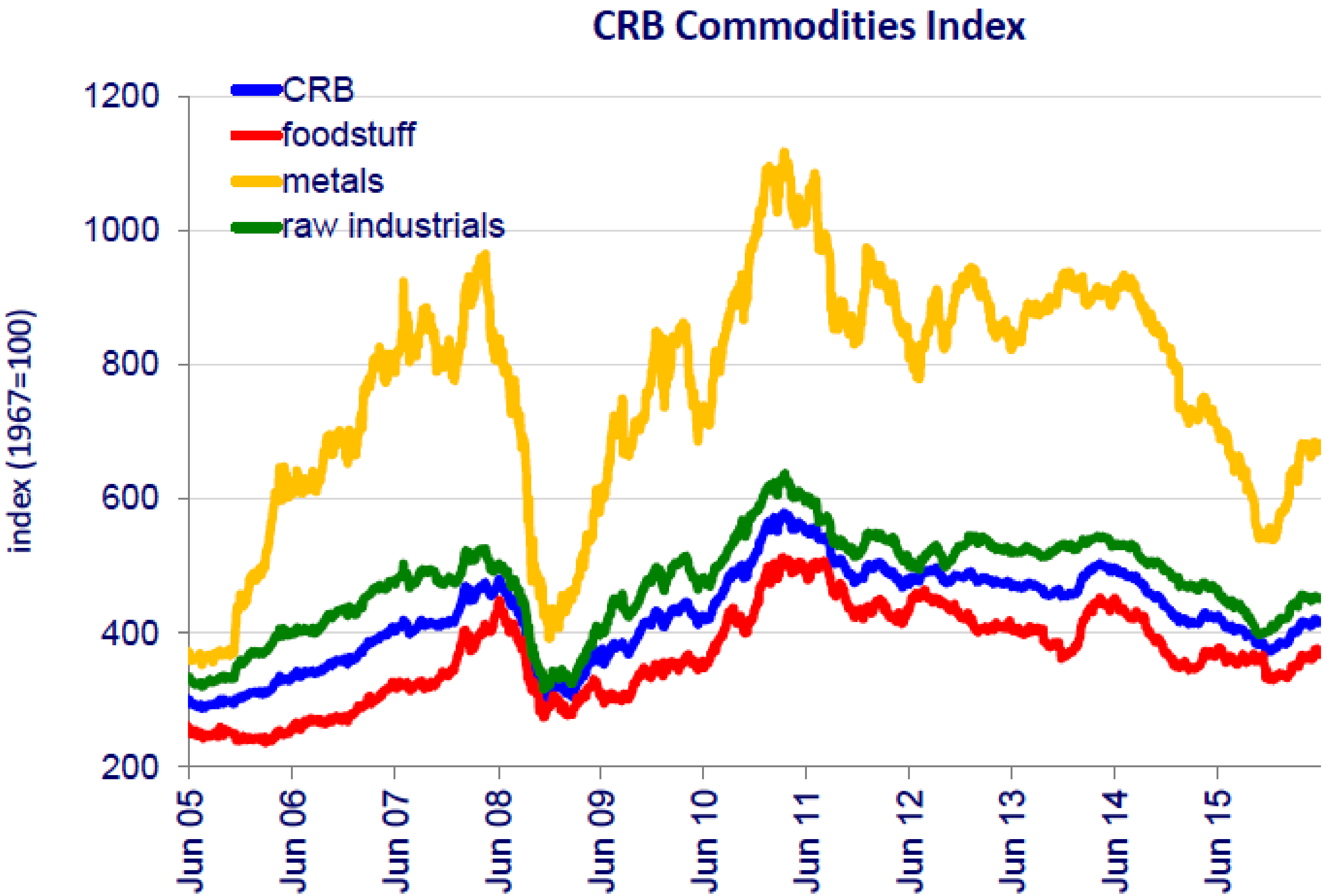


Non financial companies and households investment financing % of total

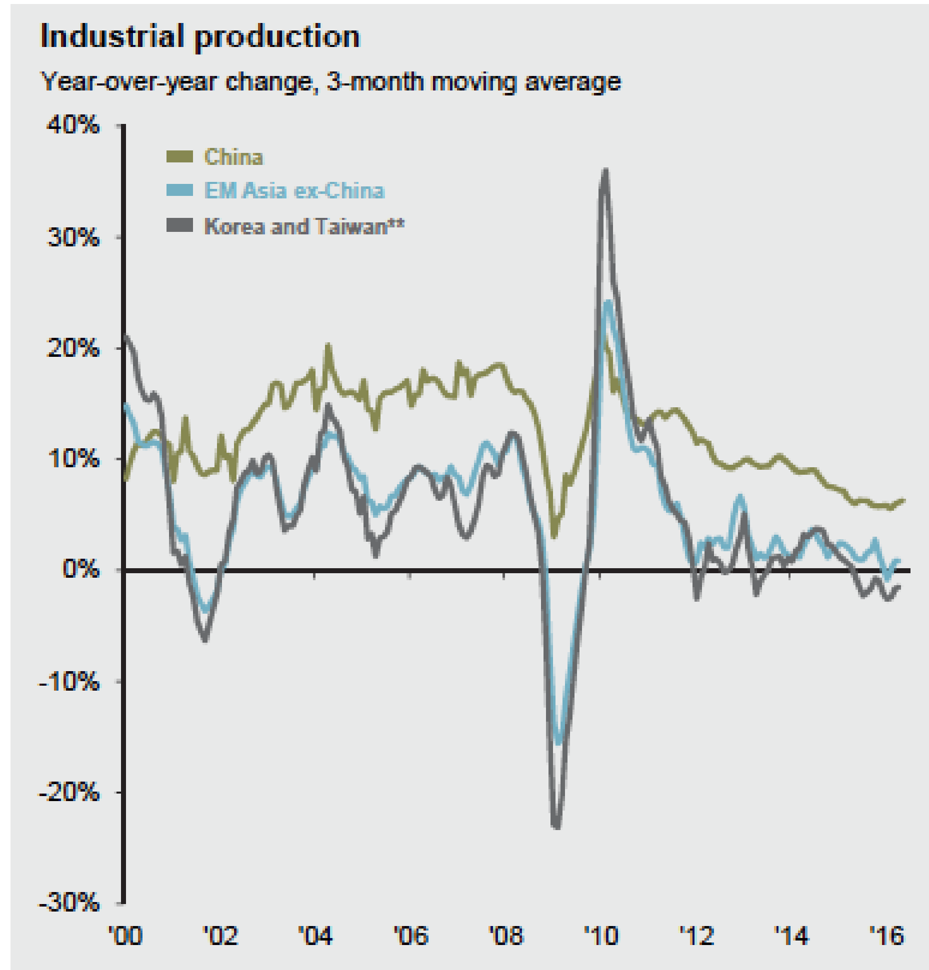


- Keynes's investment theory of the cycle seems to fit the Brazilian economy.
  - Post-GFC period:
    - Commodities boom and bust
    - Global economic slowdown and stagnation
    - Changes in global trace and financing patterns
- A Minsky crisis? "financial theory of investment"
- Declining Cushions of Safety?
  - Macro condition
  - Micro condition

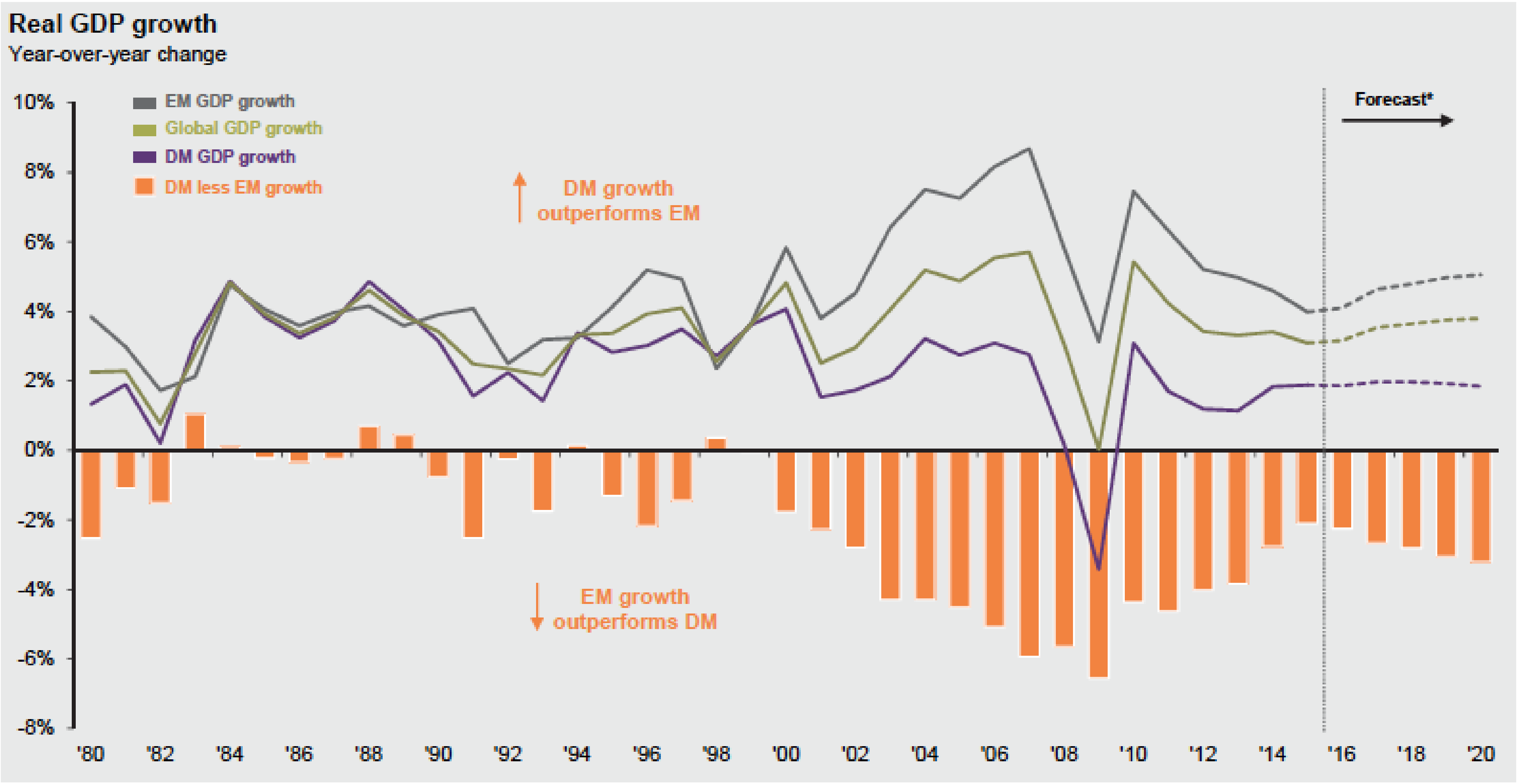
Commodity boom and bust



Structural global changes in trade



Structural shift in the world economy



Godley's basic macroeconomic accounting identity

Macro condition

Stock-flow consistency and accounting identities

- The surplus of the non-government sector (**NGSB**) equals the deficit of the government sector (**GSB**), that is:

  GSB = NGSB

  – Where nongovernment financial balance equals the domestic private sector financial balance plus the balance of the rest of the world

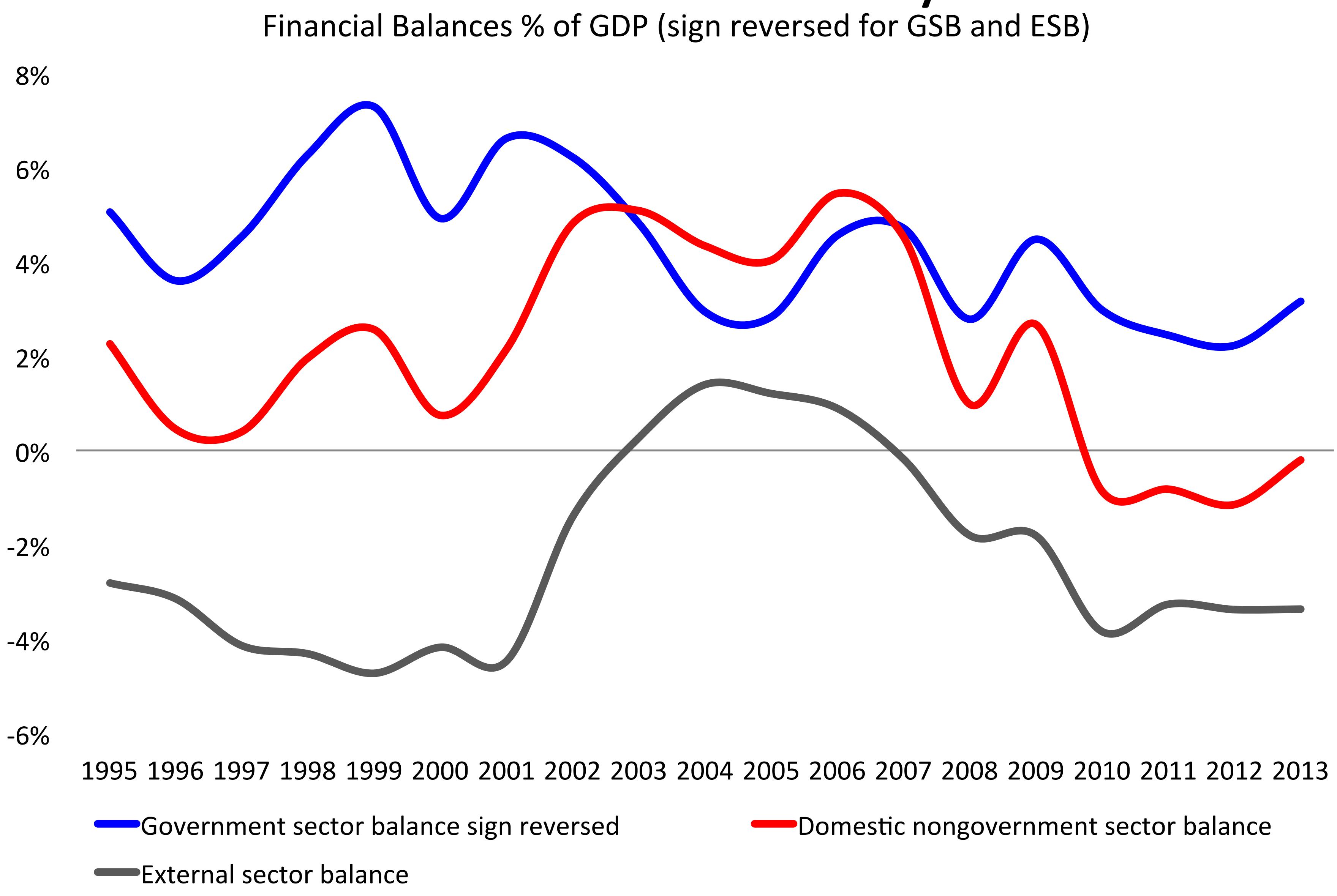
Stock-flow consistency and accounting identities

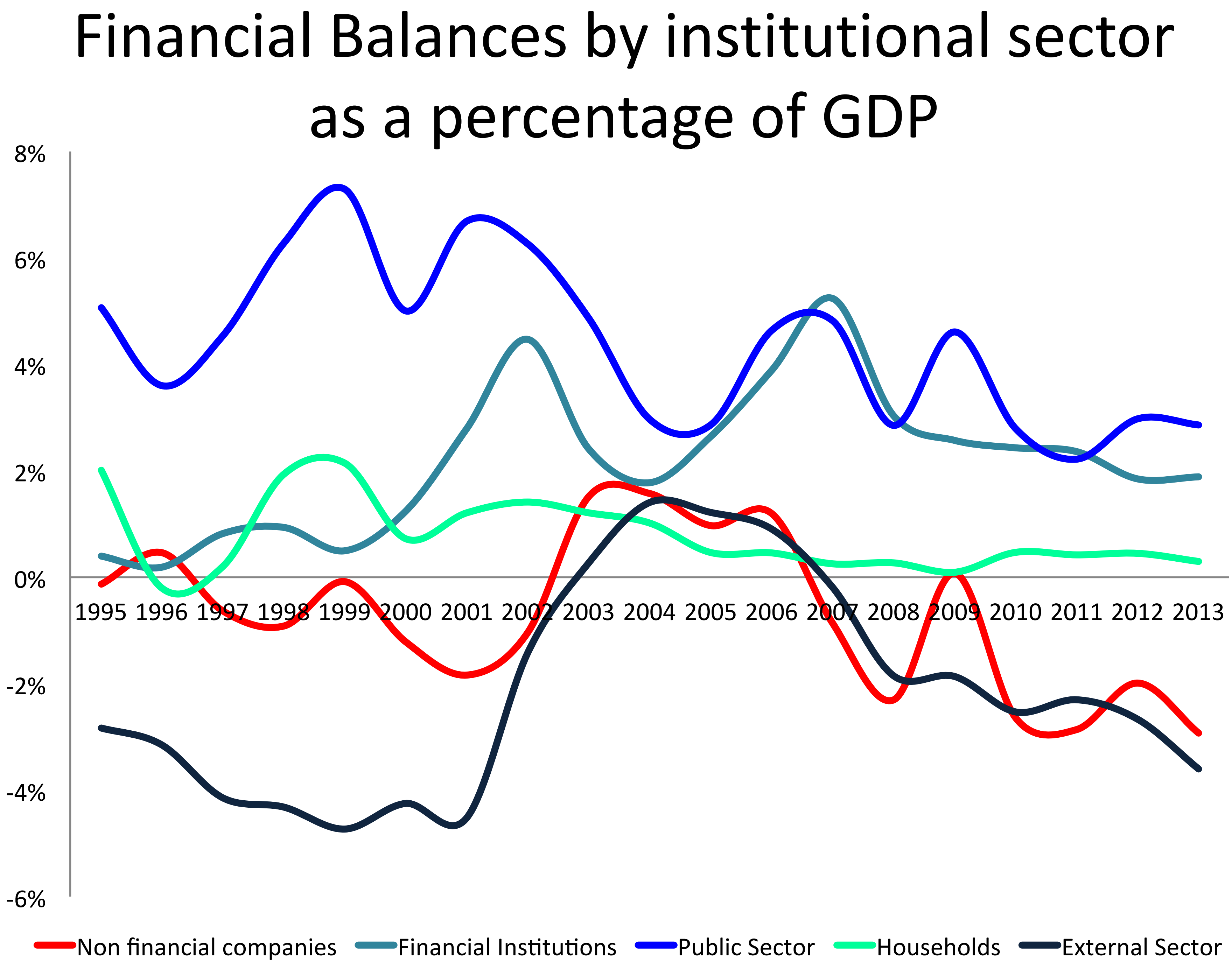
- We can subdivide the non-government sector into the domestic private sector and the external sector. Thus, Domestic Sector Balance + Government Sector Balance + External Sector Balance = 0

Private Sector	**=**	**Public Sector**	**+**	**Current Account**
Surplus		Deficit		Surplus
(S-I)		(G-T)		(X-M)

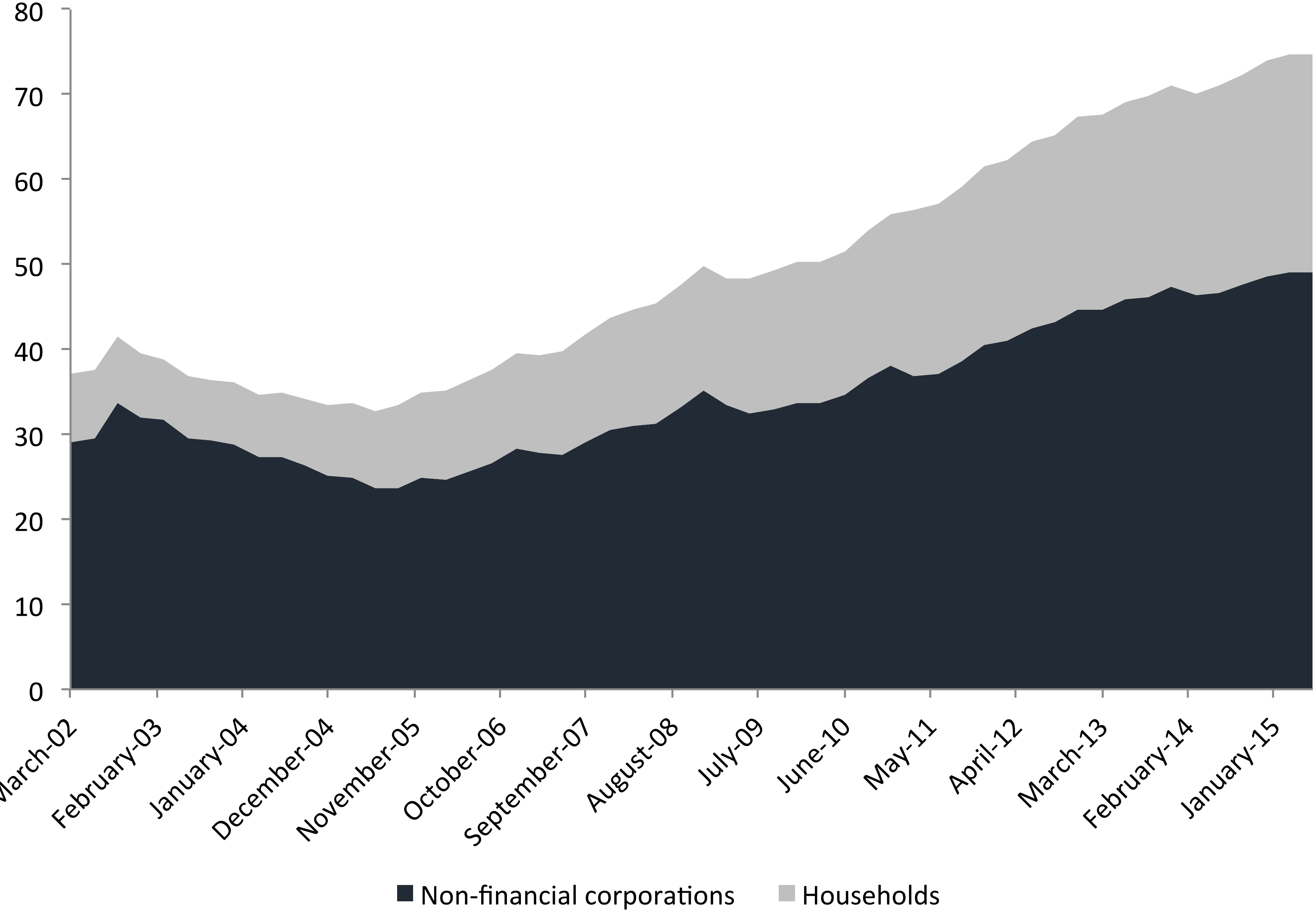
- Government deficit spending adds to the non-government sector's net financial assets.
- If the non-government sector desires to run surpluses, the government sector must run a budget deficit.

