

Fiscal Pro-cyclicality and Optimistic Forecasts

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Fiscal policy has two jobs (macroeconomicly).

- Long run: keep enough budget discipline on average to ensure debt is sustainable.
- Medium run: keep fiscal policy counter-cyclical.
 - Or, if counter-cyclical is too difficult, at least don't allow it to be *pro*-cyclical.

Pro-cyclicality



Fiscal policy has historically tended to be pro-cyclical in most developing countries, thereby worsening ups & downs in the economic cycle.

- Correlation of income & spending mostly positive:
 - Cuddington (1989), Gavin & Perotti (1997), Tornell & Lane (1999), Kaminsky, Reinhart & Végh (2004), Talvi & Végh (2005), Alesina, Mendoza & Oviedo (2006), Campante & Tabellini (2008), Ilzetski & Végh (2008), Medas & Zakharova (2009), Erbil (2011), Céspedes & Velasco (2014), Bova, Carcenac & Guerguil (2014), Avellan & Vuletin (2015).
- Tax policy tends to be pro-cyclical as well:
 - Végh & Vuletin (2015).

Why do leaders fail to take advantage of boom times to strengthen the budget?

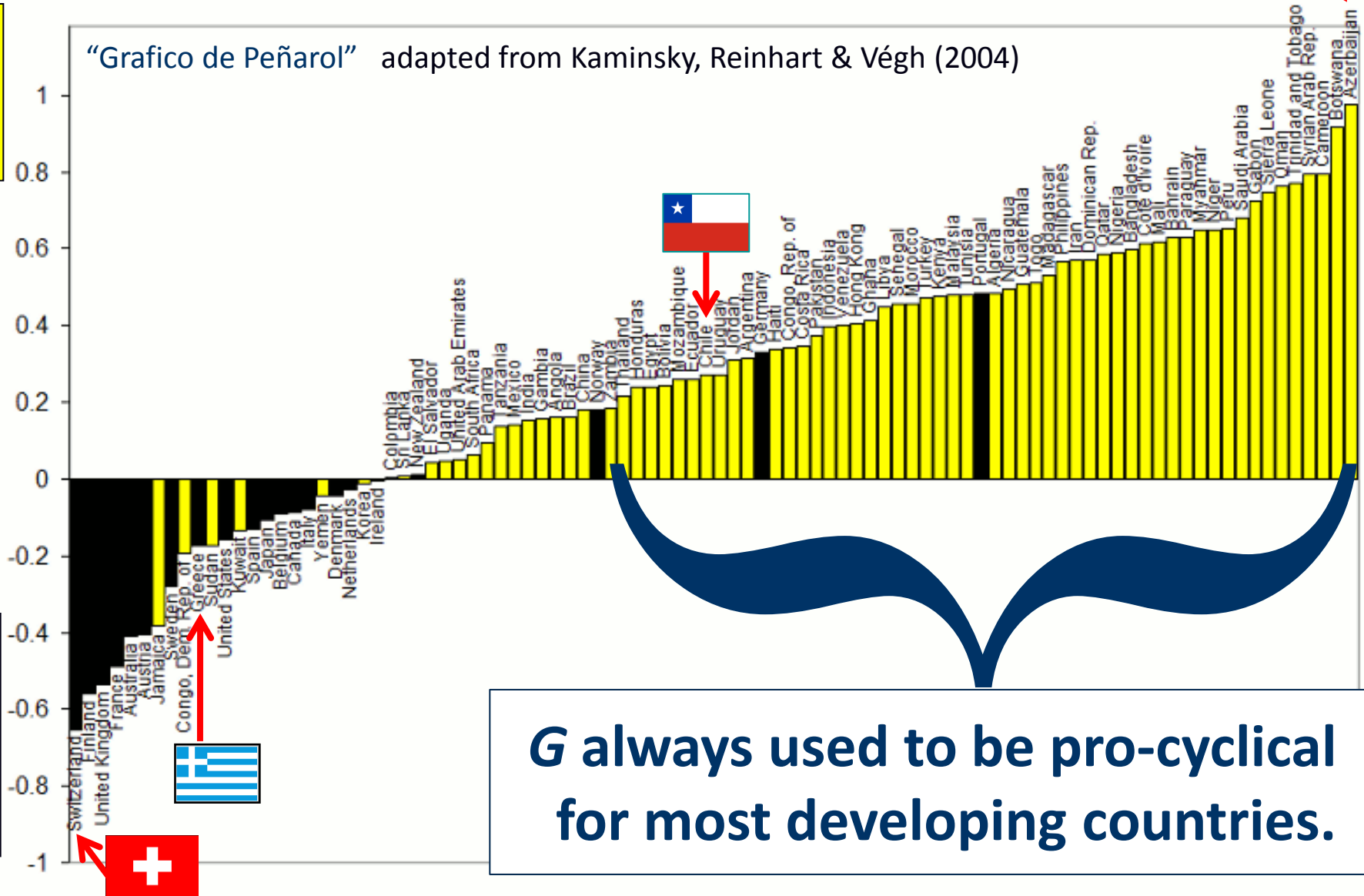
- People don't see the need to "fix the hole in the roof when the sun is shining."
 - They may see the mistake when the storm hits,
 - but then it is too late.
- My claim: Official forecasts are over-optimistic in boom periods, rationalizing the failure to act
 - according to data from 33 countries.



Correlations between Gov.t Spending & GDP 1960-1999



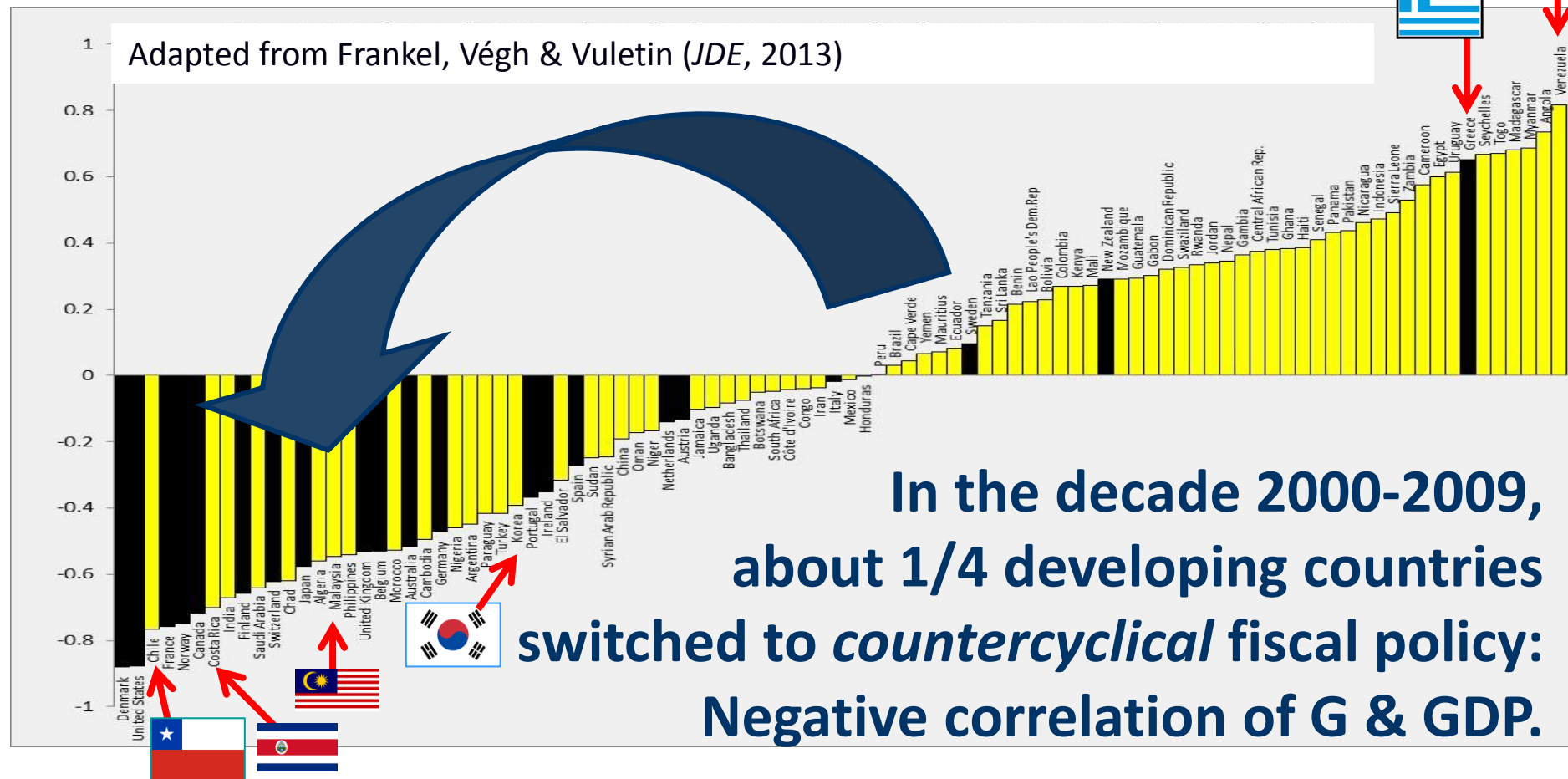
“Grafico de Peñarol” adapted from Kaminsky, Reinhart & Végh (2004)



The procyclicality of fiscal policy, cont.

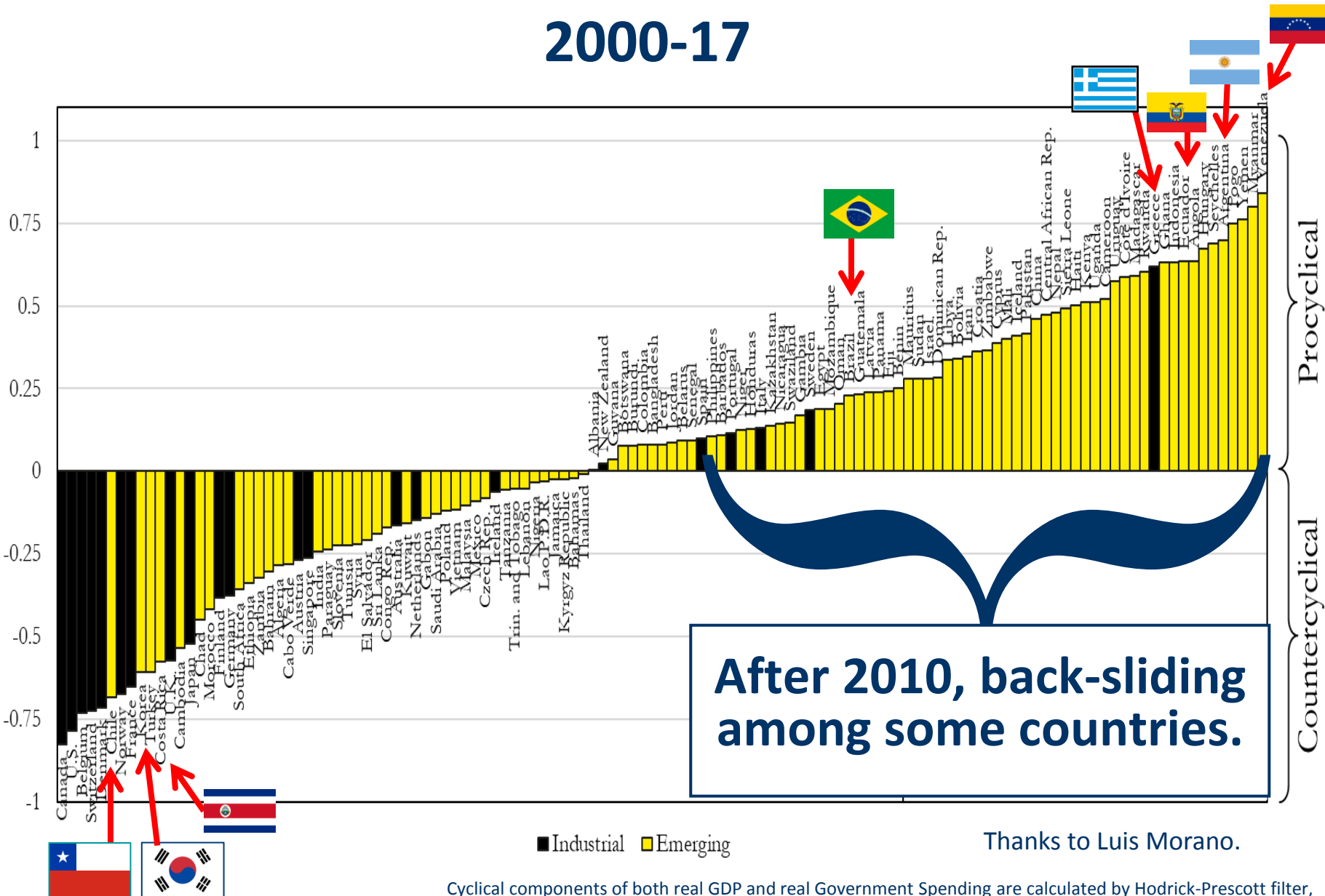
- An important development -- some developing countries were able to break the historic pattern after 2000:
 - taking advantage of the boom of 2002-2008
 - to run budget surpluses & build reserves,
 - thereby earning the ability to expand fiscally in the 2008-09 crisis.
 - Chile, Costa Rica, Botswana, Malaysia, S. Korea... 
- Subsequently, some went back to full pro-cyclicality,
 - e.g., Argentina, Brazil, & Ecuador.

Correlations between Government spending & GDP 2000-2009



DEVELOPING: 43% (or 32 out of 75) countercyclical. Was 17% (or 13 out of 75) in 1960-99.
ADVANCED: 86% (or 18 out of 21) countercyclical. Was 80% (or 16 out of 20) in 1960-99.

Update of Correlation (Govt spending, GDP): 2000-17



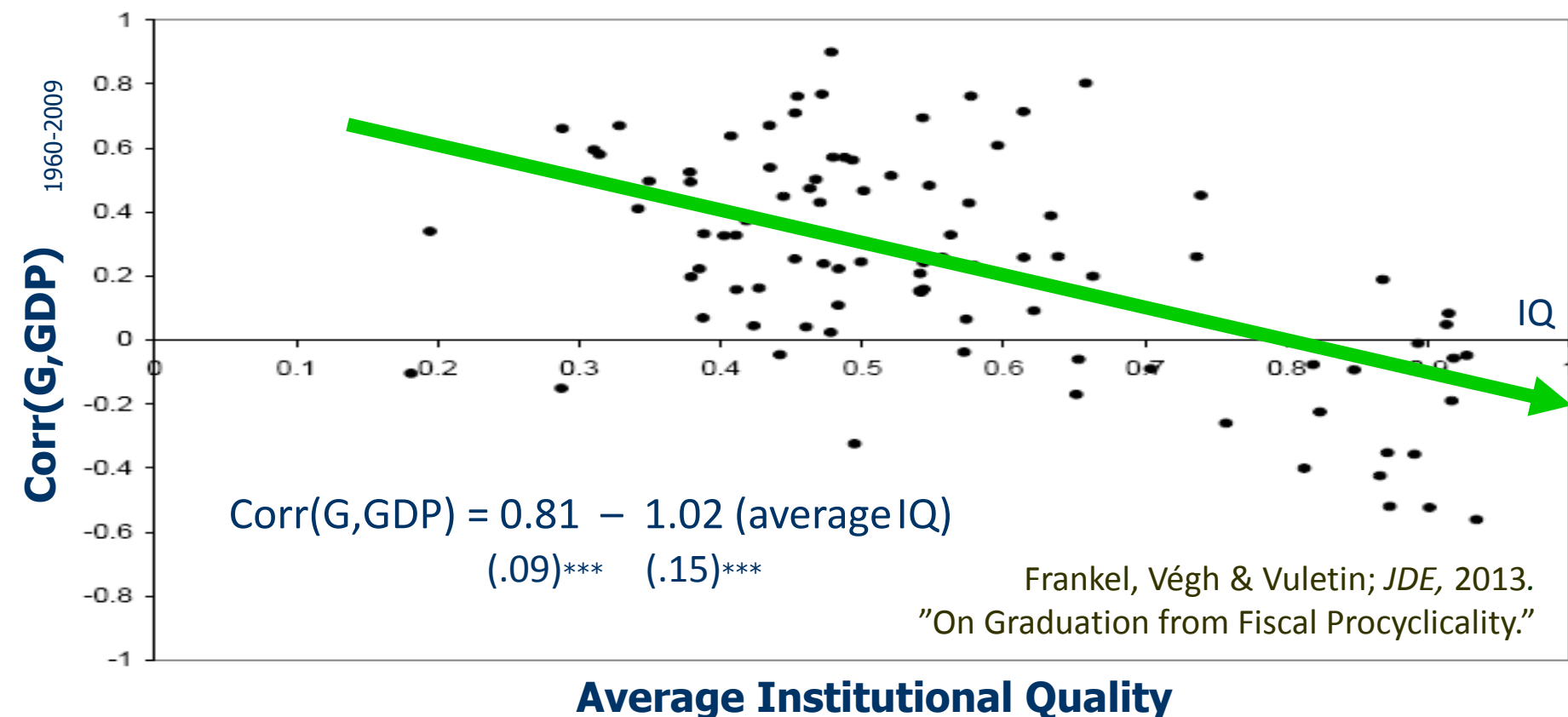
Thanks to Luis Morano.

Cyclical components of both real GDP and real Government Spending are calculated by Hodrick-Prescott filter, using 6.25 as smoothing parameter and extracting the cyclical components from the series of the level.

Who achieves countercyclical fiscal policy?

