

Appendix for

**“It Isn’t Just About Greece:
Domestic Politics, Transparency, and Fiscal Gimmickry in Europe”**

Alt, Lassen, and Wehner

February 8, 2014

Appendix 1. Literature: theory and measurement

The theoretical problem we analyze is asymmetric information in fiscal/economic unions. Beetsma and Jensen¹ consider moral hazard under a stability pact while Persson and Tabellini² investigate insurance in a federation with unverifiable shocks. The broad policy debate preceding the SGP produced a number of policy papers on moral hazard in a potential Eurozone, including Inman and Rubinfeld.³ Clearly, the concern was out there but empirically it was not often addressed, though some studies investigate whether the SGP affected fiscal gimmickry.⁴

Milesi-Ferretti⁵ examines theoretically the effect of fiscal rules when governments have the possibility to misreport fiscal data and proposes: “For a given cost of violating the rule, the size of fiscal adjustment induced by the rule is increasing in the degree of transparency of the budget.” Beetsma and Bovenberg’s⁶ conclusion from their theoretical analysis is that in fiscal unions “moral hazard due to international transfers seems to be a potentially important issue because of lack of transparency of budgeting processes ...

¹ Roel Beetsma and Henrik Jensen, ‘Contingent Deficit Sanctions and Moral Hazard With a Stability Pact’, *Journal of International Economics*, 61 (2003), pp. 187-208.

² Torsten Persson and Guido Tabellini, ‘Federal Fiscal Constitutions: Risk Sharing and Moral Hazard’, *Econometrica* 64 (1996), pp. 623-46.

³ Robert P. Inman and Daniel L. Rubinfeld, ‘The EMU and Fiscal Policy in the New European Community: An Issue for Economic Federalism’, *International Review of Law and Economics* 14 (1994), pp. 147-61.

⁴ See Vincent Koen and Paul van den Noord. ‘Fiscal Gimmickry in Europe: One-Off Measures and Creative Accounting’, *OECD Economics Department Working Paper* 417 (2005); Marco Buti, João N. Martin and Alessandro Turrini, ‘From Deficits to Debt and Back: Political Incentives under Numerical Fiscal Rules’, *CESifo Economic Studies*, 53 (2007), pp. 115-52; Jürgen von Hagen and Guntram B. Wolff, ‘What Do Deficits Tell Us About Debt? Empirical Evidence on Creative Accounting With Fiscal Rules in the EU’, *Journal of Banking and Finance* 30 (2006), pp. 3259-79.

⁵ Gian-Maria Milesi-Ferretti, ‘Good, Bad or Ugly? On the Effects of Fiscal Rules with Creative Accounting’, *Journal of Public Economics* 88 (2004), p. 383.

⁶ Roel Beetsma and A. Lans Bovenberg, ‘The Optimality of a Monetary Union without a Fiscal Union’, *Journal of Money, Credit, and Banking* 33 (2001), p. 203.

[that] contributes also to political distortions weakening fiscal discipline.” Milesi-Ferretti’s *theoretical* idea has been widely accepted, but largely ignored in the political economy *empirical* literature.⁷

Budget transparency is a characteristic of institutions. Gimmicks are government decisions to misrepresent fiscal quantities. According to Koen and van den Noord, they include both “one-off”, non-recurring practices like the privatization of real assets, tax amnesties, or the acceleration of tax intakes and “creative” or unorthodox accounting treatment of operations, reflecting strategic choices about particular transactions that interpret rules in a favorable way, or, occasionally, downright cheating. Such practices are analytically distinguishable from the institutional framework for budgetary reporting, including accounting systems and standards.

Budget transparency sets the likely cost or probability of detection of resorting to gimmicks. Some studies provide evidence that upcoming elections increase a government’s incentives to improve the appearance of deficits. Buti et al.⁸ find that elections increase gimmicks, although the estimate is not very precise. Looking at revisions, de Castro et al.⁹ find that pre-election years in particular increase the likelihood that a published deficit figure subsequently will be revised upward. The literature on

⁷ See Maria Eslava, ‘The Political Economy of Fiscal Deficits: A Survey’, *Journal of Economic Surveys* 25 (2011), pp. 645-73. Anke Weber, ‘Stock-Flow Adjustments and Fiscal Transparency: A Cross-Country Comparison’, *IMF Working Paper* WP/12/39 (2012) finds a negative relationship between the level of transparency and stock-flow adjustments in a panel of 122 countries between 1980 and 2010, but does not consider the interaction between fiscal transparency and fiscal rules central to Milesi-Ferretti’s analysis.

⁸ Buti et al., ‘From Deficits to Debt and Back’.

⁹ Francisco de Castro, Javier J. Pérez, and Marta Rodríguez-Vives, ‘Fiscal Data Revisions in Europe’, *European Central Bank Working Paper* 1342 (2011).

forecasting in EU countries contains similar findings;¹⁰ however, none of this work conditions estimates on the transparency of budgetary practices.

Economic and fiscal conditions, too, may play a role in explaining the use of fiscal gimmicks. The IMF¹¹ warned that, in the wake of the global economic crisis, governments “may be tempted to supplement genuine fiscal adjustment with accounting stratagems.” As above, von Hagen and Wolff find that especially the cyclical part of deficits tends to be offset by gimmicks. Thus, there is limited evidence that rules, electoral cycles, and output shocks all create incentives for gimmickry. Their effects should be estimated simultaneously in a multivariate model, with interactions between these variables and budget transparency to estimate the conditioning effect of the latter. This is the basis of our empirical specification.

Our dependent variable of choice is the stock-flow adjustment, presented in detail in the main text. There are other ways to approach gimmickry. Easterly¹² argues that “[f]iscal adjustment is an illusion when it lowers the budget deficit or public debt but leaves government net worth unchanged.” Net worth is the difference between (financial plus non-financial) assets and liabilities, with “structural” implications for future taxation.¹³ Net acquisition of assets and the net incurrence of liabilities are aggregates of the detail coding we employ below, and are consistent with our approach. Another

¹⁰ See Tilman Brück and Andreas Stephan, ‘Do Eurozone Countries Cheat with their Budget Deficit Forecasts?’, *Kyklos* 59 (2006), pp. 3-15.

¹¹ International Monetary Fund [IMF], ‘Shifting Gears: Tackling Challenges on the Road to Fiscal Adjustment’, *Fiscal Monitor* (April 2011), p. 73.

¹² William Easterly, ‘When is Fiscal Adjustment an Illusion?’, *Economic Policy* 14 (1999), p. 57.

¹³ Gian-Maria Milesi-Ferretti and Kenji Moriyama, ‘Fiscal Adjustment in EU Countries: A Balance Sheet Approach’, *Journal of Banking and Finance* 30 (2006), pp. 3281-98.

alternative is the aggregation of “bottom-up” identification of individual incidents.¹⁴

Koen and van den Noord identify a total of 206 one-off transactions, creative accounting operations, and classification errors for 15 EU countries between 1993 and 2003, some of which span a number of years.¹⁵ Some, like those described in our paper (see also Appendix 4), affect SFAs while others are legitimate but “one-off” measures that temporarily improve deficits without affecting SFAs. These include tax amnesties and above-the-line privatizations. Since they capture *detected* fiscal gimmickry, the transactions they identify may already be reclassified and purged from the data we use.

Finally, others exploit multiple vintages of fiscal data for the same period to capture (multiple) revisions or implementation errors. de Castro et al. examine decisions issued by the EU’s statistical agency, Eurostat, under the SGP. These consistently result in upward revision of deficit figures.¹⁶ It is not clear *a priori* whether different types of gimmickry are complements, with governments employing many different types of gimmickry at the same time, or substitutes, with governments favoring one instrument over others. Thus, it is unclear whether one would expect positive or negative correlations between different measures.¹⁷

¹⁴ See Bernard Dafflon and Sergio Rossi, ‘Public Accounting Fudges Towards EMU: A First Empirical Survey and Some Public Choice Considerations’, *Public Choice* 101 (1999), pp. 59-84.

¹⁵ Greece accounts for about one quarter of the incidents they identify, and Italy for about one sixth. The quantitative estimates for some countries are also substantial, with annual deficit manipulation averages of about 2% of GDP in Greece, and two-thirds of a percent in Italy and Portugal. For two countries (France and Italy), Dafflon and Rossi estimate an aggregate impact on the 1997 deficit-to-GDP ratio of about three-quarters of a percent.

¹⁶ de Castro et al., ‘Fiscal Data Revisions in Europe’, p. 24.

¹⁷ Anna M. Costello, Reining Petacchi and Joseph Weber, ‘The Hidden Consequences of Balanced Budget Requirements’ (Manuscript, Sloan School of Management, MIT, September 2012), analyze how US state governments meet balanced budget constraints with two key instruments, asset sales and accounting discretion. They conclude that their use correlates negatively and thus that they are substitutes.