Sectoral Financial Balances in the Brazilian Economy

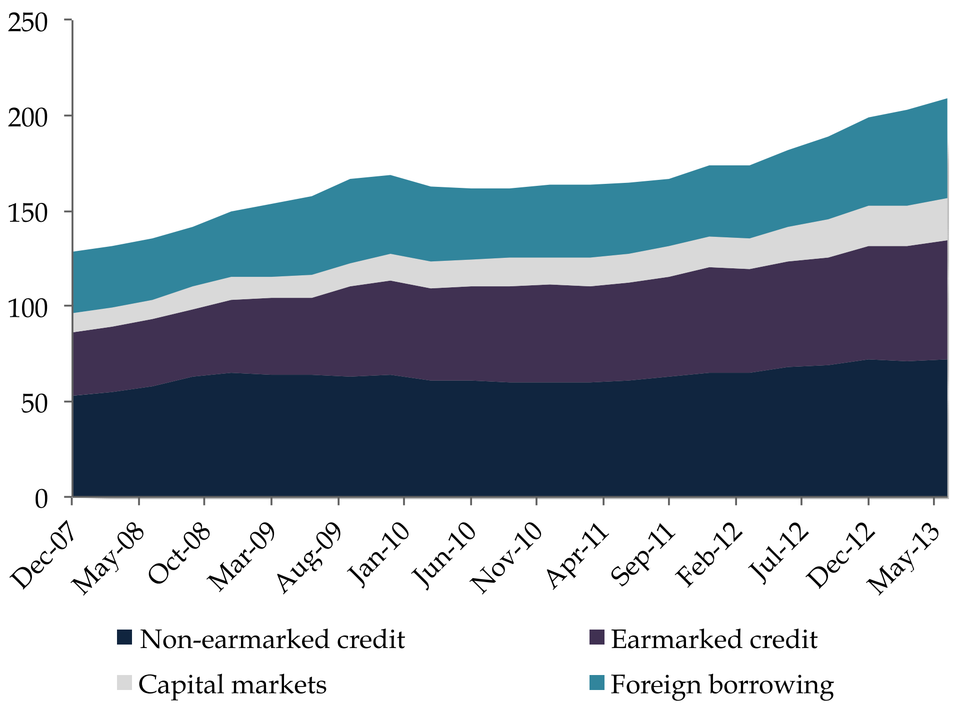


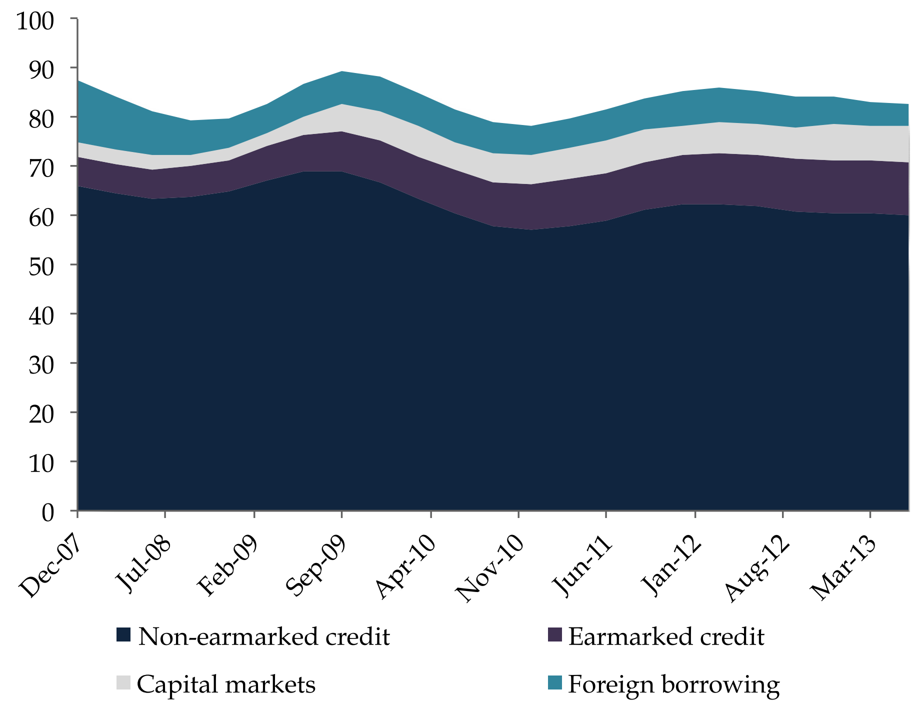

Financial Balances by institutional sector as a percentage of GDP
8%
6%
4%
2%
0%
-2%
-4%
-6%
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
Non financial companies
Financial Institutions
Public Sector
Households
External Sector

Private sector debt as % of GDP



Corporate indebtedness as share of gross operating surplus and debt service ratio



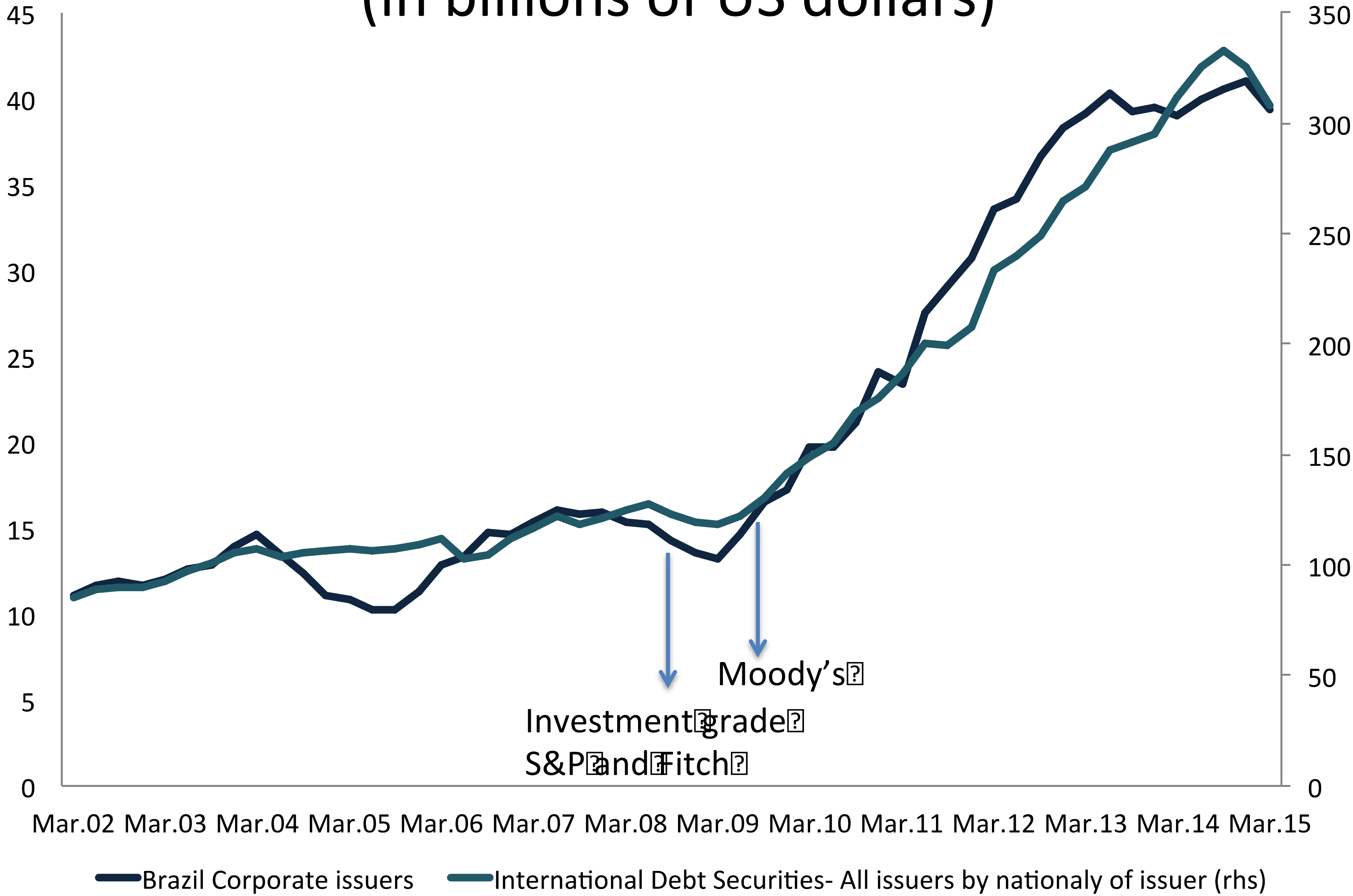


Endemic financial fragility, Reliance on external finance, and structural adjustment policies

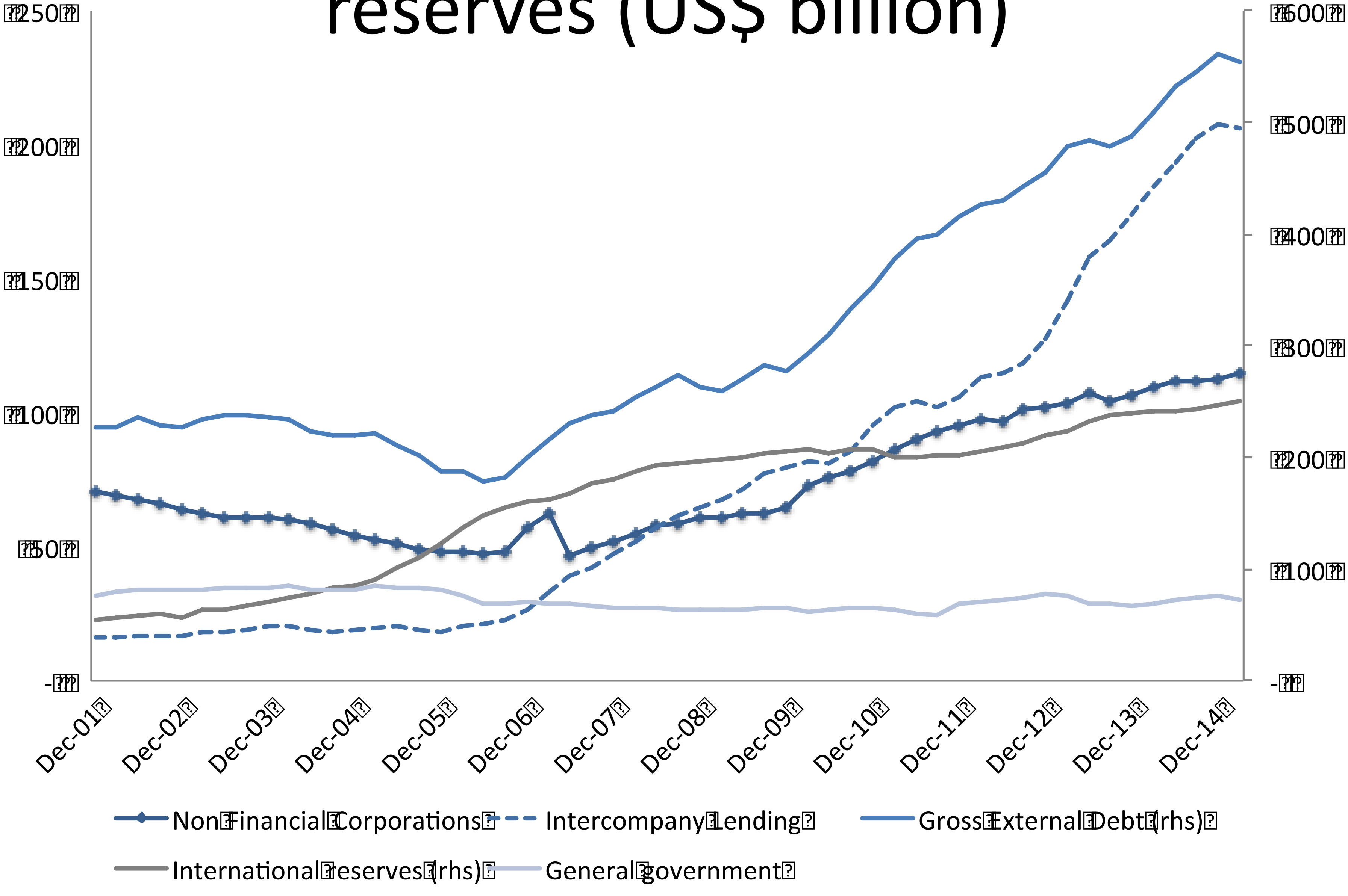
Similarities to “Washington Consensus” Crisis

structural adjustment policies financial crisis

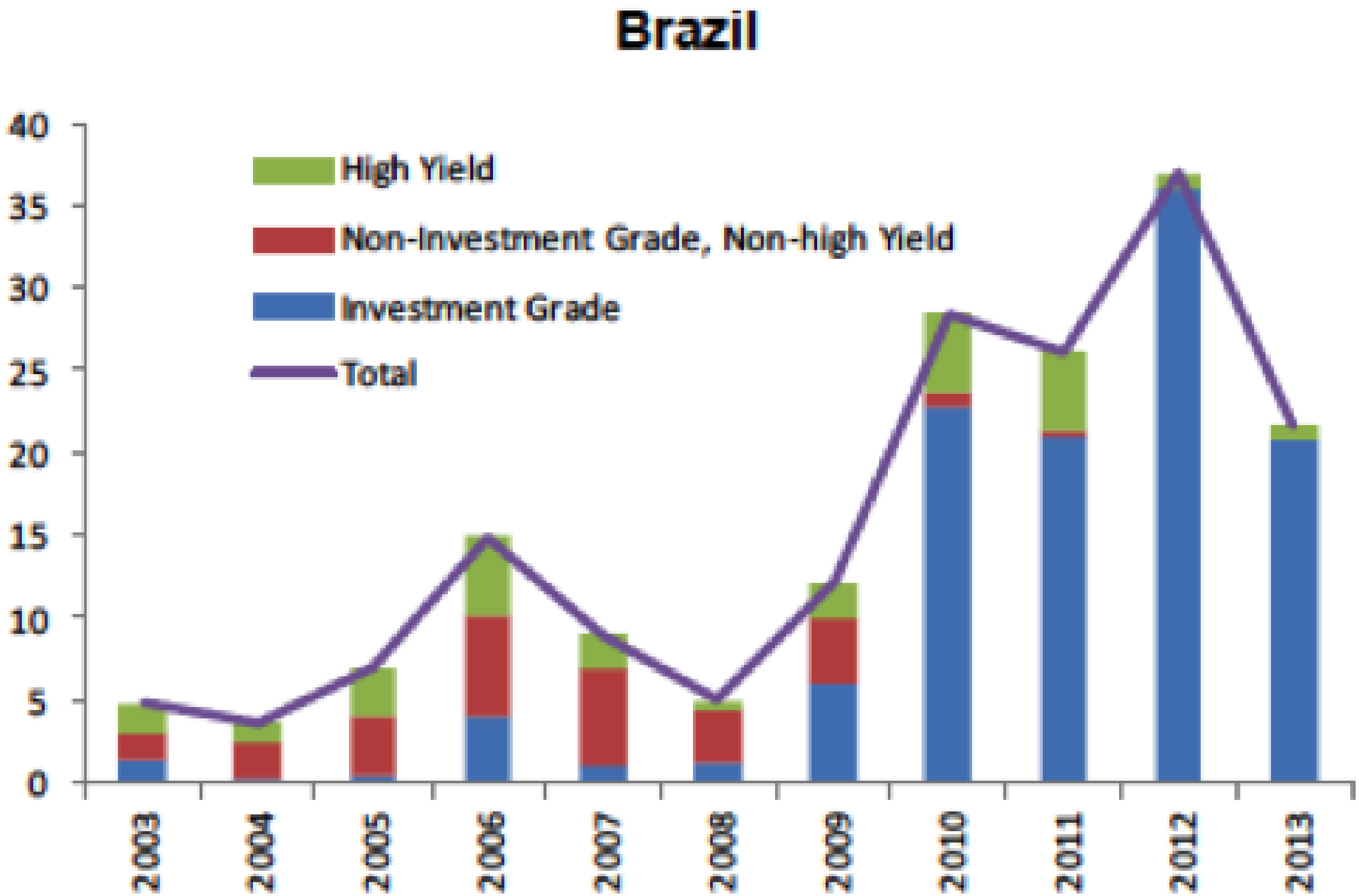
Brazil: International debt securities outstanding (in billions of US dollars)



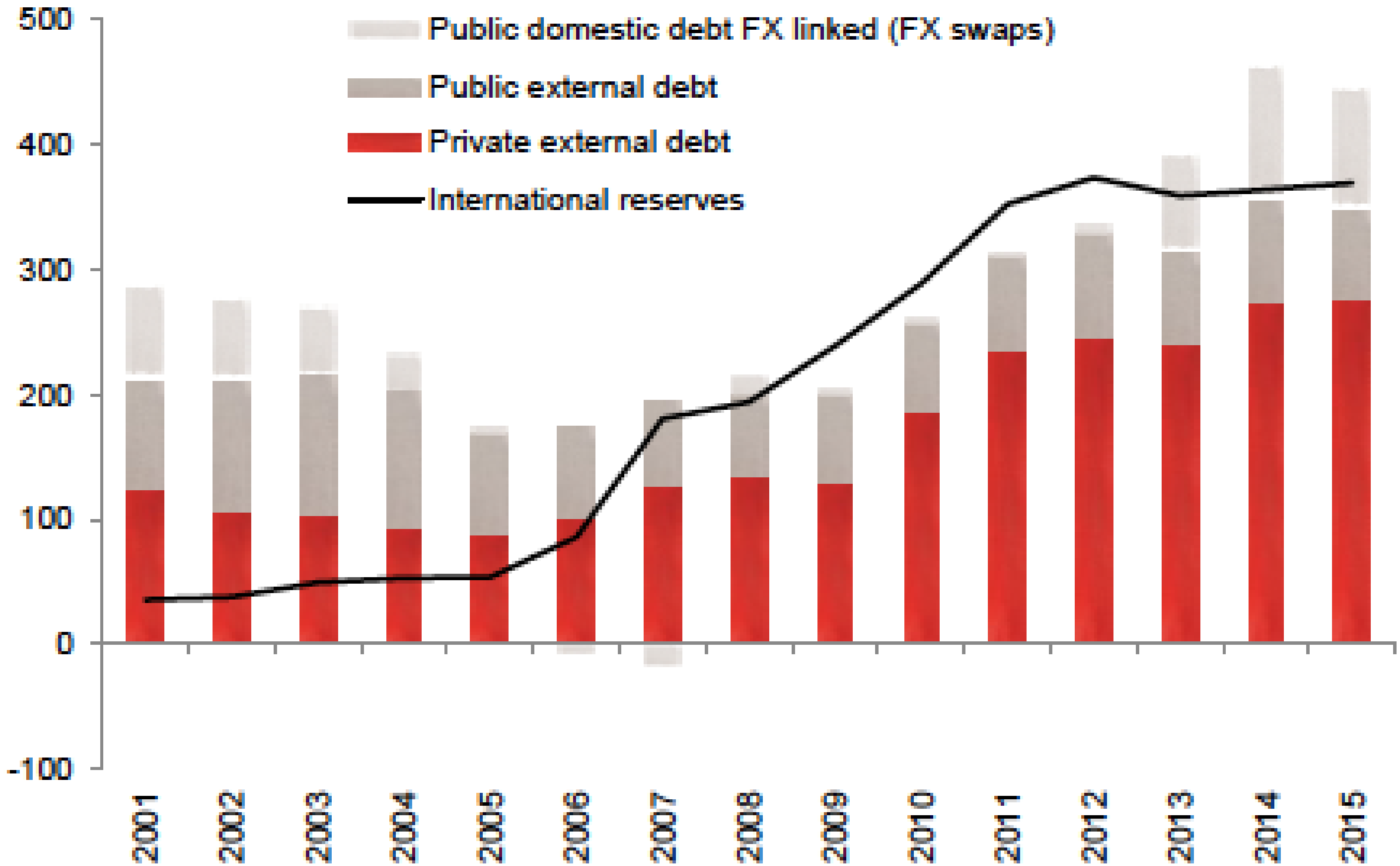
Brazil's external debt and international reserves (US$ billion)



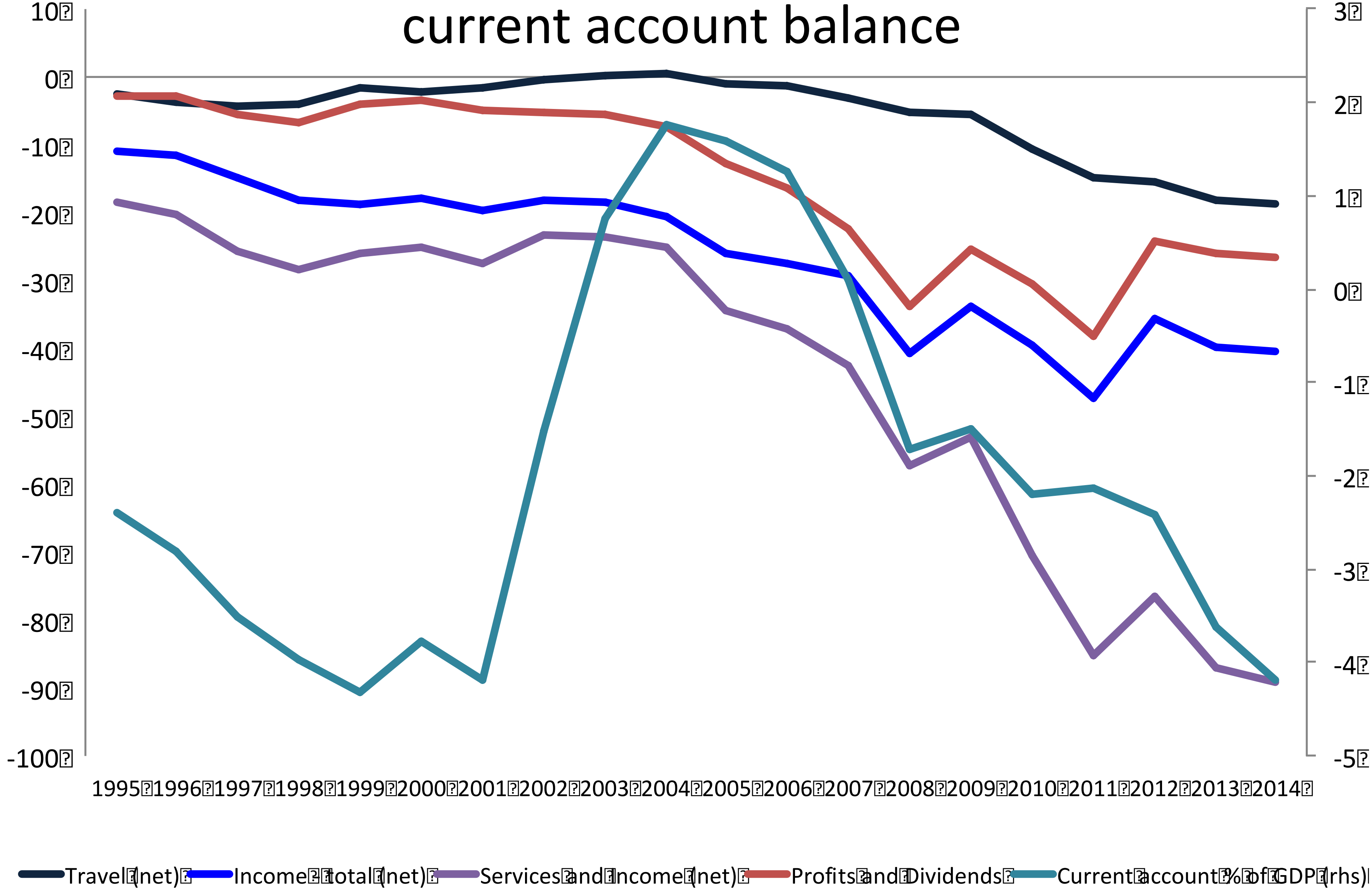
Non-financial companies debt issuance by issuer's rating grade (US$ billion)



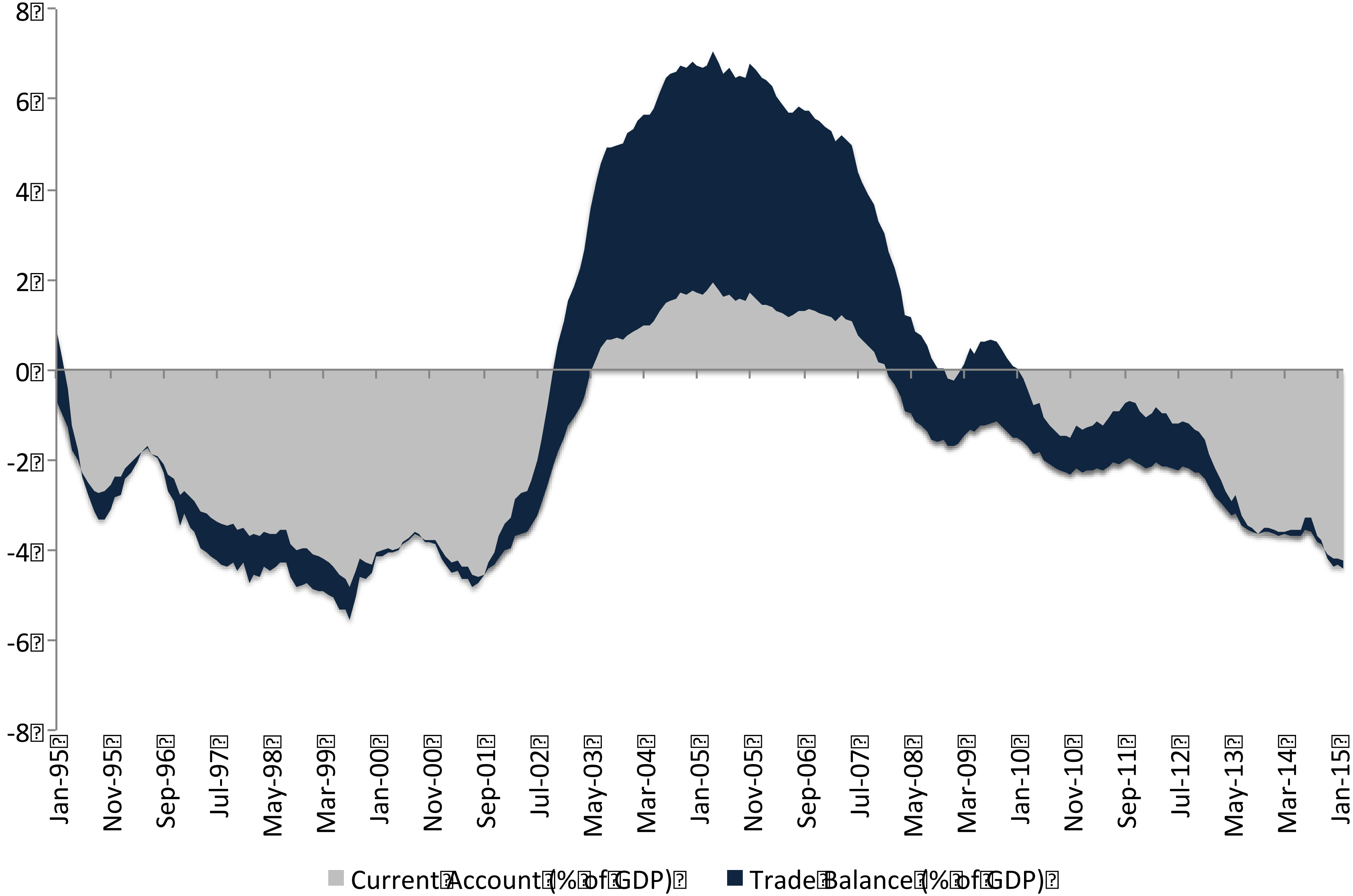
Public and Private external debt and international reserves (USD billion)



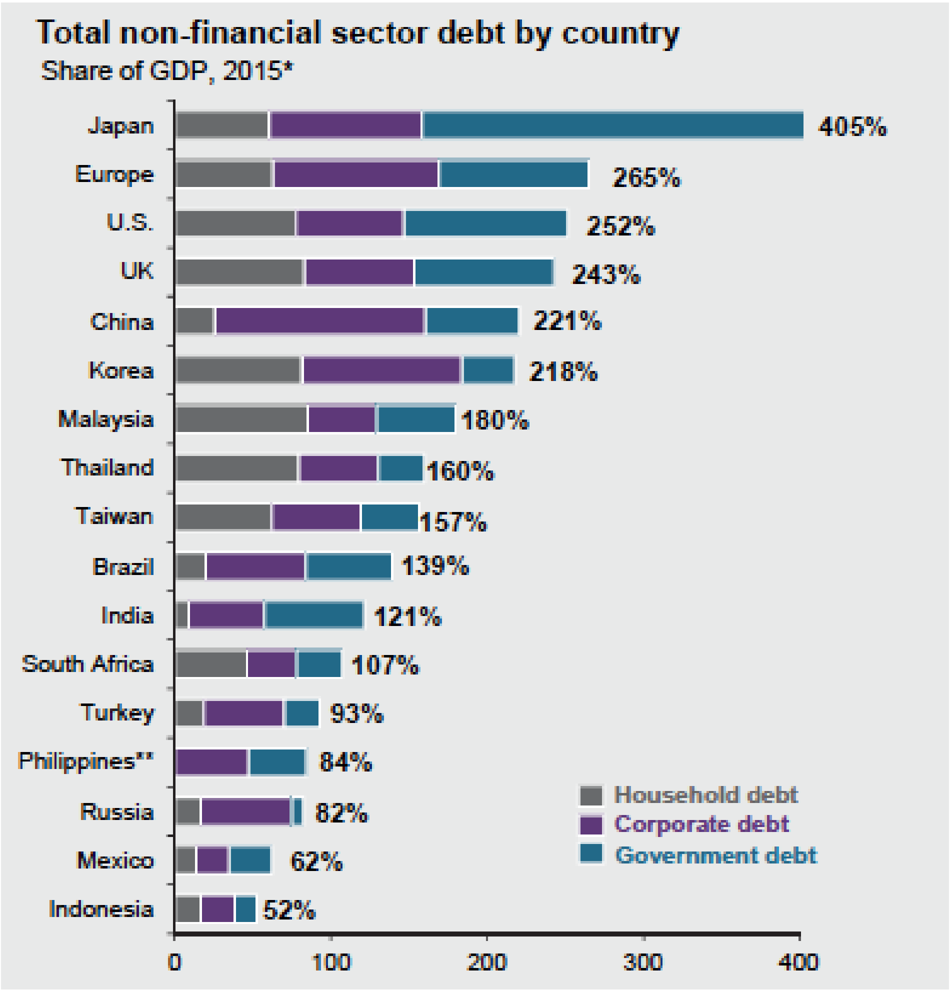
Negative net transfer of resources: Factor services account balance (US$ billion) and current account balance

