

Macroeconomics of EMU

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- Extraordinary 'natural' experiment
- ECB performance
- National-Level Performance within EMU

- Lessons from US States
- Trade integration
- Financial integration
- Price convergence
- Design Issues: SGP; entry criteria

- RER behaviour without a NER
- Current Account Dynamics
 - Neoclassical phase until 2002 (Blanchard-Giavazzi)
 - Bubble-driven growth in deficits during 2003-2007
- Financial Crisis 2007-2009

Current Account Imbalances in Europe

Moneda y Credito

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TCD / UBS

Moneda y Credito Symposium
Madrid, October 2011

- European crisis - one source is large accumulated external imbalances during pre-crisis period
 - Important to revisit current account determination during pre-crisis period
 - Also to draw lessons for the future in terms of avoiding “excessive” imbalances
- We study current account behaviour in Europe during 1995-2007
 - Also savings, investment rates (and subcomponents)
- Update and extension of Blanchard and Giavazzi (2002): *convergence* dynamics
- Additional factor: elasticity of net capital flows to dispersion in growth expectations
- Euro factor; CEE factor

Conceptual Framework

- Convergence mechanism (Blanchard/Giavazzi): lower-income countries should
 - Invest more (capital scarce)
 - Save less (expectations of higher future incomes)
 - CA deficits facilitated by European financial integration, especially inside euro area
 - Euro periphery; CEE countries
- Growth expectations (regardless of source of optimism/pessimism)
 - Invest more, save less
 - Growth expectations driven by additional factors in addition to convergence mechanism (animal spirits, country-specific factors, financial-sector innovations, asset price dynamics, ...)
- Goal: assess roles of GDP per capita and growth expectations in capturing variation in current account balances in Europe during 1995-2007

- E30 group: EU27 plus ICE, NOR, SWI (members of European Economic Area)
- Increased dispersion of current account balances in E30
- Increased dispersion of net foreign asset positions in E30
- Strong persistence in current account balances
- Strong cross-sectional correlation between current account and GDP per capita

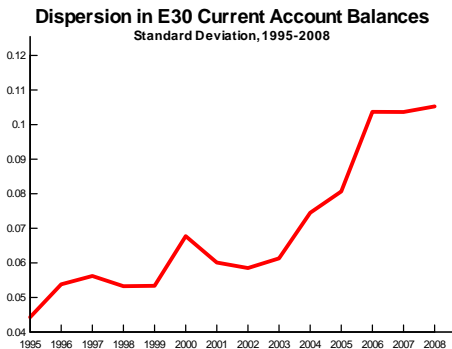


Figure: Current Account Balances in Europe

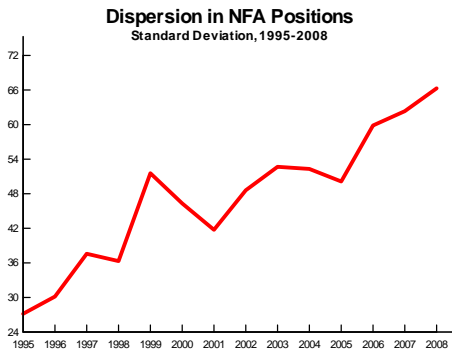


Figure: Net Foreign Asset Positions in Europe

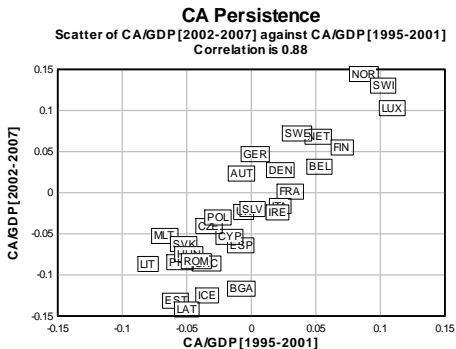


Figure: Persistence in Current Account Balances

E30 Current Account Balances, 2004-2007.xls
 Scatter against Log(GDP per Capita)

