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## **Moral Hazard in an Economic Union: Politics, Economics, and Fiscal Gimmickry in Europe**

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OF ECONOMICS AND  
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**Abstract:** This paper examines empirically how transparency of the budget process affects fiscal rules and incentives for fiscal gimmickry or creative accounting in the European Union. Using stock-flow adjustment data for EU countries from 1990-2007, we show that pressure from a deficit limit rule as in the Stability and Growth Pact creates incentives for fiscal gimmicks, as does political pressure from the electoral cycle and economic pressure from negative shocks in the business cycle. However, we show that where institutional transparency is higher, these incentives are damped and largely disappear. We infer that fiscal rules do not work well when institutional transparency is low.

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This paper examines empirically relationships among institutional transparency, fiscal rules, and incentives for fiscal gimmickry or creative accounting in the European Union (EU). The perceived collectivization of risk embodied in the EU's Stability and Growth Pact (SGP), exemplified by the essentially full convergence of Eurozone government bond yields before the financial crisis, created incentives for moral hazard, in the form of slack fiscal discipline, in member countries. This risk was well known: in the years leading up to the adoption of the SGP, there was an extensive discussion (some of which we review below) of the consequences of asymmetric information in fiscal, monetary, and economic unions for moral hazard in international risk sharing and fiscal discipline (Persson and Tabellini 1996, von Hagen 1998). Indeed, the system of fiscal rules embodied in the SGP was developed to address exactly such risks. However, if compliance with fiscal rules is not perfectly observable, moral hazard in an economic union can manifest itself by member countries with low fiscal transparency disguising, rather than improving, their true fiscal position by misrepresenting fiscal quantities (Alesina and Perotti 1996, 1999; Milesi-Ferretti 2004). This paper is the first to offer a systematic empirical test of this proposition, despite the growing body of work on moral hazard and creative accounting. In a nutshell, our core results show that the amount of gimmickry induced by a fiscal rule does indeed depend on the degree of transparency in the budget process, among other things.

In recent years fiscal gimmicks have gained increased public attention. In Greece, for instance, repeated revisions of fiscal statistics increased the 2009 deficit figure five-fold, from initially less than 3% of GDP to a "once and for all" (according to the former finance minister) final figure of more than 15%, accompanied by severe market reactions (Reuters, October 27, 2010). The Greek sovereign debt crisis highlights the fundamental fiscal and macro-economic risks of creative accounting for the Eurozone, and for the stability of economic unions more

broadly. However, worryingly, Greece is not the only country to beautify or misreport its public finance statistics (Koen and van den Noord 2005, von Hagen and Wolff 2006, Weber 2012). We offer below estimates of the extent of misrepresentation of fiscal quantities over up to two decades, mostly for the 15 members of the EU before enlargement in 2004, or EU-15, but also in as many as two dozen European countries.

The problem with attempting a systematic analysis of fiscal gimmicks is that it is never a straightforward matter of data collection. After all, for exactly the reason that misrepresentation of fiscal quantities is undertaken, national accounts contain no entries describing the extent of gimmickry. Instead, its existence and magnitude must be inferred. Another contribution of this paper is to review multiple measures of fiscal gimmickry, though for reasons of data availability we are not yet in a position to compare them systematically.

Moreover, the sovereign debt crisis in the Eurozone has placed fiscal transparency as well as fiscal rules at the centre of debates about the future of the EU. A large literature highlights the beneficial effect of budget process transparency on fiscal performance (Alesina and Perotti 1996, Hameed 2005, Alt and Lassen 2006a), though of course transparency can under some circumstances have undesirable effects (Prat 2005, Gavazza and Lizzeri 2009). In this paper we offer an account of conditions under which transparency deters gimmickry. A concern that we address below is that transparency and gimmicks are jointly caused (or even that one is a correlate or an epiphenomenon of the other). We believe that the way we operationalize fiscal transparency allows us to argue that its effects on gimmicks are at least in principle causal.

Finally, we extend and qualify results from several studies of fiscal performance. For example, Buti et al. (2007) and de Castro et al. (2011) explore effects of election timing on the prevalence of gimmicks. We extend Alt and Lassen's (2006b) work to show that electoral

cyclicality in creative accounting as well as recorded deficits prevails in low-transparency countries, but not when fiscal disclosure is extensive. By doing this, we provide a theoretically conditional account of the Buti and de Castro results. Moreover, we also qualify a result by von Hagen and Wolff (2006: 3271-3273) that creative accounting is used to offset the impact of the economic cycle on the deficit, and show that this is not the case for high-transparency countries.