Appendix 2. Measuring budget transparency

The Organization for Economic Co-operation and Development defines budget transparency as “the full disclosure of all relevant fiscal information in a timely and systematic manner”¹⁸. This requires, amongst others, an executive budget proposal with comprehensive expenditure and revenue figures and medium-term estimates; performance data; analysis of fiscal risks like deviations from key assumptions; in-year implementation updates; and reliable annual accounts that are independently audited.

The IMF and the OECD¹⁹ have adopted standards for budget transparency that are reflected in several measurement efforts. One is an 11-item index initially developed by Alt and Lassen²⁰ and later revised.²¹ Since 2006, the International Budget Partnership, an independent think tank, publishes the Open Budget Index (OBI). This 92-item measure captures the public availability of fiscal information across eight types of budget documents very similar to those recommended by the OECD and the IMF.²² In addition, the IMF has measured fiscal transparency on the basis of country assessments for the Reports on the Observance of Standards and Codes initiative. Table A.1 shows that these measures for countries in our sample reflect broadly similar patterns: the OBI is

¹⁸ Organisation for Economic Co-operation and Development [OECD], ‘OECD Best Practices for Budget Transparency’, *OECD Journal on Budgeting* 1 (2002), p. 7.

¹⁹ For IMF see: International Monetary Fund [IMF], *Code of Good Practices on Fiscal Transparency* (Washington, D. C.: International Monetary Fund, 1998); and George Kopits and J. D. Craig, ‘Transparency in Government Operations’, *IMF Occasional Paper* 158 (1998). For OECD, see op.cit.

²⁰ James E. Alt and David Dreyer Lassen, ‘Fiscal Transparency, Political Parties, and Debt in OECD Countries’, *European Economic Review* 50 (2006), pp. 1403-39.

²¹ David Dreyer Lassen, *Fiscal Consolidations in Advanced Industrialized Democracies: Economics, Politics, and Governance* (Stockholm: Swedish Fiscal Policy Council, 2010).

²² International Budget Partnership, *Open Budgets. Transform Lives: The Open Budget Survey 2010* (Washington, D. C.: International Budget Partnership, 2010).

positively correlated with the Alt-Lassen index (.69), its revised version (.80), and the IMF index (.66).

Available measures cover similar aspects:²³ For example, the OBI focuses on public availability of a list of key budget documents: a pre-budget statement, which presents the assumptions used in developing the budget; the executive's budget proposal; the enacted budget; monthly or quarterly in-year implementation updates; a mid-year review; a year-end report; an annual audit report by an independent audit body; as well as a "citizens budget" that makes the budget accessible for a broad audience. This list is very similar to the documents propagated by the OECD and the IMF. The items covered by Alt and Lassen also relate very closely to these documents, and form part of the assessment in the IMF and OBI measures. For example, Alt and Lassen assess whether the budget proposal contains medium-term estimates, non-financial performance data, and information on fiscal risks such as changes in key economic assumptions and contingent liabilities. Other items relate to the quality of in-year reporting and government accounts.

None of the measures are available for the entire time period covered in this sample. The Alt and Lassen index is based on data collected in 1999, while the IMF index is based on assessments that are carried out at different points in time that span more than a decade. The OBI publishes a new set of results every two years, but only since 2006. Hence, for the purposes of this study, transparency is a static or slowly changing country characteristic. Evidence from US states suggests that this is a

²³ See Joachim Wehner and Paolo de Renzio, 'Citizens, Legislators, and Executive Disclosure: The Political Determinants of Fiscal Transparency', *World Development* 41 (2013), pp. 96-108.

reasonable assumption.²⁴ For the countries in our sample, the OBI reveals only minor changes from 2006 to 2012, no significant reordering of countries, and (marginally) decreasing transparency in only one country, France.²⁵ In future years, as additional waves of the OBI become available, it will be possible to explore the evolution of fiscal transparency across countries.

Each of the measures has advantages and disadvantages. The Alt and Lassen index is easy to grasp and produces plausible results. However, in the context of this sample, it lacks granularity, as most countries score either a 3 or a 4. The IMF's index is problematic for several reasons. First, countries themselves report most of the data, with little independent verification. Moreover, the IMF needs countries to agree to their assessment and the publication of the results. The OBI has none of these drawbacks. It is assembled by an independent think tank and subjected to peer review prior to publication. It also produces a reasonable range of aggregate scores that allows differentiation in this sample of countries. Unfortunately, the OBI only includes results for about half of the current EU member states.

To overcome these problems, we employ regression-based interpolation. We regress the OBI, rescaled to a theoretical range between zero and 1, onto a similarly rescaled version of the revised Alt and Lassen index. In addition, we regress the rescaled OBI onto the IMF transparency score. We then combine the results as follows: First, we take the rescaled OBI results for those countries where they are available. Second, missing values are replaced by the predicted values from the regression with the IMF

²⁴ See James E. Alt, David Dreyer Lassen and Shanna Rose, 'The Causes of Fiscal Transparency: Evidence from the US States', *IMF Staff Papers* 53 (2006), pp. 30-57.

²⁵ See chapter 3 in International Budget Partnership, *Open Budgets. Transform Lives: The Open Budget Survey 2012* (Washington, D. C.: International Budget Partnership, 2012).

index, if the latter are available. Third, any remaining missing values are replaced by the predicted values from the regression with the revised Alt and Lassen index. The resulting interpolated scores are displayed in the second-to-last column of Table A.1, which ranks countries in descending order on the basis of this score; see also Figure A.1. The only two countries for which no data are available on this measure are Luxembourg and Malta, the smallest two EU member states measured by population.

For robustness, we carry out an alternative imputation of transparency using Amelia.²⁶ To provide some cross-country and cross-year variation, we used transparency measured based on OBI as above, but since Amelia does not constrain all countries to have the same value across all years, there is temporal variation for the countries with imputed transparency data. Data was imputed for one year, repeated for all years 1990-2007, using data for all available years for all other variables in the model, plus the EC fiscal rules index, the IMF data on national fiscal rules,²⁷ as well as the other transparency measures in Table A.1. A third order time trend is included and is allowed to vary across countries. The final column of Table A.1 lists the median values of imputed transparency for the simulated datasets Amelia created.

²⁶ James Honaker, Gary King, and Matthew Blackwell, ‘Amelia II: A Program for Missing Data’, *Journal of Statistical Software* 45 (2011), pp. 1-24.

²⁷ See European Commission, *Fiscal Rules Database* (Brussels: European Commission, 2011); and Manmohan Kumar, Emanuele Baldacci, Andrea Schaechter, Carlos Caceres, Daehaeng Kim, Xavier Debrun, Julio Escolano, Jiri Jonas, Philippe Karam, Irina Yakadina and Robert Zymek, *Fiscal Rules - Anchoring Expectations for Sustainable Public Finances* (Washington, D. C.: International Monetary Fund, 2009). See above for full details on index construction.

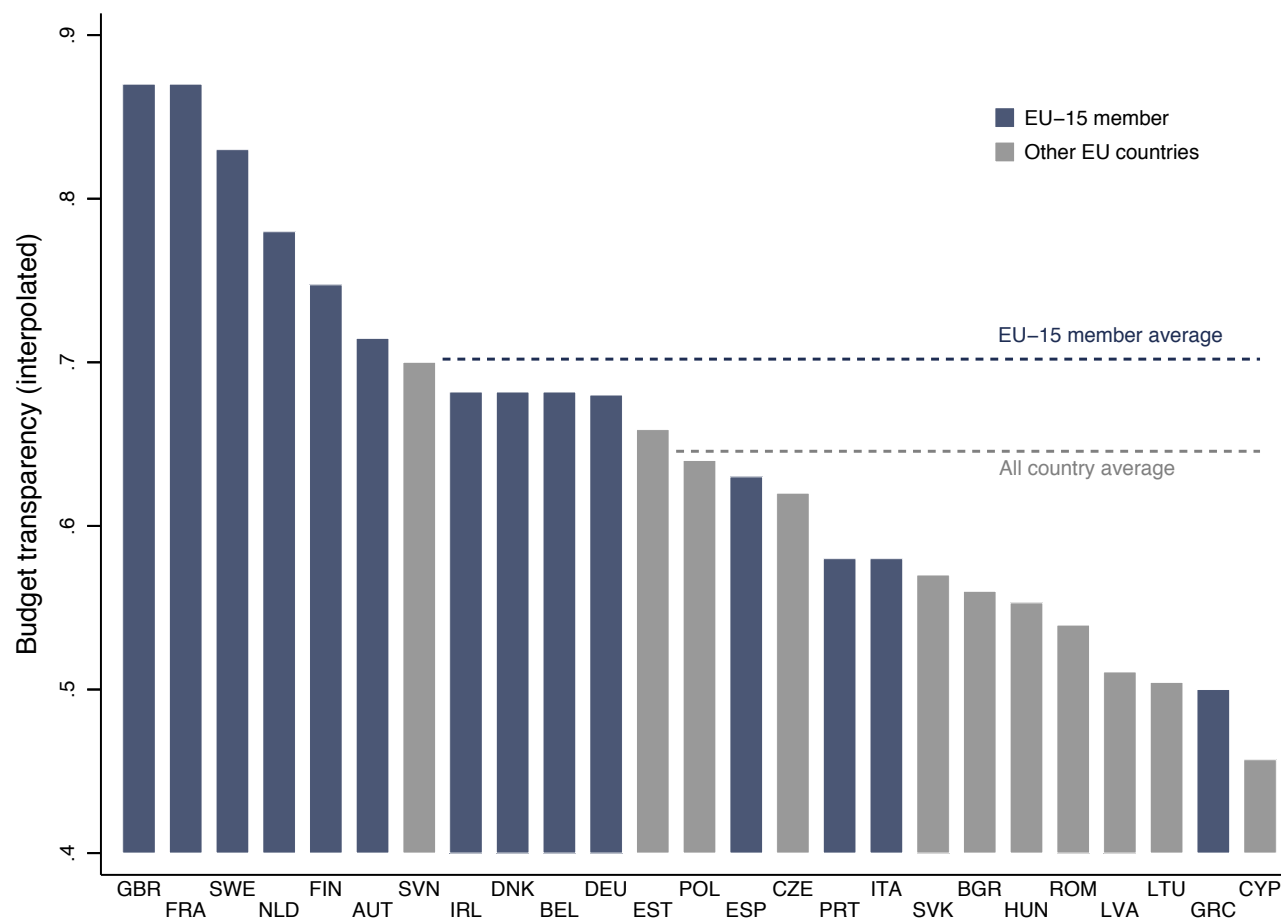
Table A.1. Available measures of fiscal transparency for 27 EU countries