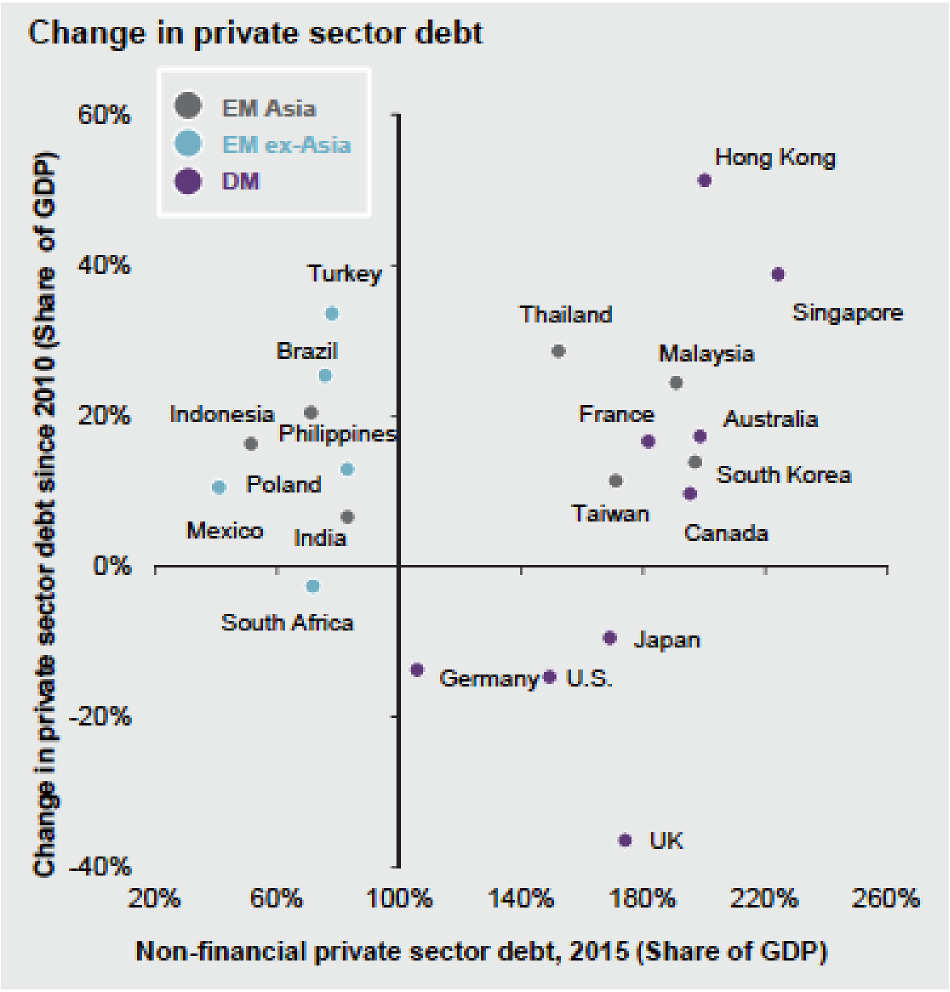


Current account and trade balance (% of GDP)



Total non-financial sector debt by country (% of GDP)





Where do Profits Come From?

- **<u>At the macro level,</u>** profits are created. **Kalecki-Levy's profit equation**:
  - **Aggregate Profits= I + Gov_{Def} - S_w + C_p+ NX**
- Minsky's model: today's investment decision validates past investment decisions, but investment today is only forthcoming in anticipation of future profits.
- **<u>At the micro level,</u>** firms compete for profit flows. If we expand the return on equity formula then we get the following:

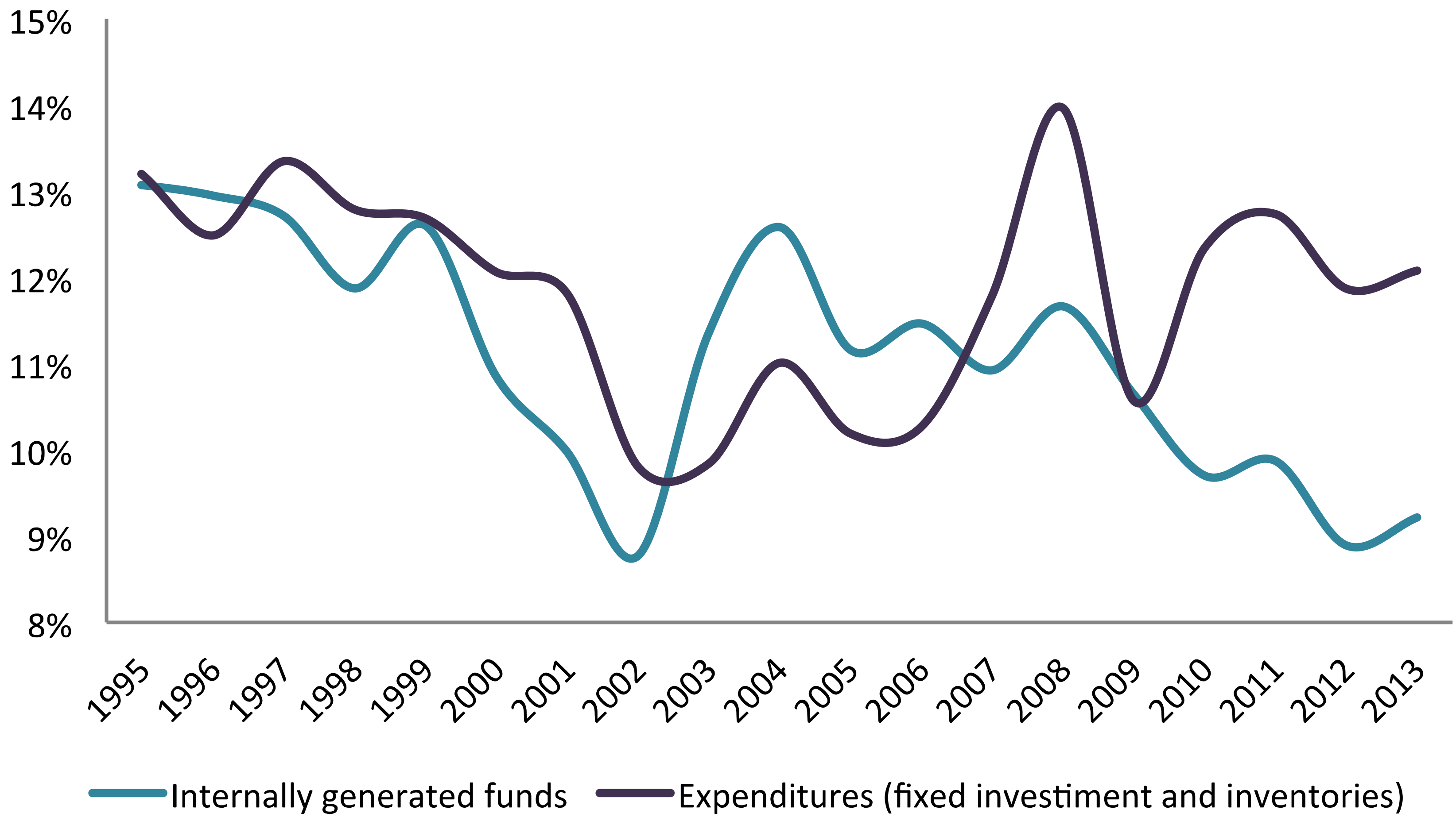
Return on Equity (ROE) = (Profits / Equity)

- **ROE = (Profits / Assets) x (Assets / Equity)**, where (Assets / Equity) = leverage and Return on Assets (ROA) = (Profits / Assets). If we expand the return on assets formula we get the following:

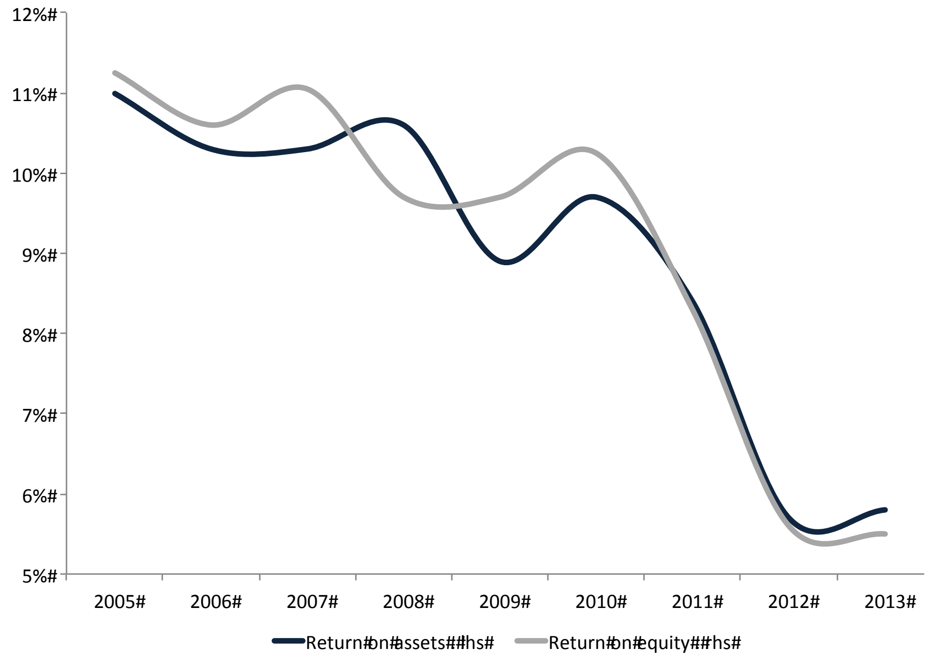
Return on Assets = (Profits / Assets) = (Profits / Revenues) x (Revenues / Assets)

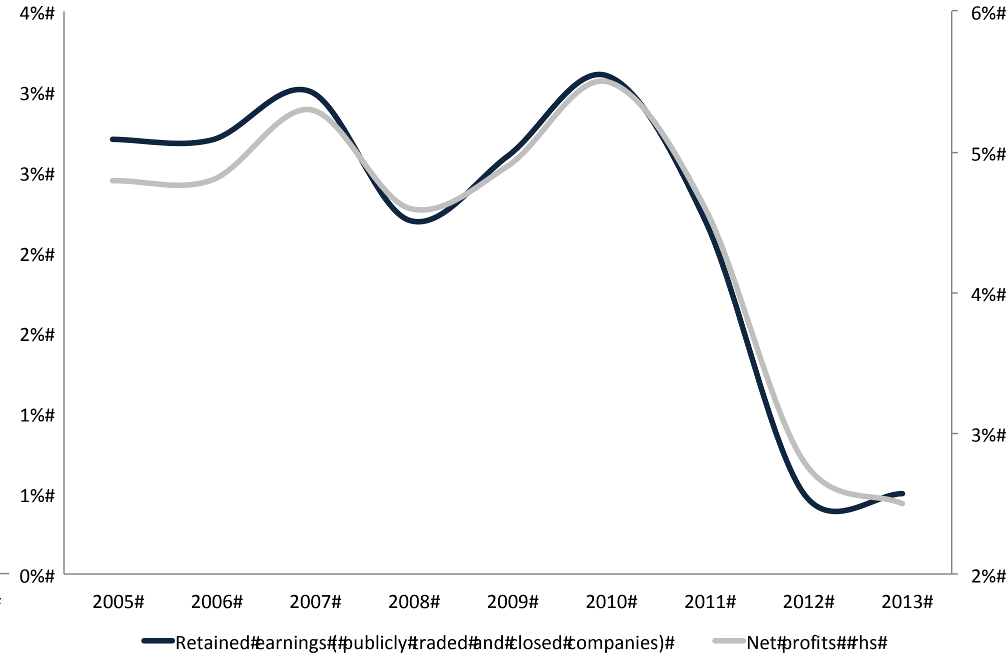
- Falling profits caused the sharp decline on returns on assets, which given leverage rations, reduced ROE.

Corporate sector balance as % of GDP Ponzi financial profile since after 2007



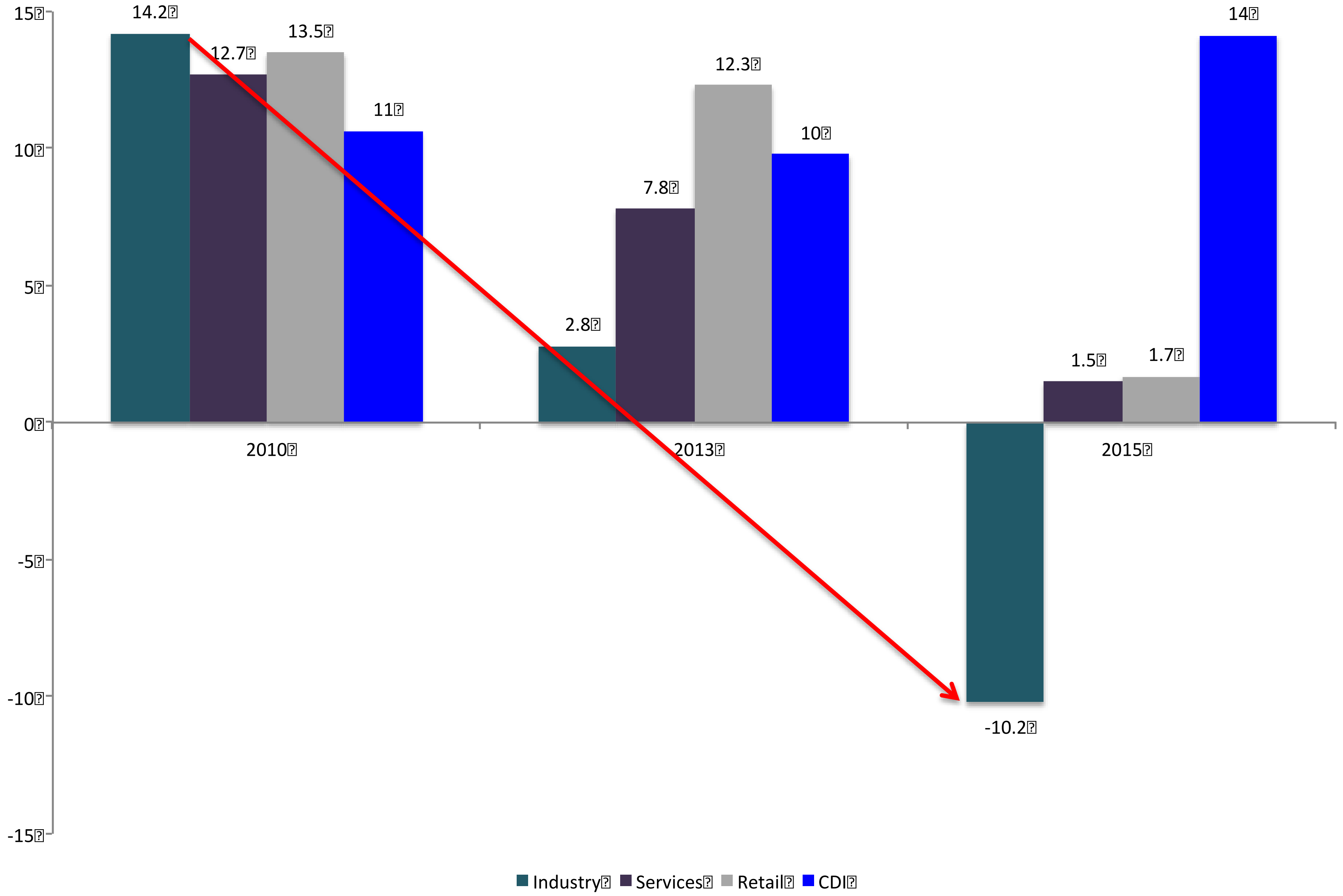
Publicly traded and closed companies profits and profitability



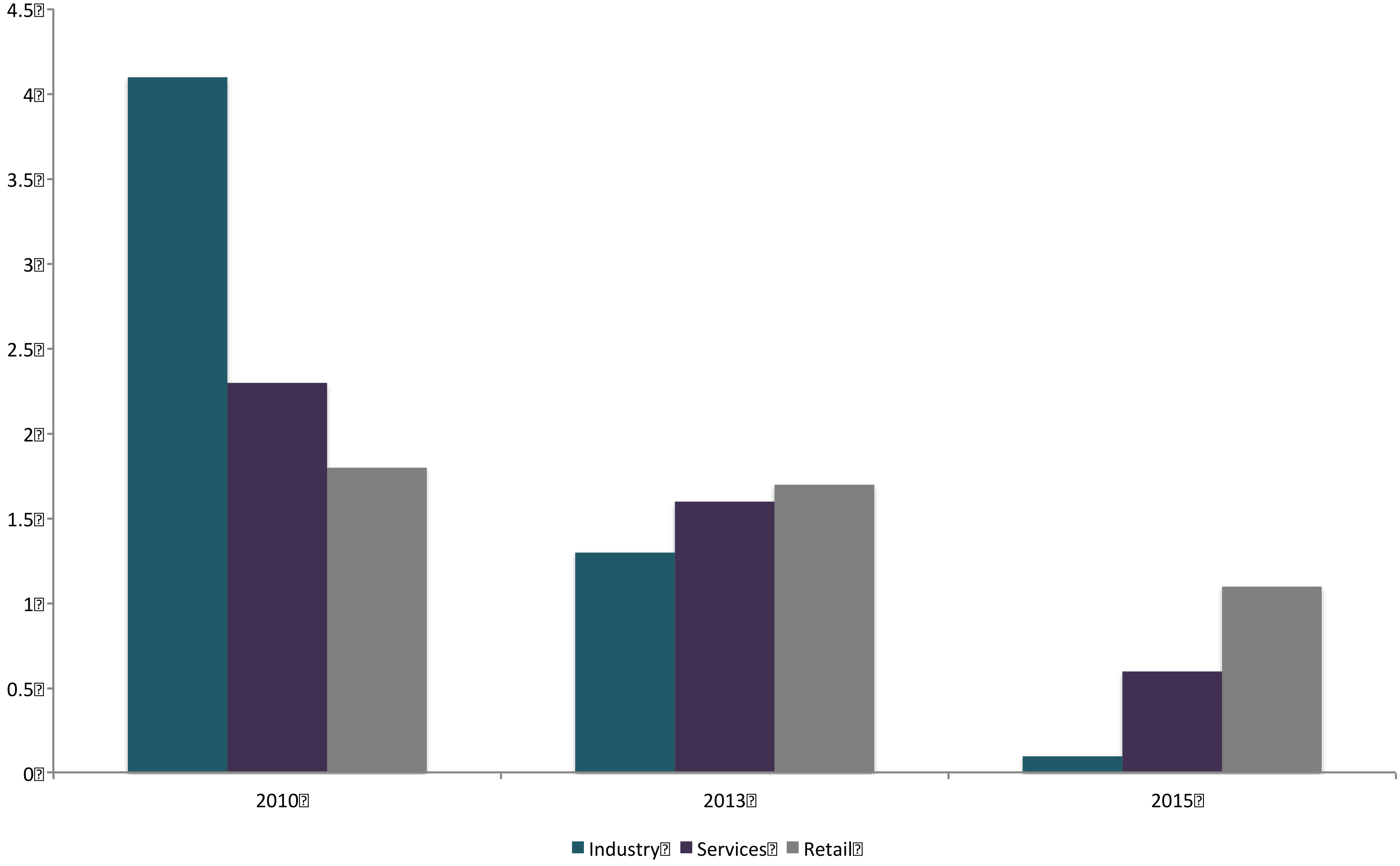


- negative influence of current account deficits on profits, it decreased corporate profits by a substantial amount.

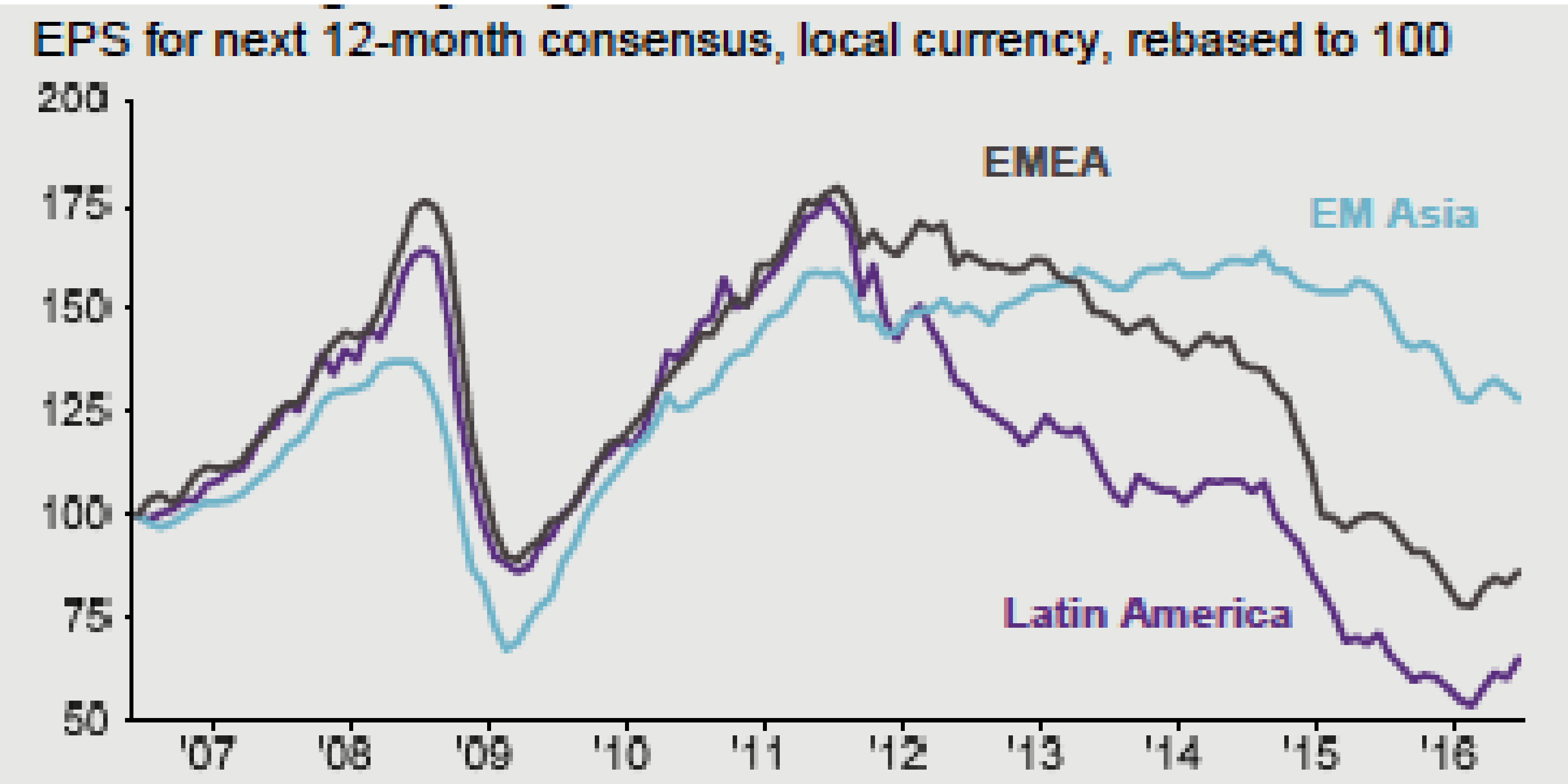
ROE by sector and CDI



Earnings before income taxes (EBIT) over financial expenses



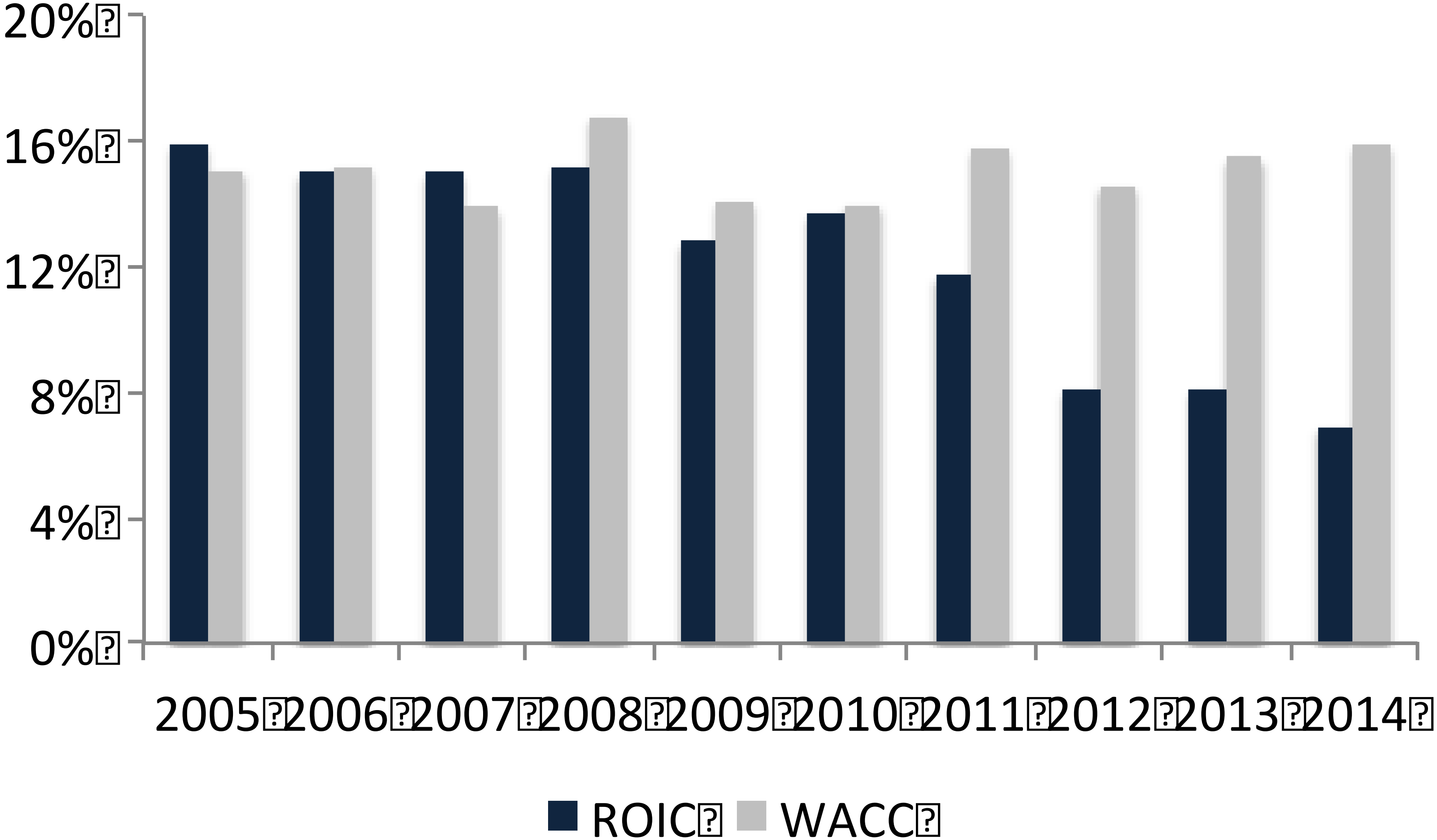
Emerging markets earnings by region



Where do Profits Come From?

