

GROWTH-LINKED SECURITIES

Global Economics in Extraordinary Times:

Essays in Honor of John Williamson

Dagmar Hertova and Stephany Griffith-Jones

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Growth-Linked Securities

- In the context of counter-cyclical policies
- John's contribution
 - Curbing the Boom-Bust Cycle: Stabilizing Capital Flows to Emerging Markets (2005)
 - Focus on need to stabilize the boom and bust pattern of capital flows to emerging economies
 - Detailed policy proposals
- First wave of interest in the 1980s
- Implemented only to limited extent, and only by countries in difficulties

Benefits of Growth-Linked Bonds

- Issue growth-linked securities as a precautionary way in good times
- Gains for borrowers
 - Counter-cyclical element
 - Lower likelihood of defaults and debt crises
- Gains for investors
 - Take a position on countries' future growth and diversification
 - Lower frequency of defaults and financial crises
- Broader benefits
 - International risk-sharing and public good benefits

Variants of Growth-Linked Bonds

- Robert Schiller variant
 - Permanent fraction of issuer country's nominal GDP
- Eduardo Borensztein and Paolo Mauro variant
 - Similar to a standard bond but pay an interest rate that varies proportionately with the issuer's real growth rate
- Daniel Schydrowsky variant
 - As Borensztein/Mauro security, but excess payment indexed to the principal
- Significant differences between the three variants
 - Only Schiller security indexed to inflation
 - Changes in real growth rate have varying short-run/long-run effects

Concerns

- Moral Hazard
 - Suppressing growth
 - Underreporting growth
- GDP Revisions
 - John Williamson (2008) *Is There a Role for Growth-Linked Securities?*
 - Historical analysis shows 90 percent of revisions are within 3%
 - Non-routine GDP adjustments (more concerning) averaged 6.7%
 - How to deal with revisions?
- Are They Really Counter-Cyclical?
 - Lags in GDP data publication may limit counter-cyclicity of the instrument

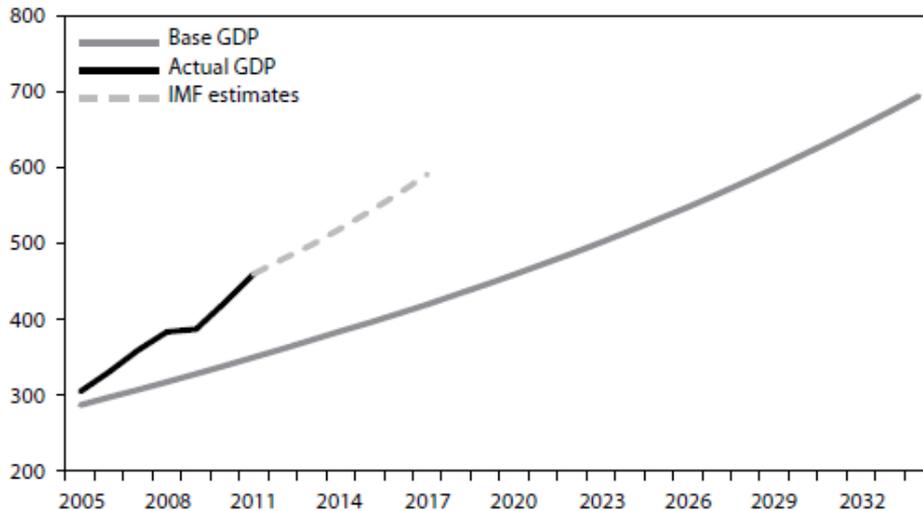
Argentine GDP-Linked Warrants

- As part of Argentine debt restructuring package in 2005 and 2010
- Payment equal to 5% of excess GDP level if:
 - Real GDP exceeds baseline GDP
 - Real annual GDP growth exceeds baseline GDP growth (4.26% in 2005 to 3% in 2015+)
 - Total payment cap of 48% of value of warrants
- Payment based on GDP performance in the previous year