	Alt-Lassen	Lassen	OBI	IMF	Interpolated	Amelia
France	4	4	87	0.87	0.87	0.87
United Kingdom	7	8	87	0.81	0.87	0.87
Sweden	4	5	83	0.90	0.83	0.83
Netherlands	5	5		0.88	0.78	0.69
Finland	4	5			0.75	0.69
Austria	4	4			0.71	0.67
Slovenia			70	0.65	0.70	0.70
Belgium	3	3			0.68	0.67
Germany	2	3	68	0.82	0.68	0.68
Denmark	3	3			0.68	0.69
Ireland	3	3			0.68	0.68
Estonia				0.71	0.66	0.69
Poland			64	0.54	0.64	0.64
Spain		3	63	0.70	0.63	0.63
Czech Republic			62	0.61	0.62	0.62
Italy	3	2	58	0.79	0.58	0.58
Portugal		4	58	0.68	0.58	0.58
Slovakia			57	0.73	0.57	0.57
Bulgaria			56	0.56	0.56	0.56
Hungary				0.57	0.55	0.68
Romania				0.55	0.54	0.66
Latvia				0.51	0.51	0.67
Greece		1	50	0.66	0.50	0.50
Lithuania				0.50	0.50	0.67
Cyprus				0.43	0.46	0.67
Luxembourg						0.68
Malta						0.68

Notes: The theoretical range is zero to 11 for the Alt and Lassen index, while the OBI and IMF measures are standardized to range from zero to 100 and zero to one, respectively. There are no data for Luxembourg and Malta. The OBI score for Greece is not part of the original results but calculated by Andrianaki²⁸ following the OBI methodology. Countries are ranked by their score on the interpolated measure and in descending order.

²⁸ Fryni Andrianaki, *Budget Transparency in Greece* (Manuscript, London School of Economics and Political Science, 2009).

Figure A.1. Imputed measure of budget transparency, 25 EU countries

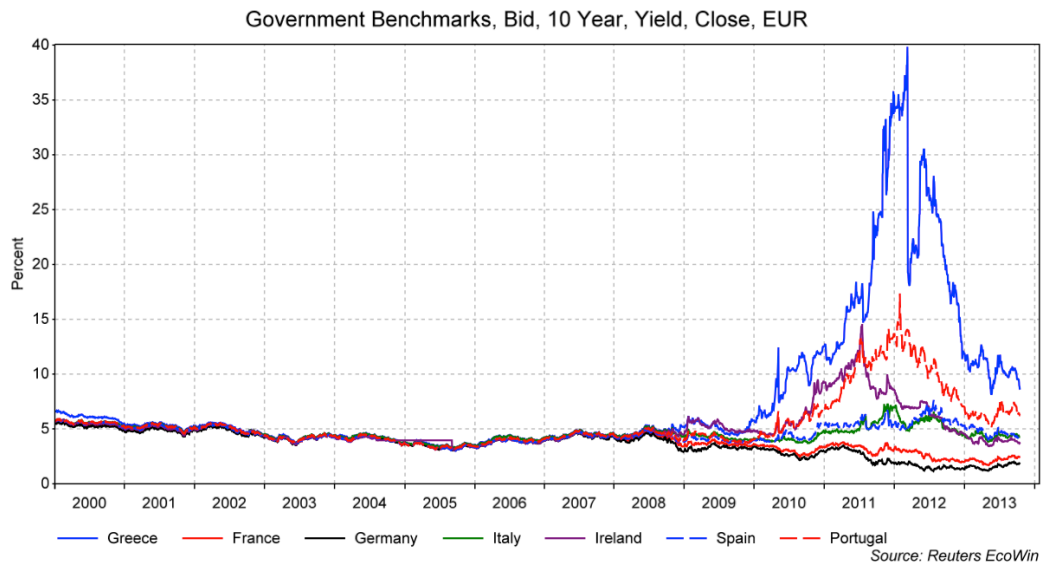


Appendix 3. Bond yields in the Eurozone area

Both the European Commission and the IMF have cautioned that “large and persistent” SFAs may indicate “inappropriate recording of budgetary operations” and can lead to potentially large “ex post upward revisions of deficit levels”.²⁹ The IMF notes that the increase in public debt stocks exceeded accumulated deficits over 1980-2010 in as many as 29 of 34 advanced economies.

For Eurozone countries, this was made easier in the period we study because bond yields of differentially risky countries were harmonized in markets, as seen from Figure A.2, as though default was everywhere equally likely (before 2007, our data period), with a lack of market discipline resulting. On the other hand, once repeated revisions of deficit figures (as in Greece in 2009, after our estimation period) became familiar stories on newswires, bond yield diverged.

Figure A.2. Government benchmark yields, selected Eurozone countries, 2000-2013



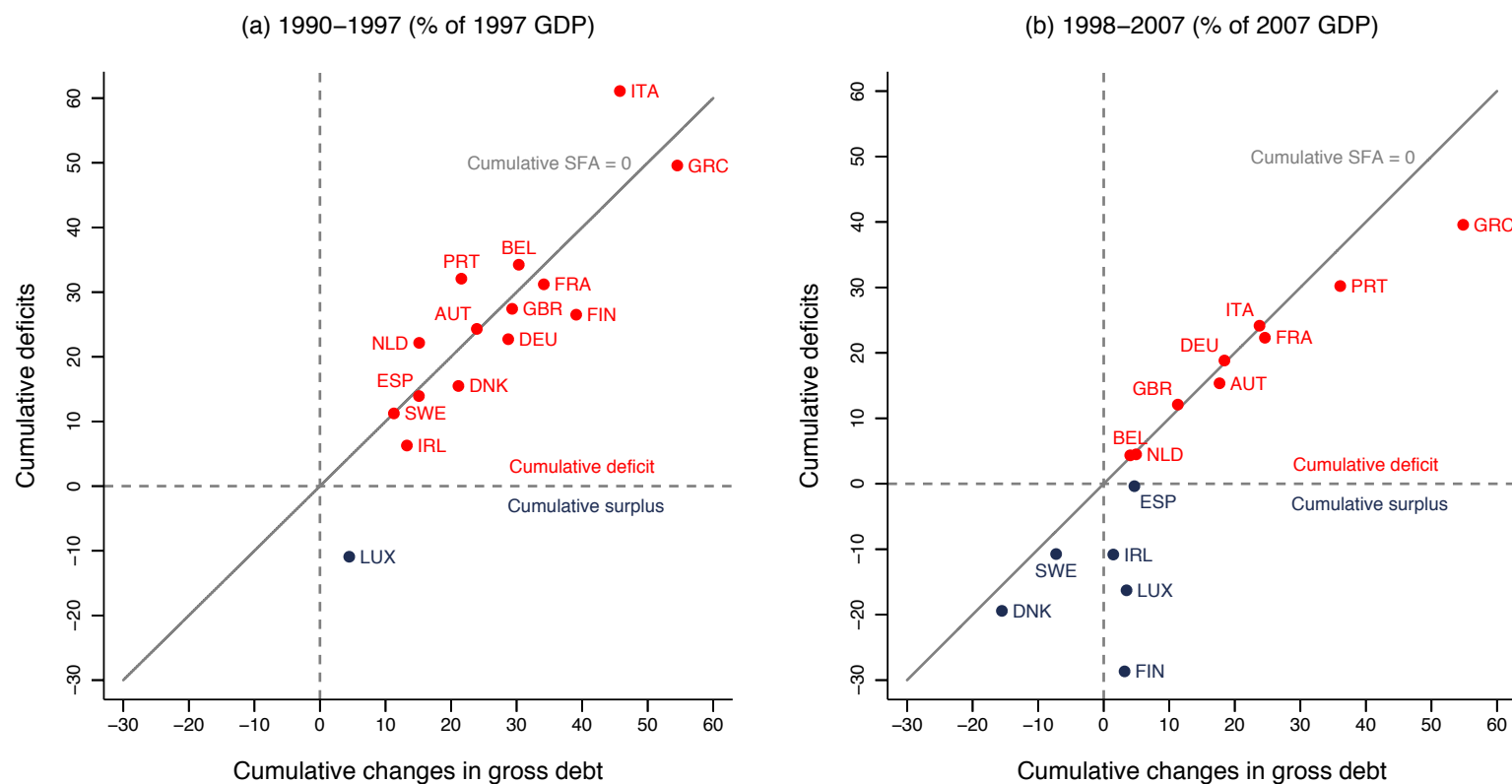
²⁹ European Commission, *Public Finances in EMU 2003* (Brussels: European Commission, 2003), p. 82; International Monetary Fund [IMF], ‘Addressing Fiscal Challenges to Reduce Economic Risks’, *Fiscal Monitor* (September 2011), p. 51.