- The combination of rising current account deficits, slowdown in investment growth and budget deficits took a toll on corporate profitability.
- Note that during this period worker's saving was positive (average of 0.3% of GDP from 2007-2013), which also put a downward pressure on profits.
- But, the massive increase in government deficit spending in 2015 added to agg. profits.

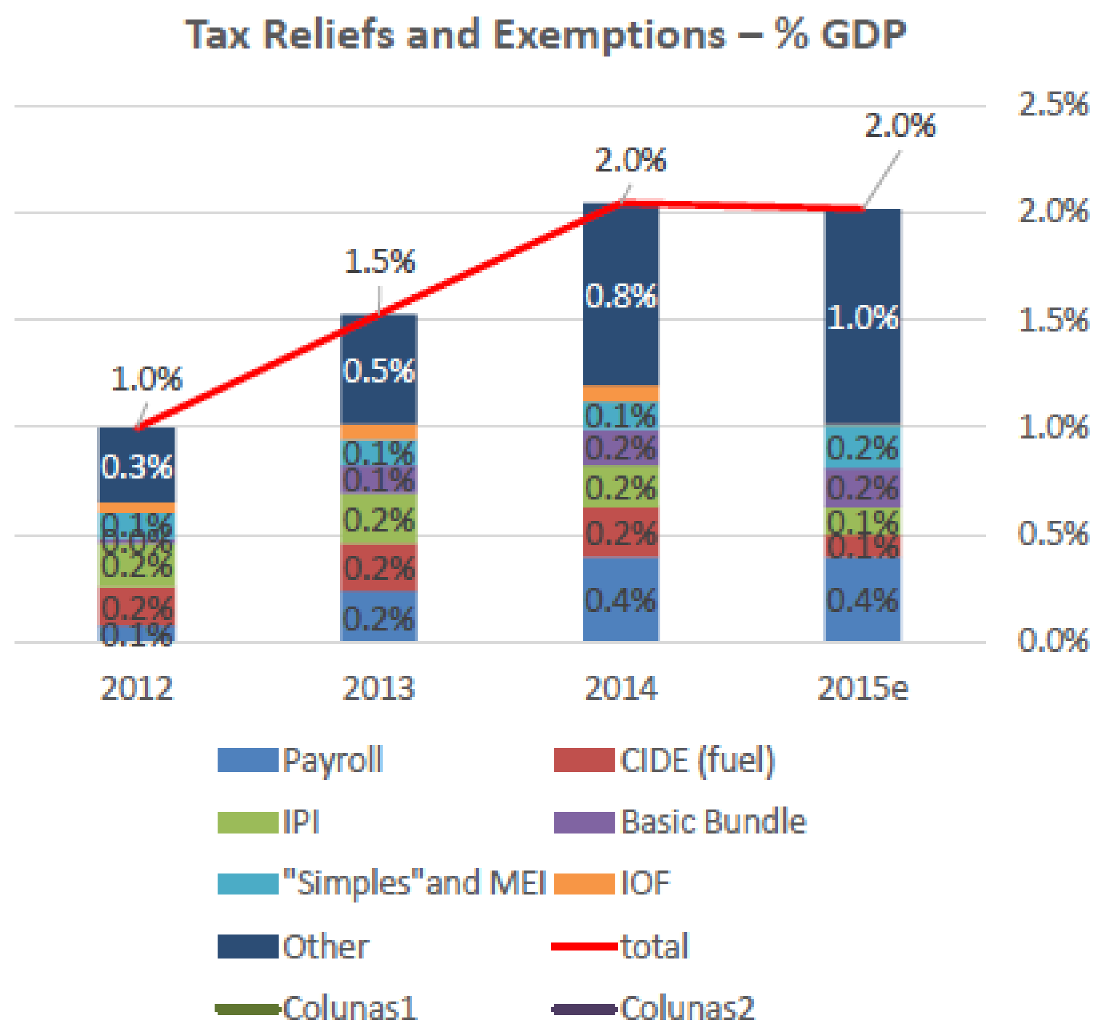
Return in invested capital and WACC
Keynes: Inv. driven by NPV



What did Brazil do?

- Government policies aimed at (only) reducing the supply price of capital. It failed to increase the demand price of capital, that is, the present value of the discounted expected future cash flows (net proceeds) of an investment project.
- In Keynes model, NPV of an investment drives investment.
- The appropriate policy response should have stimulated the demand price (by increasing it) AND the supply price (by reducing it).
- Policy should be designed to supporting domestic demand and reducing firms' borrowing costs.
- BNDES' policies prevented firms that were still in the speculative stage from shifting from speculative firms to Ponzi firms. It contributed to lower the supply price

Fiscal policy: Ad hoc tax reliefs and exemptions



Source: MoF

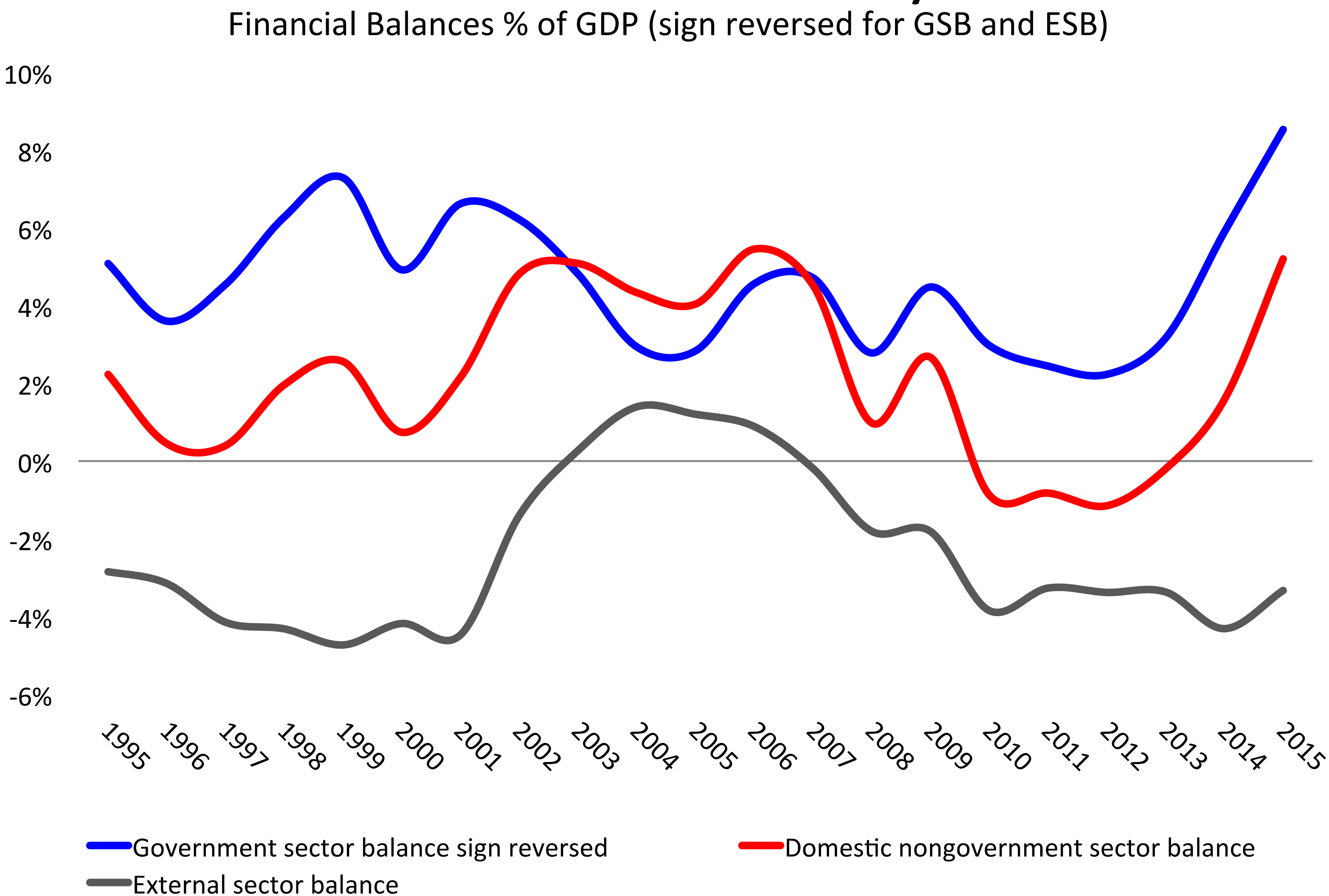
Traditional Response to a Minsky Crisis

- Government deficits to allow the non-government sector to net save
- If the private sector desire to net save increases, then fiscal deficits increase to allow it to accumulate net financial assets, that is :
  - $(S – I)_d$ ￼ $(G – T)$
  - By doing this the government acts in a responsible manner. It allows the the public to hold safe financial assets.
- Rezende (2014):

simulated a scenario in which we have rising government deficits to offset current account deficits, to allow the domestic private sector balance to generate financial surpluses. In this case, in the presence of current account deficits equal to 4% of GDP, to allow the private sector to net save 2% of GDP, it would require government deficits equal to 6% of GDP. If the private sector is going to save 5% of GDP (equal to the 2002-2007 average pre-crisis) and a current account deficit equal to 4% of GDP then we must have an overall government budget in deficit equal to 9% of GDP. Given the current state of affairs (that is, in 2014), government deficits of this magnitude might be politically unfeasible right now.

- Government deficits to support incomes (employment, cash flow, and portfolio effects)
- CB acting to support asset prices. Not really a financial sector crisis but Brazilian security prices were impacted. BCB decided not to act. Treasury had intervened occasionally to stabilize securities prices.

Sectoral Financial Balances in the Brazilian Economy



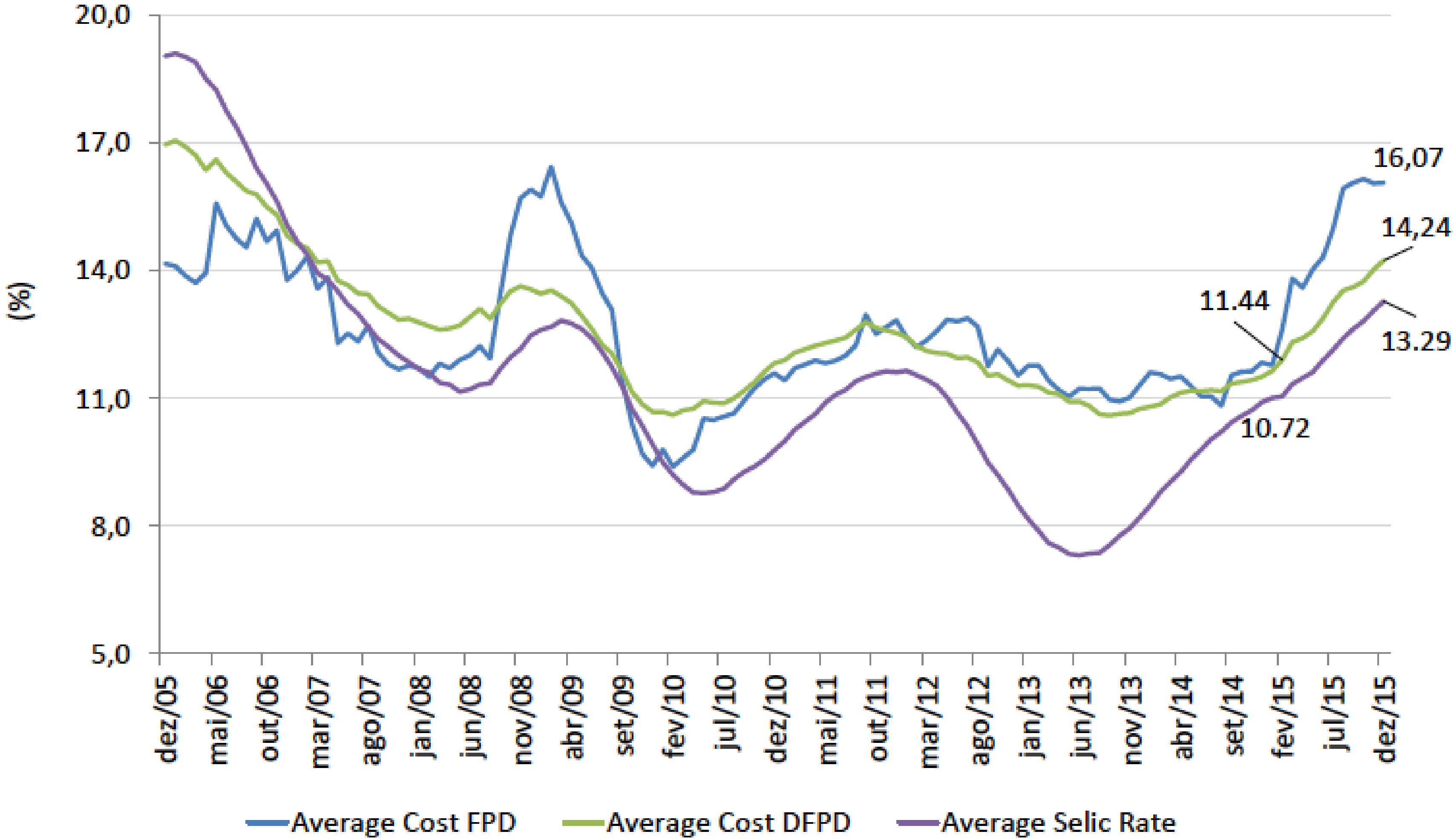
The Minsky moment

- Budget deficit shock
- Yield curve shock
- FX shock
- Credit crunch
- CDS shock
- Incomes fell
- Employment and production fell
- Worst crisis since the Great Depression!

A traditional Minsky-Fisher debt deflation process

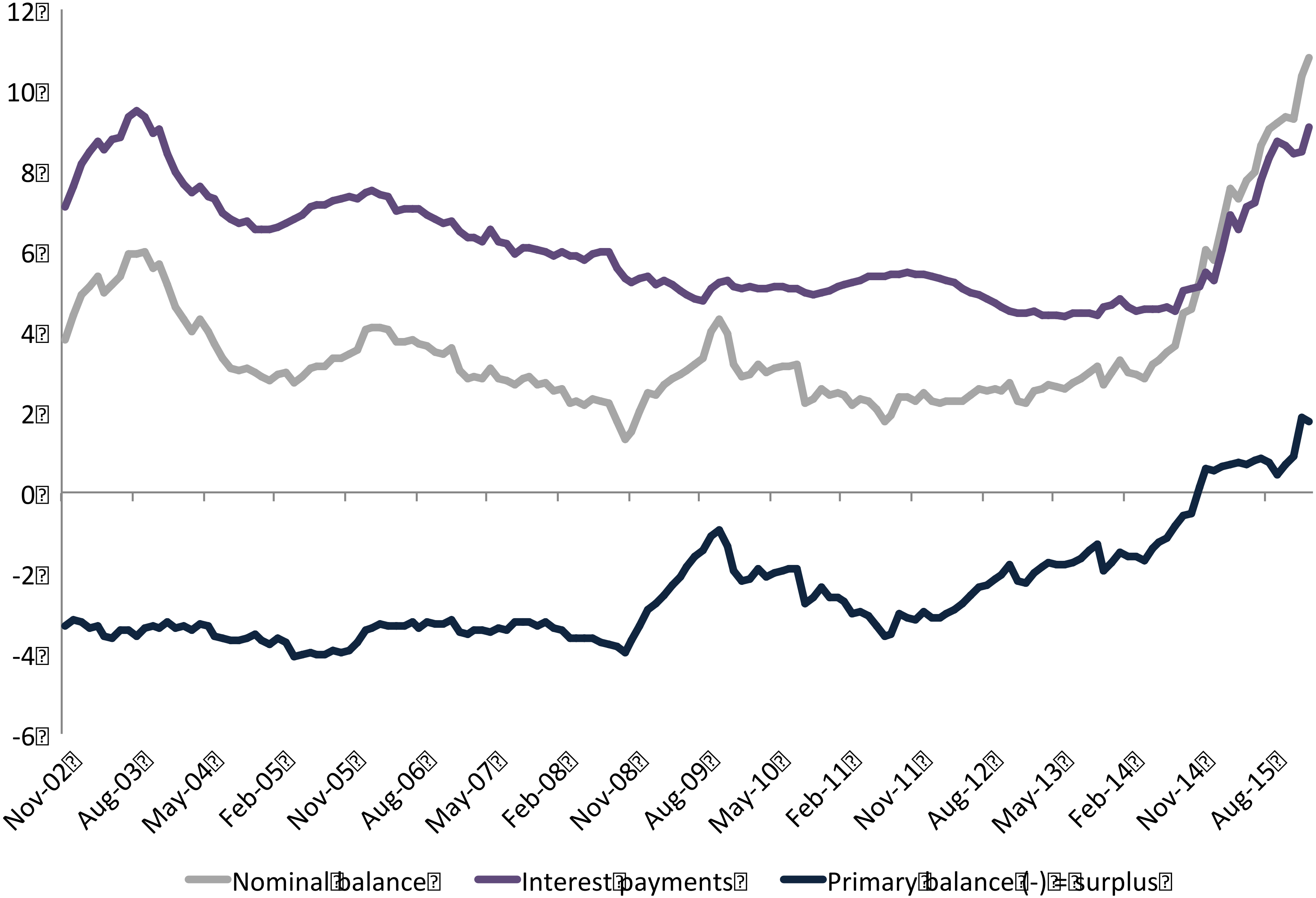
- Quintupling of the budget deficit: Brazil’s budget deficit increased from 2.0% in 2008 to 10.3% in 2015.
- Rising interest rates on Brazilian debt. Collapse in the value of Brazilian debt in investors’ portfolios.
- Investors demanded higher interest rate spreads, which put additional pressure on securities prices.
- However, demand for govt. securities in 2015 was highest in 8 years!!
- Brazil's fiscal deficit is due primarily to interest payments

Evolution of the DFPD Average Cost of Debt (accumulated rate in 12 months)

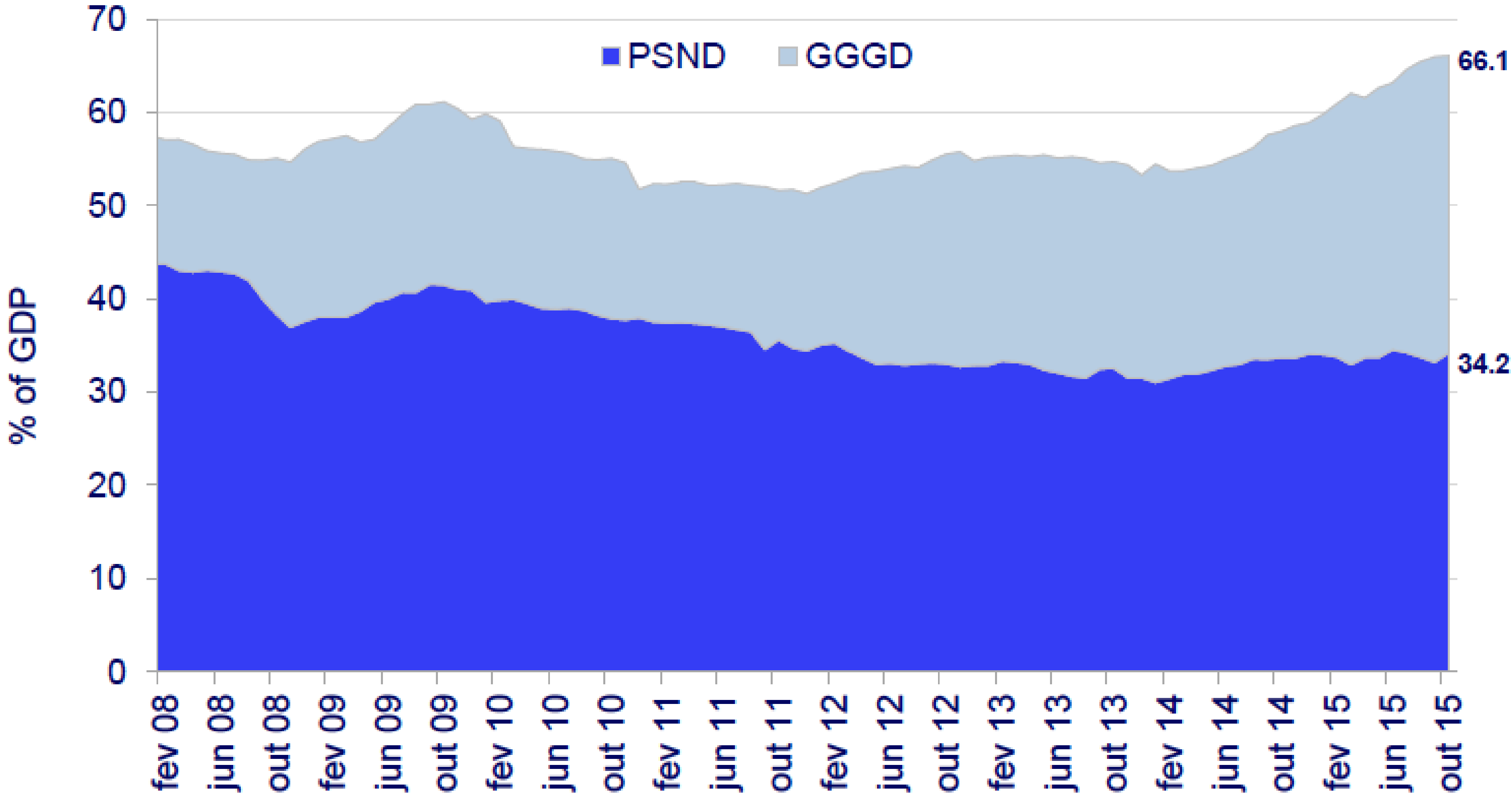


Source: National Treasury and Central Bank

Government balance % of GDP



Public Sector Net Debt (PSND) and General Government Gross Debt (GGGD) % GDP

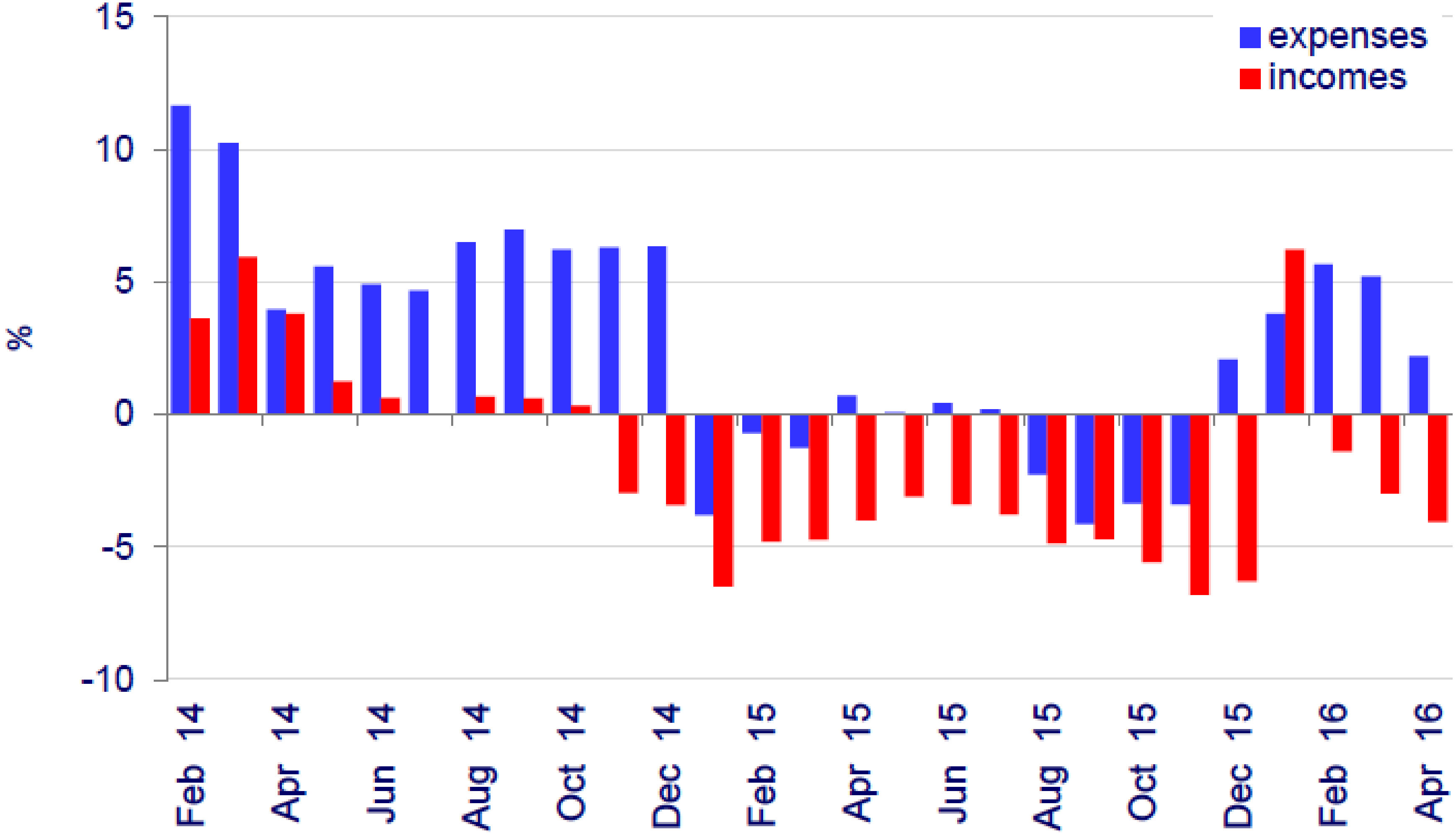


Austerity fever broke out

- Rising government deficits supported cash flows to firms. But bad composition of government budget to sustain employment. Virtually all deficit is due to interest payments.
- **Automatic stabilizers were switched off.**
- 2015: Rousseff's Fiscal Austerity to “restore confidence”
- CRAs downgraded Brazil's debt to junk status.
- The response was based on the traditional approach (structural adjustment policies) grounded on the “Washington Consensus”.
- By constraining domestic demand and keeping imports down through the imposition of fiscal austerity and tight monetary policy.
- By reducing the domestic absorption, it undermines domestic activity and creates unemployment.
- Debt crisis in Brazil’s state governments.
- Add to this a massive corruption scandal and a political crisis.
- The perfect storm.