Countries with “good institutions”

Country correlations between the cyclical components of the real government expenditure and real GDP (1960-2009) vs. average institutional quality (1984-2008)



Notes: The cyclical components have been estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as central government expenditure and net lending deflated by the GDP deflator. Country correlations between the cyclical components of the real government expenditure and real GDP (i.e., $\text{Corr}(G, \text{GDP})$) are calculated for the period 1960-2009. Institutional quality is a normalized index that ranges between 0 (lowest institutional quality) and 1 (highest institutional quality). The index is calculated as the average of four components: investment profile, corruption, law and order, bureaucracy quality. Country average institutional quality (i.e., av. IQ) is calculated for each country for the period 1984-2008. See Appendix 2 for correlation value and average institutional quality for each country.

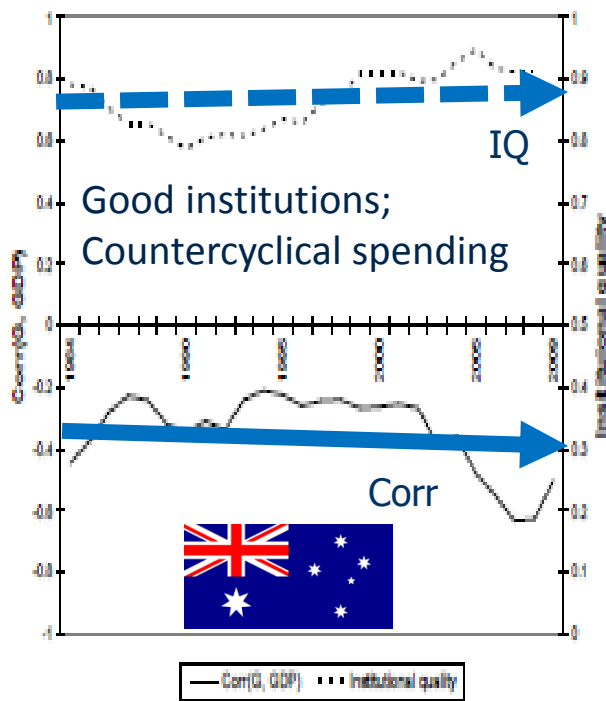
Source: International Country Risk Guide (ICRG), World Economic Outlook and International Financial Statistics (IMF).

The quality of institutions varies, not just across countries, but also across time.

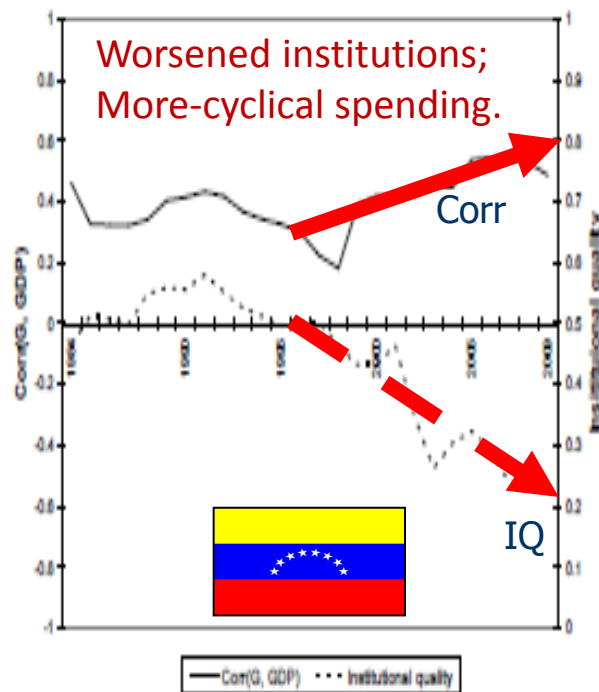
Country correlations between the cyclical components of real government expenditure and real GDP (20-year rolling windows) vs. institutional quality

1984-2009

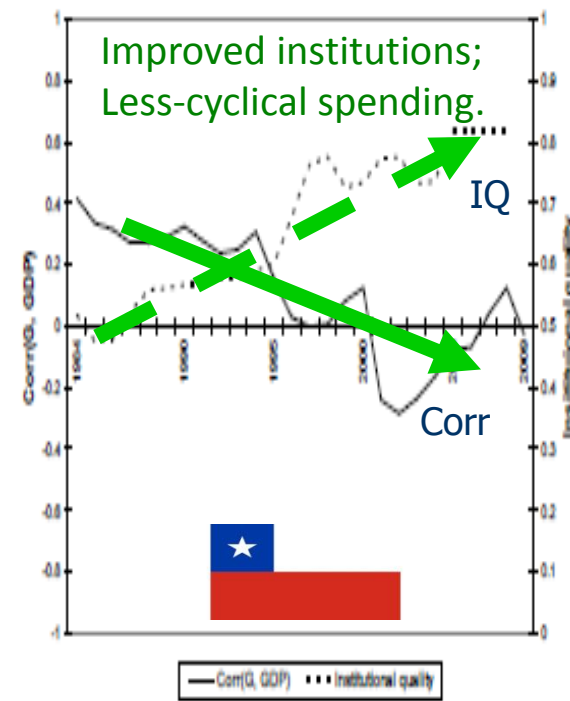
Panel A. Australia (established graduate)



Panel B. Venezuela (still in school)



Panel C. Chile (recent graduate)



Notes: The cyclical components have been estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as central government expenditure and net lending deflated by the GDP deflator. Country correlations between the cyclical components of real government expenditure and real GDP (i.e., $\text{Corr}(G, \text{GDP})$) are calculated as 20-year rolling windows for the period 1960-2009. Institutional quality is a normalized index that ranges between 0 (lowest institutional quality) and 1 (highest institutional quality). The index is calculated as the average of four components: investment profile, corruption, law and order, and bureaucratic quality. Actual institutional quality (i.e., for each year) is used. Institutional quality is shown on the right axis and the correlation between the cyclical components of real government expenditure and real GDP is shown on the left.

Source: International Country Risk Guide (ICRG), World Economic Outlook and International Financial Statistics (IMF).

Advanced countries can suffer pro-cyclicality too.

i) The euro periphery.



ii) The US.

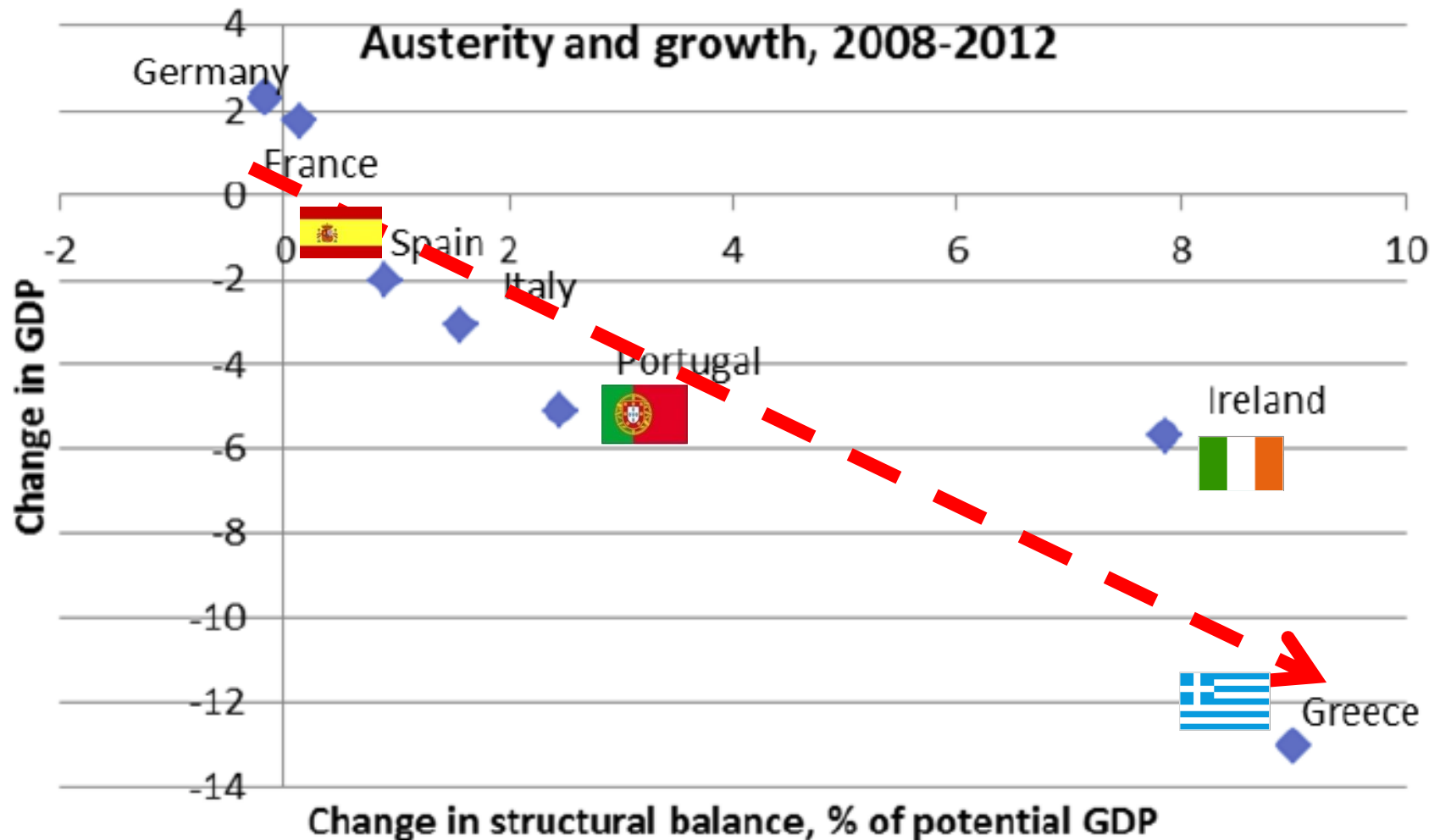




(i) Pro-cyclical fiscal policy in Europe:

When the euro crisis hit in 2009,

the bigger fiscal contractions went with the bigger recessions.



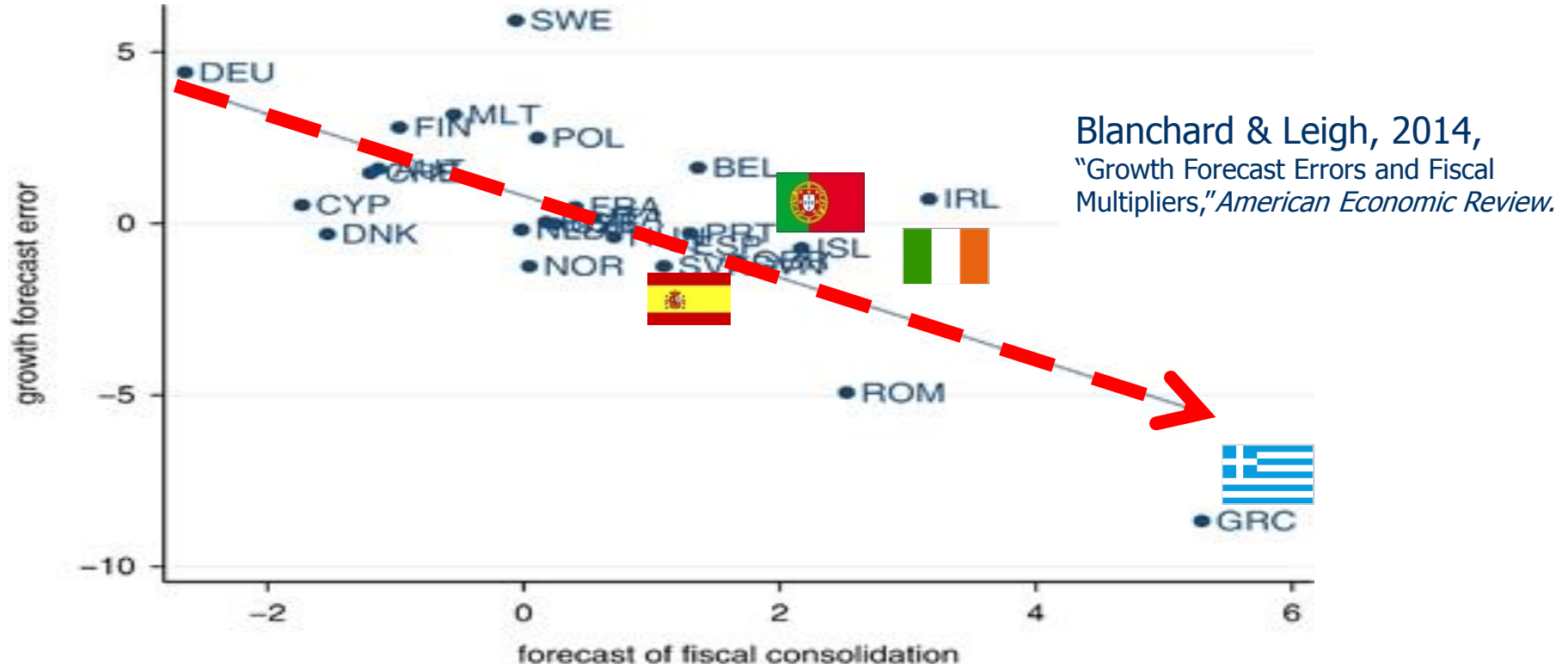


Why? A different kind of over-optimism:

Effects of austerity were worse than the Troika had assumed.

The evidence: the bigger the fiscal contraction, the bigger the GDP loss *relative to what had been officially forecast in 2010*.

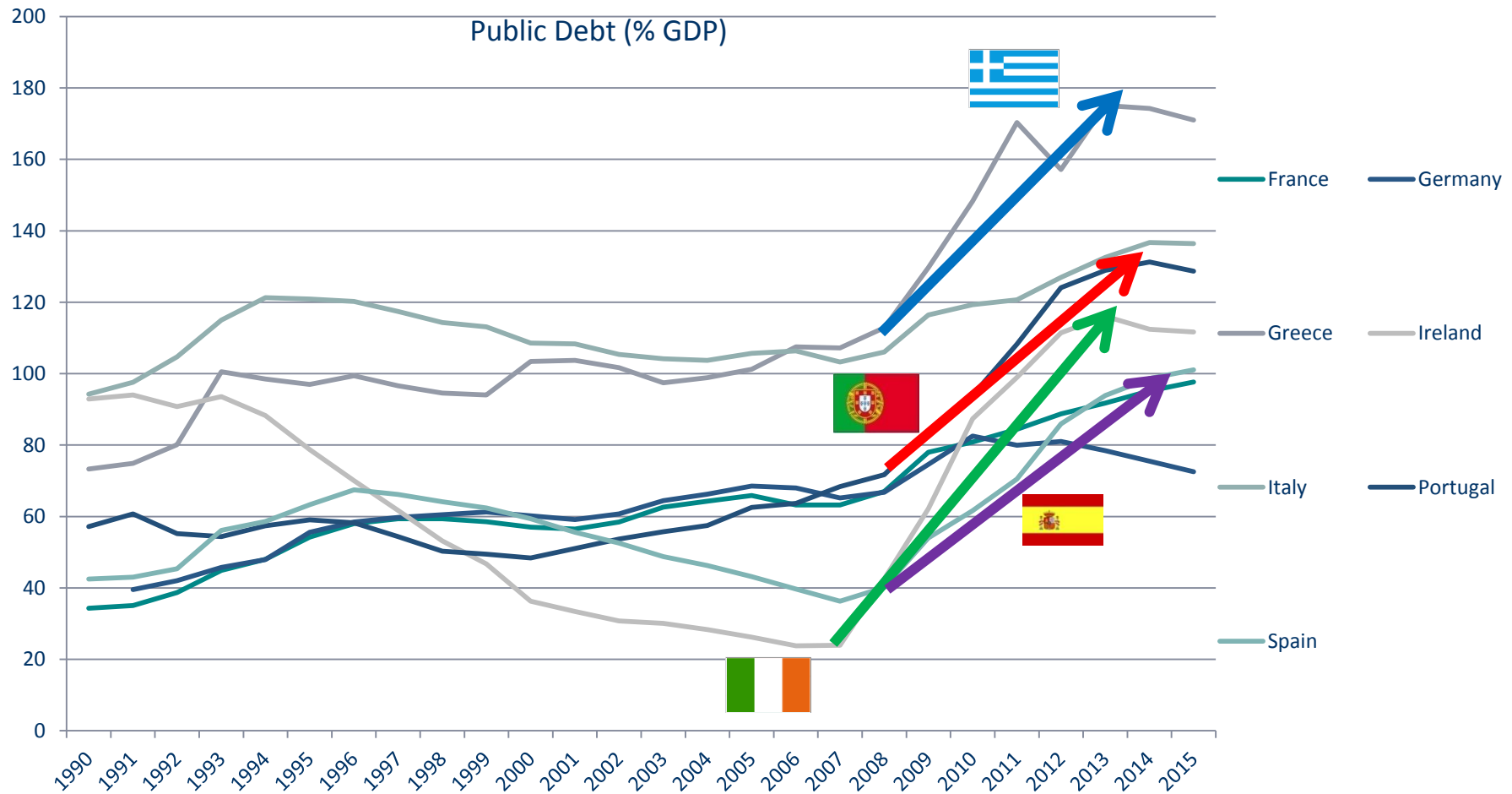
Europe: Growth Forecast Errors vs. Fiscal Consolidation Forecasts



Note: Figure plots forecast error for real GDP growth in 2010 & 2011 relative to forecasts made in the spring of 2010, on forecasts of fiscal consolidation for 2010 & 2011 made in spring of year 2010.



With austerity, debt/GDP ratios continued to rise sharply:
Declining GDP outweighed progress on reduction of budget deficits.