Appendix 4. Dependent variables: stock-flow adjustment and its components

To construct measures of SFAs, we need comparable and accurate information on annual deficits and changes in debt for general government. We use the European Commission's AMECO database. It includes all relevant information for the EU27-countries as well as most industrialized democracies and is the basis for the Commission's policy work. Exact data sources are presented below.

Figure A.3 shows cumulative deficits and debt change for 15 EU countries for the period for which we have data, broken up between the years before and after the adoption of the SGP. If SFAs were random, we would expect them to cluster around the 45-degree line, with a roughly even distribution of dots above and below the line, and small distances from it. For the years up to 1997, shown in Figure A.3(a), this appears to describe the data. While data are missing for some countries, cumulative surpluses are uncommon and cumulative deficits are on the whole larger than in later years.

Figure A.3. Cumulative debt changes and deficits in the EU-15, 1990-2007



Notes: Due to missing data, panel (a) covers 1991-1997, except for FRA and ITA (from 1990), DEU (from 1992), and ESP and SWE (from 1995).

Figure A.3(b), for the decade after the SGP was adopted, presents a very different picture. It is striking that the dots either fall on the 45-degree line or below it: the dominant trend was towards positive SFAs (changes in debt exceed recorded deficits). Figure A.3(b) also shows that five countries had large negative cumulative deficits (i.e. surpluses) relative to 2007 GDP over the period 1998 to 2007: Finland (-28.7%), Denmark (-19.4%), Luxembourg (-16.3%), as well as Ireland (-10.8%) and Sweden (-10.7). Finland and Luxembourg in particular used surpluses to buy assets rather than to pay off debt. Luxembourg had an average debt to GDP ratio of 6.4% over the period 1998 to 2007, practically zero, so surpluses could not go into paying off debt. Finland had high deficits and a growing stock of debt until the mid-1990s, but then started to run surpluses: between 1998 and 2007, its debt to GDP ratio declined from 48.7% to 35.2%, just over half of the EU's limit and fourth-lowest in the EU-15 countries in that year (after Luxembourg, Ireland, and Denmark). Ireland, too, reduced its debt from 53.6% to 25% of GDP over the same period, but by less than its cumulative surplus. In contrast, Denmark and Sweden had a cumulative SFA of closer to zero over 1998 to 2007, so most of their budget surpluses went towards debt reduction.

We also disaggregate the SFA into its accounting components. As part of its analysis of country notifications under the Excessive Deficit Procedure, Eurostat decomposes the SFA into items that account for the transition from the deficit to the change in debt (Eurostat 2011). The first category relates to the *net acquisition of financial assets*. This includes currency and deposits, securities other than shares, loans, shares and other equity, as well as other financial assets that mainly consist of other accounts receivable. A second category comprises *adjustments due to transactions in liabilities excluded from the Maastricht debt definition*, notably financial derivatives, and other liabilities that mainly consist of other accounts payable. A third category

contains various *other adjustments* that have to be made to transition the deficit to the change in debt. Some of these arise because government debt is measured at face/par/nominal value (the amount due when debt has to be repaid) and excludes accrued interest. Hence the SFA is affected by issuances above or below nominal value, differences between interest accrued and paid, and redemptions of debt above or below nominal value. The appreciation or depreciation of foreign-currency debt also falls into this category, as do other volume changes due to the reclassification of units inside or outside general government, or the disappearance of debt. A final fourth category contains *statistical discrepancies* due to the use of diverse sources, or potential problems with data reliability; however, statistical discrepancies are not consistently reported, “with some compilers showing discrepancies explicitly, whilst others (for example France) allocate them under various other SFA items.”³⁰

The breakdown of the SFA into its components is summarized below:

- 1) Net acquisition of financial assets
 - Currency and deposits
 - Securities other than shares
 - Loans
 - Shares and other equity
 - Other financial assets
- 2) Adjustments
 - Net incurrence of liabilities in financial derivatives
 - Net incurrence of other liabilities
 - Issuances above/below nominal value
 - Difference between interest accrued and paid
 - Redemptions of debt above/below nominal value
 - Appreciation/depreciation of foreign-currency debt
 - Changes in sector classification
 - Other volume changes in financial liabilities
- 3) Statistical discrepancies

³⁰ Eurostat, *Stock/flow Adjustment (SFA) for the Member States, the Euro Area and the EU27 for the Period of 2007-2010* (Luxembourg: Eurostat, October 2011), p. 13.

In the main text, we report results that suggest that two components are important sources of gimmicks: the net acquisition of “shares and other equity” and an item called “net incurrence of other liabilities” that captures mainly “other accounts payable”.³¹ Each of these effects goes through aggregation (net acquisition of financial assets and total adjustments, respectively) into the SFA.

“Shares and other equity” transactions become gimmicks when ongoing subsidies are treated as equity purchases, placing them “below the line”, out of the deficit calculation. Recall the 2002 Portuguese example of subsidies to public enterprises which had been classified as equity purchases. As the Director General of Eurostat, Yves Franchet, complained in a letter to Pedro Solbes, then EU Commissioner for Economic and Monetary Affairs: “there is legitimate ground for suspicion that at least some of these capital injections should have been treated as capital transfers as they were granted to enterprises on a regular basis to cover accumulated losses”³²

Accumulating “other accounts payable” (OAP), goods and services delivered but not yet paid for, can make the deficit look better with cash accounting. The EU system of accrual accounting achieves this by under-recording at the time of delivery, reducing the reported deficit without causing a corresponding reduction in debt when the bills are actually paid. For instance, Greek authorities admitted in 2004 that

“... although the method for recording expenditures was based on deliveries, in fact no information on deliveries was ever received by the [National Statistical Service of Greece] and the Ministry of Finance since 1997. Therefore most

³¹ More detailed results for these components are reported in Appendix 7.

³² More recently, Eurostat (op.cit.) estimated the 2011 (an election year) Irish deficit at 13.1% of GDP, up from government forecasts of less than 10%, owing to “statistical reclassification” of capital injected into Irish Life & Permanent and Allied Irish Banks.

military expenditures covered by borrowing were not recorded since the last 7 years.”³³

As a result of the discrepancy between effective cash payments and the expenditure recorded in government accounts, €8.7 billion of additional military expenditure between 1997 and 2003 were retrospectively imputed in government accounts, averaging 1 percent of GDP per annum. The largest discrepancy amounted to 1.9 percent of GDP and occurred in 2000, an election year. This under-recording too is regularly detectable in the data.

³³ Eurostat, *Report by Eurostat on the Revision of the Greek Government Deficit and Debt Figures* (Luxembourg: Eurostat, November 22, 2004).

Appendix 5. Data definitions, data sources, and summary statistics

Balance: Net lending (+) or net borrowing (-) of general government, Excessive Deficit Procedure, including one-off proceeds relative to the allocation of mobile phone licenses (UMTS), in percent of gross domestic product (GDP) at market prices. Source: Eurostat AMECO, series UBLGE.

Banking crisis: Dummy variable, equal to 1 if a country experienced a banking crisis in a given year, and 0 otherwise. Source: Luc Laeven and Fabian Valencia, ‘Resolution of Banking Crises: The Good, the Bad, and the Ugly’, *IMF Working Paper* WP/10/146 (2010).