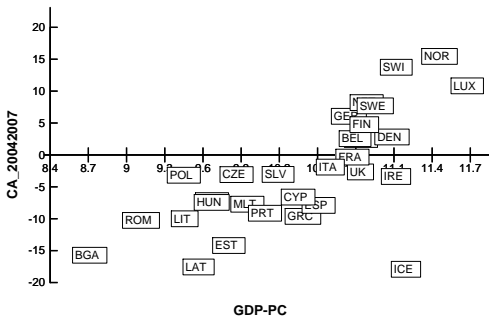


Figure: Current Account Balances and Per Capita Income Levels

- 1995-2007 period (pre-crisis)
- E30 group (minus LUX, CYP, MLT)
- CA, S, I
- $S_{HH}, S_{CORP}, S_{GOV}$
- $I_{DWELL}, I_{NONRES}, I_{EQUIP}, I_{MACH}, I_{TRANS}$

- Relative Income (*RELINC*)
- Growth forecast (*FORECAST*) [time-varying coefficient]
- EMU_{*it*} dummy
- CEE_{*i*} dummy
- Demography (youth and old age dependency ratios)

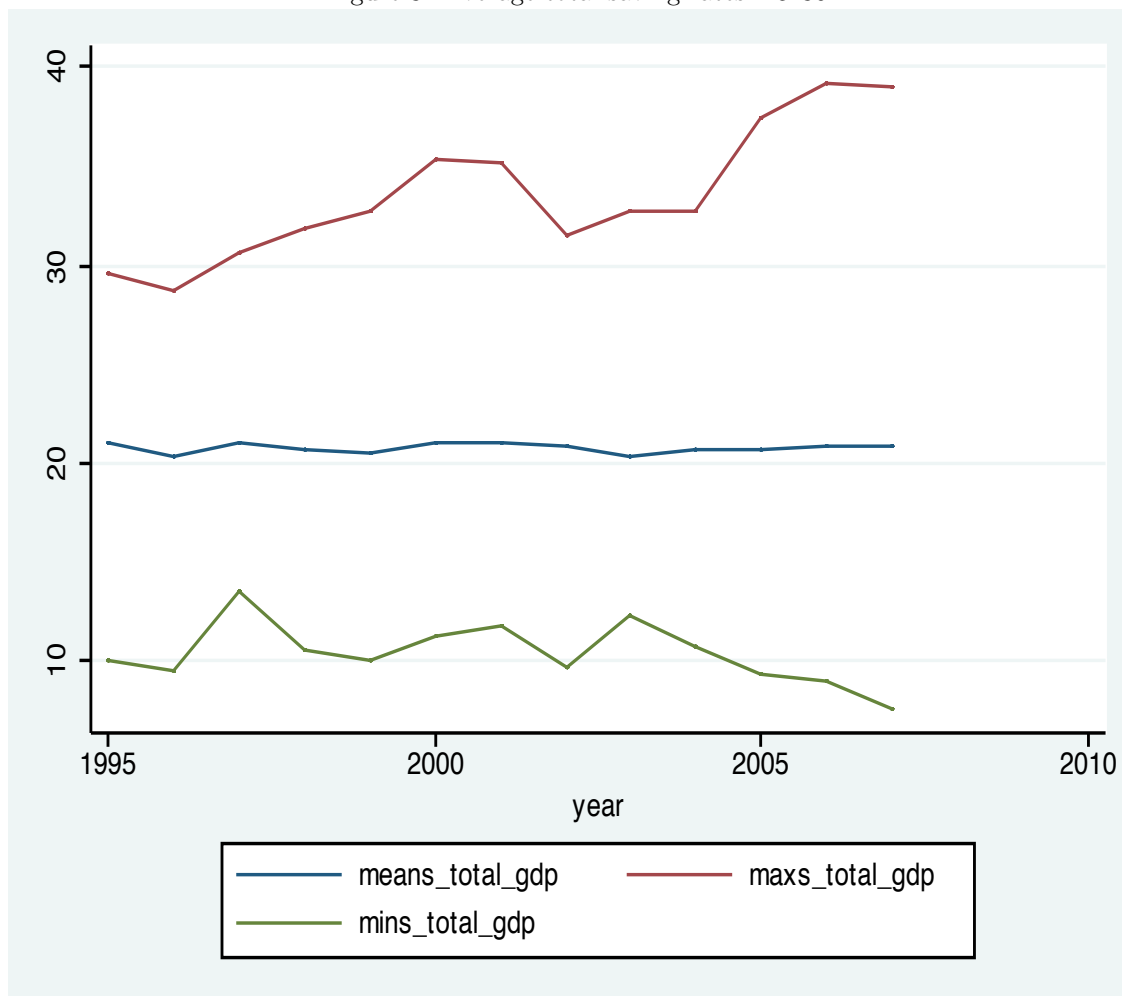
$$\begin{aligned} CA_{it} = & \alpha + \theta_t + \phi_1 EMU_{it} + \phi_2 CEE_i + \\ & \beta_1 RELINC_{it} + \gamma_1 RELINC_{it} * EMU_{it} + \gamma_2 RELINC_{it} * CEE_i + \\ & \beta_2 FORECAST_{it} + \zeta_{0t} FORECAST_{it} \theta_t + \\ & \zeta_1 FORECAST_{it} * EMU_{it} + \zeta_2 FORECAST_{it} * CEE_i + \rho X_{it} + \epsilon_{it} \end{aligned}$$