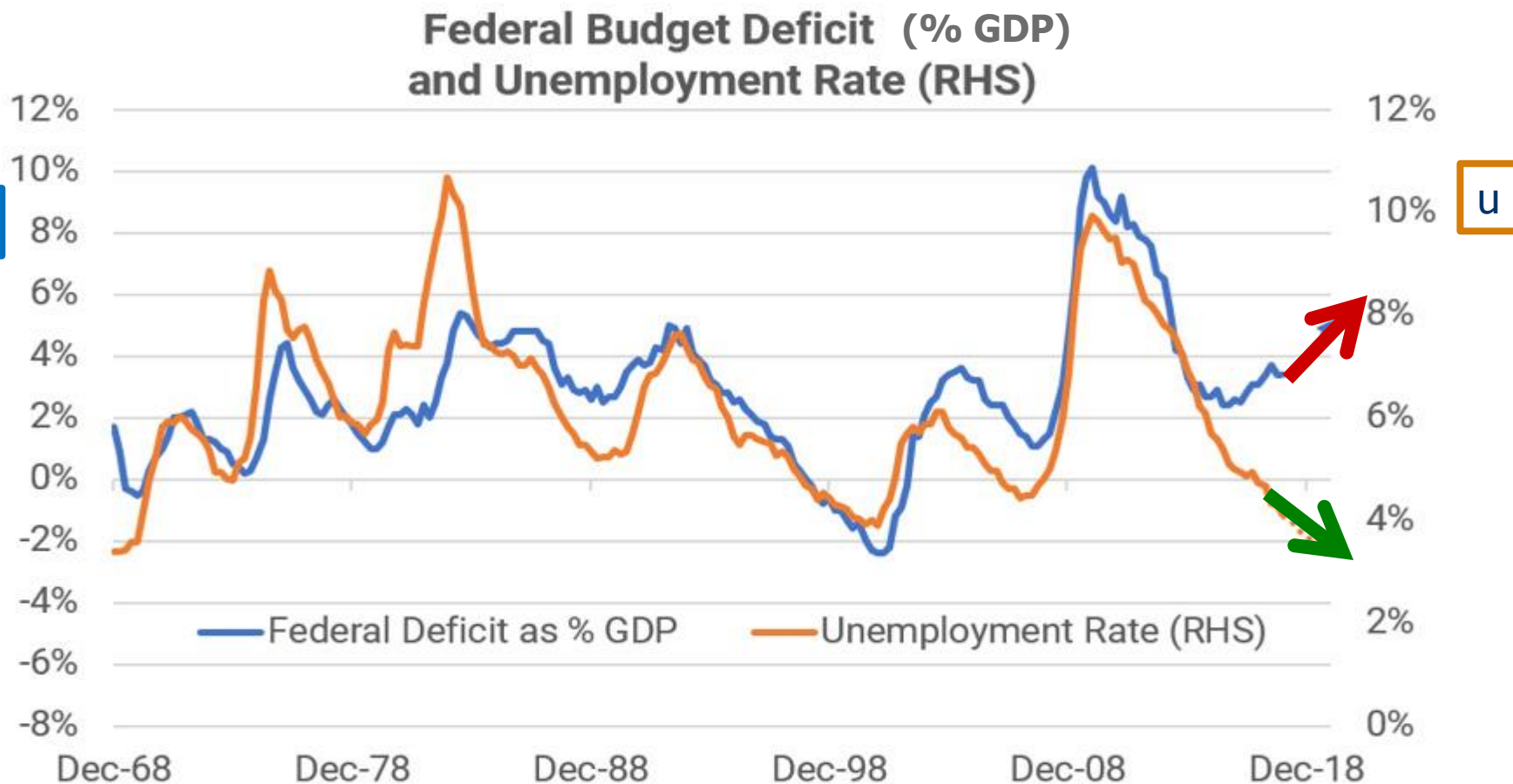


From Remi Bourgeot, Fondation Robert Schuman. Data source: IMF WEO, Oct. 2014.



(ii) US fiscal policy

has turned strongly expansionary, for the 1st time since WWII at a time when the economy is at full employment.



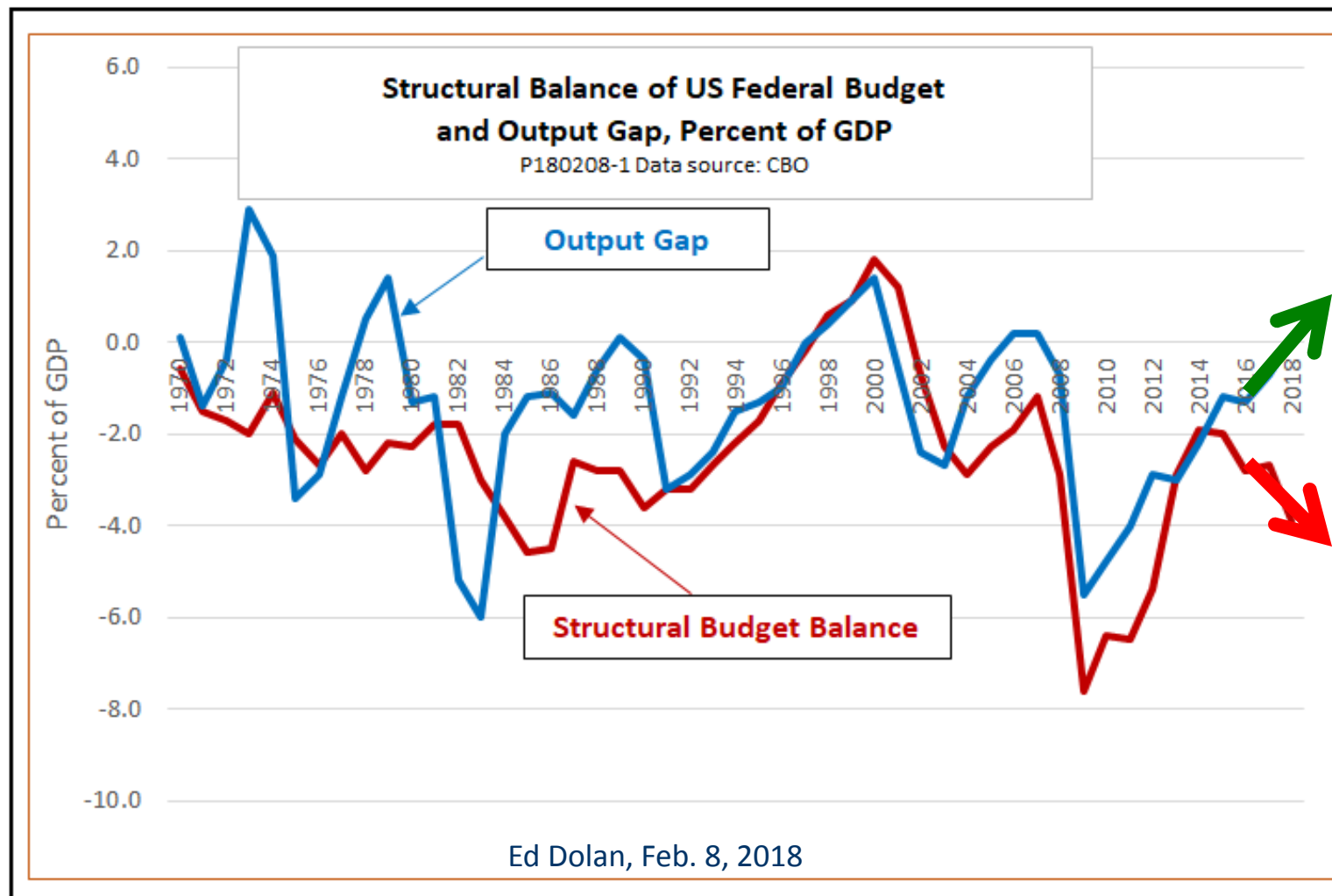
Source: Bloomberg

www.stansberrychurchouse.com

“This is how the world’s biggest economy goes broke...” Tama Churchouse, Feb.26, 2018



In Dec. 2017, the government cut taxes sharply although the US economy was already operating at its potential.



American “fiscal conservatives” have behaved pro-cyclically before



	Conservative leaders	Fiscal action: discipline or laxity?	Cyclicity?
Aug.1988 thru 1990	G HW Bush	Promised “read my lips, no new taxes”	Boom, so pro-cyclical
Sept. 1990	G HW Bush	Agreed with Congress to raise taxes & cut spending	Recession, so pro-cyclical
June 1993	Congressional Republicans	Voted against Clinton’s budget balance law (extension of GHWB’s)	Boom, so pro-cyclical
May 2003	G W Bush	More tax cuts and more spending.	Boom, so pro-cyclical.
Feb. 2009	Congressional Republicans	Voted against Obama fiscal stimulus	Recession, so pro-cyclical
Dec. 2017	Trump	Tax cut, followed by spending increase	Boom, so pro-cyclical

Three kinds of over-optimism

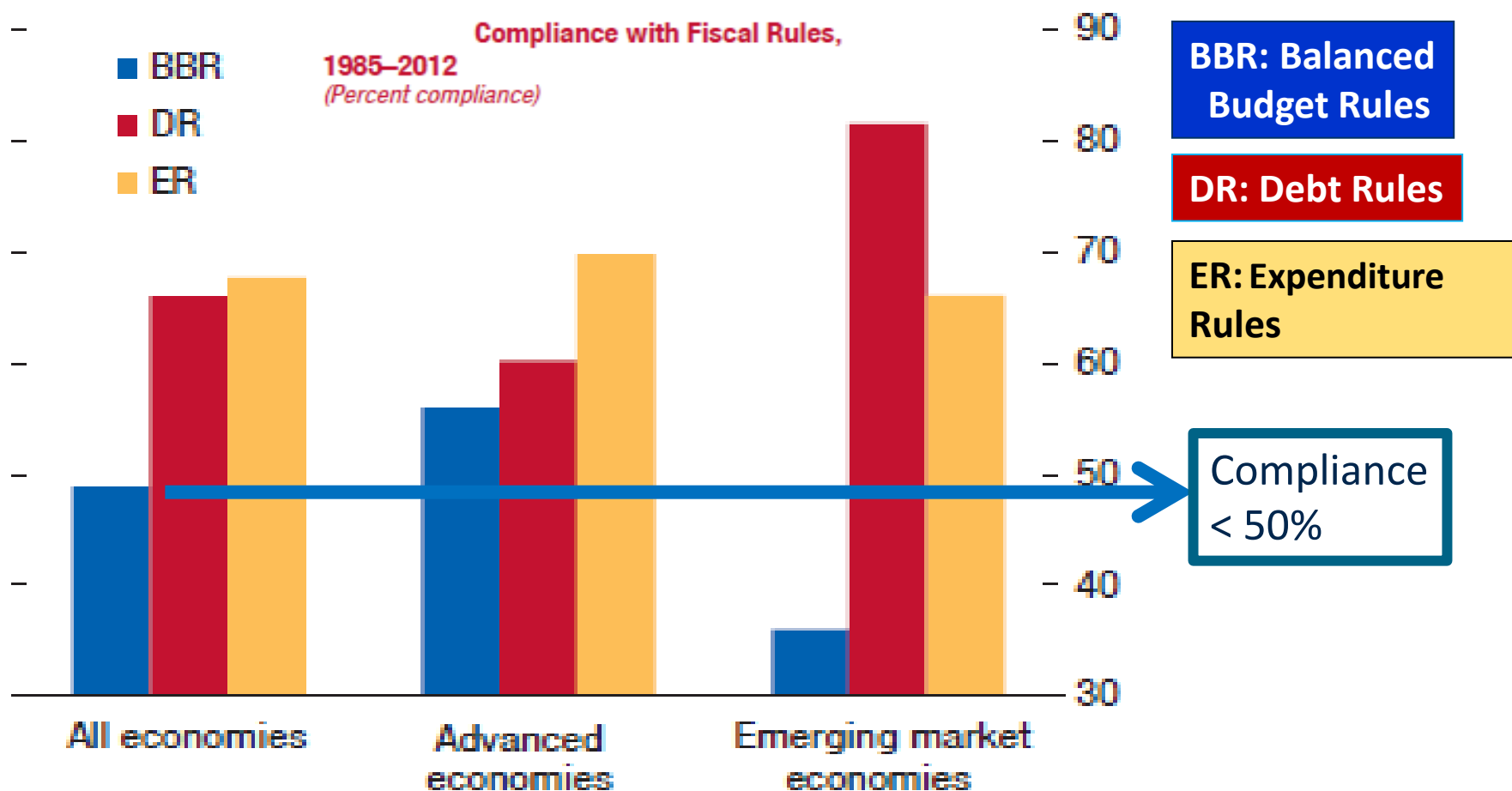
	Belief	Optimistic policy action	Unintended consequence
Commodity exporters	Booms will continue into the future	Can afford to run deficits during boom.	Pro-cyclical fiscal policy.
Euro-crisis Troika	“Expansionary austerity”	Spending cuts would not hurt GDP much.	Debt/GDP ↑.
American fiscal conservatives	Supply side economics	Tax cuts will boost GDP a lot: Budget deficit ↓.	Budget deficit ↑.

How can countries avoid pro-cyclical fiscal policy?

- What *are* “good institutions,” exactly?
- Rules?
 - Budget deficit ceilings (SGP) or debt brakes?
 - Have been tried by many countries:
 - > 97 IMF members.
 - Usually fail.
 - Rules for *cyclically adjusted* budgets?
 - Countries can more likely stick with them. But...
- Rules don’t address a major problem:
 - Over-optimism in official forecasts
 - of GDP growth rates, tax receipts & budgets.

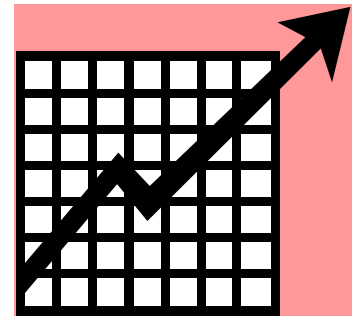


Countries with Balanced Budget Rules frequently violate them.



Over-optimism in official forecasts

- Statistically significant findings among 33 countries
 - Frankel (2011, 2012).
- Official forecasts on average are overly optimistic, for:
 - (1) budgets &
 - (2) GDP .
- The bias toward optimism is:
 - (3) stronger the longer the forecast horizon;
 - (4) greater in booms.

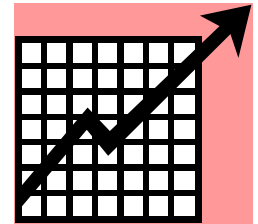




Implication of forecast bias for actual budgets

- Can lead to pro-cyclical fiscal policy:
 - If the boom is forecast to last indefinitely, there is no apparent need to retrench.

- BD rules don't help.
 - The SGP *worsens* forecast bias for euro countries.
 - Frankel & Schreger (2013)



The optimism bias is significantly greater in booms and at longer horizons



Budget balance forecast error as % of GDP

Variables	1 year ahead	2 years ahead	3 years ahead
GDP gap	0.093*** (0.019)	0.258*** (0.040)	0.289*** (0.063)
Constant	0.201 (0.197)	0.649*** (0.231)	1.364*** (0.348)
Observations	398	300	179
R ²	0.033	0.113	0.092
RMSE	2.25	2.73	3.10

*** p<0.01

(Robust standard errors in parentheses, clustered by country.)

GDP gap is lagged so that it lines up with the year in which forecast was made, not the year being forecast.

Frankel (2011) , Table 2

What institutions might help address the problem of bias in fiscal forecasts?

- Evidence, e.g. from Europe, suggests that fiscal rules are not the solution to the problem.
- Evidence suggesting possible solutions:
 - (1) Private sector forecasts can help.
 - (2) The case of Chile's fiscal institutions.