Boom: Gap between actual and trend GDP at 2000 market prices if the gap is 2.5 or greater, and 0 otherwise, in percent of trend GDP at market prices. Source: Based on Eurostat AMECO, series AVGDGT.

Debt change: Change in general government consolidated gross debt, Excessive Deficit Procedure (based on ESA 95), in percent of GDP at market prices. Source: Eurostat AMECO, series UDGG.

Electoral term: The number of years left in the government’s current electoral term. Only full years are counted. Thus, a zero is scored in an election year, and n-1 in the year after an election, where n = length of term. If an early election is held, the count resets before having reached zero. Source: Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh, ‘New Tools in Comparative Political Economy: The Database of Political Institutions’, *World Bank Economic Review* 15 (2001), pp. 165-76.

Net incurrence of other liabilities: Net incurrence (-) of other liabilities, mainly in the form of other accounts payable. Source: Eurostat Government Finance Statistics, series F_LI_OTH.

Net acquisition of shares and other equity: Net acquisition (+) of financial assets in the form of shares and other equity, in percent of GDP at market prices. Source: Eurostat Government Finance Statistics, series F5.

SFA: Stock-flow adjustment, calculated as *Debt change* plus *Balance*.

SGP: Dummy variable for the Stability and Growth Pact, equal to 1 from 1998 onward, and 0 before.

Slump: Absolute value of the gap between actual and trend GDP at 2000 market prices if the gap is negative, and 0 otherwise, in percent of trend GDP at market prices. Source: Based on Eurostat AMECO, series AVGDGT.

Transparency: Interpolated index of fiscal transparency, with a theoretical range from 0 (no transparency) to 1 (full transparency). Source: See Appendix 2.

Table A.2. Summary statistics

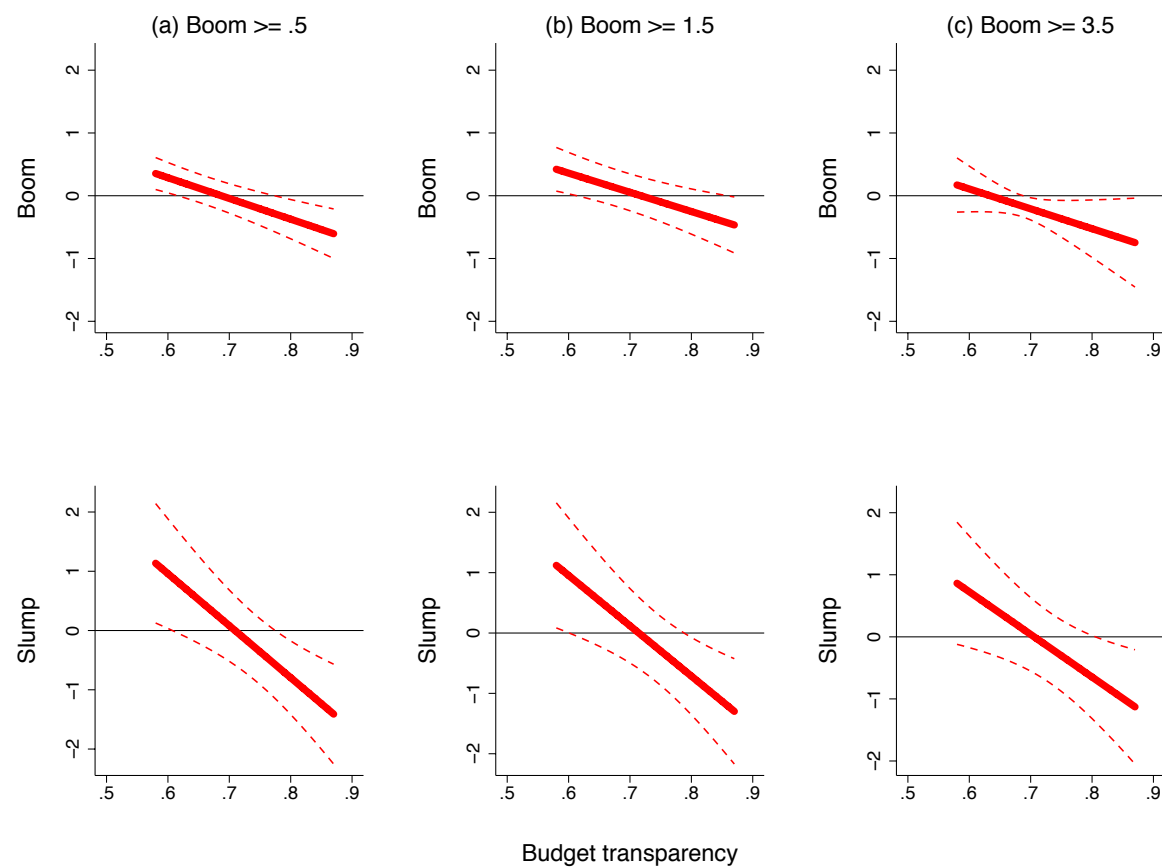
Variable	Obs	Mean	Std. Dev.	Min	Max
Balance	219	-2.25	3.35	-11.93	6.84
Banking crisis	219	0.02	0.15	0	1
Boom	219	0.50	1.45	0	10.04
Debt change	219	2.79	4.11	-8.31	23.16
Electoral term	219	1.68	1.25	0	4
Net acquisition of shares and other equity	72	-0.33	0.74	-3.60	1.10
Net incurrence of other liabilities	72	-0.17	0.48	-1.40	1.80
SFA	219	0.54	3.02	-12.87	11.23
SGP	219	0.64	0.48	0	1
Slump	219	0.75	1.26	0.00	7.47
Transparency	219	0.70	0.11	0.50	0.87

Note: This information is for the 14-country sample.

Appendix 6. Alternative measures of booms

We distinguish between years of fast growth (boom) and below-trend growth (slump). Boom is the gap between actual and trend GDP at 2000 market prices if the gap is 2.5 or greater, and 0 otherwise, expressed in percent of trend GDP at market prices. Slump is the absolute value of the gap between actual and trend GDP at 2000 market prices if the gap is negative, and 0 otherwise, expressed in percent of trend GDP at market prices. The data are from Eurostat's AMECO database, series AVGDGT. We experimented with a number of alternative cutoffs for setting the boom variable to zero. Figure A.4 below reports results obtained with several alternative specifications and replicating the model in column (4) of Table A.3 below. In columns (a), (b) and (c), gaps that are smaller than .5%, 1.5% and 3.5% of trend GDP are set to zero, respectively, while slumps remain defined as stated above throughout. The pattern of results is very similar. The conditional slump effect is always substantively much larger, and the effect of a boom, however defined, is indistinguishable from zero for a wide range of the conditioning variable, budget transparency. We also experimented with alternative measures of economic performance. When we used the gap between actual and potential GDP at 2000 market prices instead (again from AMECO, series AVGDGP) to define our boom and slump variables, the results were generally weaker in terms of statistical significance but the pattern was consistent. The asymmetric effect of booms and slumps, conditional on budget transparency, is very robust.

Figure A.4. Conditional economic cycles in stock-flow adjustments using alternative cutoffs for booms



Note: The results show the marginal effect of boom (row 1) and slump (row 2), conditional on budget transparency, based on the model reported in column (4) of Table A.3. The column heading in this figure indicates the relevant cutoff used for the boom variable. Greece is excluded from the data.

Appendix 7. Main regression results in full

We employ the following empirical specification with countries indexed by i and years by t :

$$budget_{it} = \alpha + \beta' X_{it} + \gamma' X_{it} BT_i + \lambda' Z_{it} + \eta_i + \tau_t + \varepsilon_{it}$$

Here, $budget_{it}$ is the SFA or its components. If the SFA contains gimmicks, we should be able to identify components whose patterns match those found for the SFA and whose magnitudes exhaust the estimated SFA patterns. If the effects of fiscal rules, electoral incentives, and economic conditions are conditional on fiscal transparency, higher transparency should displace the incentives to manipulate public finances. X_{it} denotes variables that affect budget outcomes conditional on fiscal transparency, captured by the interaction of X_{it} and our measure of fiscal transparency, BT_i . If higher transparency makes gimmicks less appealing, we expect β and γ to have opposite signs. BT_i is indexed by country only, as it is unchanged over the period we consider. Z_{it} contains any variables not conditional on fiscal transparency. Our fiscal transparency measure is time invariant, hence it is subsumed in a country's fixed effect, η_i . Finally, τ_t captures year fixed effects³⁴ and ε_{it} is an error term. Standard errors are clustered at the country level. Our principal specification is for 14 EU countries (6 for the components; no transparency data for Luxembourg) for 1990-2007.

³⁴ We drop one year fixed effect to accommodate estimating the coefficient on SGP.