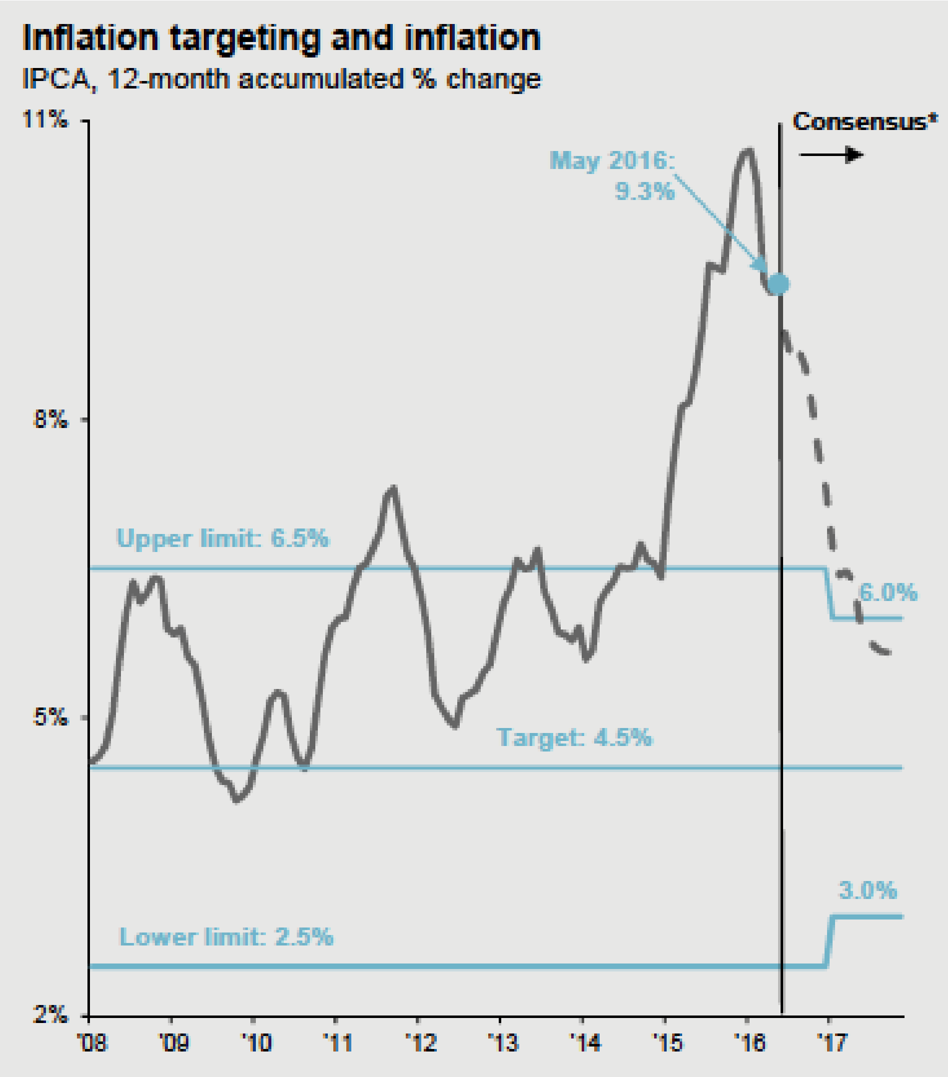
Automatic stabilizers were switched off!

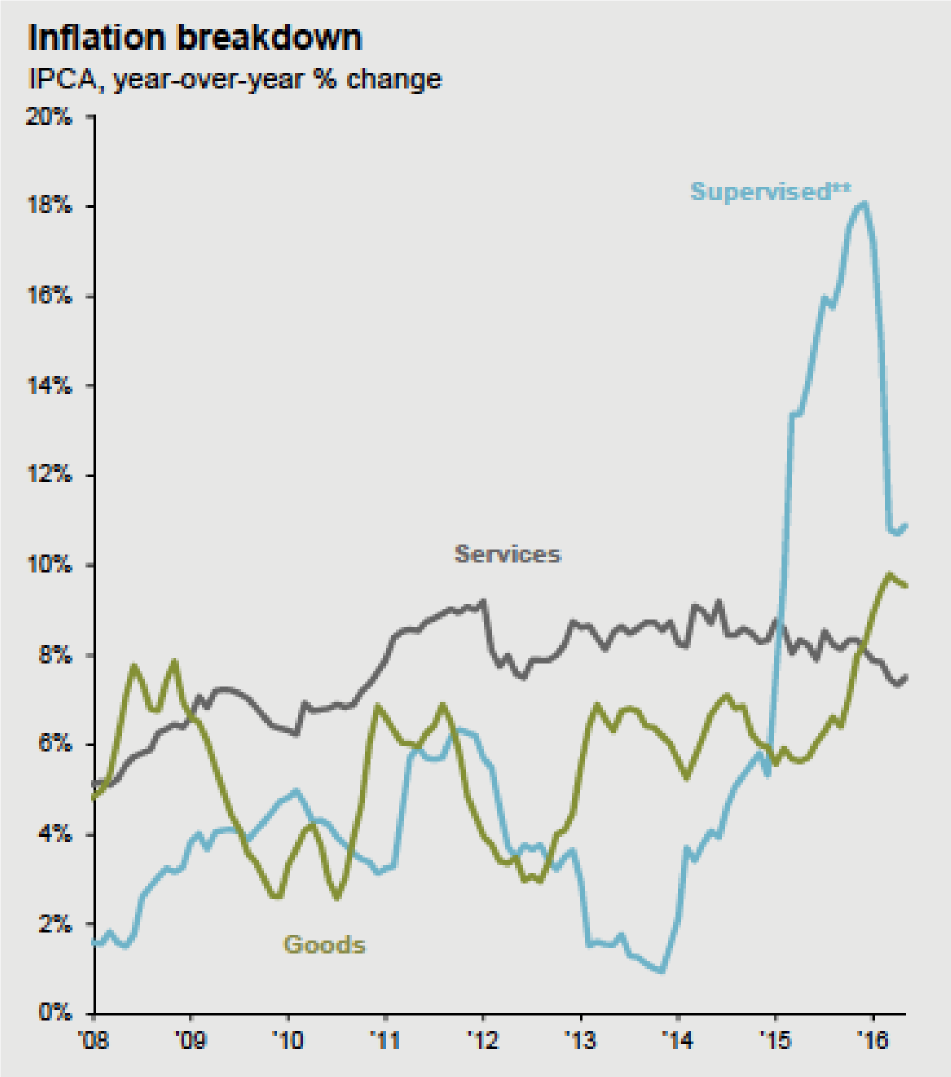
Real Growth (deflated by IPCA) of Revenues and Expenses of the Central Government



December 2015: excludes payment of liabilities (R$55.6 billion paid under Federal Court of accounts (*TCU) ruling (acórdãos* 825/15 and 3297/15)

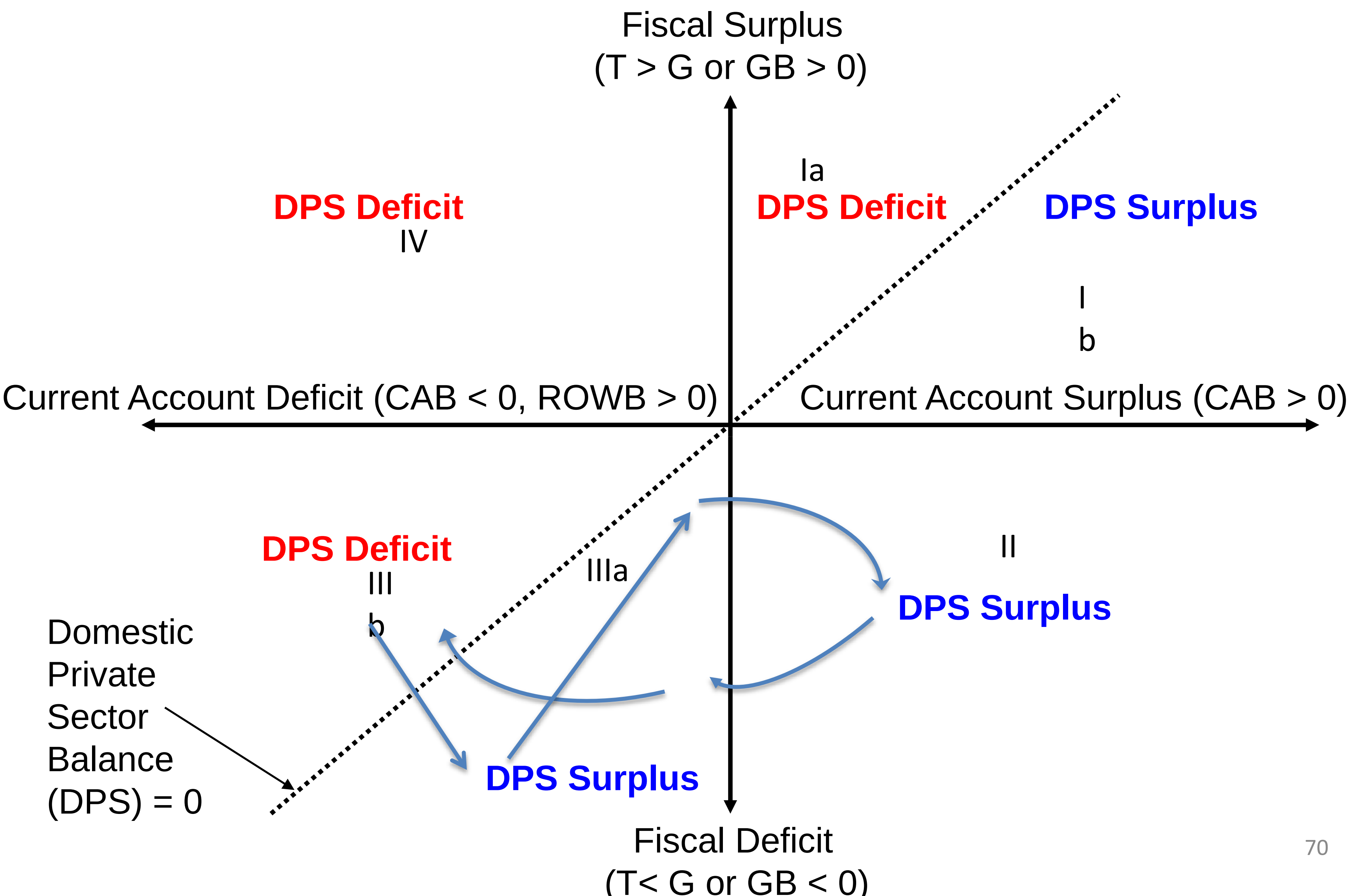
Cost push inflation

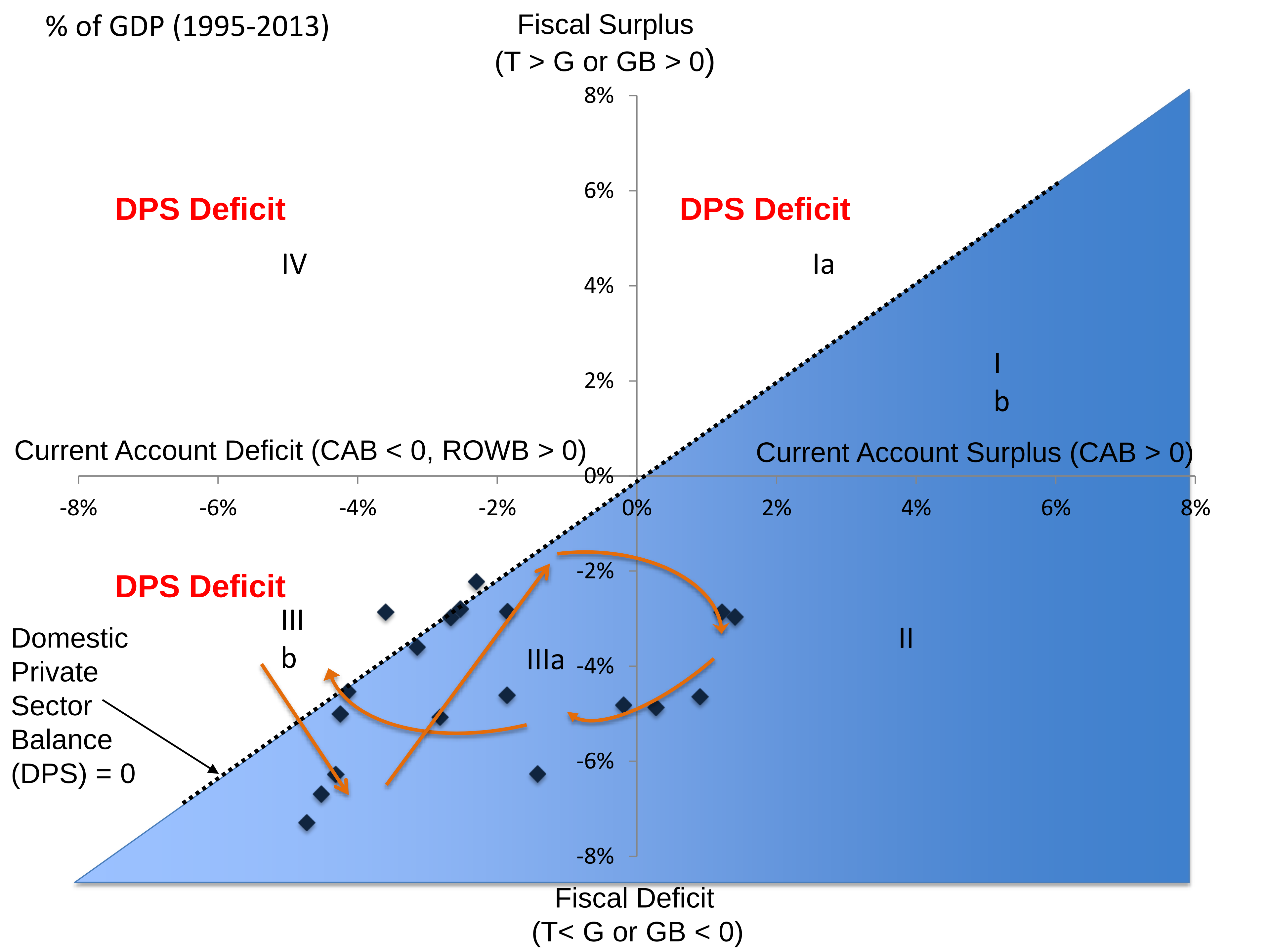




The Sectoral Financial Balances, “Washington Consensus” policies, Minsky moment, and Fiscal Austerity

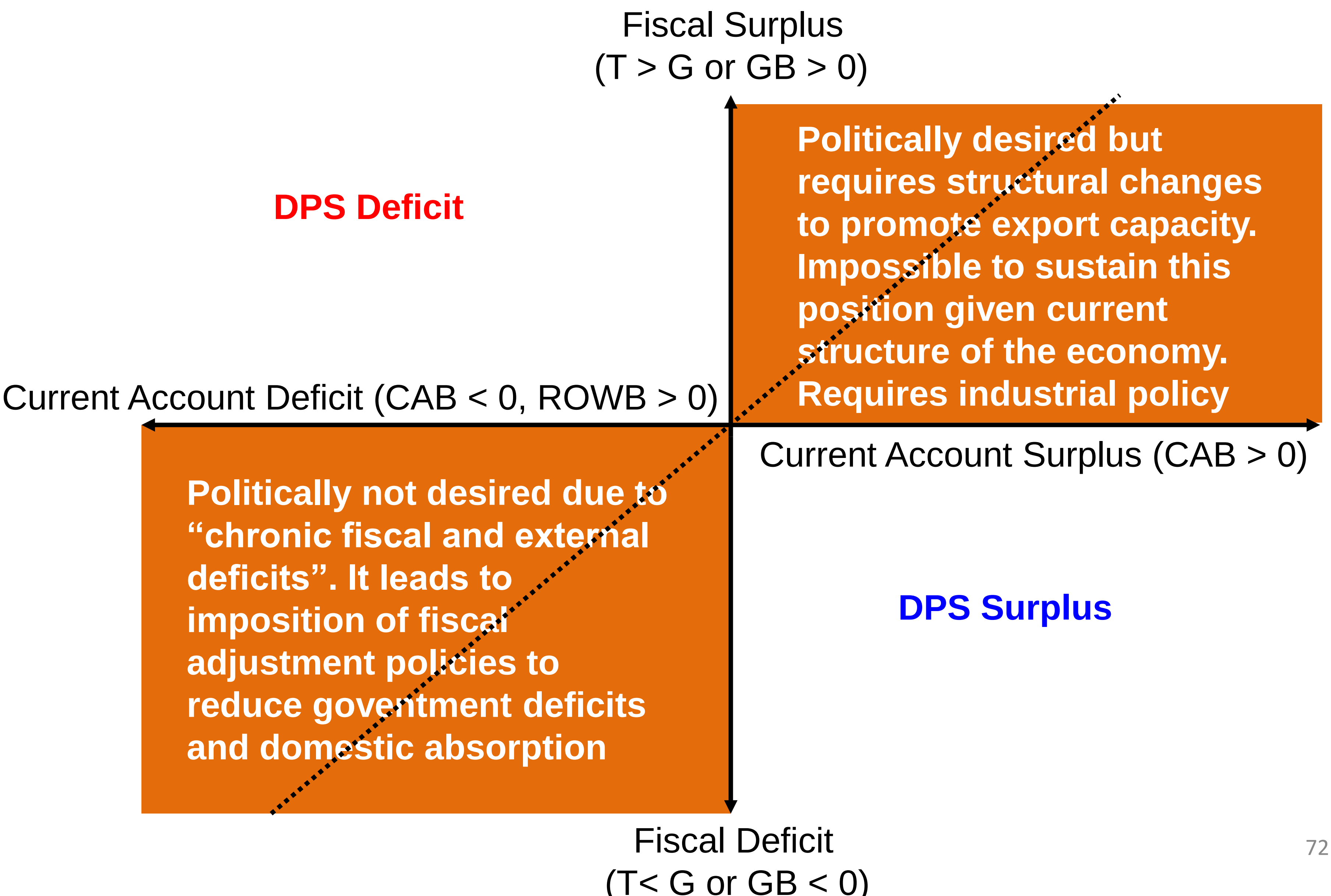
Austerity fever broke out: the imposition of fiscal austerity limits_the capacity of domestic private sector (DPS) to accumulate financial assets



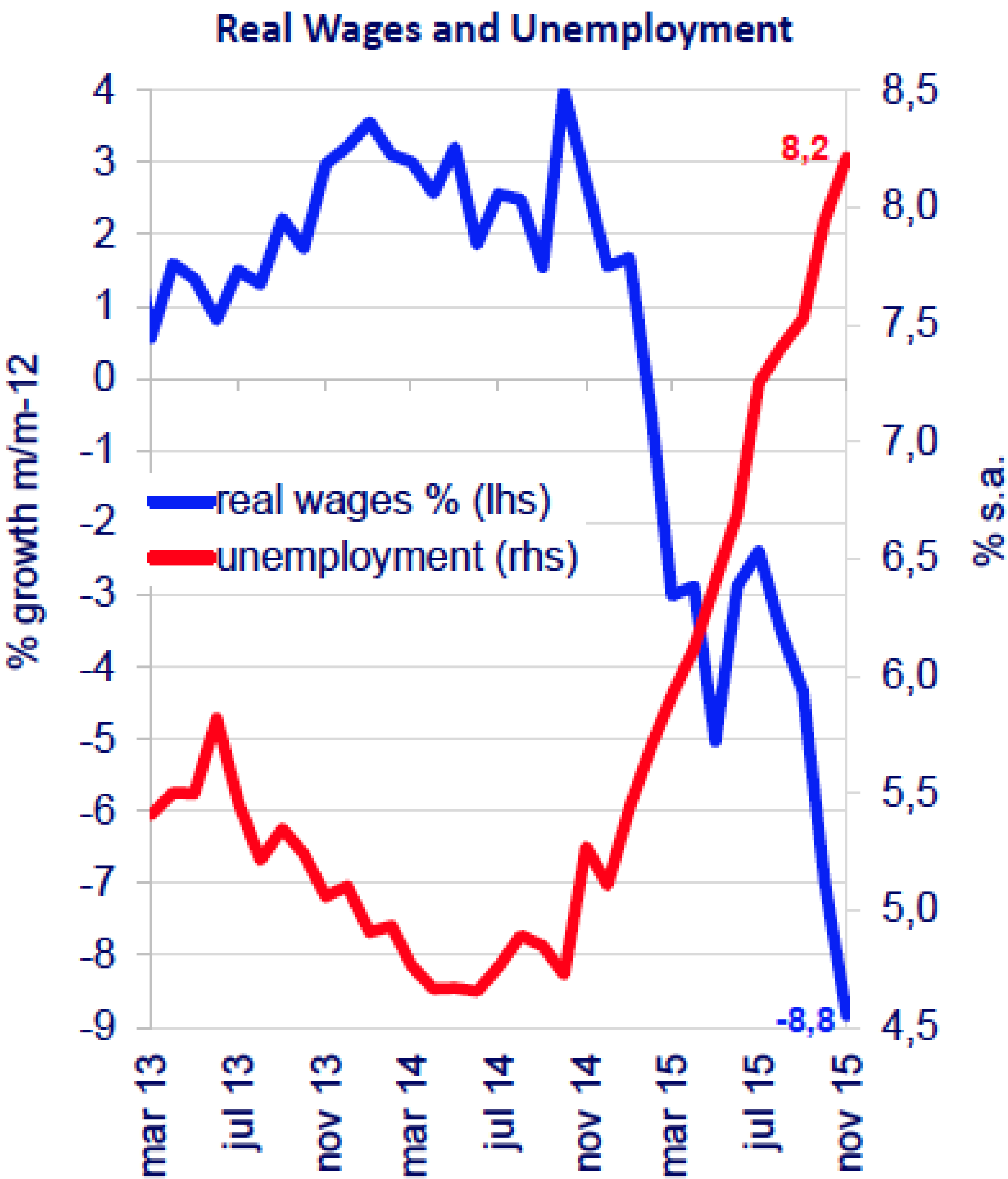


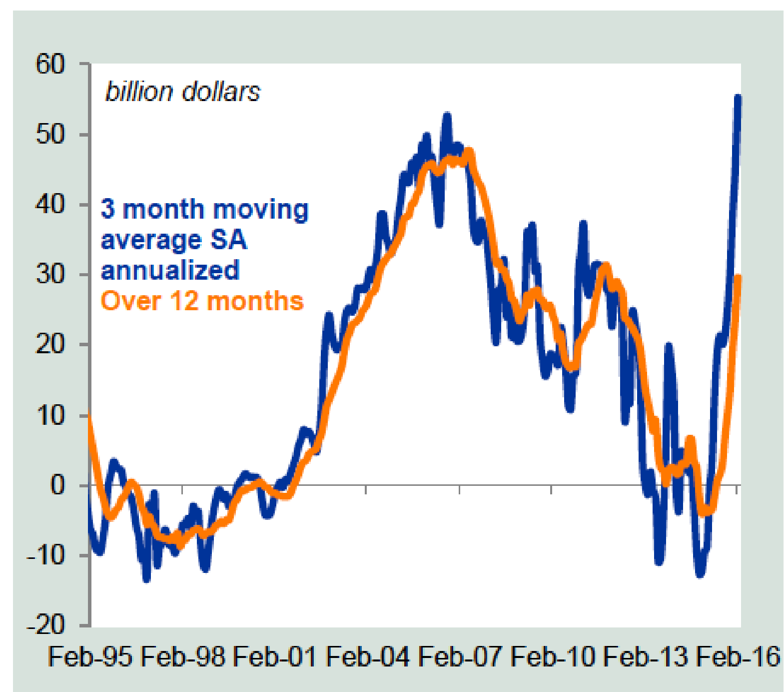
% of GDP (1995-2013)
Fiscal Surplus
(T > G or GB > 0)
8%
6%
4%
2%
0%
-2%
-4%
-6%
-8%
DPS Deficit
IV
DPS Deficit
Ia
I
b
Current Account Deficit (CAB < 0, ROWB > 0)
Current Account Surplus (CAB > 0)
-8%
-6%
-4%
-2%
0%
2%
4%
6%
8%
DPS Deficit
III
b
IIIa
II
Domestic
Private
Sector
Balance
(DPS) = 0
Fiscal Deficit
(T< G or GB < 0)