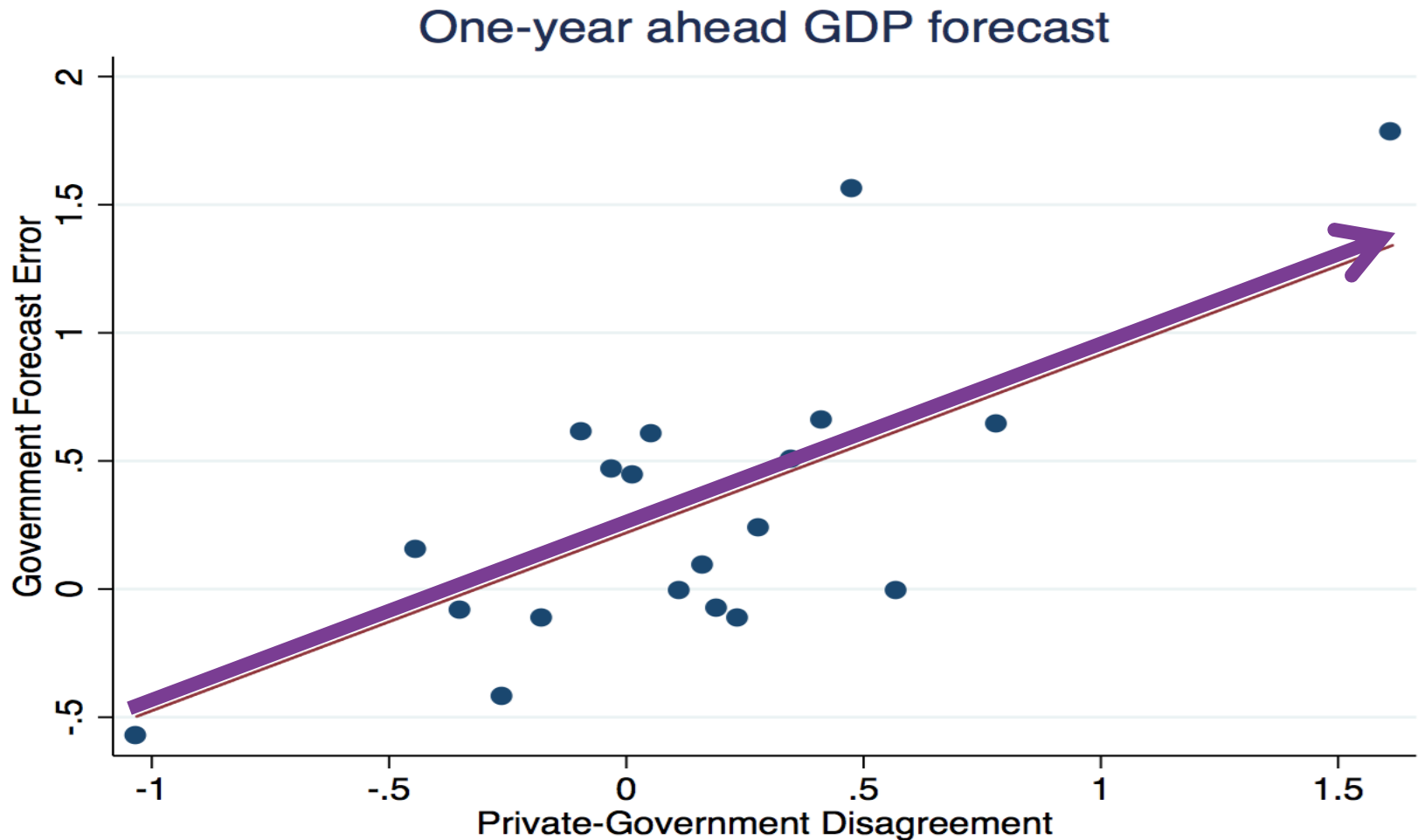


(1) Private forecasts can help

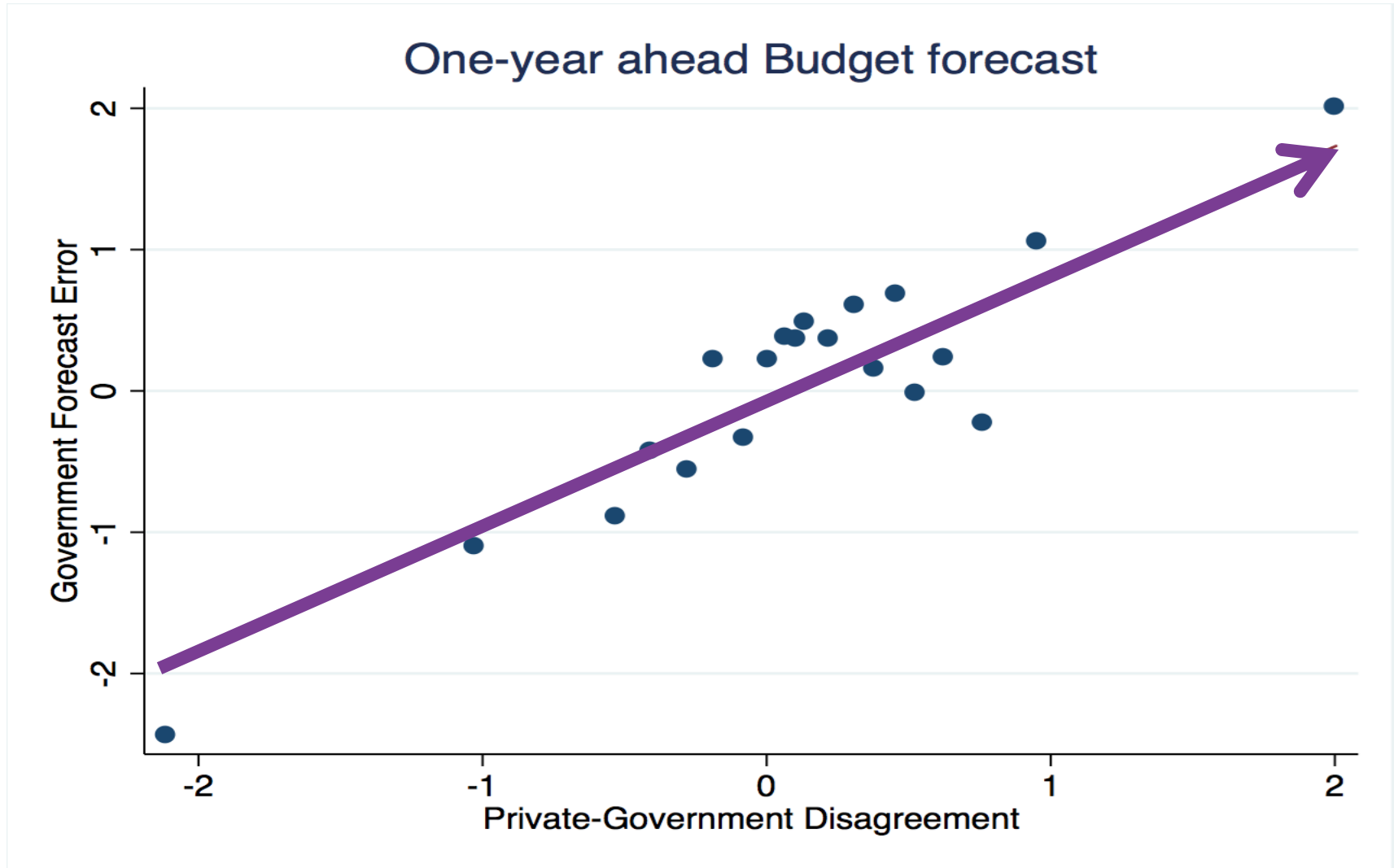
Frankel & Schreger (2016)



When official forecasts of GDP are more optimistic than private forecasts, on average they are too optimistic.



When official forecasts of budget balance are more optimistic than private forecasts, on average they are too optimistic.



Frankel & Schreger (2016)

Frankel & Schreger (2016)
conclusions regarding private forecasts:

Incorporating private sector forecasts into the budget process could help countries stick to fiscal rules.

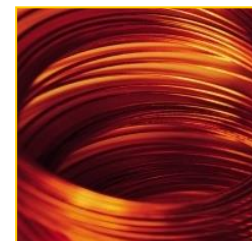
1. Official forecasters are more over-optimistic than private forecasters judged by average outcomes for budget balances & real GDP.
2. While euro area governments would never forecast violations of the 3% deficit/GDP cap in the SGP during the period 1999-2009, private sector forecasters would.
3. Official forecasts could do better over time by putting some weight on private forecasts.

(2) The case of Chile



Chile's fiscal institutions appear to have overcome the problem of over-optimism - Frankel (2013)

- In 2000 Chile instituted its structural budget rule.
- The institution was formalized in law in 2006.
- The structural budget surplus must...
 - be targeted, at 0 as of 2008,
 - where structural is defined by output & copper price equal to their long-run trend values.
- I.e., in a boom the government can only spend increased revenues that are deemed permanent; any temporary copper bonanzas must be saved.



Chilean fiscal institutions



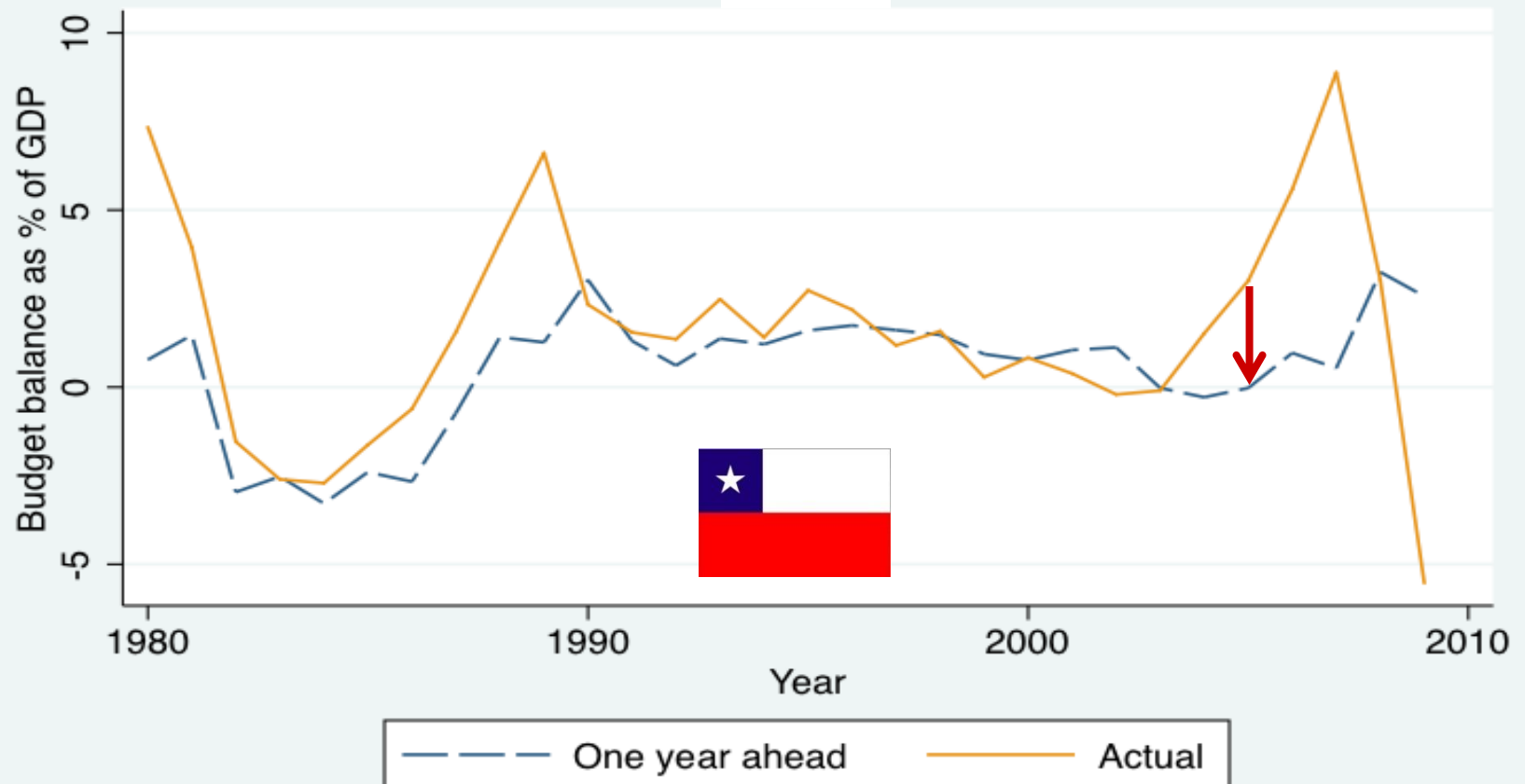
- Chile did not show bias toward optimism in forecasts of the budget, growth or copper price.
- The key innovation that allowed Chile to achieve countercyclical fiscal policy:
 - not just a structural budget rule in itself,
 - but rather a regime that entrusts to two panels of independent experts estimation of the long-run trends of copper prices & GDP.



Unlike the rest of the panel of 33 countries, Chile's official forecasts were *not* over-optimistic.

Forecasts of budget balance vs. actual

Year indicates year that forecast is made



The Pay-off



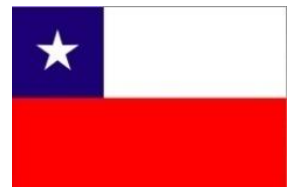
- Chile's fiscal position strengthened immediately:
 - Public saving rose from 2.5 % of GDP in 2000 to 7.9 % in 2005
 - allowing national saving to rise from 21 % to 24 %.
- Government debt fell sharply as a share of GDP and the sovereign spread gradually declined.
- By 2006, Chile achieved a sovereign debt rating of A,
 - several notches ahead of Latin American peers.
- By 2007, it had become a net creditor.
- By Dec. 2007, Chile's sovereign rating had climbed to A+,
 - ahead of some advanced countries.
- => It was able to respond to the 2008-09 recession
 - via fiscal expansion.

List of relevant references by the author

- “Bias in Official Fiscal Forecasts: Can Private Forecasts Help?” with Jesse Schreger, NBER Working Paper 22349, 2016.
- “On Graduation from Fiscal Pro-cyclicality,” with Carlos Végh & Guillermo Vuletin, *Journal of Development Economics*, 100, 1, 2013; pp. 32-47.
- “A Solution to Fiscal Pro-cyclicality: The Structural Budget Institutions Pioneered by Chile,” in *Fiscal Policy and Macroeconomic Performance*, Luis Felipe Céspedes & Jordi Galí, eds. (Central Bank of Chile: Santiago), 2013, pp. 323-391.
- “Over-optimistic Official Forecasts and Fiscal Rules in the Eurozone,” with J. Schreger; *Review of World Economy*, 2013.
- “Over-optimism in Forecasts by Official Budget Agencies and Its Implications,” *Oxford Review of Economic Policy*, 2011, 536-562.
- “A Lesson From the South for Fiscal Policy in the US and Other Advanced Countries,” *Comparative Economic Studies*, 2011, 407-430.
- “Snake-Oil Tax Cuts,” 2008, HKS RWP 08-056.

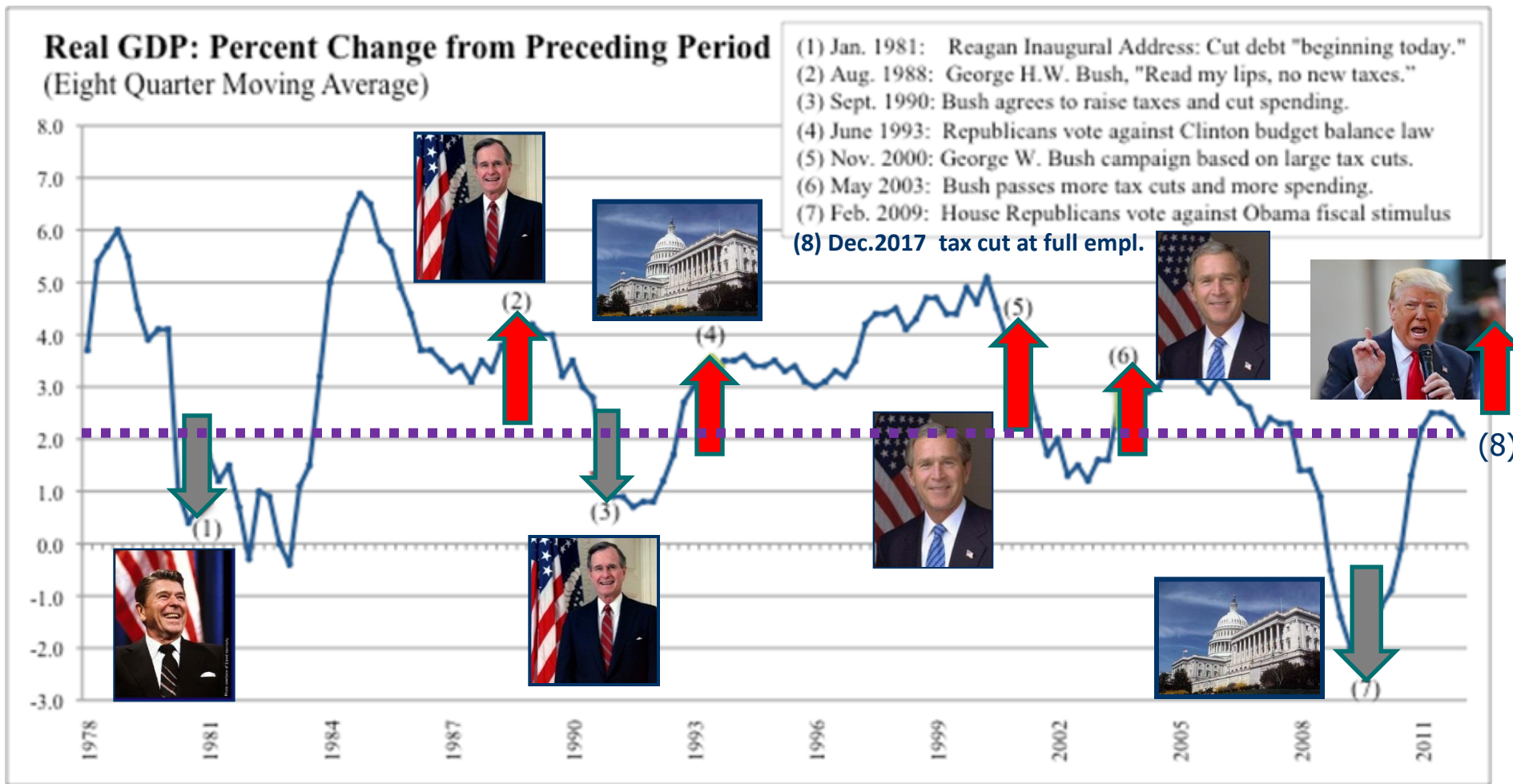
Appendices

- Appendix I: More on pro-cyclical politicians in the US.
- Appendix II: More on forecast bias
 - Official forecasts
 - Private forecasts
- Appendix III: More on the European case
- Appendix IV: More on delegation of forecasts.