- OLS, robust standard errors
- Run for CA but also S , I and subcomponents
- Alternative specifications (Pels 2010)

Summary Statistics

	Obs	Mean	Std.	Min	Max
CA	377	-2.01	6.79	-25.58	17.2
S total	374	20.75	5.52	7.49	39.23
S households	314	6.26	4.69	-15.90	16.96
S corporate	321	13.18	3.59	0.21	31.46
S gov	351	2.15	3.50	-6.09	21.28
I total	377	21.79	4	10.97	35.74
I dwellings	337	4.69	2.16	0.60	14
I nonres constr	338	7.073	2.52	3.12	15.26
I equip	359	8.70	2.4	3.43	16.16
I machinery	358	6.50	1.92	2.49	12.42
I transport	358	2.19	0.94	-3.06	7.15
Relative income	377	100	41.78	27.45	198.55
pop: 0to14	377	17.82	2.45	13.43	25.13
pop: 65	377	14.85	2.06	10.79	19.96

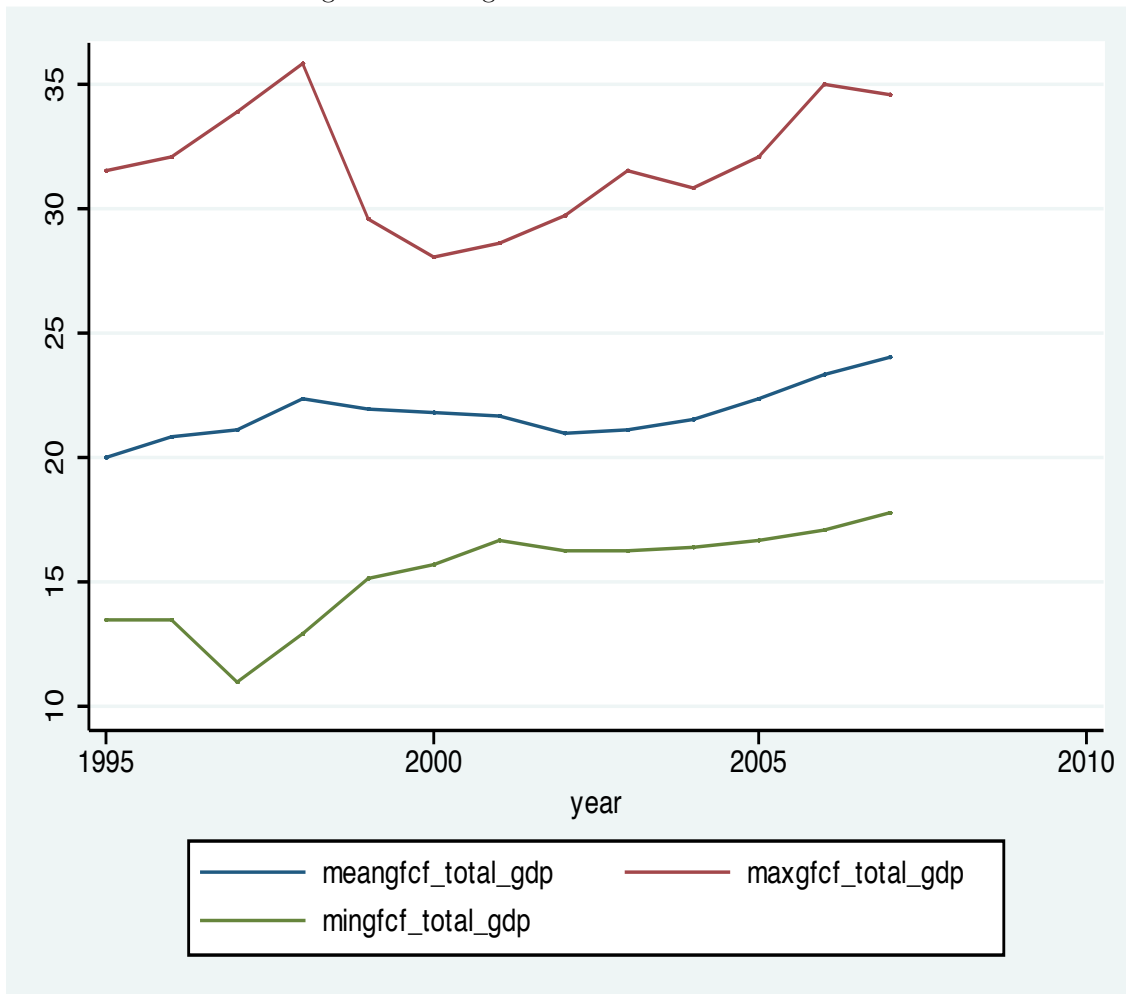
Figure 3: Average total saving rates EU-30



Source: AMECO Database. Gross national saving (USGN) over GDP is gross domestic product at current market prices (UVGD).

Average per year over EU-30 sample excluding Luxembourg, Malta and Cyprus

Figure 4: Average total investment rates EU-30



Source: AMECO Database. Gross fixed capital formation at current prices: total economy (UITG) over GDP is gross domestic product at current market prices (UVGD). Average per year over EU-30 sample excluding Luxembourg, Malta and Cyprus

Figure 5: Shares of subcomponents in total saving and investment
charts shares.pdf