Table A.3. How budget transparency affects fiscal outcomes and fiscal gimmicks

Dependent variable	(1) Balance	(2) Debt change	(3) SFA	(4) SFA	(5) Net acquisition (+) of shares and other equity	(6) Net incurrence (-) of other liabilities
Electoral term	0.84 (0.21)***	-3.84 (0.90)***	-3.00 (0.83)***	-2.22 (0.52)***	-1.79 (0.22)***	-0.75 (0.19)**
Electoral term × Budget transparency	-0.95 (0.27)***	4.88 (1.28)***	3.93 (1.17)***	2.92 (0.74)***	2.32 (0.31)***	1.02 (0.24)***
SGP	12.63 (3.08)***	-2.03 (5.83)	10.60 (3.26)***	11.91 (4.40)**	7.19 (2.04)**	-1.38 (1.08)
SGP × Budget transparency	-10.81 (3.14)***	-2.02 (6.10)	-12.82 (3.70)***	-14.57 (5.98)**	-8.30 (2.47)**	1.77 (1.46)
Slump	4.00 (0.61)***	0.68 (1.37)	4.68 (1.36)***	4.81 (2.36)*	1.67 (0.76)*	-0.54 (0.67)
Slump × Budget transparency	-6.21 (0.83)***	-0.42 (1.89)	-6.63 (1.79)***	-6.74 (3.15)*	-2.29 (1.00)*	1.04 (0.90)
Boom	-0.64 (0.43)	1.62 (0.53)***	0.98 (0.45)**	0.78 (0.94)	-0.02 (0.41)	0.25 (0.52)
Boom × Budget transparency	1.11 (0.68)	-2.62 (0.69)***	-1.51 (0.68)**	-1.19 (1.36)	-0.05 (0.63)	-0.28 (0.70)
Banking crisis	-2.85 (0.49)***	3.79 (1.32)**	0.94 (1.42)	0.57 (1.43)	-0.09 (0.59)	0.67 (0.49)
Observations	219	219	219	203	77	77
Countries	14	14	14	13	6	6
Sample excludes	LUX	LUX	LUX	GRC, LUX	AUT, DNK, FIN, GER, GRC, IRL, ITA, LUX, SWE	AUT, DNK, FIN, GER, GRC, IRL, ITA, LUX, SWE
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.72	0.38	0.10	0.04	0.42	0.33

Notes: OLS estimates. The dependent variables are expressed as per cent of GDP. Standard errors clustered by country in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Without budget transparency (row 1), the number of years left in the current electoral term significantly predicts gimmickry. As elections near, balances shrink (column 1) but changes in debt increase by more (column 2), so the SFA is bigger (column 3), as long as less transparent circumstances allow misrepresentation of the true fiscal situation.

Moreover, the electoral cycle is evident (though a little, but not significantly, smaller) without Greece (column 4). What produced it? Abuse of accounting for subsidies as share purchases (column 5) and under-recording of deliveries (column 6) stand out among all the SFA components we reviewed. But (row 2) increasing transparency reduces these practices.

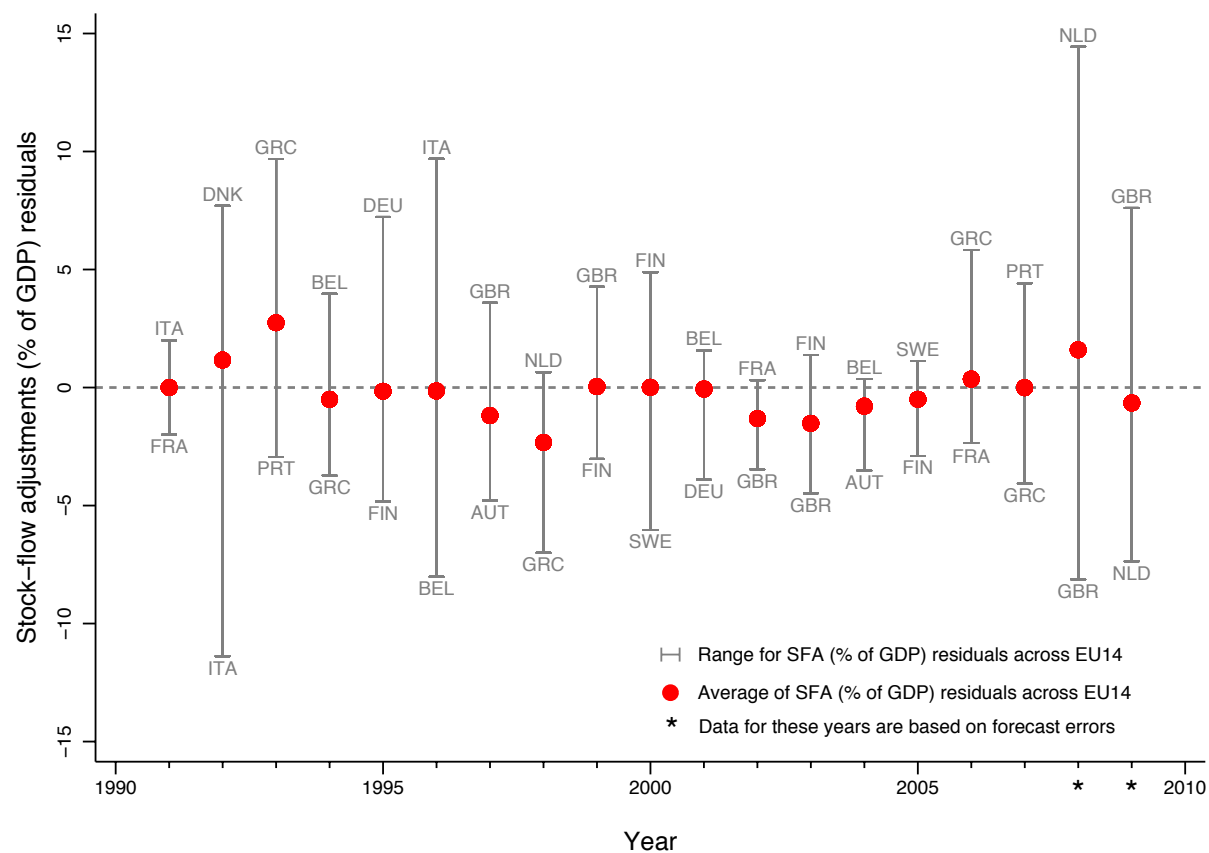
Moreover, the table shows that, again in non-transparent environments (row 3), the SGP increased balances (i.e., reduced deficits) but had no effect on debt change. The SFA results consequently reflect this enhancement of the fiscal balance (column 3) and are again little affected by omitting Greece (column 4). Despite the fact that few of our 77 observations in this case are from before the SGP, column 5 shows that misusing equities to disguise subsidies and thus deficits, via the SFA, was significant. All these results (row 4) are absent where fiscal transparency is greater.

As the next four rows of Table 1 show, without transparency slumps (growth below trend) increase the SFA, while booms (growth well above trend) have a much smaller effect that is not robust to the exclusion of Greece from the sample (column 4). This also shows in the absence of any unusual boom effect on the equities component (column 5) as well as the smaller (and jointly insignificant) effect of booms on the SFA depicted in Figure 1, panel (f).

Finally, the presence of a banking crisis affects deficits (bigger) and debt change (bigger) but has no effect on gimmicks in more and less transparent countries alike. It may well be that a crisis increases attention and scrutiny in ways similar to the effect of transparency on the probability of detection and consequent value of the strategy.

Visual inspection of the residuals plotted in Figure A.5 suggests little heteroskedasticity across countries. This also shows that forecasts from the model estimated through 2007 miss 2008 on average but are back on track by 2009, giving us some confidence that 2008 was not a total structural break.

Figure A.5. Residuals and forecast errors



Note: The graph is based on the results reported in column (3) of Table A.3.

Appendix 8. Robustness analysis

We carry out a large number of robustness tests, varying (i) the dependent variable (deficits, debt change, and all other SFA components); (ii) subsets of data, excluding and including various combinations of countries and extending the sample to all EU countries; (iii) other explanatory variables, both political (type and ideology of governments) and economic (banking crisis, alternate measures of boom and slump); (iv) alternate measures, codings, imputations, and specifications of transparency, including the European Commission's fiscal rules index, IMF domestic fiscal rules data, and fiscal targets data, among others, and adding a lagged dependent variable to every specification.

(i) Dependent variables. We repeat our specification for all the other SFA components listed in Appendix 3. None of the other subcomponents gives significant results for the electoral cycle, as summarized in Table A.4. The electoral cycle effect on the SFA is driven by the net acquisition of shares and other equity, which in turn drives the result obtained for the net acquisition of financial assets. For the various adjustments affecting the SFA that we discussed in Appendix 3, the electoral effect is driven by the net incurrence of other liabilities, which consists principally of other accounts payable. This in turn filters through into an effect on total adjustments. However, the net acquisition of shares and other equity plays a substantively larger role in producing electoral cycles in the SFA.