Traditional Policy Goals: Reduce domestic absorption, eliminate fiscal deficits, attract capital flows and improve trade balance



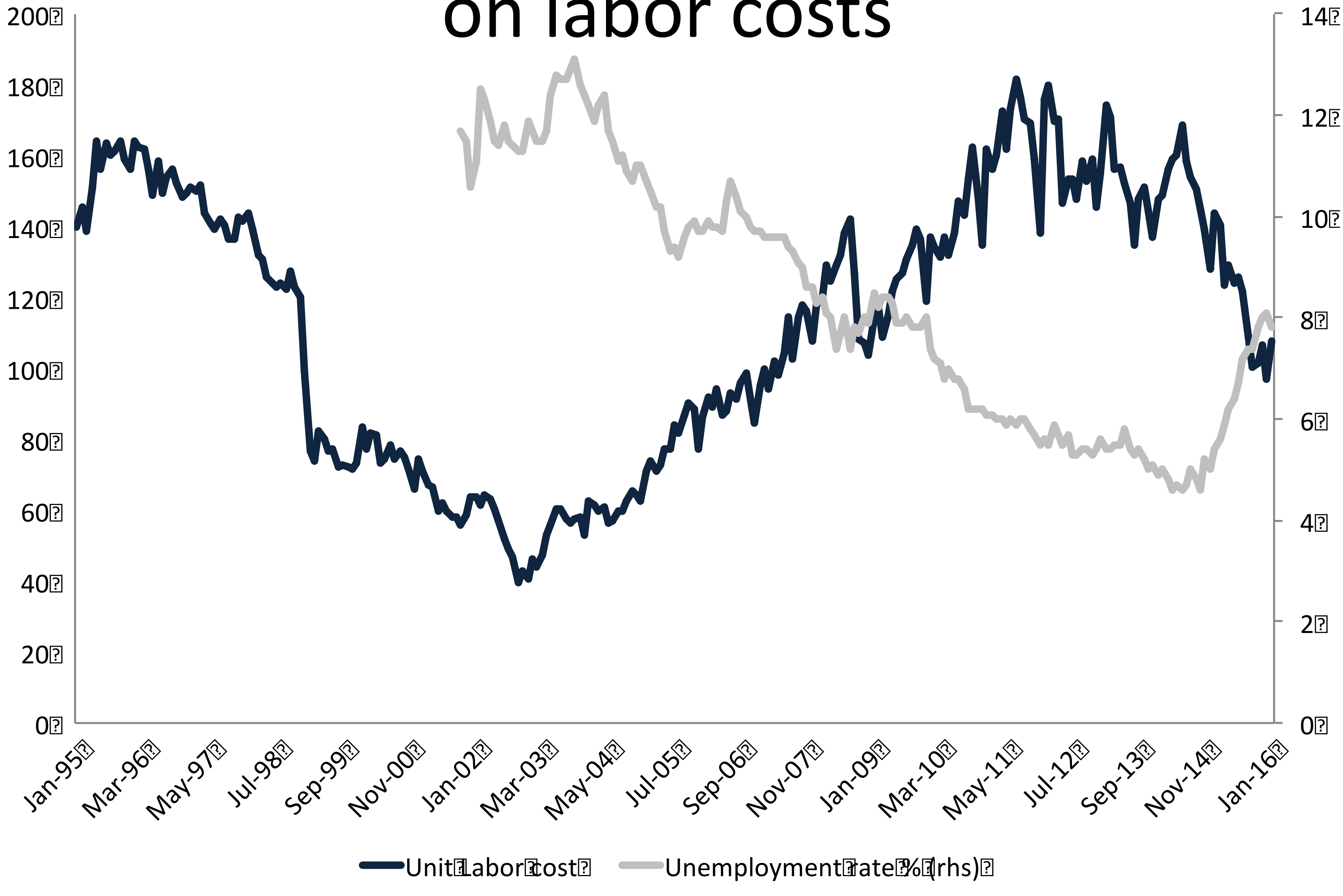
Incomes and employment fell Trade balance improved

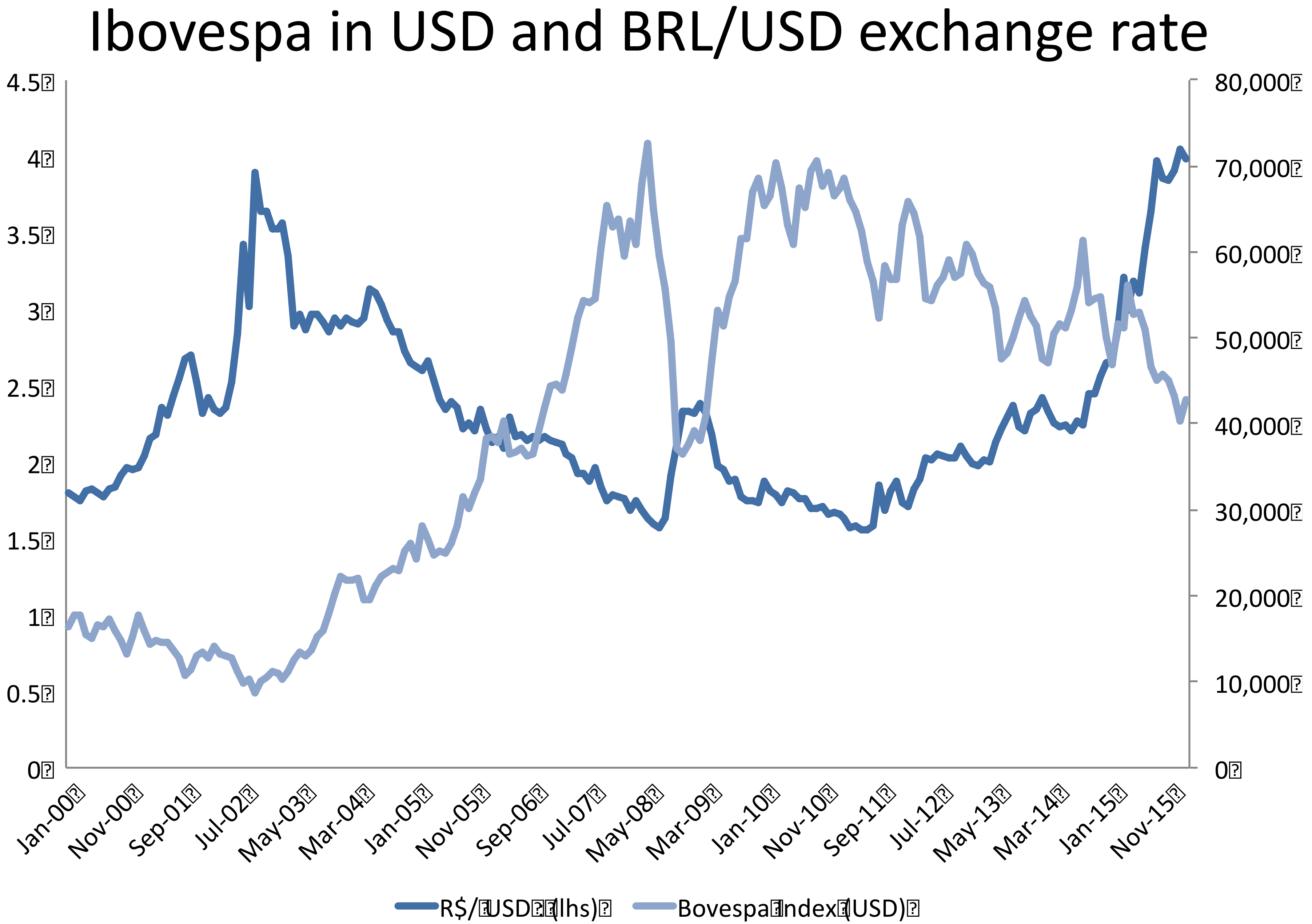




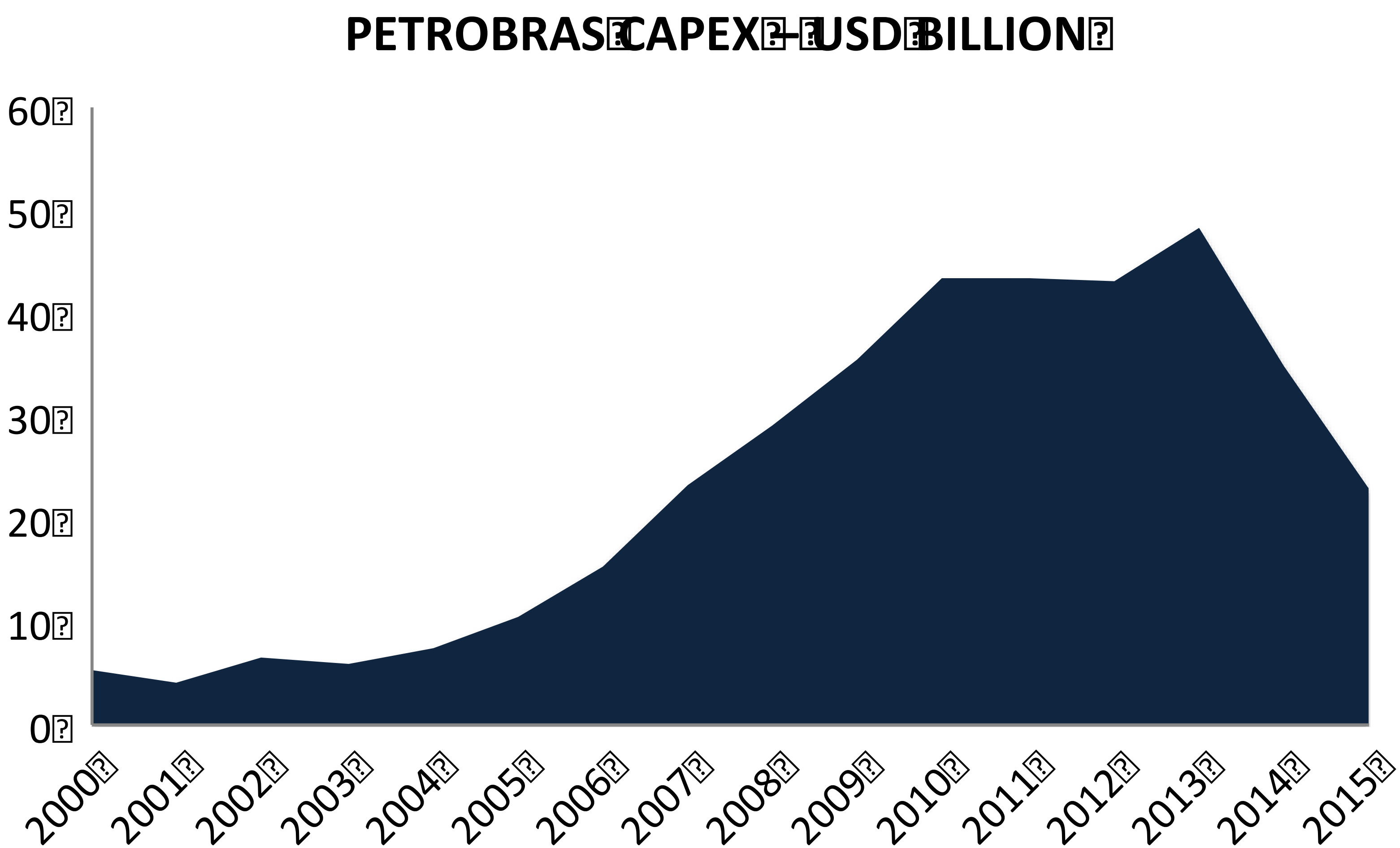
Source: MDIC, Itaú

Rising Un to put downward pressure on labor costs

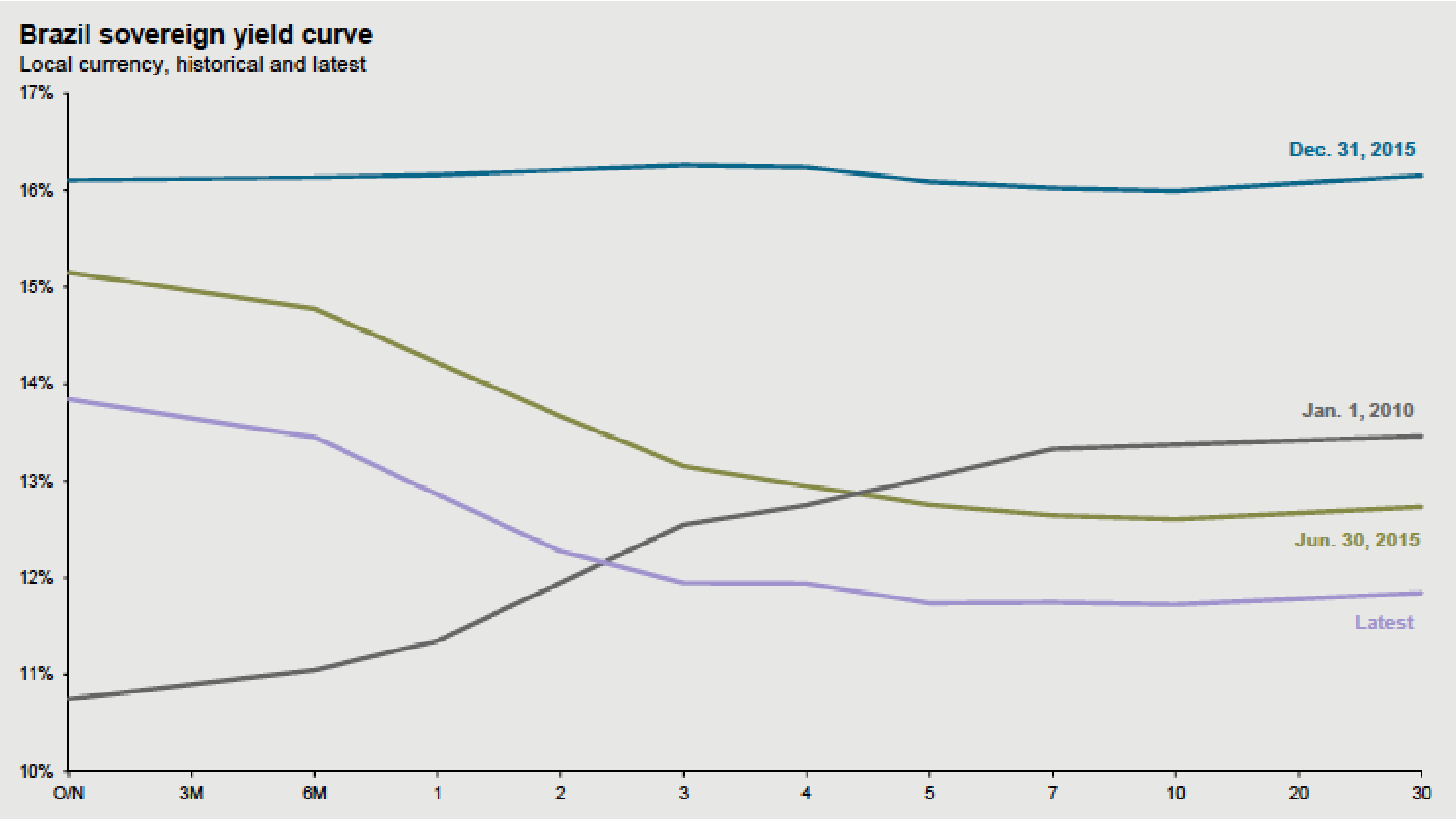


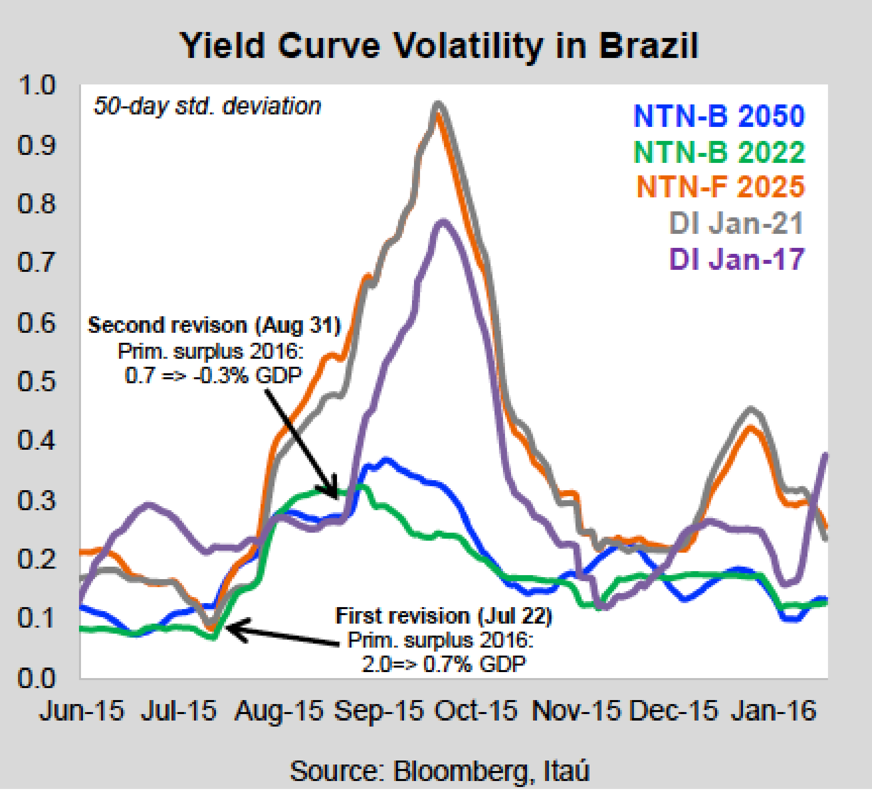

Ibovespa in USD and BRL/USD exchange rate
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan-00
Nov-00
Sep-01
Jul-02
May-03
Mar-04
Jan-05
Nov-05
Sep-06
Jul-07
May-08
Mar-09
Jan-10
Nov-10
Sep-11
Jul-12
May-13
Mar-14
Jan-15
Nov-15
R$/ USD (lhs)
Bovespa Index (USD)