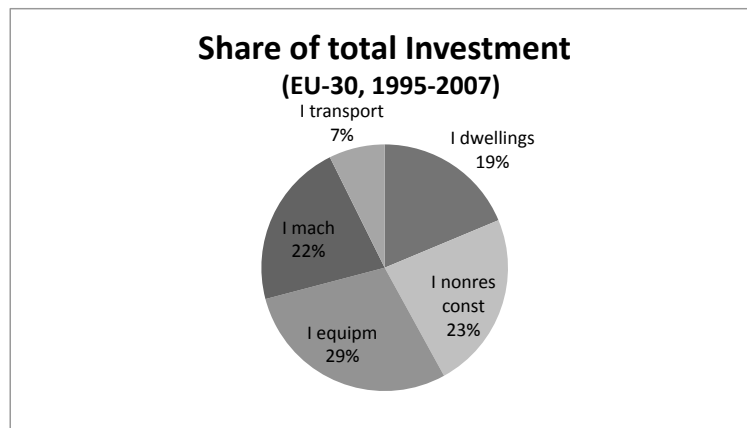
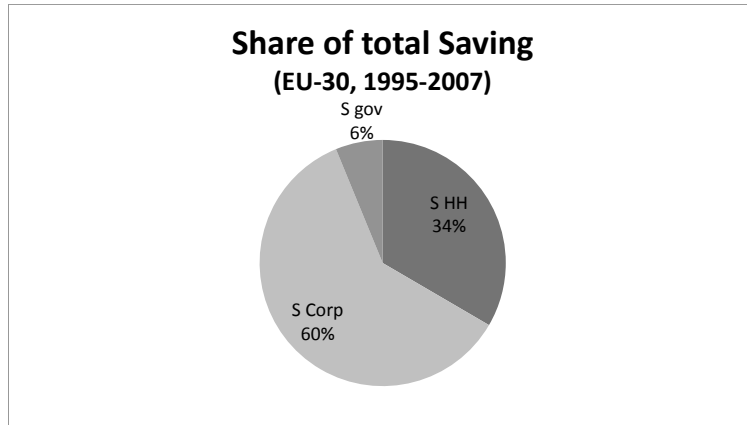


Table 2: The Drivers of the Current Account I

	CA	S	I
Relinc	0.11*** (0.02)	0.16*** (0.02)	0.03*** (0.01)
RelincEURO	0.15*** (0.03)	0.06** (0.03)	-0.07*** (0.02)
RelincCEE	-0.05* (0.03)	-0.02 (0.03)	0.03 (0.02)
Forecast	0.30 (0.94)	-0.32 (0.85)	-0.75 (0.74)
Forecast*EURO	0.64 (0.97)	0.23 (0.76)	-0.42 (0.46)
Forecast*CEE	0.46 (0.94)	0.55 (0.75)	0.12 (0.49)
Forecast1996	0.18 (0.67)	0.48 (0.88)	0.22 (0.94)
Forecast1997	-0.41 (1.00)	1.28 (0.80)	1.67* (0.90)
Forecast1998	-1.23 (0.81)	0.46 (0.93)	1.46* (0.82)
Forecast1999	-1.05* (0.62)	0.67 (0.68)	1.39** (0.68)
Forecast2000	-1.14 (0.76)	0.16 (0.77)	1.03 (0.72)
Forecast2001	-1.04 (0.73)	0.07 (0.76)	1.02 (0.74)
Forecast2002	-2.67*** (0.73)	-0.44 (0.87)	1.96** (0.82)
Forecast2003	-3.31*** (0.81)	-0.85 (0.90)	2.13** (0.94)
Forecast2004	-3.39*** (0.70)	-1.19 (0.73)	1.92** (0.81)
Forecast2005	-3.40*** (0.80)	-1.08 (0.80)	2.21*** (0.84)
Forecast2006	-4.06*** (0.81)	-1.44** (0.72)	2.24*** (0.80)
Forecast2007	-3.16*** (0.91)	-0.84 (0.73)	1.95** (0.79)
EURO	-21.87*** (5.14)	-7.81* (4.30)	12.60*** (2.66)
CEE	4.58 (4.51)	9.59** (3.85)	2.65 (2.60)
DepY	-0.19 (0.20)	-0.65*** (0.18)	-0.51*** (0.14)
DepO	0.29 (0.31)	-0.23 (0.23)	-0.76*** (0.19)
N	338	338	338
R2	0.58	0.50	0.49

Includes time fixed effects. Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1% .