Argentine GDP-Linked Warrants

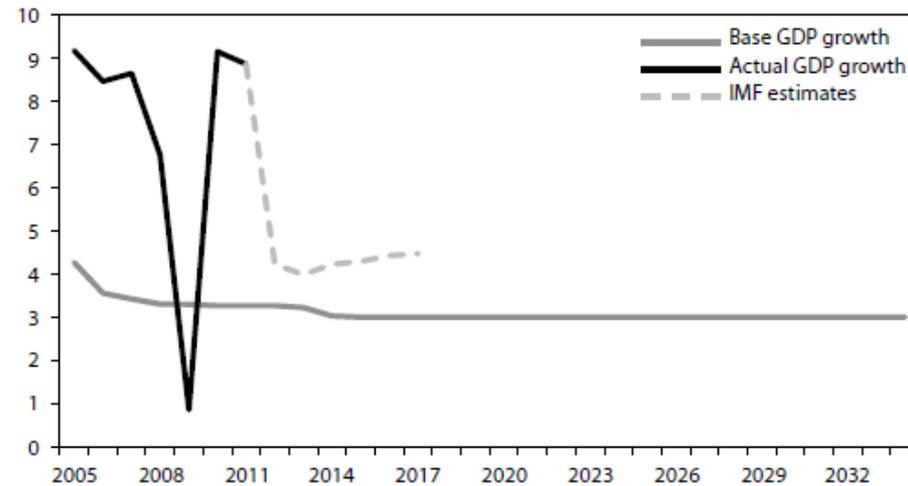
a. Level of real base-case GDP versus actual and estimated GDP

billions of 1993 Argentine pesos



b. Base-case annual real GDP growth versus actual and estimated GDP growth

percent



- Initially very little value, but prices soared due to high growth

Argentine GDP-Linked Warrants

Table 7.1 Argentina: Servicing of GDP-linked securities, 2005–12

Indicator	2005	2006	2007	2008	2009	2010	2011 ^a	2012 ^a
Payments on GDP-linked warrants								
Billions of dollars	—	0.395	0.812	0.996	1.416	0	2.481	3.787 ^b
As share of total servicing of interest on public sector debt (percent)	—	10.5	15.6	24.8	22.1	0	30.0	34.2
As percent of GDP	—	0.18	0.31	0.30	0.46	0	0.55	0.80
As percent of exports	—	0.72	1.22	1.21	2.12	0	2.52	n.a.
GDP growth (percent)	9.18	8.47	8.65	6.76	0.85	9.16	8.87	4.22
Fiscal balance (percent of GDP)	-1.56	-0.89	-2.08	-0.81	-3.62	-1.58	-3.29	-3.07
Primary fiscal balance (percent of GDP)	4.65	4.18	2.47	2.76	0.21	1.68	-0.36	-0.19

- Payment based on GDP level, not growth → large and increasing payments
- Overall, \$6 billion paid out on the warrants = around a quarter of the cap

Greek GDP-Linked Securities

- Issued as part of Greece's sovereign debt restructuring in February 2012
- Payment equal to 1.5 excess GDP growth rate if:
 - Nominal GDP exceeds baseline GDP
 - Real annual GDP growth exceeds specified GDP growth targets (2.9% in 2015 to 2% in 2021+)
 - Annual payment cap of 1% of value of bonds
- Payment based on GDP performance in the previous year

Argentina vs. Greece

- Payment based on GDP level versus GDP growth
 - Missed payment in Argentine case is made up for later in the stream of payments
 - Missed payment in Greek case is lost
- Total versus annual payment cap
 - Argentine warrants attractive investment, but burden for government
 - Annual 1% cap limits country's obligations, but not attractive to investors
- Greek warrants not likely to be as valuable as Argentine warrants

Conclusions and way forward

- Design should be simple, ideally standardized
- Should be issued in normal times
- Public goods externalities  case for involvement of multilateral institutions
- Portfolio of loans indexed to growth rates of debtor countries  diversification of risk