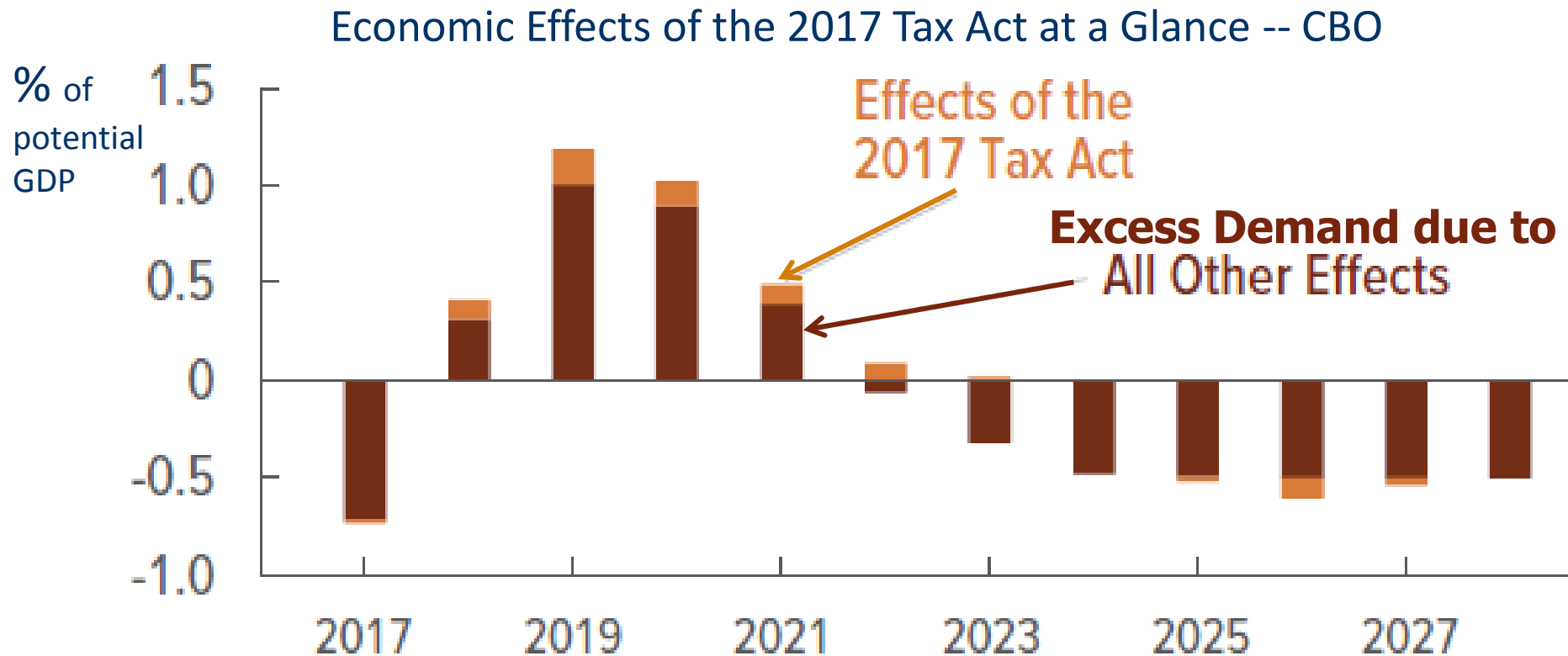
Appendix I: Pro-cyclical politicians in the US

Through 3 cycles, some pursued austerity during recessions,
followed by fiscal expansion
when the economy was already expanding.





The US 2017 Tax Act boosts real GDP in relation to real potential GDP in the near term, exacerbating excess demand in the economy 2018-2020.



The Budget and Economic Outlook: 2018 to 2028, US CBO, April 2018, Fig. B-1, p.116.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy. Excess demand exists when the demand for goods and services exceeds the amount that the economy can sustainably supply. The output gap is the difference between GDP and CBO's estimate of potential GDP and is expressed as a percentage of potential GDP.

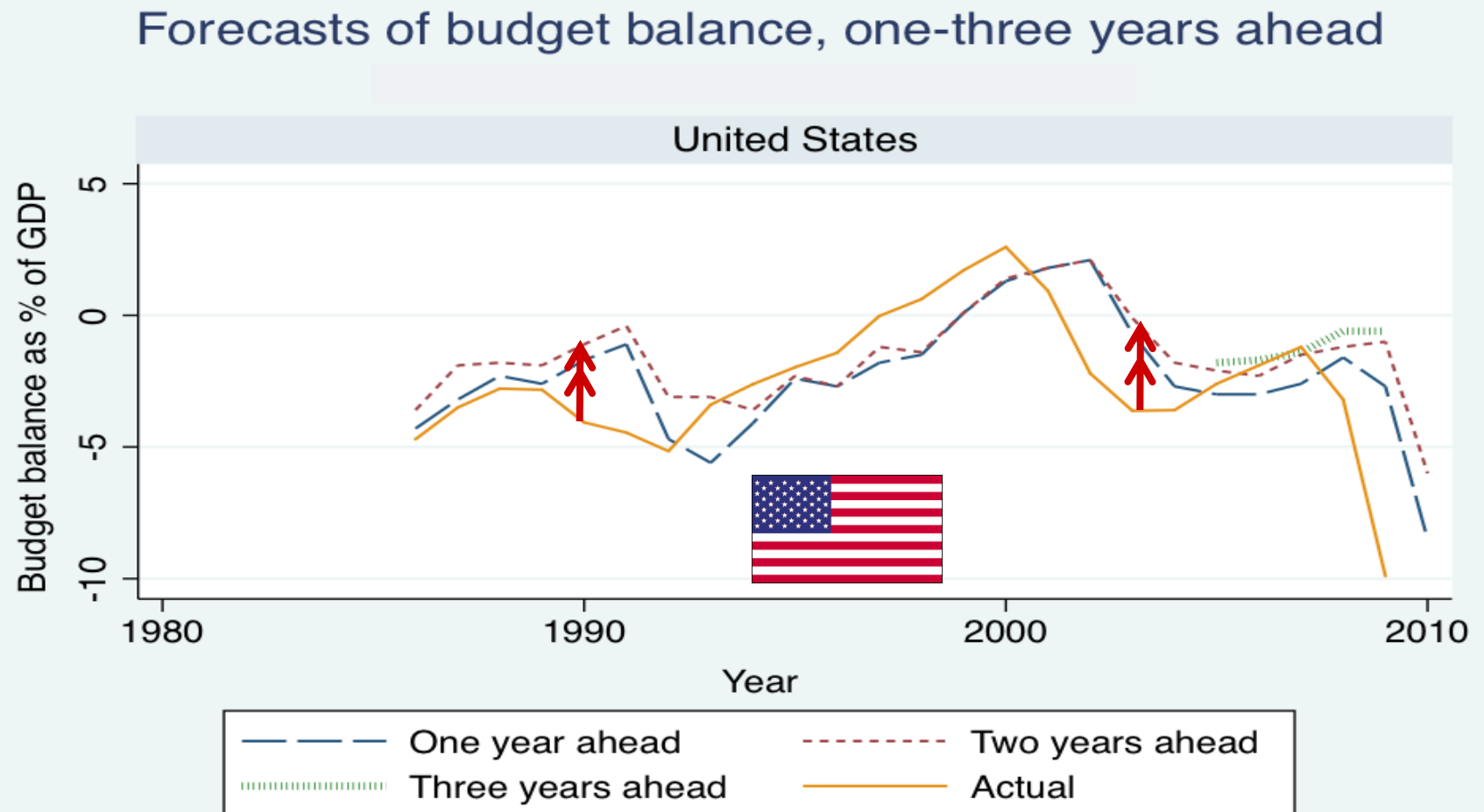
Appendix II: More on bias in budget forecasts

- (1) Bias in official forecasts
- (2) Can private forecasts help?



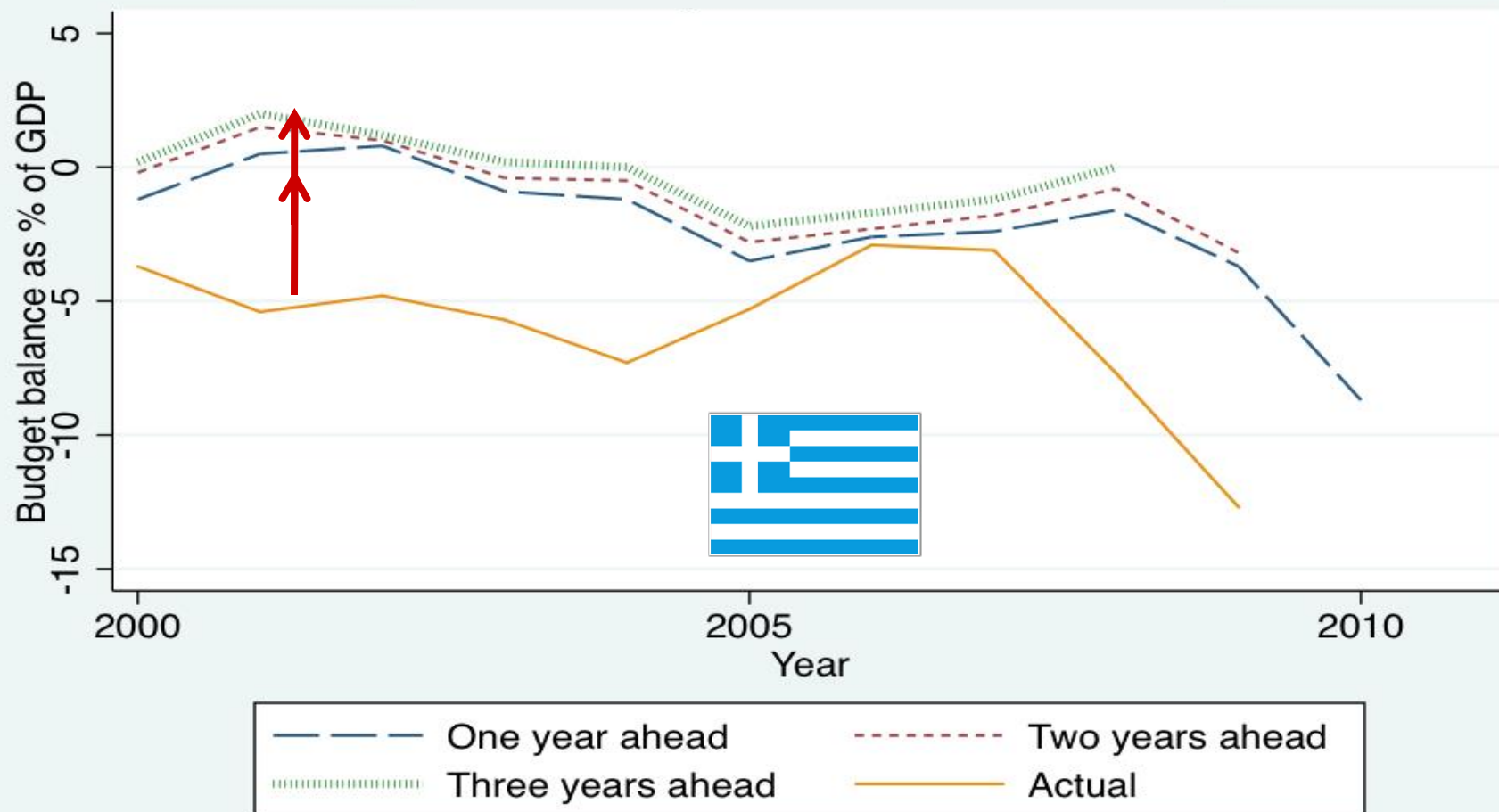
(1) More on bias in official forecasts

US official projections were over-optimistic on average.



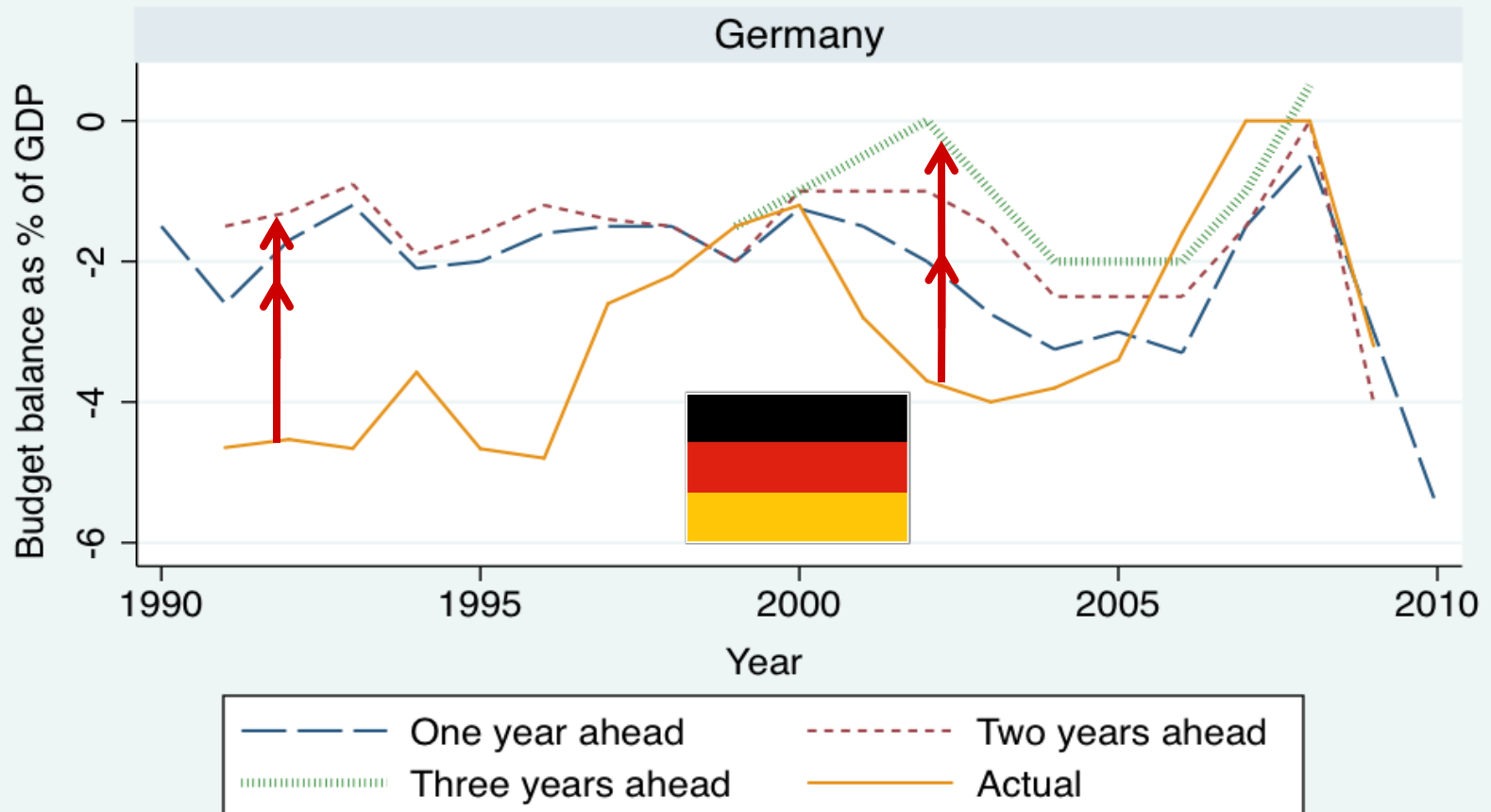
Greek official forecasts were *always* over-optimistic.

Greek forecasts of budget balance, one-three years ahead



German forecasts were also usually too optimistic.

Forecasts of budget balance, one-three years ahead



(2) New results using private sector forecasts, from *Consensus Economics*

Frankel & Schreger (2016)

The extension of the analysis helps answer two important questions.

i. When the time sample is short, results based on ex post realizations can be too sensitive to particular historical outcomes:

Might earlier findings of over-optimism be explained by one historical event, the severe 2008-09 crisis that everyone underestimated?

Private forecasts offer an alternative standard by which to judge performance of official forecasts, less sensitive to historically volatile ex post outcomes.

ii. If the reform proposal is that budget-makers should use independent projections such as those by private forecasters, it may be instructive to test whether private forecasters suffer from optimism bias as badly as government forecasters.