Table A.4. Conditional electoral cycles in SFA subcomponents

Dependent variable	Electoral term	Std. Error	Electoral term × budget transparency	Std. Error	Observations
SFA	-2.89	(0.29)***	3.82	(0.56)***	77
1) Net acquisition of financial assets	-2.31	(0.14)***	2.90	(0.26)***	77
Currency and deposits	-0.43	(0.26)	0.56	(0.36)	77
Securities other than shares	0.03	(0.11)	-0.04	(0.14)	77
Loans	-0.29	(0.24)	0.40	(0.31)	77
Shares and other equity	-1.79	(0.22)***	2.32	(0.31)***	77
Other financial assets	0.15	(0.24)	-0.30	(0.36)	77
2) Adjustments	-0.65	(0.16)***	0.90	(0.23)**	77
Net incurrence of liabilities in financial derivatives	-	-	-	-	-
Net incurrence of other liabilities	-0.75	(0.19)**	1.02	(0.24)***	77
Issuances above/below nominal value	-0.22	(0.18)	0.29	(0.24)	69
Difference between interest accrued and paid	0.25	(0.13)	-0.35	(0.17)*	77
Redemptions of debt above/below nominal value	0.08	(0.15)	-0.12	(0.21)	65
Appreciation/depreciation of foreign-currency debt	-0.01	(0.06)	0.03	(0.07)	75
Changes in sector classification	0.08	(0.18)	-0.09	(0.24)	69
Other volume changes in financial liabilities	-0.01	(0.07)	0.01	(0.11)	74
3) Statistical discrepancies	-0.04	(0.12)	0.13	(0.18)	74

Notes: All results are based on data from Eurostat Government Finance Statistics, which for our sample are available for six countries (Belgium, France, the Netherlands, Portugal, Spain and the UK). The table reports regressions for the main and detailed subcomponents of the SFA as described in Appendix 3. Results for the net incurrence of liabilities in financial derivatives are not available, since these figures are reported as either zero or missing for our sample. We only report the coefficients on the electoral term variable and its interaction with our measure of budget transparency, but the models are identical throughout and as specified for the subcomponent regressions reported in columns 5 and 6 of the table in the main paper.

(ii) Subsets. Second, we limit the sample to observations exceeding the deficit limit of 3% of GDP, since binding fiscal rules could increase incentives to resort to gimmickry. Despite omitting more than half of our observations, the pattern of results in Table A.5 is remarkably stable (though of course standard errors are larger). As expected, the magnitude of the coefficients on SGP and its interaction term increases, but not by a large amount. Removing the “cumulative surplus” countries with positive SFAs in Figure A.3(b), column 2 reports SFAs in a sample of ten countries excluding Denmark, Finland, Ireland, and Sweden. Despite dropping four countries and 30% of observations, the core results are qualitatively identical to those in Table A.3. Nor does the exact choice of countries to omit matter: we omitted each of the four countries separately, in pairs, and three at a time, and while individual coefficients can vary by as much as 10%, the overall pattern is very much the same.

Column 3 repeats the SFA specification for the eleven Eurozone countries: the main results remain evident. Column 4 presents estimates for a larger sample of countries adding to the 14 countries all the remaining EU members except Malta for the years in which they were EU members. The results remain similar to those of Table A.3. However, these eleven extra countries only added 32 data points, so we suggest not making too much of these differences. The only inconsistent effect across these four samples is for banking crises. This is due to the small number of observations with such crises in the core 14-country sample, preceding the global economic crisis: just five.

Table A.5. Further sample restrictions and expansions

Dependent variable	(1) SFA	(2) SFA	(3) SFA	(4) SFA	(5) SFA
Electoral term	-3.19 (1.11)**	-2.76 (1.15)**	-3.37 (1.00)***	-1.77 (0.83)**	-3.18 (0.95)***
Electoral term × Budget transparency	4.09 (1.73)**	3.44 (1.63)*	4.55 (1.43)***	2.19 (1.19)*	4.35 (1.36)***
SGP	11.61 (6.52)	10.97 (3.03)***	9.59 (2.76)***	10.65 (3.05)***	6.10 (2.21)**
SGP × Budget transparency	-15.73 (5.21)**	-12.82 (2.99)***	-10.61 (2.91)***	-12.70 (3.41)***	-9.16 (3.30)**
Slump	6.07 (1.42)***	3.70 (1.07)***	3.83 (1.44)**	4.63 (1.19)***	3.74 (1.53)**
Slump × Budget transparency	-8.87 (1.60)***	-6.01 (1.47)***	-5.89 (2.25)**	-6.78 (1.67)***	-5.28 (2.29)*
Boom	-2.88 (4.72)	0.62 (0.44)	0.58 (0.72)	0.15 (0.30)	1.16 (0.55)*
Boom × Budget transparency	5.40 (9.00)	-1.01 (0.72)	-1.04 (1.16)	-0.22 (0.50)	-1.72 (0.78)**
Banking crisis	7.64 (3.30)**	-3.06 (1.43)*	3.39 (2.04)	-3.71 (0.76)***	0.05 (1.37)
Observations	90	159	175	251	255
Countries	13	10	11	25	15
Sample description	Deficit > 3%	Excl. DNK, FIN, IRL, SWE	Eurozone	EU-27 except LUX, MLT	EU-15 (Amelia)
Country effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.06	0.07	0.08	0.11	0.10

Notes: OLS estimates. The dependent variables are expressed as per cent of GDP. Standard errors clustered by country in parentheses. In column (5), the regression also includes a lagged dependent variable (coefficient = 0.06, standard error = 0.07) and boom is alternatively defined as equal to the deviation from trend growth if that deviation is positive, 0 otherwise.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table A.6. Main regressions, augmented with lagged dependent variable

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Balance	Debt change	SFA	SFA	Net acquisition (+) of shares and other equity	Net incurrence (-) of other liabilities
Lagged dependent variable	0.59 (0.06)***	0.04 (0.09)	0.08 (0.07)	0.13 (0.06)**	-0.06 (0.22)	-0.12 (0.10)
Electoral term	0.60 (0.28)*	-3.89 (0.94)***	-3.12 (0.87)***	-2.20 (0.49)***	-1.81 (0.35)***	-0.93 (0.17)***
Electoral term × Budget transparency	-0.55 (0.38)	4.95 (1.33)***	4.11 (1.21)***	2.91 (0.71)***	2.45 (0.52)***	1.27 (0.23)***
SGP	5.15 (1.07)***	-1.62 (6.26)	10.40 (3.20)***	11.60 (4.19)**	11.06 (5.52)	-0.03 (0.85)
SGP × Budget transparency	-3.89 (0.88)***	-2.38 (6.33)	-12.62 (3.57)***	-14.28 (5.65)**	-13.11 (6.38)*	0.16 (1.16)
Slump	1.74 (0.53)***	0.82 (1.47)	4.65 (1.26)***	4.74 (2.15)**	2.95 (1.77)	0.16 (0.60)
Slump × Budget transparency	-2.73 (0.75)***	-0.63 (2.03)	-6.57 (1.65)***	-6.61 (2.86)**	-3.92 (2.31)	0.17 (0.86)
Boom	-0.52 (0.28)*	1.54 (0.64)**	0.85 (0.47)*	0.61 (0.95)	0.08 (0.51)	0.29 (0.58)
Boom × Budget transparency	0.77 (0.45)	-2.50 (0.85)**	-1.34 (0.72)*	-0.95 (1.37)	-0.21 (0.80)	-0.37 (0.79)
Banking crisis	-1.87 (0.56)***	3.60 (1.56)**	0.72 (1.42)	0.16 (1.37)	0.19 (0.84)	0.82 (0.53)
Observations	219	219	219	203	72	72
Countries	14	14	14	13	6	6
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.84	0.37	0.10	0.06	0.47	0.34

Notes: OLS estimates. The dependent variables are expressed as per cent of GDP. Standard errors clustered by country in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A.7. Main regressions, augmented with party political variables