PETROBRAS CAPEX – USD BILLION

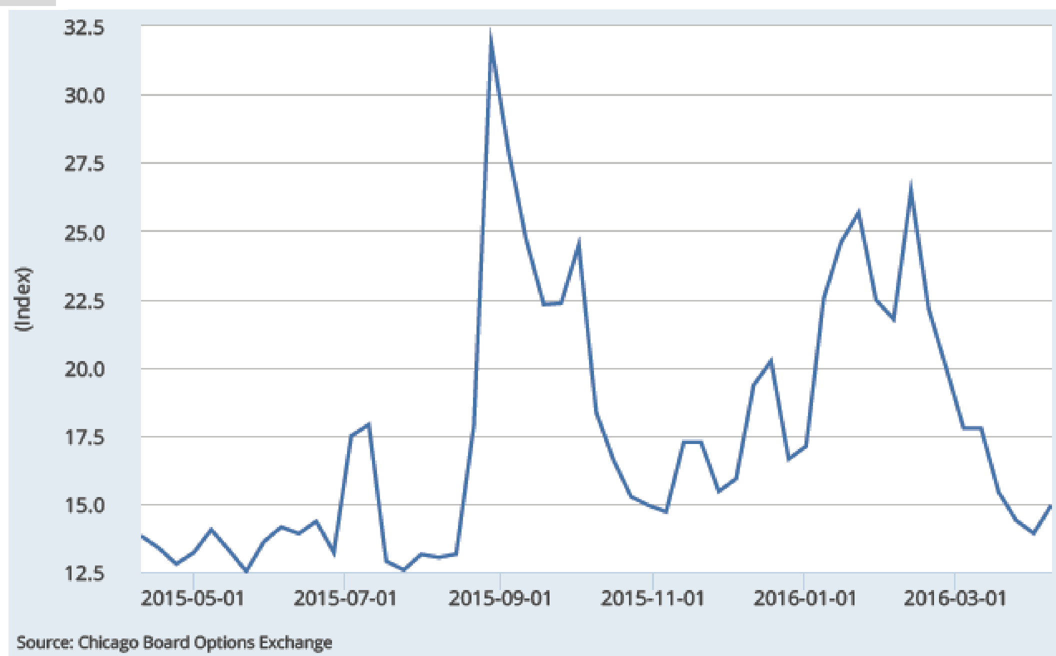


Yield curve shock

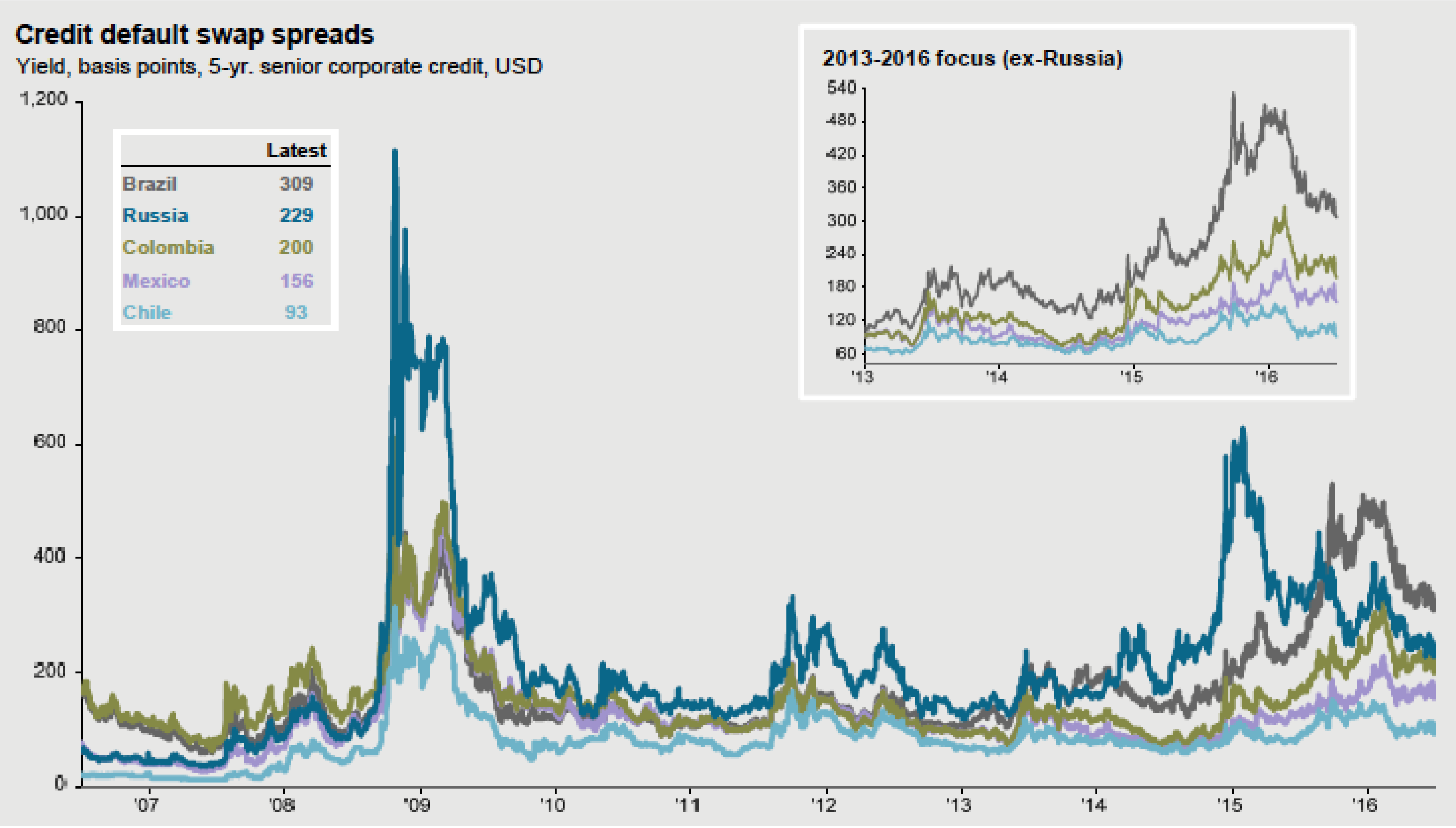




Yield Curve Volatility and VIX

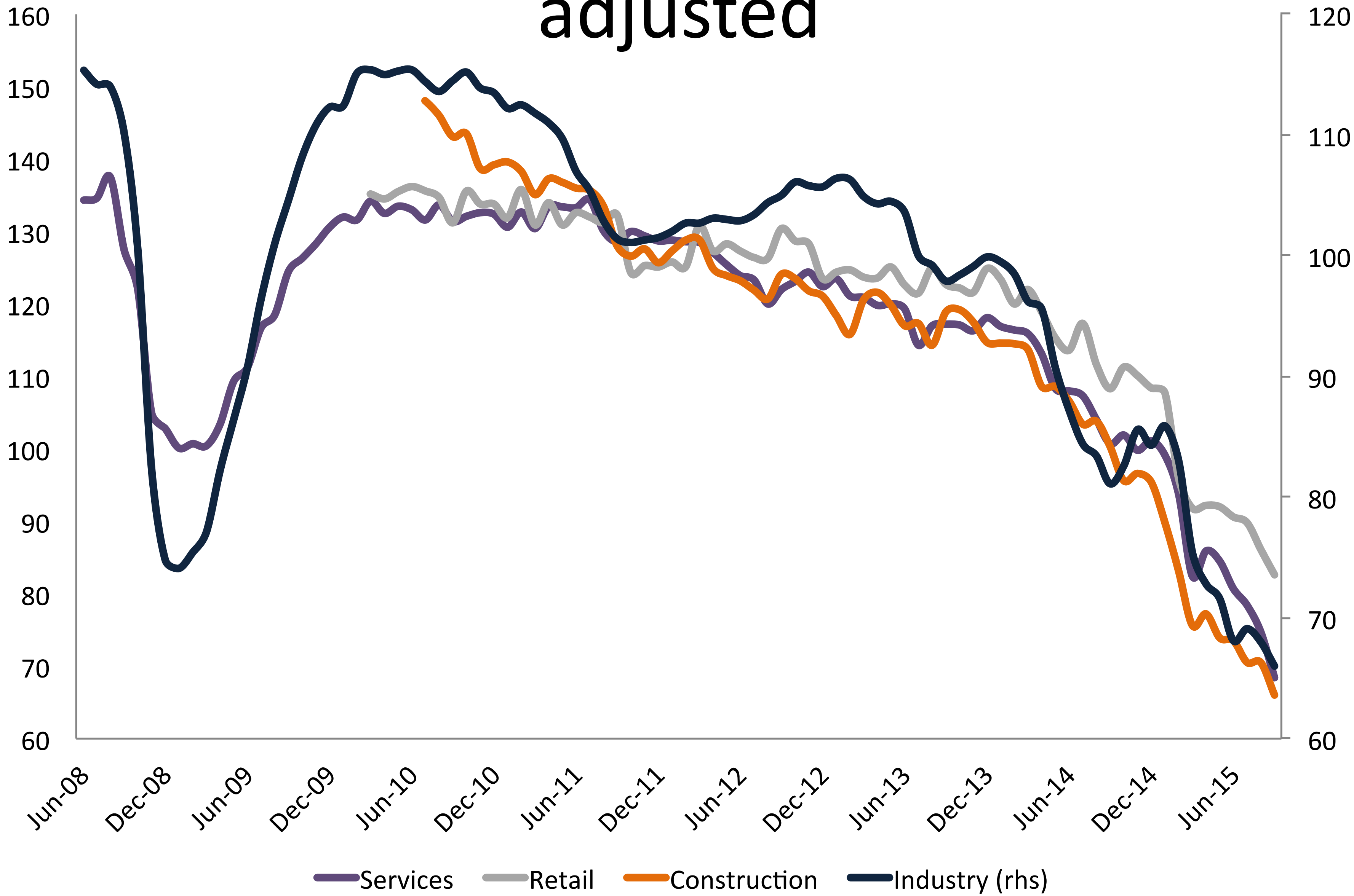


CDS shock



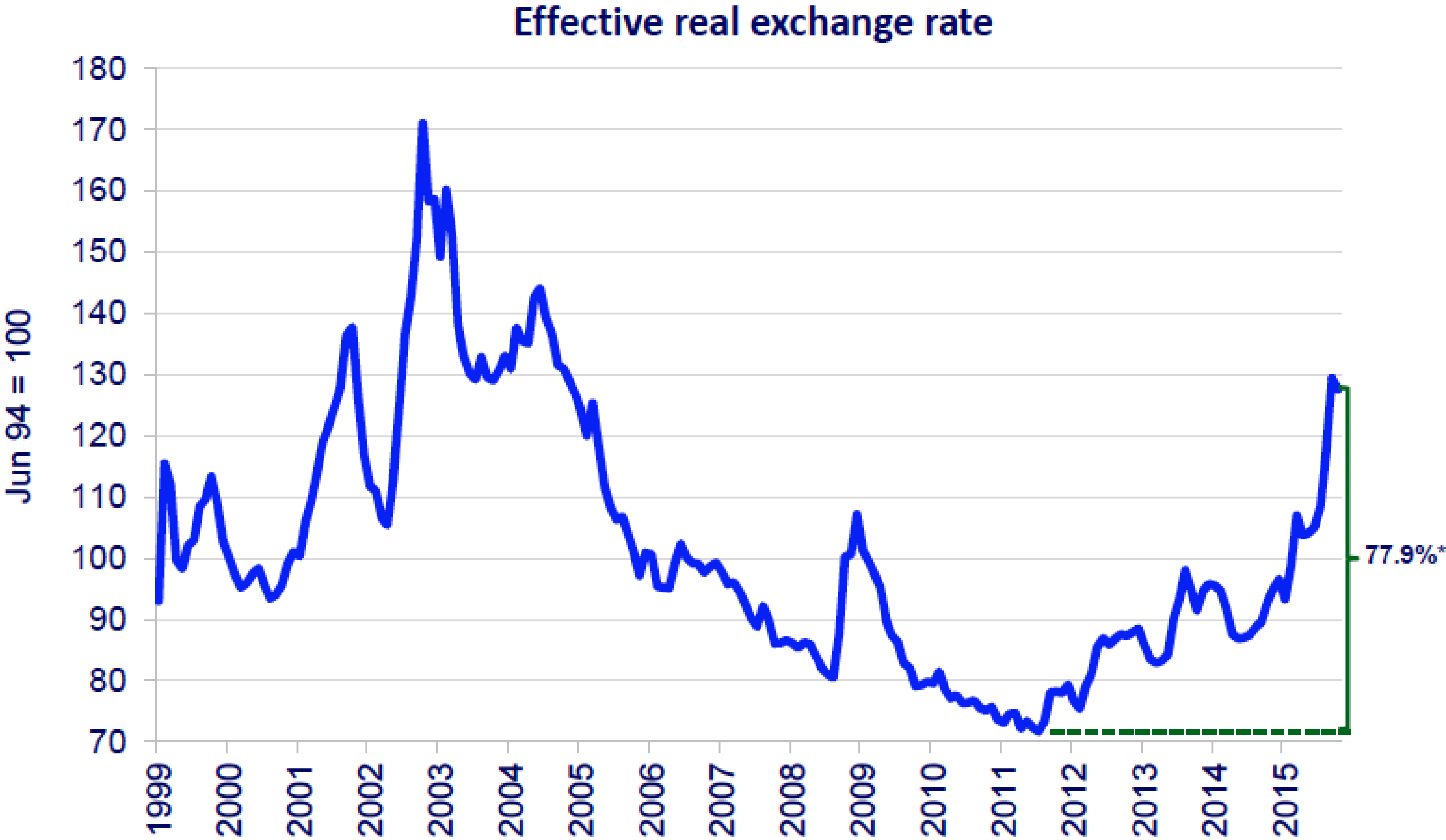
Credit default swap spreads
Yield, basis points, 5-yr. senior corporate credit, USD
1,200
1,000
800
600
400
200
0
Latest
Brazil 309
Russia 229
Colombia 200
Mexico 156
Chile 93
'07
'08
'09
'10
'11
'12
'13
'14
'15
'16
2013-2016 focus (ex-Russia)
540
480
420
360
300
240
180
120
60
'13
'14
'15
'16

Confidence Index (FGV) – seasonally adjusted

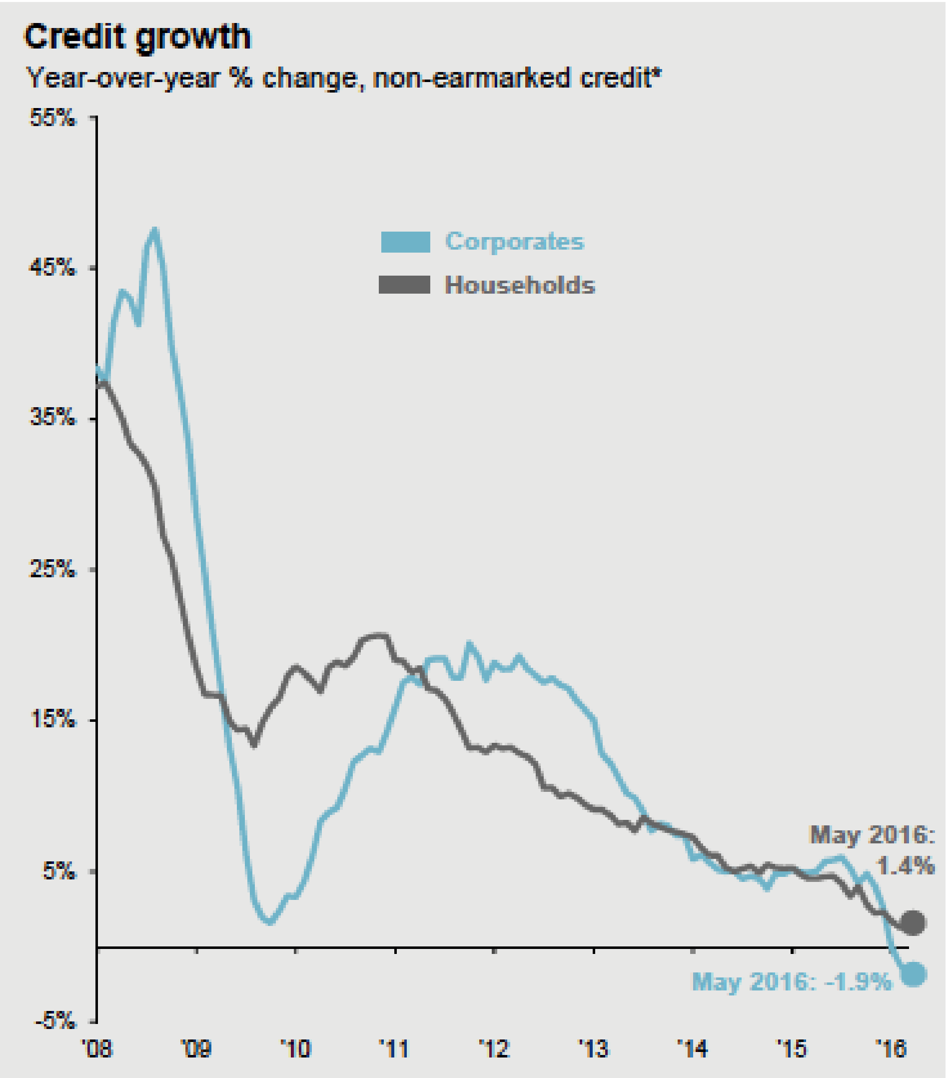


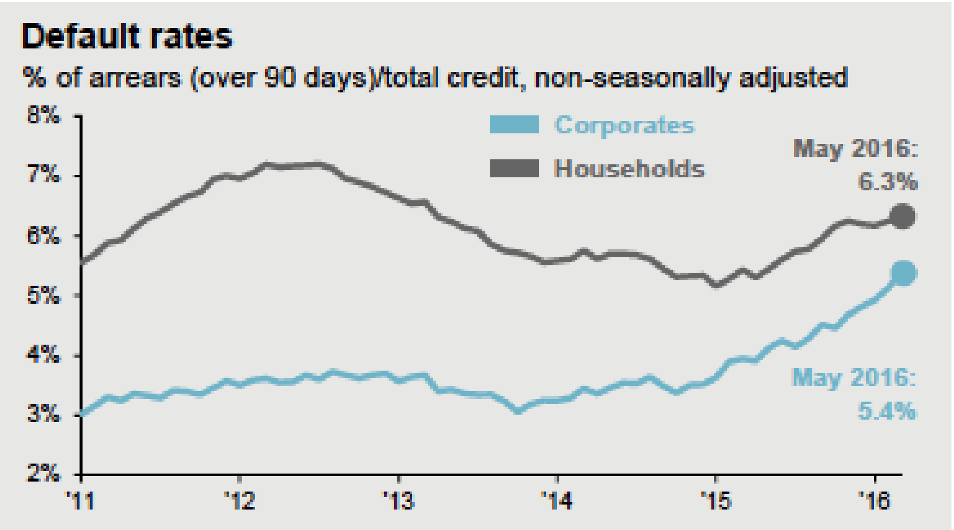
Industrial production index – s.a. (2002=100)