Italy is typical: Private forecasts more realistic than official forecasts

Fig.2: Budget Balance Forecasts

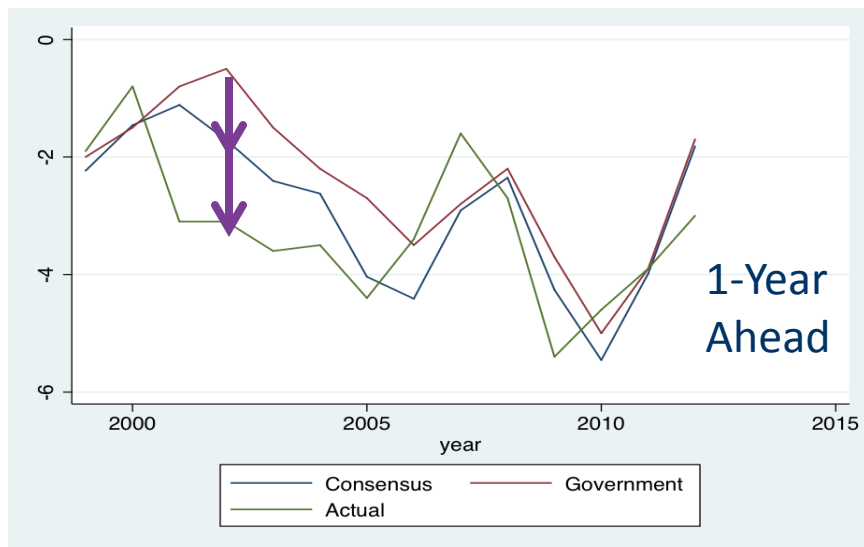
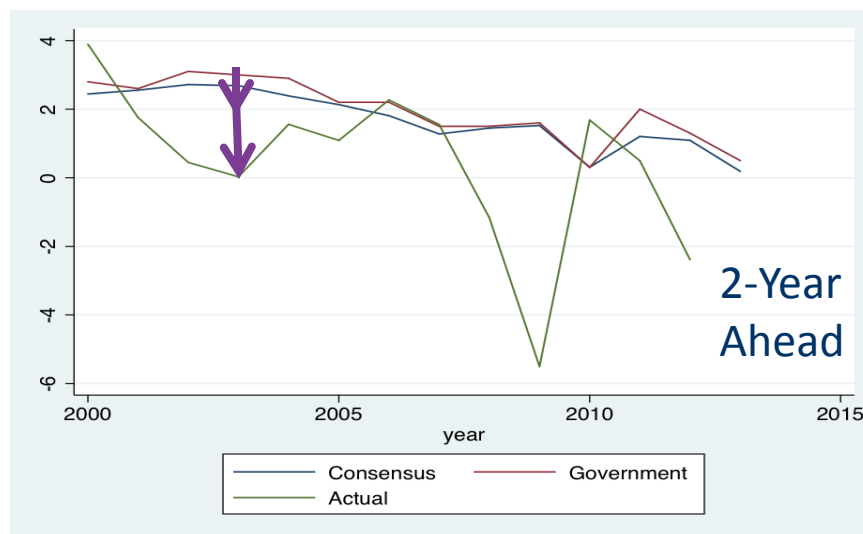
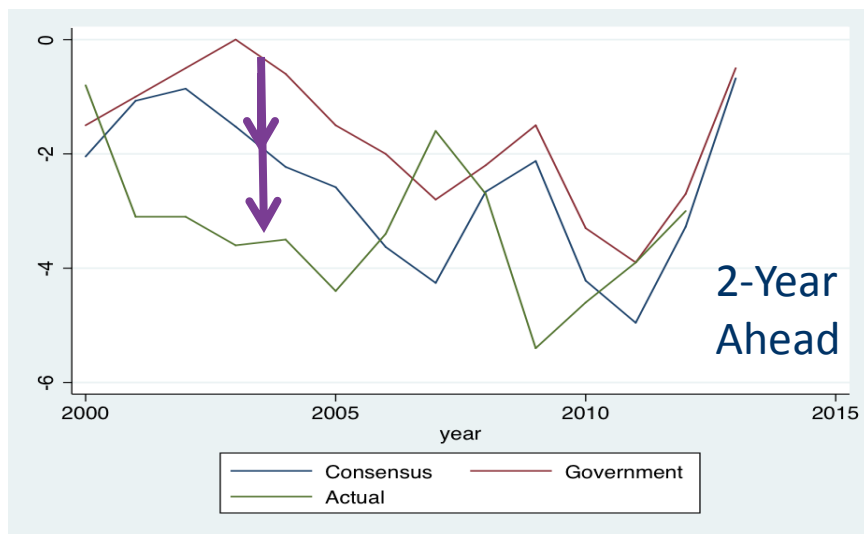
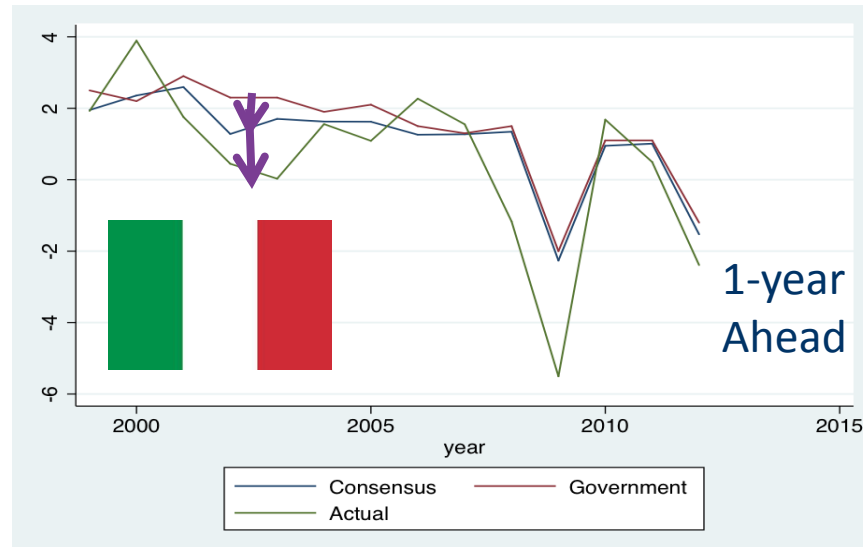


Fig.3: Real GDP Growth Forecasts



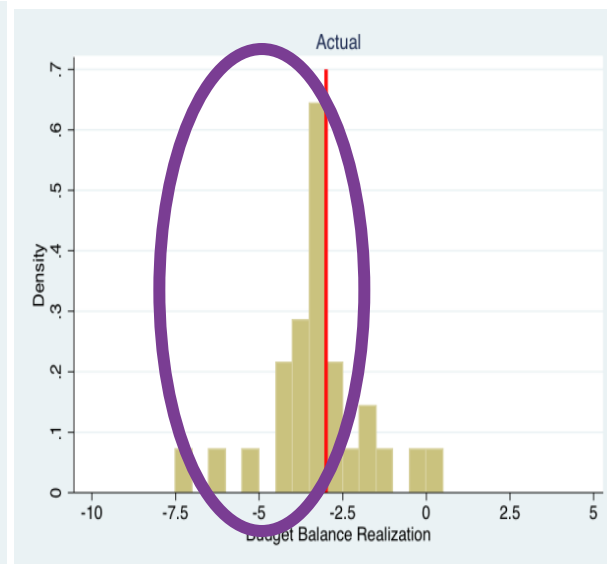
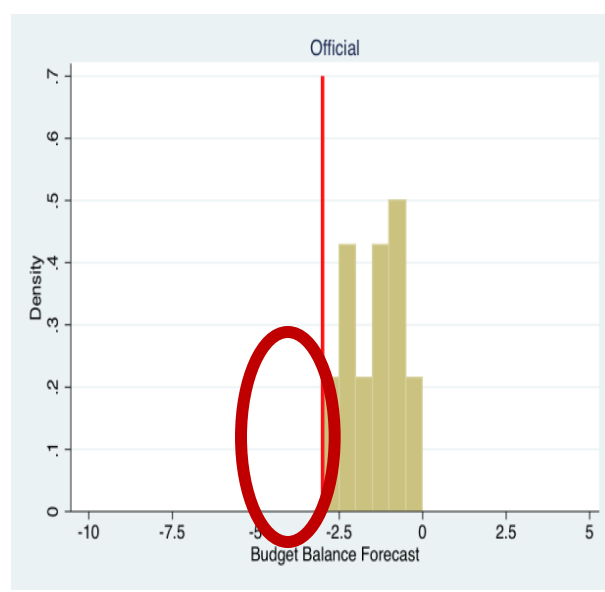
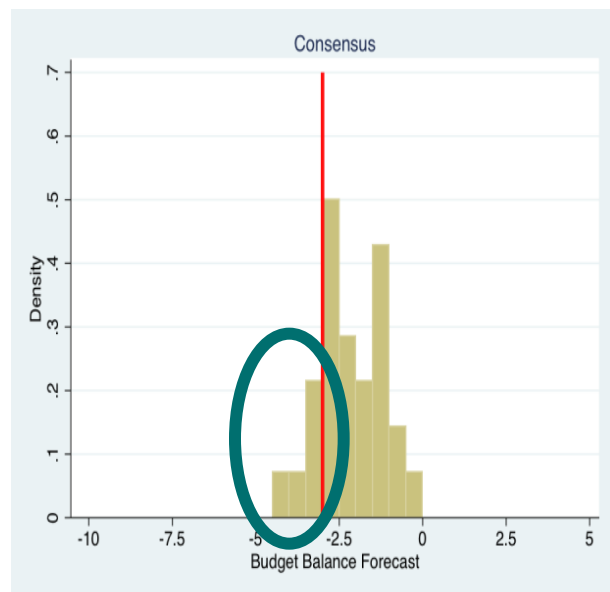
Three main results from private forecasts, for a sample of 26 countries (sample period up to 2013.)

1. Official forecasters are more over-optimistic than private forecasters on average, at the 1- & 2-year horizon for budget balances and at the 1- & 2-year horizon for real GDP forecasts.
 2. While euro area governments were very reluctant to forecast violations of the 3% deficit/GDP cap in the SGP; private sector forecasters were not.
 3. The difference between official forecast & private forecast is positively correlated with the difference between official forecast and ex post realization.
- These results suggest that incorporating private sector forecasts into the budget process could help countries stick to fiscal rules, by identifying over-optimism ex ante rather than just ex post.

Budget forecasts & realizations in the euro area

2-years ahead, thru 2009

Frankel & Schreger
(2016), Figure 5



In the euro countries, which are subject to SGP rules, the optimism bias took the form of never forecasting next year's budget deficit $> 3\%$ of GDP.

Private-sector forecasts surveyed by *Consensus Forecasts* are free to forecast budget deficits $> 3\%$ of GDP.

Summary Statistics for Budget Balance Forecasts (% of GDP)

Two-year ahead forecasts (95 observations, 10 countries)

	Mean	Standard Error
Official Minus Consensus	0.478***	(0.086)
Official Forecast Error	1.060*	(0.541)
Consensus Forecast Error	0.582	(0.548)

Driscoll-Kraay Standard Errors with 2 year lag. Only includes countries with at least 6 years of data.

- The official budget forecasts are over-optimistic on average.
- The private forecasts from Consensus Economics are significantly less over-optimistic than the official forecasts.

Summary Statistics for GDP Growth Forecasts

Two-year ahead forecasts (278 observations, 23 countries)

	Mean	Standard Error
Official Minus Consensus	0.135**	(0.048)
Official Forecast Error	1.244	(0.738)
Consensus Forecast Error	1.110	(0.736)

Driscoll-Kraay Standard Errors with 2 year lag. Only includes countries with at least 6 years of data.

- As with the forecasts of budget balance, the private forecasts of GDP growth are significantly less over-optimistic than the official forecasts.

Official GDP Growth Forecast Errors and Government-Private Disagreement

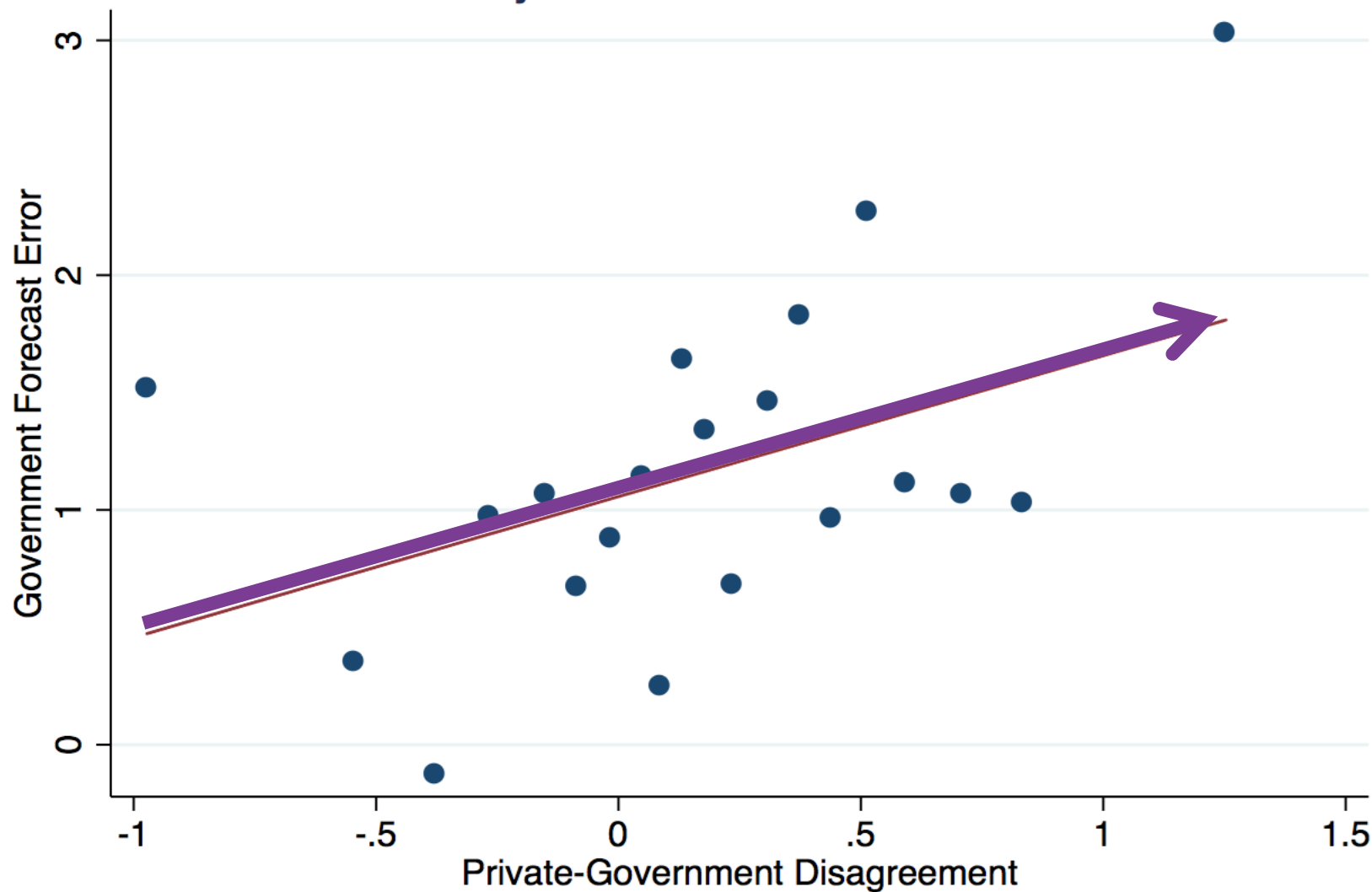
excluding 2008-09, to make sure the great recession isn't driving the results

	(1) Off. Error t+1	(2) Off. Error t+1	(3) Off. Error t+2	(4) Off. Error t+2
Official-Consensus	0.856***	0.845***	0.471**	0.284*
	(0.161)	(0.181)	(0.203)	(0.135)
Constant	-4.669***	-1.855**	1.595***	1.141
	(0.124)	(0.764)	(0.020)	(0.702)
Observations	272	272	232	232
R-squared	0.416	0.594	0.424	0.593
Countries	26	26	23	23
Year FE	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes

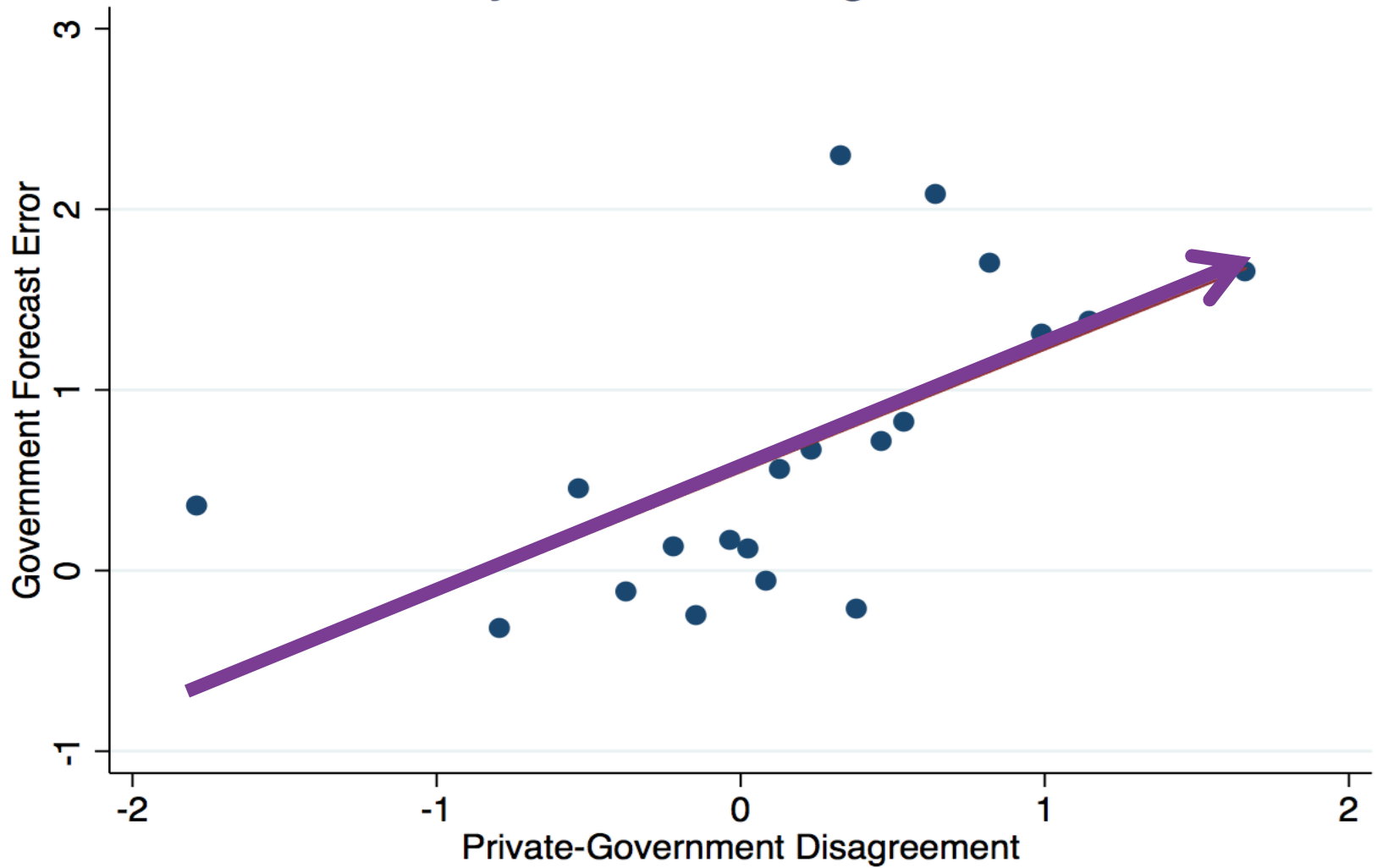
The official-private difference in ex ante forecasts
is significantly correlated with the ex post official prediction error.