Table 3: The Drivers of the Current Account II

	S^{HH}	S^{Corp}	S^{gov}	I^{DW}	I^{NR}	I^{EQ}	I^M	I^T
Relinc	0.01 (0.01)	0.04*** (0.01)	0.12*** (0.02)	0.02 (0.01)	-0.01* (0.01)	0.02*** (0.01)	0.02** (0.01)	0.00* (0.00)
RelincEURO	0.08*** (0.02)	0.02 (0.02)	-0.07*** (0.02)	-0.00 (0.01)	-0.02** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)
RelincCEE	0.10*** (0.03)	0.01 (0.02)	0.03*** (0.02)	-0.02 (0.02)	-0.00 (0.01)	-0.02*** (0.01)	(0.01)	(0.01)
Forecast	-1.88*** (0.61)	-1.07 (0.78)	1.11* (0.66)	0.43 (0.27)	-0.64 (0.41)	-0.57 (0.44)	-0.74* (0.38)	0.20 (0.13)
Forecast*EURO	0.17 (0.58)	0.55 (0.76)	0.10 (0.42)	0.12 (0.25)	-0.35* (0.21)	-0.05 (0.31)	0.01 (0.30)	-0.07 (0.12)
Forecast*CEE	2.01*** (0.53)	0.66 (0.66)	-0.61 (0.39)	-0.43** (0.22)	0.09 (0.23)	0.48 (0.30)	0.62** (0.29)	-0.17 (0.11)
Forecast1996	0.17 (0.78)	-0.03 (0.55)	0.04 (0.78)	-0.06 (0.18)	0.19 (0.50)	-0.09 (0.51)	-0.10 (0.43)	-0.00 (0.12)
Forecast1997	-0.22 (1.00)	0.38 (0.89)	0.10 (0.69)	-0.19 (0.25)	1.00** (0.47)	0.79 (0.52)	0.61 (0.47)	0.16 (0.13)
Forecast1998	1.17 (0.97)	-0.44 (0.65)	-0.39 (0.63)	0.12 (0.22)	0.76* (0.45)	0.52 (0.49)	0.28 (0.40)	0.22 (0.14)
Forecast1999	1.48* (0.77)	0.31 (0.96)	-0.32 (0.60)	1.39** (0.24)	1.02*** (0.38)	0.41 (0.43)	0.27 (0.35)	0.14 (0.14)
Forecast2000	0.81 (0.86)	-0.22 (0.72)	-0.10 (0.72)	-0.07 (0.24)	1.02*** (0.38)	0.13 (0.48)	0.18 (0.40)	-0.06 (0.16)
Forecast2001	-0.25 (0.83)	1.18 (0.89)	-0.62 (0.66)	0.06 (0.30)	0.92** (0.42)	0.13 (0.47)	0.10 (0.39)	0.02 (0.15)
Forecast2002	-0.69 (0.66)	1.08 (0.85)	-0.42 (0.68)	0.28 (0.31)	1.05** (0.44)	0.66 (0.51)	0.37 (0.42)	0.28 (0.18)
Forecast2003	-1.49** (0.64)	0.82 (0.82)	0.46 (0.70)	0.47* (0.27)	1.17** (0.49)	0.60 (0.64)	0.17 (0.44)	0.42 (0.32)
Forecast2004	-1.02 (0.64)	0.36 (0.68)	0.11 (0.63)	0.41* (0.22)	1.27*** (0.42)	0.30 (0.47)	0.08 (0.37)	0.22 (0.17)
Forecast2005	-1.15* (0.59)	0.68 (0.66)	0.11 (0.63)	0.30 (0.23)	1.43*** (0.42)	0.52 (0.51)	0.35 (0.41)	0.17 (0.16)
Forecast2006	-1.25** (0.56)	0.61 (0.56)	-0.24 (0.70)	0.21 (0.27)	1.63*** (0.39)	0.40 (0.48)	0.12 (0.37)	0.28 (0.17)
Forecast2007	-1.31** (0.52)	0.43 (0.47)	-0.10 (0.64)	0.11 (0.26)	1.59*** (0.41)	0.26 (0.43)	0.04 (0.36)	0.26** (0.12)
EURO	-8.31*** (2.74)	-5.60* (3.28)	8.04*** (2.91)	1.03 (2.11)	5.14*** (1.45)	1.55 (1.69)	1.16 (1.69)	0.43 (0.55)
CEE	-11.99*** (2.86)	2.86 (2.86)	13.91*** (2.77)	-1.37 (2.03)	0.78 (1.63)	3.84** (1.57)	1.89 (1.51)	2.06*** (0.52)
DepY	-0.88*** (0.15)	-0.18 (0.17)	0.63*** (0.13)	-0.21*** (0.07)	0.10 (0.07)	-0.29*** (0.09)	-0.14* (0.07)	-0.15*** (0.03)
DepO	-0.61*** (0.15)	-0.47*** (0.17)	0.43*** (0.13)	-0.50*** (0.10)	-0.11 (0.09)	-0.03 (0.10)	0.01 (0.08)	-0.03 (0.04)
N	304	311	325	311	312	333	332	332
R2	0.55	0.26	0.53	0.68	0.74	0.51	0.50	0.46