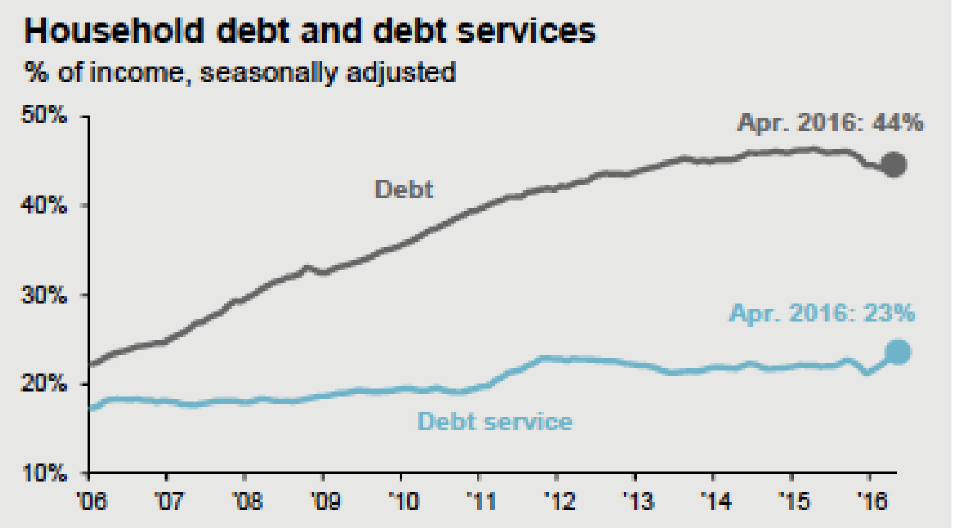
Effective real exchange rate



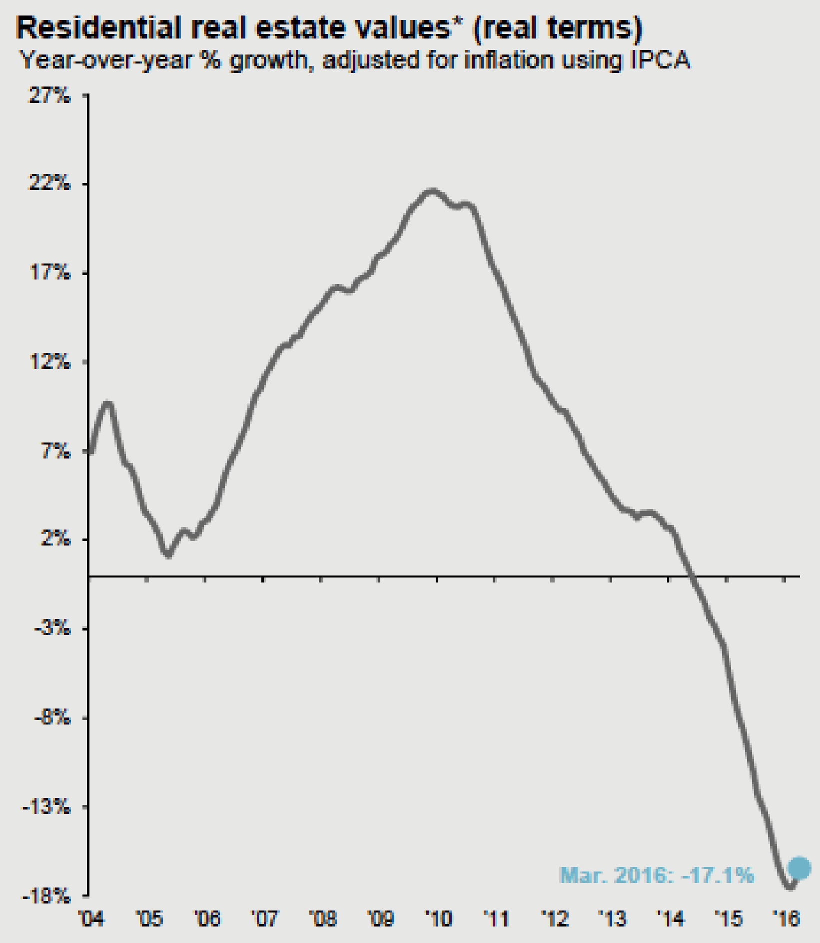
Credit crunch

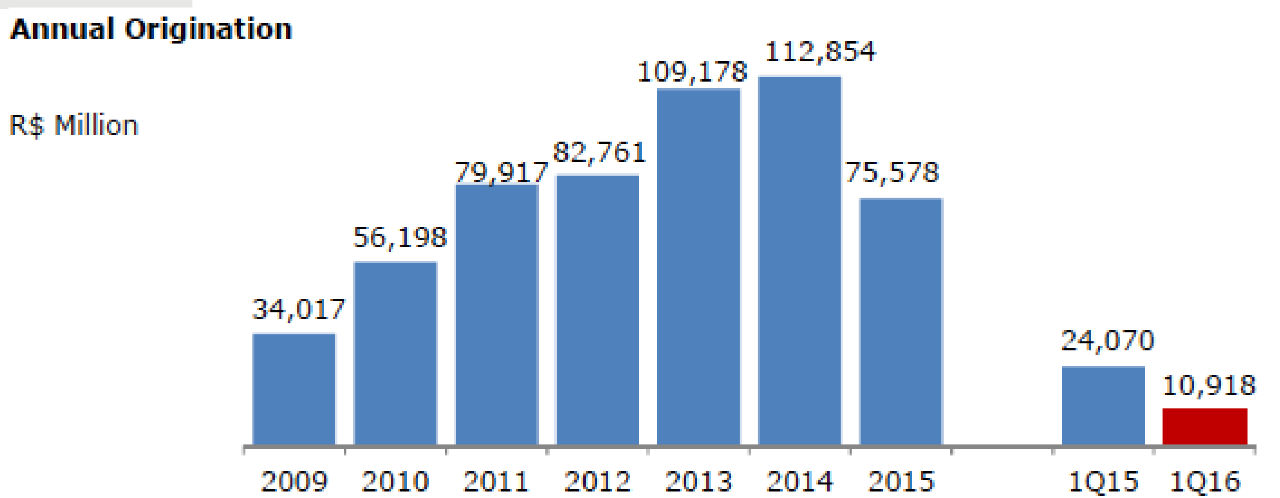




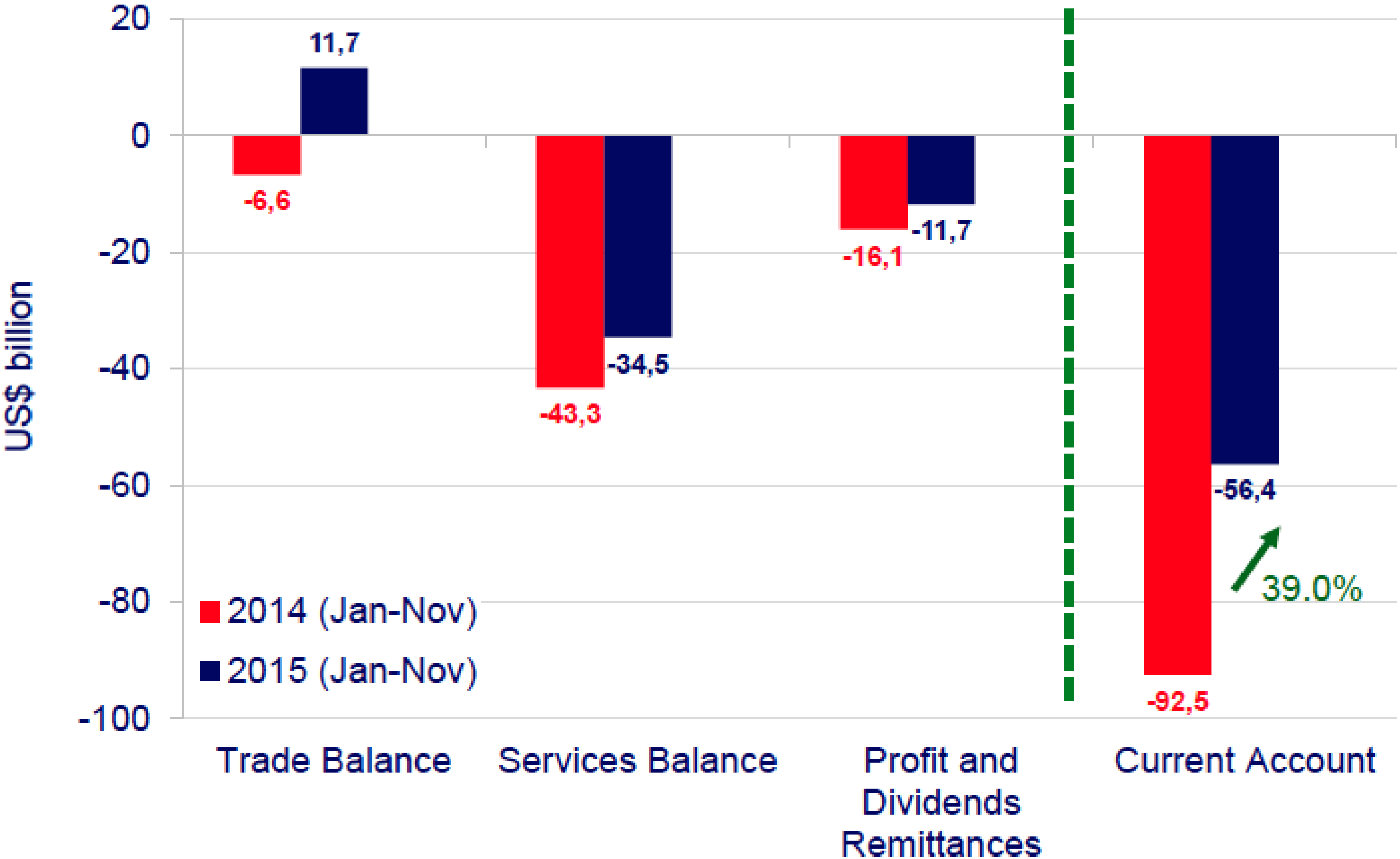


Real estate lending and mortgage

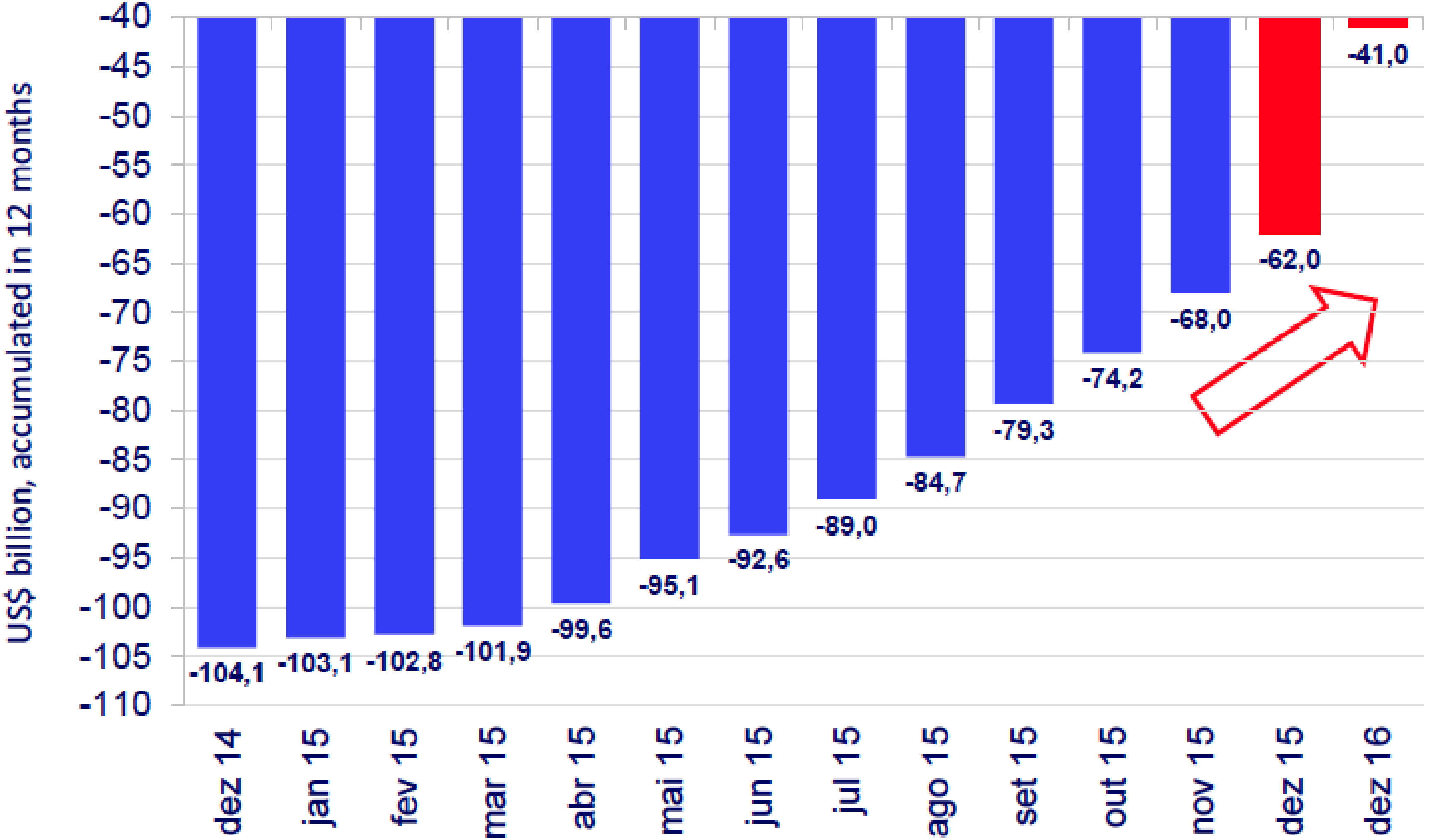




Structural adjustment policies and external balance

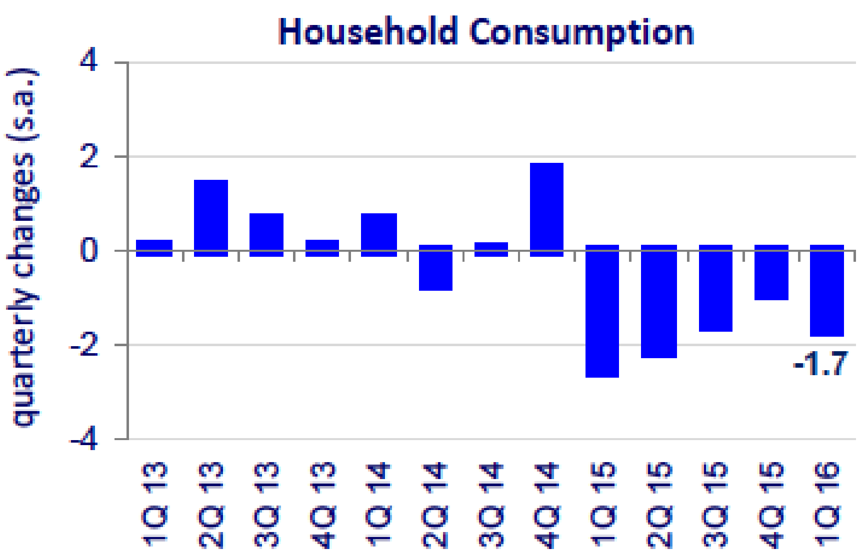


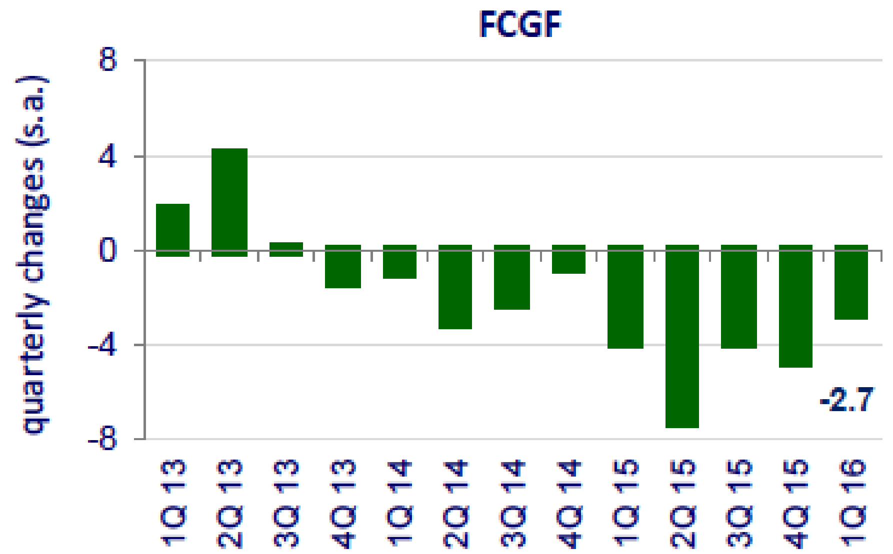
Current account balance

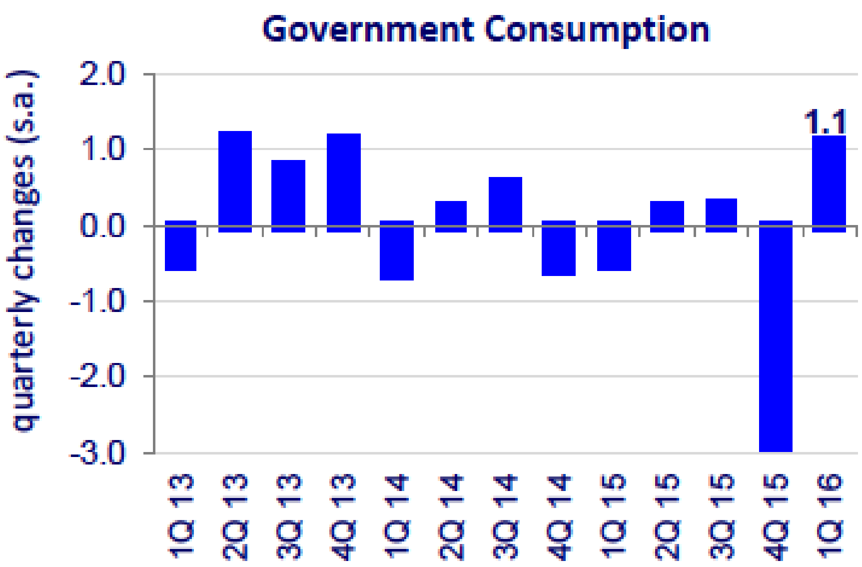


*Dec/15 and Dec/16: projection

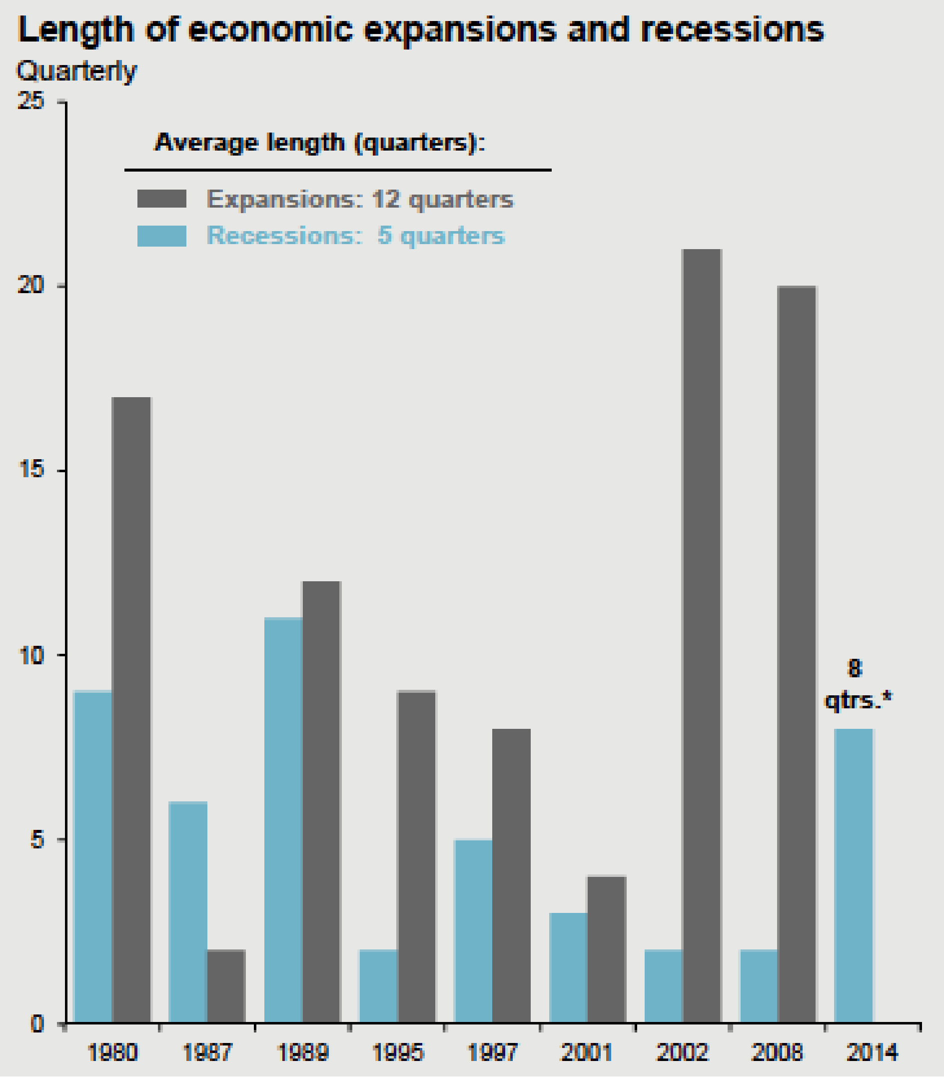
Depressed demand

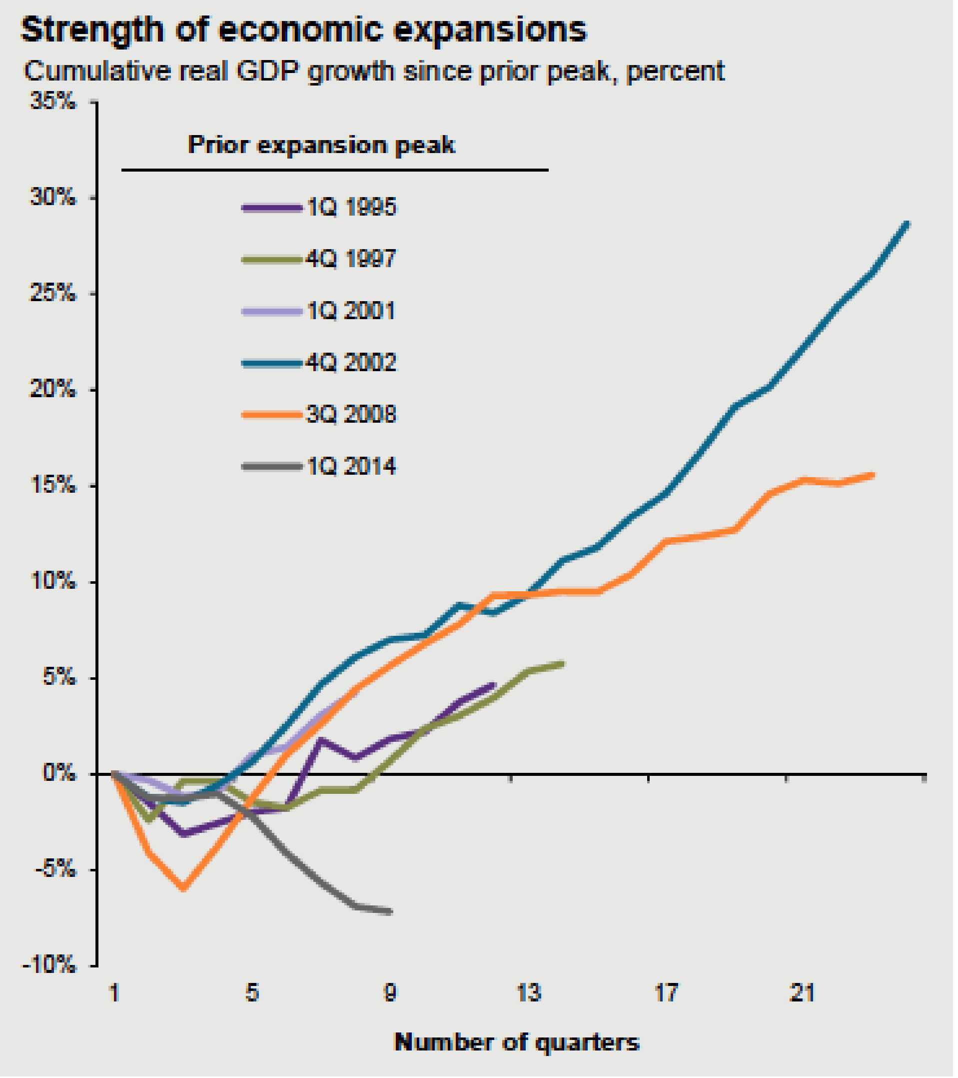






Long and deep recession



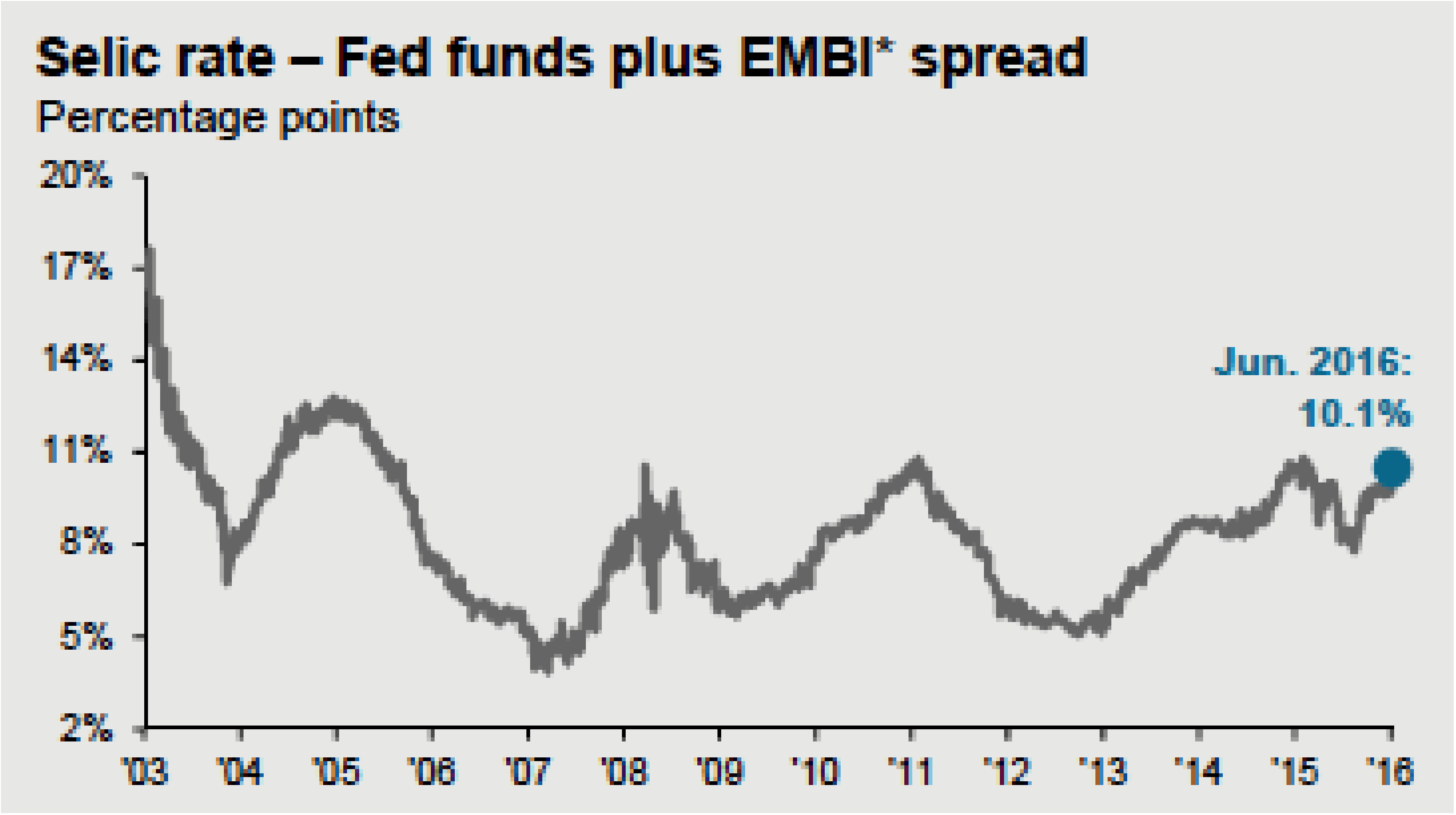


A Minsky Crisis
and
A “Washington Consensus” Crisis

Are government deficits "sustainable"?

- Does Brazil need to generate fiscal surpluses to convince lenders of its ability to meet debt service?
- No. Brazil is the currency issuer. Sovereign governments can always meet their debt obligations denominated in their own currency. Spend by crediting bank accounts at the BCB. Taxes by debiting them.
- MMT:
- Modern central banks operate with an interest rate target. So they accommodate the demand for reserves to hit the target.
- CB engages in open market operations to minimize the effects of G and T on reserve balances.
- In the absence of bond sales, excess reserves would push the overnight interest rate below the target.
- Selling and buying securities are just an interest rate maintenance operation.
- Paying interest on reserve balances works as a a lower limit for the overnight interest rate.

A sovereign government does not need to pay a risk premium

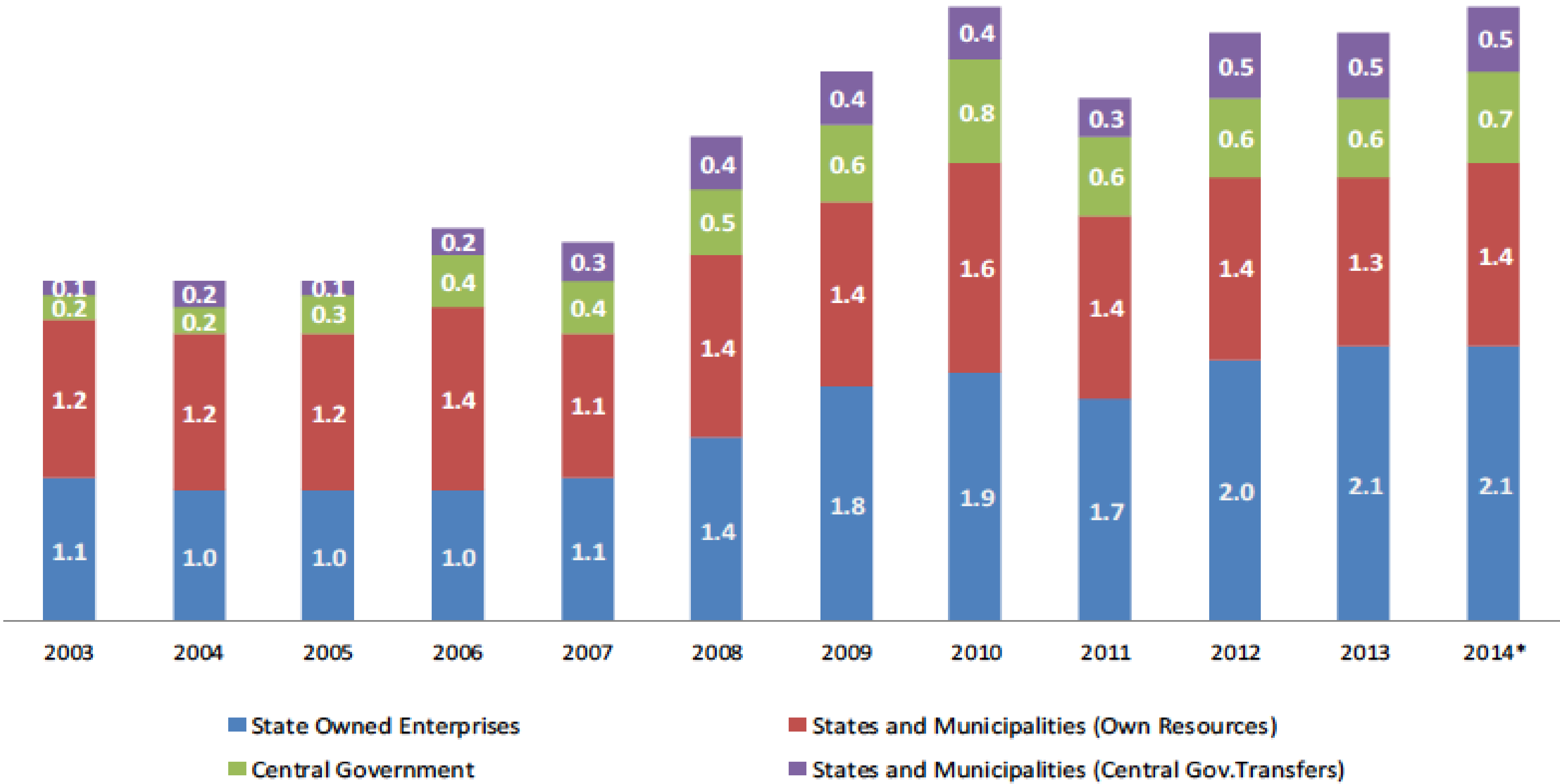


A Minsky Crisis <u>and</u> a "Washington Consensus" Crisis

- A Minsky Crisis:
  - During economic expansions, market participants show greater tolerance for risk and forget the lessons of past crises so firms gradually move from safe financial positions to riskier positions
  - It led to declining cushions of safety and Ponzi finance
- "Washington Consensus" Crisis:
  - (real) Overvaluation of the currency
  - Rising foreign capital inflows
  - Produced rising external private indebtedness
  - Chronic current account deficits and influenced payment flows
  - Increased exchange rate volatility
  - It undermined domestic activity - falling industrial production, declining capacity utilization, rising unemployment
  - Economy collapsed
- Policymakers misdiagnosed the crisis, which was aggravated by the implementation of IMF-type SAP.
- Minsky moment and balance sheet recession

What should Brazil do?

Public Investment (% of GDP)



Source : MoF

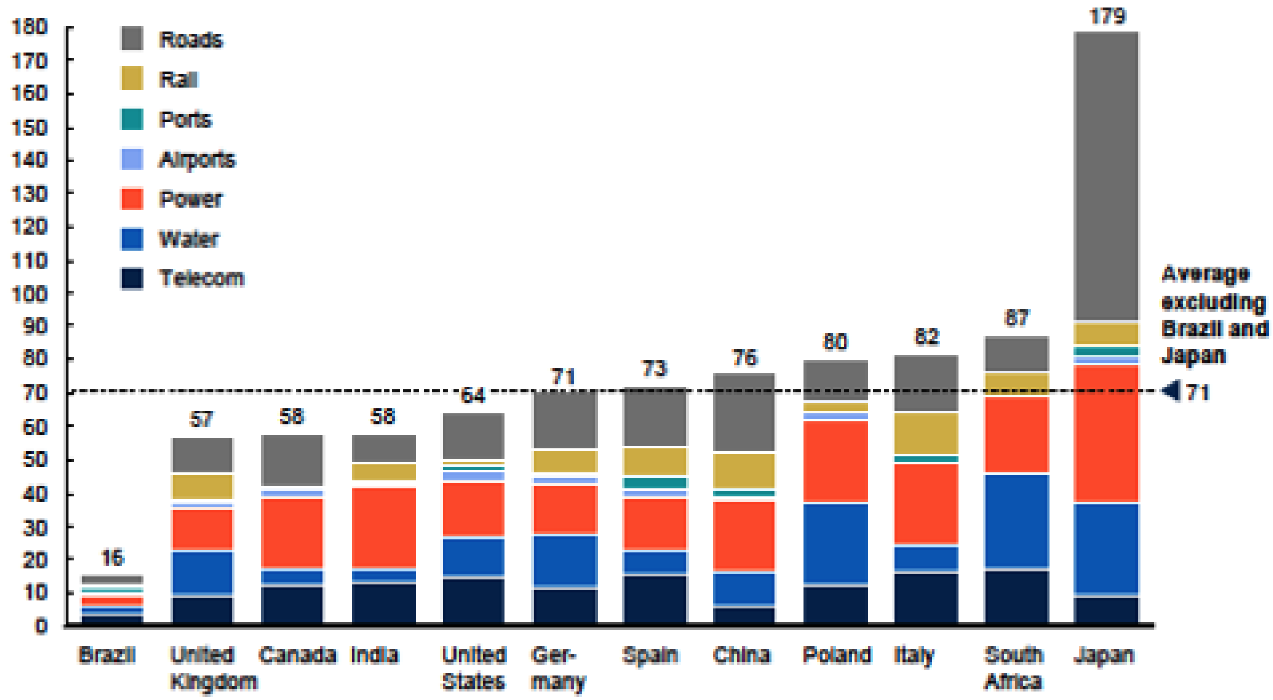
Policy space to increase infrastructure Investment (public and private)

Exhibit 3

The value of infrastructure stock averages 70 percent of GDP— with significant variation across countries

Total infrastructure stock

% of GDP



SOURCE: ITF; GWI; IHS Global Insight; *Perpetual inventory method*, OECD, 1998; McKinsey Global Institute analysis

What should Brazil do?

- Shift to domestic demand-led sustained growth.
  - Policy goals: full employment and price stability.
  - Keynes's call for targeted approach to full employment (this is not an aggregate demand approach)
  - Public Investment (in particular infrastructure investment). Programa de Aceleração do Crescimento (PAC)
  - Expand the Housing program Minha Casa, Minha Vida (MCMV – "My House, My Life")
  - Job guarantee program
  - Industrial policy to promote export capacity
  - Lower taxes on NFC profits, (temporary) household income tax relief. Support state and local budgets to maintain public services.
- Adjustments to existing central bank policy frameworks
  - Monopoly issuer of the currency can control the entire risk free yield curve. It reduces yield curve volatility.
  - Government debt is risk free. No need for a risk premium.
  - Reduce interest rates
- Reduce reliance on external financing
  - Foster domestic credit market (public banks and domestic capital market)

Thank you

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MINDS

FORDFOUNDATION

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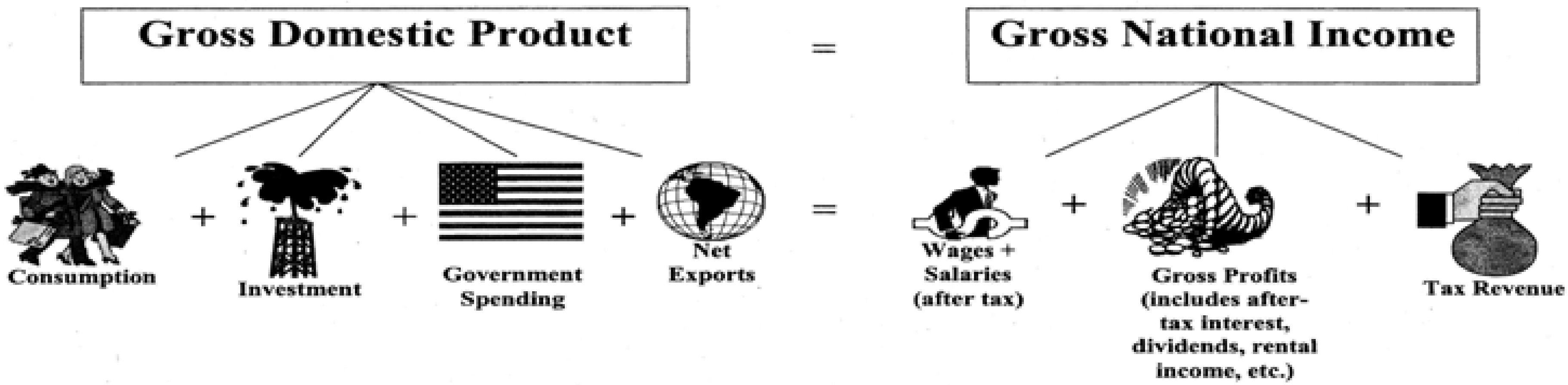
Appendix

DERIVING THE PROFITS EQUATION

Levy Economics Institute
of Bard College

We begin with the simplest national identity:



After some manipulation, we obtain:

Which can be reduced to the fundamental profits equation:

* More technically, this term is saving out of wages less consumption out of profit income.

Broad Retail Sales (%)
3- Month Moving Average YoY variation