More results using *private* forecasts

Two-year ahead GDP forecast

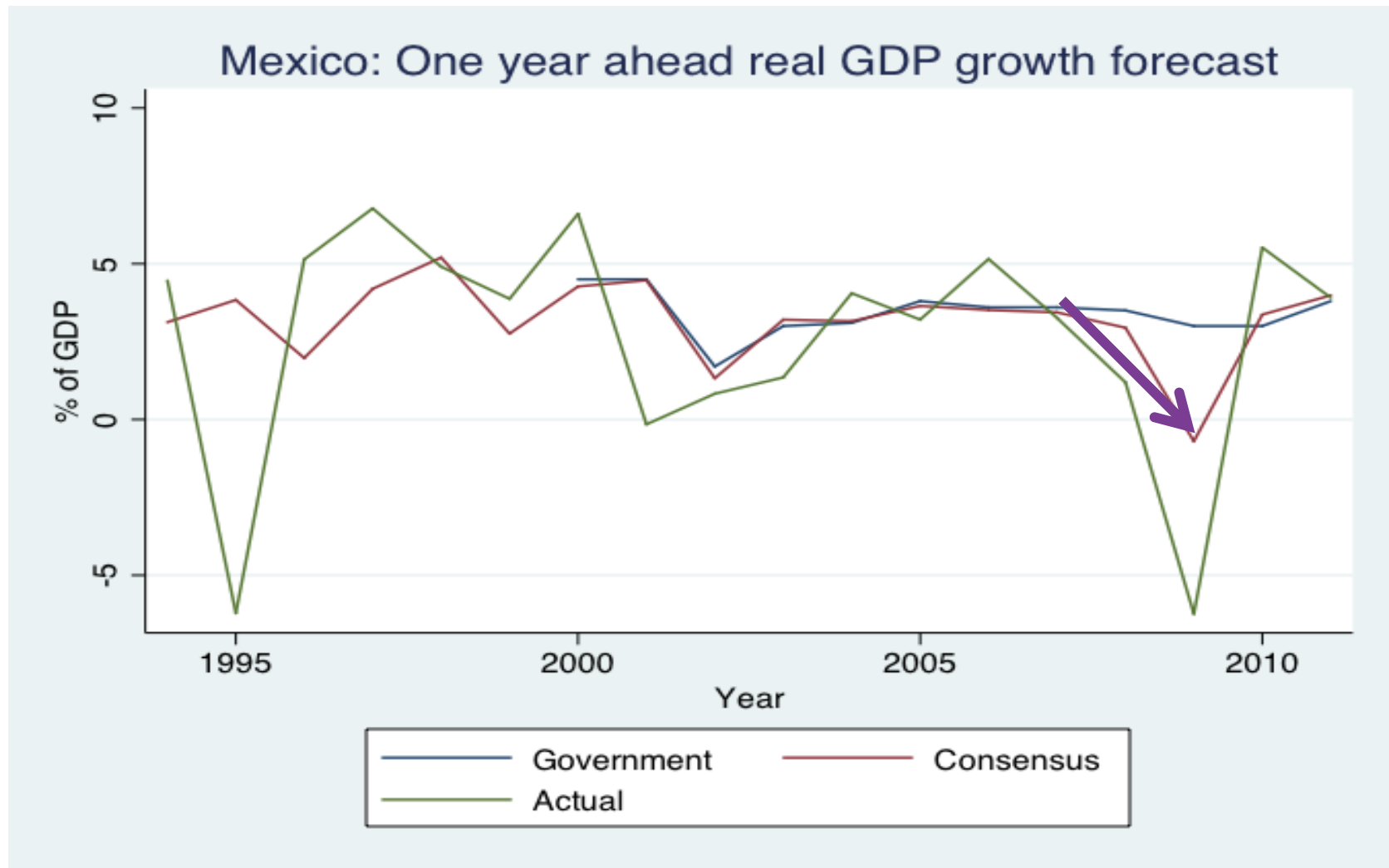


Two-year ahead Budget forecast





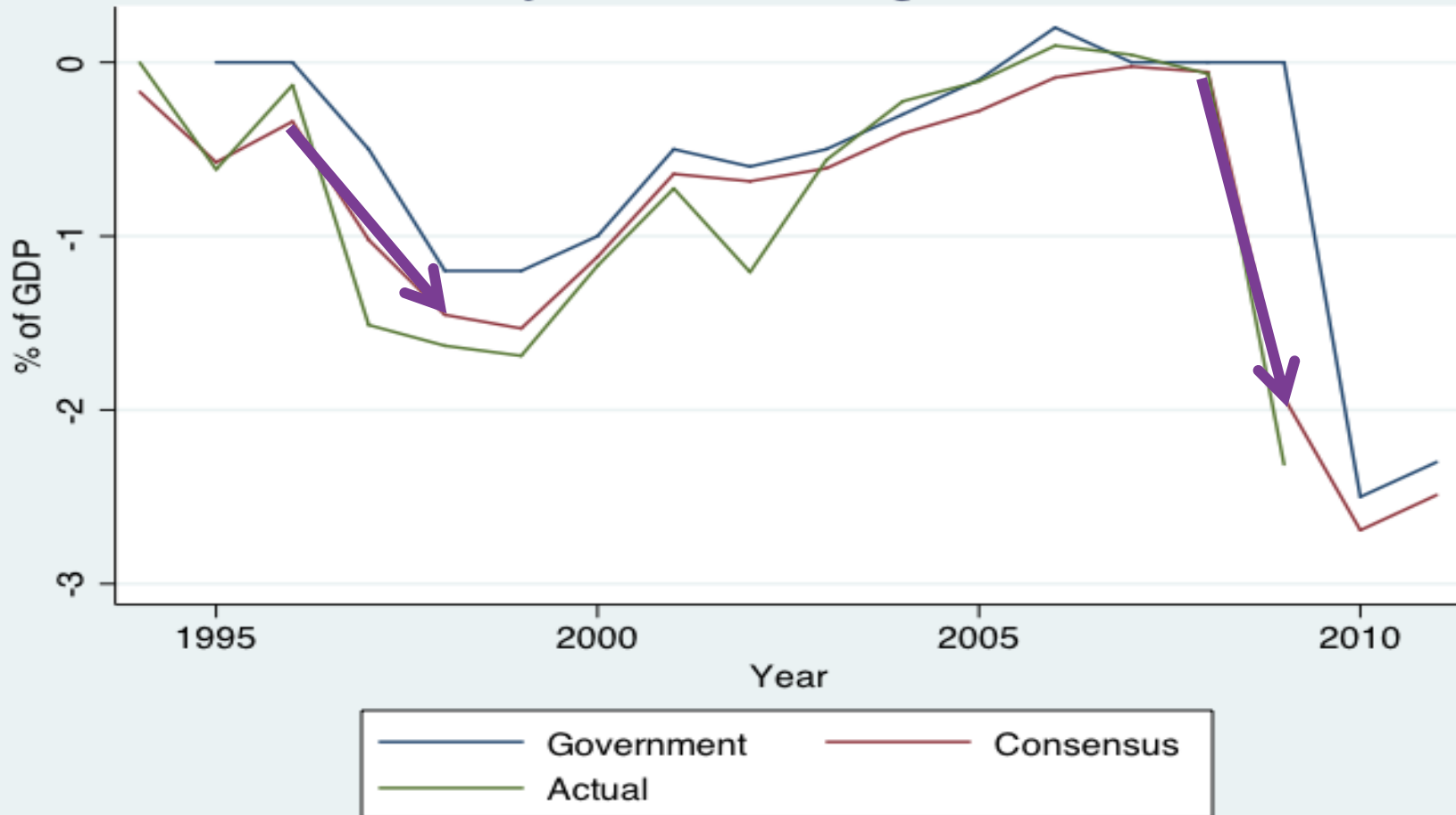
The private sector downgraded forecasts for Mexico in response to the 2008-09 global crisis, while government forecasters did not.





The private sector was also less optimistic than government forecasters about Mexican budget prospects especially in the 2009 global crisis.

Mexico: One year ahead budget balance forecast



Appendix III: The Europe case

Econometric findings regarding bias among EU countries in particular.



- Euro countries, subject to the SGP,
 - show even more optimism bias than others
 - in growth forecasts, significant at 1 and 2-year horizons
 - particularly when GDP is currently high.
 - Forecasts of budget balance among euro countries also show extra bias when GDP is currently high.

Most European official forecasts were over-optimistic.

Figure 1 (F&S, 2013):

Mean 1-year ahead budget forecast errors, European Countries,
Full Sample Period

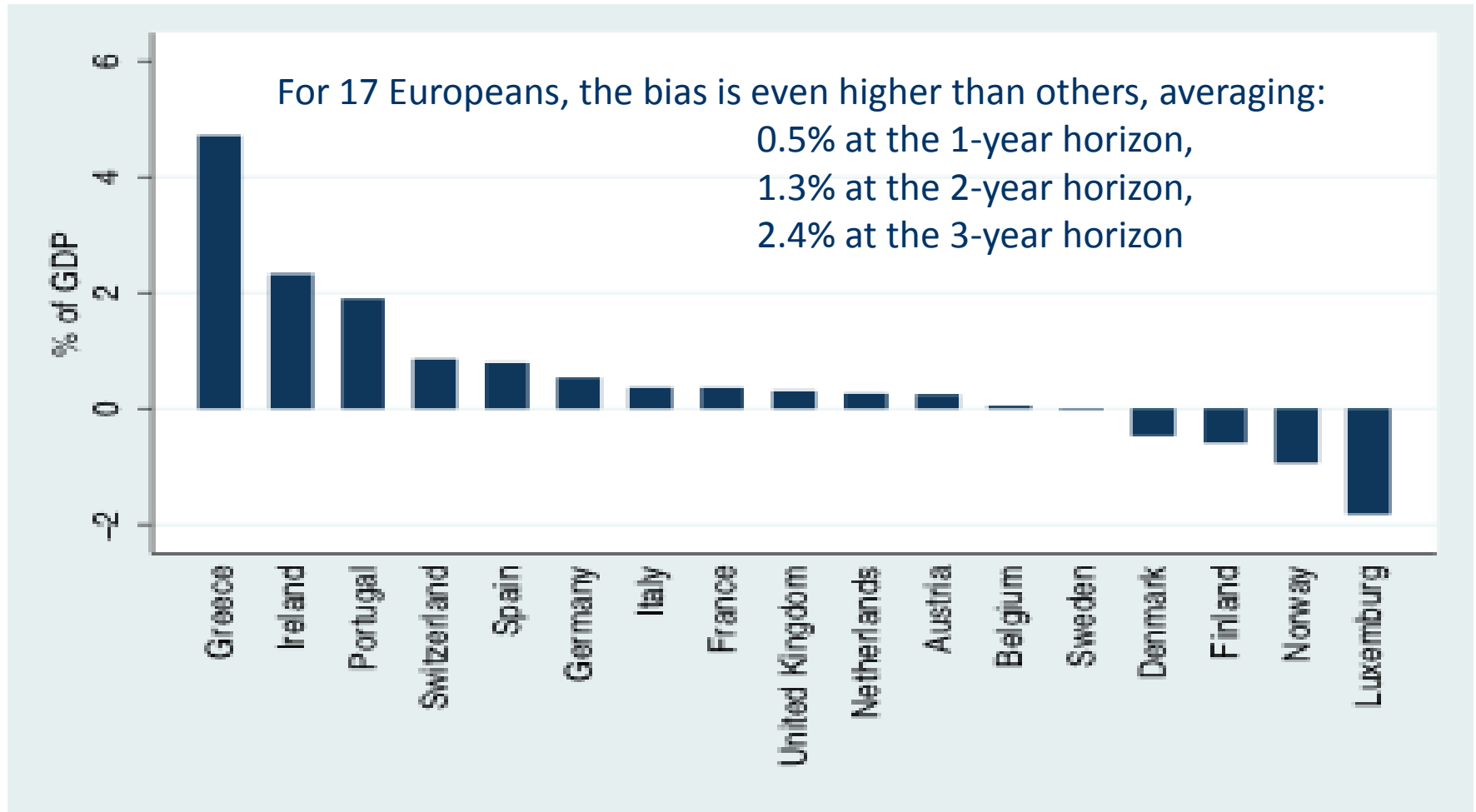


Figure 2 (F&S, 2013):

Mean 2-year ahead budget forecast errors, European Countries,

Full Sample Period

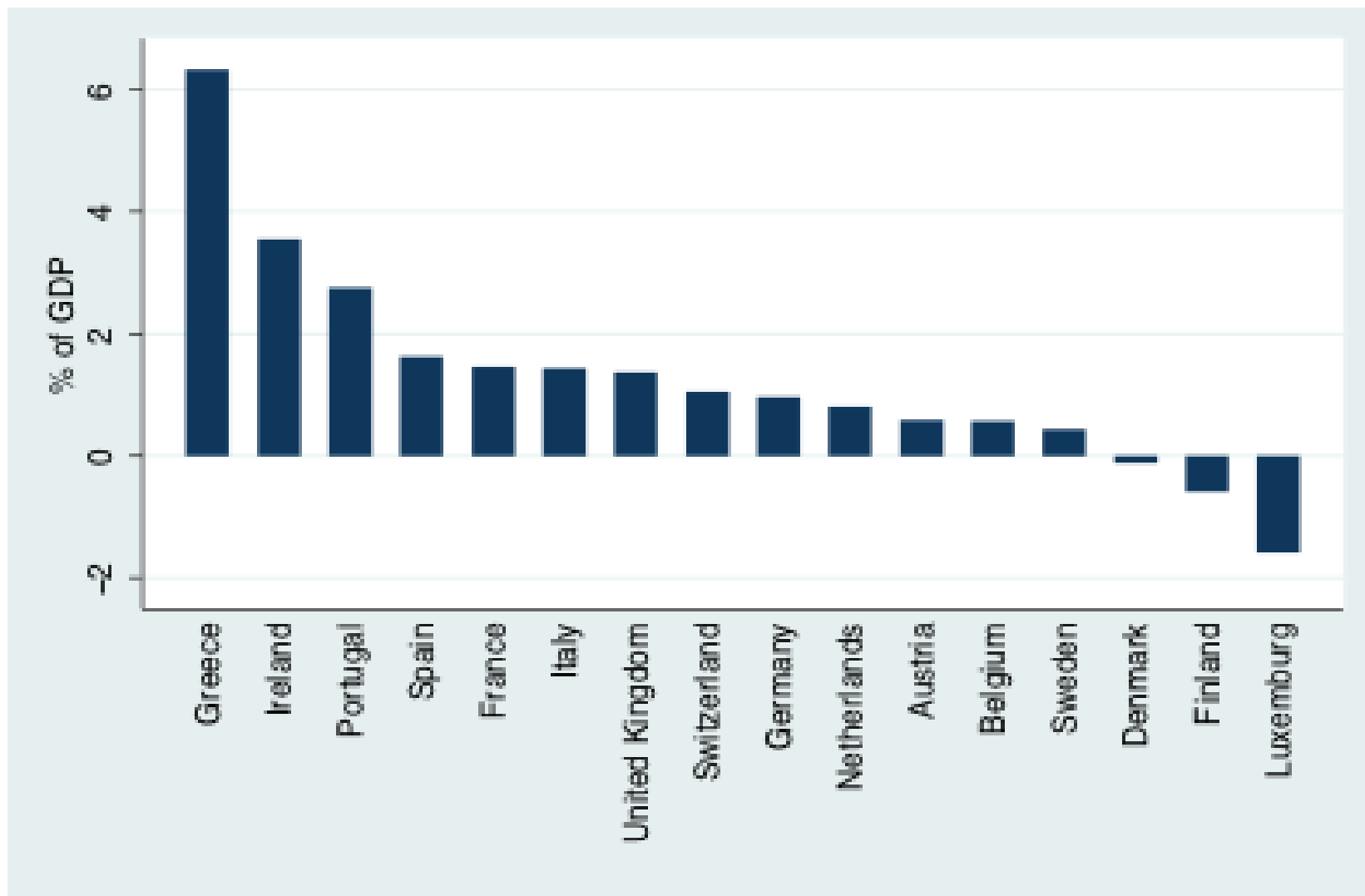


Figure 2 (F&S, 2013):