Includes time fixed effects. Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%. S^{HH} is household savings rates, S^{Corp} is corporate savings rate, S^{gov} is government savings rate, I^{DW} is residential construction, I^{NR} is non-residential construction, I^{EQ} is investment in equipment, I^M is investment in machines and I^T is investment in transport.

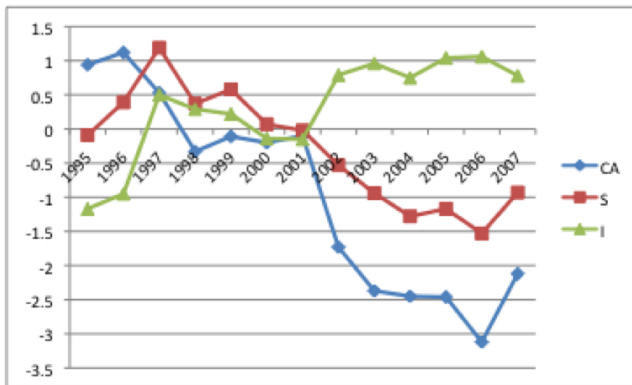


Figure: Time-Varying Impact of Growth Forecasts.

Summary of Empirical Results

- Lower-income countries ran larger current account deficits, especially inside euro area
 - Mainly lower savings rates but also higher construction investment rate (insider euro area)
 - Problematic in terms of building debt repayment capacity (Giavazzi and Spaventa 2010)
- Independent role for growth forecasts, in addition to relative income variable
 - This link grew stronger during 2002-2007: increased dispersion in current account balances linked to greater comovement between growth forecasts and net capital flows
 - Operated through higher investment rates and lower savings rates
 - Fundamentals-based growth forecasts versus bubbles?
 - Endogeneity of growth forecasts to current account deficits (but why time-varying?)

- Greater elasticity of net capital flows during 2002-2007
 - “Pull” factors - inadequate financial regulation in deficit countries; procyclical fiscal policies?
 - “Push” factors - inadequate financial regulation in surplus countries; decline in risk aversion in global financial systems?
- Modelling failures in formation of growth forecasts during 2002-2007?
- Integration of this framework with alternative frameworks (e.g. competitiveness view of external imbalances)

- High costs of unwinding large deficits, especially with “sudden stops”
 - Expenditure reduction
 - Default risk
 - Crisis dynamics
- Europe: sudden stop in private capital flows mitigated by official capital flows (EU/IMF; ECB liquidity)
- Future reforms to curb excessive current account imbalances
 - Macro-prudential regulation of banking systems (domestic and European level)
 - Greater counter-cyclicality in fiscal policy (GDP cycle, financial cycle)

- Inflation differentials
- Role of B-S
- Similar dispersion to US but much more persistent
- Substantial cumulative RER movements
- Concentrated in NT sector

Cyclical Fluctuations in RER

- Positive comovement with relative growth rates
- Significant role for trade-weighted exchange rates
- Role for fiscal shocks

- Pros and Cons of EMU membership during the crisis
- Real devaluation achievable?