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Balance	Debt change	SFA	SFA	Net acquisition (+) of shares and other equity	Net incurrence (-) of other liabilities
Prime minister from a left party	-0.66 (0.35)*	-0.49 (0.61)	-1.14 (0.64)*	-0.98 (0.66)	0.34 (0.20)	-0.17 (0.08)*
Coalition government	-1.95 (0.52)***	0.62 (1.10)	-1.33 (1.30)	-1.62 (1.42)	-0.27 (0.13)*	-0.05 (0.17)
Electoral term	0.62 (0.23)**	-3.63 (0.80)***	-3.02 (0.78)***	-2.27 (0.54)***	-1.92 (0.22)***	-0.73 (0.18)**
Electoral term × Budget transparency	-0.67 (0.30)**	4.62 (1.16)***	3.95 (1.11)***	2.96 (0.76)***	2.48 (0.32)***	0.99 (0.24)***
SGP	10.19 (2.22)***	-1.16 (6.56)	9.03 (5.20)	10.33 (6.56)	9.74 (2.98)**	-2.10 (1.15)
SGP × Budget transparency	-8.75 (2.56)***	-3.12 (6.16)	-11.87 (4.76)**	-13.69 (7.11)*	-11.38 (3.74)**	2.63 (1.54)
Slump	4.32 (0.84)***	1.13 (1.40)	5.45 (1.46)***	5.77 (2.49)**	2.41 (1.22)	-0.70 (0.86)
Slump × Budget transparency	-6.72 (1.25)***	-1.10 (1.99)	-7.82 (2.06)***	-8.18 (3.46)**	-3.20 (1.56)*	1.22 (1.12)
Boom	-0.82 (0.43)*	1.71 (0.45)***	0.89 (0.48)*	0.90 (1.11)	-0.31 (0.30)	0.33 (0.50)
Boom × Budget transparency	1.34 (0.69)*	-2.73 (0.56)***	-1.38 (0.67)*	-1.36 (1.54)	0.31 (0.48)	-0.39 (0.68)
Banking crisis	-2.86 (0.44)***	3.90 (1.27)***	1.04 (1.25)	0.71 (1.32)	-0.23 (0.48)	0.74 (0.45)
Observations	219	219	219	203	77	77
Countries	14	14	14	13	6	6
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.76	0.38	0.12	0.07	0.45	0.32

Notes: OLS estimates. The dependent variables are expressed as per cent of GDP. Standard errors clustered by country in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%

(iii) Other explanatory variables. Table A.6 reports results when our main regressions are augmented with a lagged dependent variable. It is sometimes statistically significant in the case of the deficit, but never for debt change and only once for the SFA, nor does including it alter any interpretation we make in this paper.

The forecasting errors literature includes political variables like government ideology (left/right) and type of government (coalition/majoritarian), with no clear effects.³⁵ We use the Database of Political Institutions to define two simple indicators of the ideology of the prime minister and of coalition government and use these to augment our main regression models.³⁶ Table A.7 shows that coalition government has a strong negative effect on the budget balance, and there are some further weakly significant effects, but no significant alterations in our results reported above.

Additionally, we perform the same sort of analysis of other measures of fiscal rules and targets, including some that have time variation. These include the EC fiscal rules index, an IMF indicator of the existence of domestic fiscal rules based on IMF data, and Hallerberg et al.'s³⁷ fiscal targets data. None of these produce significant results, though with the IMF data the results are qualitatively similar to our SGP pattern: omitting SGP yields significant results for the domestic fiscal rule indicator, suggesting that it is indeed the SGP component or enforcement of national rules that matters.

³⁵ See Brück and Stephan, 'Do Eurozone Countries Cheat with their Budget Deficit Forecasts?', pp. 11-13; and Roel Beetsma, Massimo Giuliodori, and Peter Wierdsma, 'Planning to Cheat: EU Fiscal Policy in Real Time', *Economic Policy* 24 (2009), p. 777.

³⁶ Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh, 'New Tools in Comparative Political Economy: The Database of Political Institutions', *World Bank Economic Review* 15 (2001), pp. 165-76. Our indicator for a prime minister from a left party is set to 1 when EXECRLC has a score of 3, and 0 otherwise. Our indicator for coalition government is set to 1 when GOV2SEAT shows a second government party with seats in the legislature, and 0 otherwise.

³⁷ Mark Hallerberg, Rolf Strauch and Jürgen von Hagen, *Fiscal Governance in Europe* (New York: Cambridge University Press, 2009).

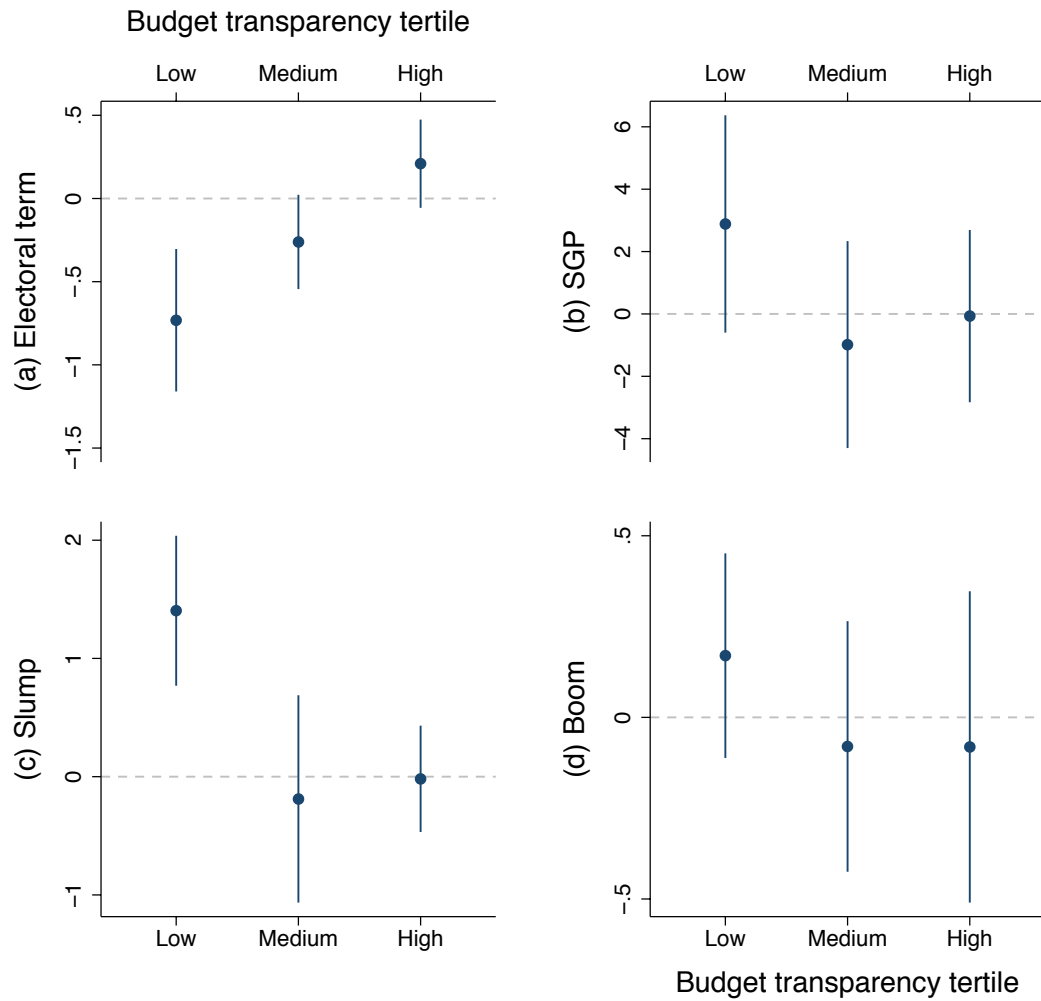
Second, we replace our continuous measure of transparency with a three-valued coding to define the interactions: high (Finland, France, Netherlands, Sweden, UK), medium (Austria, Belgium, Denmark, Germany, Ireland), and low (Greece, Italy, Portugal, Spain). Linearity seems to be a reasonable assumption for electoral cycles, but for the SGP and slump, the effects are driven by the least transparent countries. Figure A.6 summarizes this result. Finally, as an alternative method to our imputation procedure, we employ Amelia³⁸ to generate average effects across multiple imputed datasets for the main SFA model. Qualitatively, as Table A.5, column 5 shows, signs and statistical significance survive this experiment. Overall, we remain confident in the main results we report.

(iv) Alternative specification. von Hagen and Wolff³⁹ argue that the covariance between stock-flow adjustments and the deficit shows that “the introduction of the fiscal rule led governments to *systematically* [emphasis added] use stock-flow adjustments to lower deficits”, that is, the effect of the rule was not conditional on domestic institutional transparency. We replicate their model both with conventional regression and GMM methods and find that, compared to the published version, the estimates of the key quantity of interest are less statistically significant when standard errors are not robust or clustered (analysis available from authors on request). This strengthens our confidence in our result that the effect of introducing the SGP rules was indeed conditional on transparency.

³⁸ Honaker, King and Blackwell, ‘Amelia II’.

³⁹ von Hagen and Wolff, ‘What Do Deficits Tell Us About Debt?’, p. 3270.

Figure A.6. Marginal effects on SFA, conditional on budget transparency tertile



Notes: Dots display marginal effects on SFAs (in % of GDP) conditional on tertiles of budget transparency of (a) years left in the electoral term, (b) the SGP, (c) slump, and (d) boom. These are from a model like that in column (3), Table A.3, but with conditioning interactions based on three clusters of budget transparency according to the ranking in Figure A.1: high (Finland, France, Netherlands, Sweden, UK), medium (Austria, Belgium, Denmark, Germany, Ireland), and low (Greece, Italy, Portugal, Spain). Greece is included in the data. The lines indicate 10% confidence intervals.