Mean Budget Forecast Errors, Europe, 1995-2011

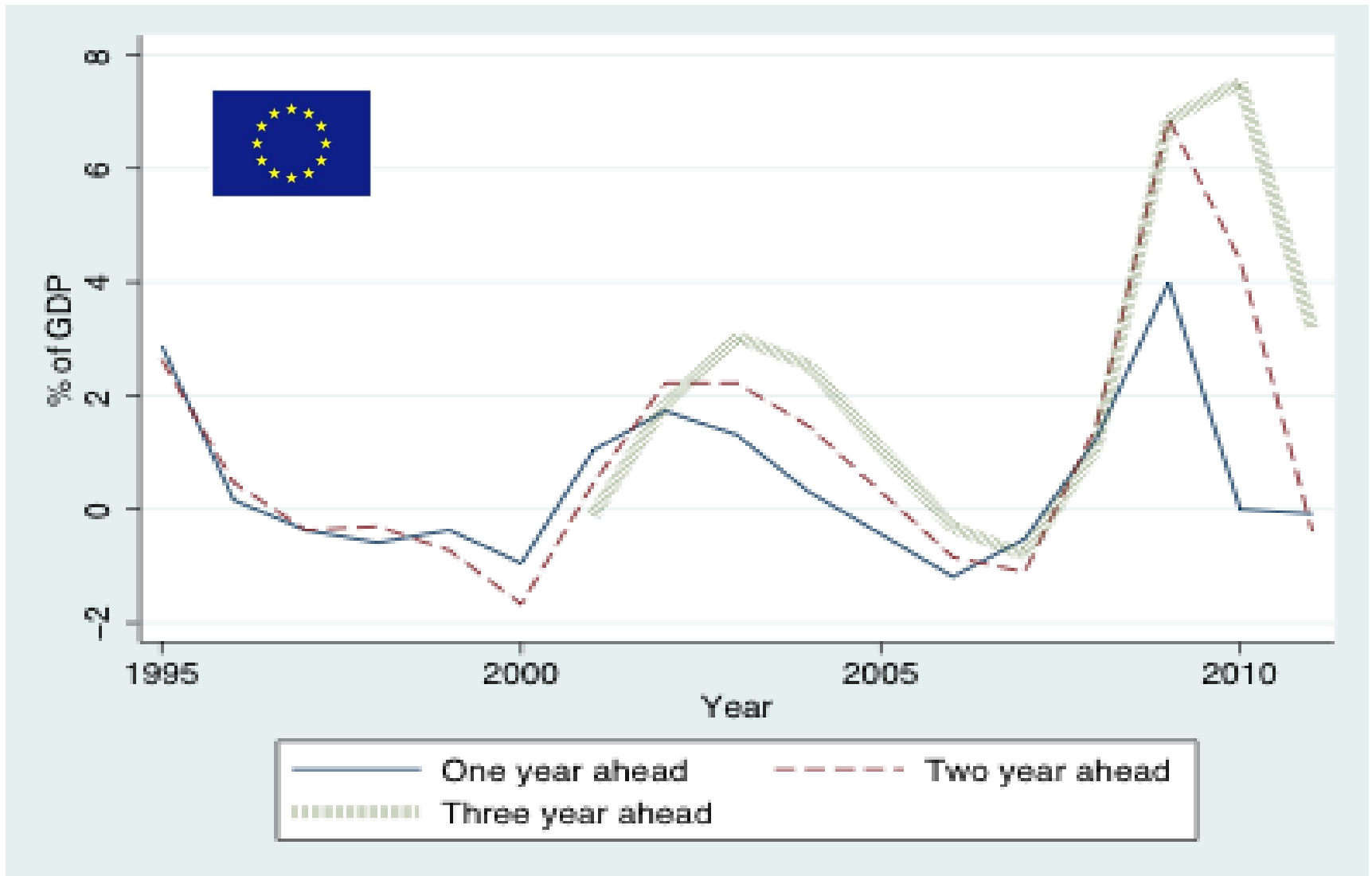
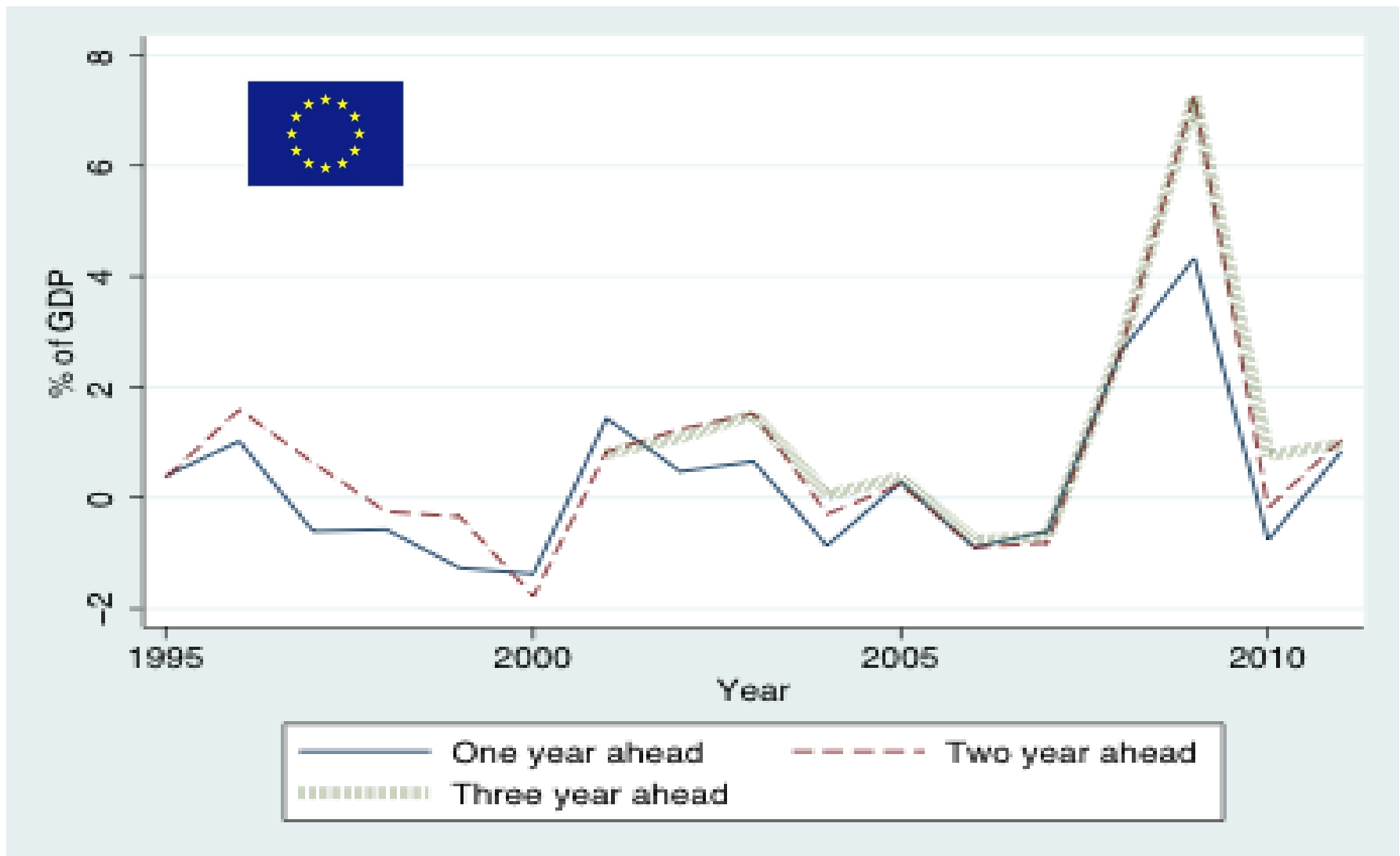


Figure 3 (F&S, 2013):

Mean GDP Growth Forecast Errors, Europe, 1995-2011



GDP growth rate forecast error,

full dataset. Frankel (2011), Table 5 (c)

Variables	1 year ahead	2 years ahead	3 years ahead	1 year ahead	2 years ahead	3 years ahead
SGP dummy	0.379*	0.780**	−0.555	0.192	0.221	−1.067*
	(0.199)	(0.352)	(0.529)	(0.215)	(0.410)	(0.549)
SGP*GDPgap				0.148**	0.516***	0.522***
				(0.068)	(0.141)	(0.161)
Constant	0.239	0.914***	2.436***	0.252	0.887***	2.444***
	(0.168)	(0.318)	(0.643)	(0.168)	(0.330)	(0.642)
Observations	369	282	175	368	282	175
Countries	33	31	28	33	31	28
R ²	0.006	0.006	0.007	0.011	0.042	0.040
RMSE	2.40	3.44	3.81	2.38	3.36	3.73

***p<0.01, **p<0.05, *p<0.1. (Robust standard errors in parentheses.) Random effects.

SGP ≡ dummy for countries subject to the SGP.

GDP gap ≡ GDP as deviation from trend.

All variables are lagged so that they line up with the year in which the forecast was made.

Budget balance forecast error,

full dataset. Frankel (2011), Table 3(c).

Variables	1 year ahead	2 years ahead	3 years ahead	1 year ahead	2 years ahead	3 years ahead
SGP dummy	0.368 (0.342)	0.922*** (0.329)	0.625 (0.415)	0.182 (0.335)	0.331 (0.355)	0.066 (0.449)
SGP * GDP gap				0.161** (0.065)	0.509*** (0.147)	0.544*** (0.148)
Constant	0.245 (0.198)	0.530** (0.268)	1.235*** (0.408)	0.219 (0.193)	0.501* (0.268)	1.240*** (0.404)
Observations	399	300	179	398	300	179
Countries	33	31	29	33	31	29
R ²	0.018	0.023	0.008	0.029	0.080	0.076
RMSE	2.113	2.701	3.130	2.122	2.614	3.011

***p<0.01, **p<0.05, *p<0.1. (Robust standard errors in parentheses.) Random effects.

SGP \equiv dummy for countries subject to the SGP.

GDP gap \equiv GDP as deviation from trend.

All variables are lagged so that they line up with the year in which the forecast was made.

More findings regarding systematic forecast errors in Europe

(Frankel & Schreger, 2013a).

Besides cyclicalities (output gap), another determinant of government bias: they over-forecast speed of disappearance of budget deficits.

VARIABLES	(1)	(2)	(3)
	BBE_{t+1}	BBE_{t+2}	BBE_{t+3}
$Surplus_t * BudgetBalance_t$	-0.080 (0.057)	-0.295** (0.108)	-0.175 (0.171)
$Deficit_t * BudgetBalance_t$	-0.293*** (0.064)	-0.363** (0.134)	-0.558*** (0.180)
$Output\ Gap_t$	0.651*** (0.113)	1.409*** (0.281)	1.812*** (0.452)
Constant	-0.150 (0.169)	0.459 (0.274)	0.932** (0.404)
Observations	243	210	164
R-2	0.213	0.344	0.374
Countries	17	16	15
Year FE	No	No	No

(Robust s.e. in parentheses, clustered at the country level.) ***, **, & * : significance at the level of 1, 5, and 10%, respectively.

Appendix IV: More on delegation of forecasts

5 econometric findings regarding official forecasts in Chile.

Frankel, 2013, “A Solution to Fiscal Pro-cyclicality: The Structural Budget Institutions Pioneered by Chile,” in *Fiscal Policy and Macroeconomic Performance*, Luis Felipe Céspedes & Jordi Galí, editors.

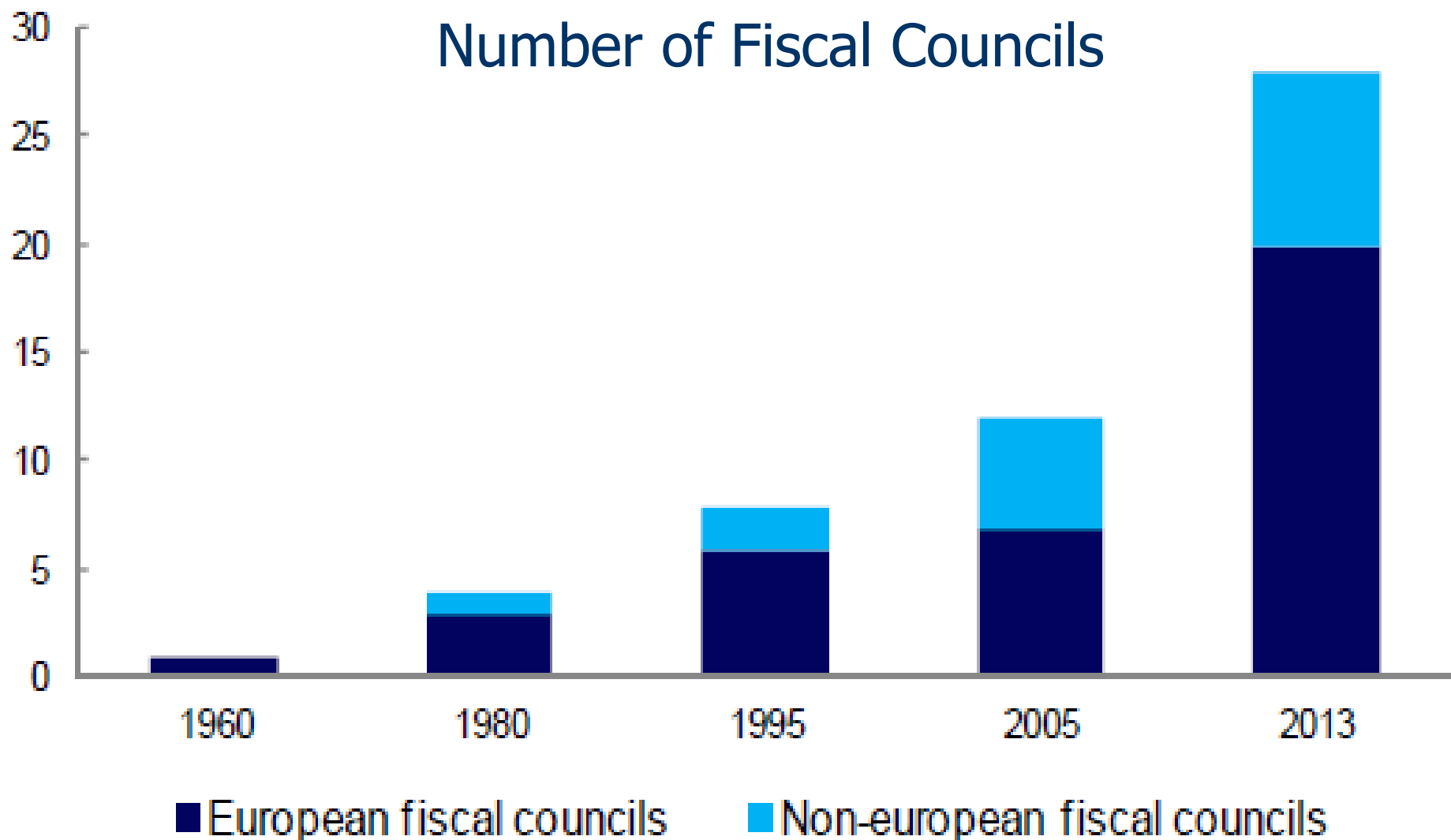
- (1) The key macroeconomic input for budget forecasting in most countries: GDP. In Chile: the copper price.
- (2) Real copper prices revert to trend in the long run.
- But this is not always readily perceived:
 - (3) 30 years of data are not enough to reject a random walk statistically; 200 years of data are needed.
 - (4) Uncertainty (option-implied volatility) is higher when copper prices are toward the top of the cycle.
- (5) Chile’s official forecasts are not overly optimistic.



Application of the innovation to other countries

- Any country could adopt the Chilean mechanism.
- Suggestion: give the panels institutional independence
 - as is familiar from central banking:
 - laws protecting them from being fired.
- Open questions:
 - How much of the structural budget calculations are to be delegated to the independent panels of experts?
 - Minimalist approach: they compute only 10-year moving averages.
 - Fiscal councils that act as outside checks (Debrun & Kinda, 2014):
 - U.S. Congressional Budget Office (1974)
 - Swedish Economic Policy Council (2008),
 - U.K. Office of Budget Responsibility (2010).
 - Can one guard against subversion of the institutions?

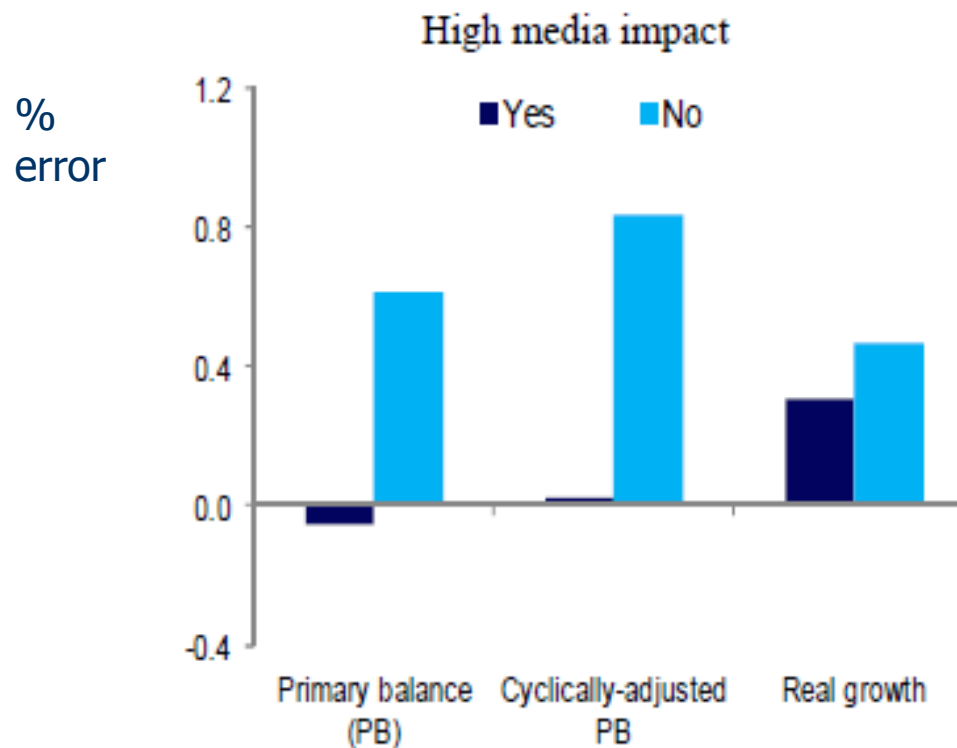
Number of Fiscal Councils



Xavier Debrun and Tidiane Kinda, 2014, "Strengthening Post-Crisis Fiscal Credibility: Fiscal Councils on the Rise—A New Dataset," IMF WP 14/58, Fig. 1.

Fiscal councils are less likely to make over-optimistic budget forecasts (esp. cyclically adjusted) if they have high media visibility.

Mean Forecast Error and Fiscal Councils' Characteristic



X. Debrun & T. Kinda, 2014, "Strengthening Post-Crisis Fiscal Credibility: Fiscal Councils on the Rise—A New Dataset," IMF WP 14/58, Fig. 5.