The paper proceeds as follows. Section 1 reviews the theory and relevant literature examining the relationships between gimmicks and rules, transparency, electoral timing, and the business cycle that we examine jointly. Section 2 defines fiscal gimmicks more precisely and reviews a variety of measures of fiscal gimmickry, including stock-flow adjustments, the dependent variable of the estimates that follow. Section 3 reviews data and specification, and Section 4 examines the estimates and their robustness over alternative measures. The final section concludes and offers suggestions for future research.

## **1. Explaining fiscal gimmickry**

The obfuscation and manipulation of financial data has a venerable tradition that has given rise to terms such as accounting “fudges” or “fiddles”, “creative accounting”, and “cooking the books”. Borrowing from Koen and van den Noord (2005), the overarching term used here to describe the central phenomenon of interest is “fiscal gimmickry”. Originally, according to Webster’s, the word “gimmick” was a slang term for something that a con artist or magician had his assistant manipulate to make appearances different from reality, and that is the meaning it retains in the fiscal context. Broadly speaking, we use the term to describe a variety of more or less deliberate attempts by governments to beautify their public finance statistics – in particular

in relation to the budget balance and debt – through actions that have no real or substantive effect on their underlying fiscal position.

In a theoretical contribution, Milesi-Ferretti (2004) examines the effect of fiscal rules when governments have the possibility to misreport fiscal data. His main proposition is (p. 383): “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.” He concludes his analysis by urging “empirical evidence could shed light on whether the size of creative accounting (as measured, for example, by the difference between budget deficits and the change in public debt) is higher in the presence of fiscal rules and whether it is related to indices of budget transparency.” While the theoretical idea expressed by Milesi-Ferretti (2004) is widely accepted in the political economy literature (Eslava 2011: 662), it is surprising that his insight has been almost entirely ignored in the empirical literature until now.

At the same time, we stress that for two decades theoretical papers have analyzed asymmetric information in fiscal/economic unions. Important contributions include Beetsma and Jensen (2003), who consider the extent of moral hazard under a stability pact; Persson and Tabellini (1996), who investigate insurance in a federation with no verifiability of shocks; and Beetsma and Bovenberg (2001), who consider moral hazard in fiscal unions and conclude: “moral hazard due to international transfers seems to be a potentially important issue because of lack of transparency of budgeting processes. This lack of transparency contributes also to political distortions weakening fiscal discipline”. Moreover, the broader policy debate preceding the SGP produced a number of policy papers on moral hazard in a potential Eurozone, including von Hagen (1998). Clearly, the concern was out there, but empirically it was not addressed. Our paper substantiates the assumptions of the presence of moral hazard made in the theoretical

papers, quantifies the extent of the moral hazard problem, and shows how it depends on institutional characteristics like transparency.<sup>1</sup>

Nevertheless, several studies investigate whether the SGP affected fiscal gimmickry. Adopted by EU countries in 1997, the SGP was meant to ensure the maintenance of fiscal discipline in the common currency area by requiring continued adherence to the Maastricht convergence criteria: general government deficits no higher than 3% of GDP and debt levels below 60% or approaching that value. Koen and van den Noord (2005: 21) find that fiscal gimmickry was more likely prior to monetary union. In contrast, Buti et al. (2007: 136-137) find that overall their measure of gimmicks in Eurozone countries increased after monetary union. Von Hagen and Wolff (2006: 3270-3273) find a significant negative correlation between gimmicks and several deficit measures after the introduction of the SGP, but not before. Their finding is particularly strong in relation to the cyclical part of deficits. There is also some evidence that creative accounting is more likely when governments get close to the numerical constraint imposed by a fiscal rule (Koen and van den Noord 2005: 14-16, von Hagen and Wolff 2006: 3273-3275). However, with only one partial exception,<sup>2</sup> none of these studies address the conditioning role of fiscal transparency that is at the heart of Milesi-Ferreti's (2004) analysis.

There is little empirical work on the relationship between budget transparency and creative accounting. Perhaps some find the connection between the two to be definitional, but this is not so. Budget transparency is a characteristic of institutions that sets the likely cost or probability of detection of resorting to gimmicks, which are misrepresentations of fiscal

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<sup>1</sup> Gavazza and Lizzeri (2011: 344) note that their model of transparency and incentives to manipulate misses two features of fiscal crises linked to lack of transparency: "manipulation [that] was partly designed to mislead its EU partners, partly to fool the capital markets".

<sup>2</sup> In contrast to the attention given to the supra-national fiscal rules in the SGP, empirical work on domestic fiscal rules and fiscal gimmickry or forecasting errors is less extensive. Moreover, the results are generally not robust (de Castro et al. 2011: 23 and Table 7, Pina and Venes 2011: 540-542). The interactions between domestic and supra-national fiscal rules, fiscal transparency, and creative accounting deserve more detailed attention elsewhere.

quantities. On gimmicks, Koen and van den Noord (2005) mention “one-off measures”:  
“government decisions of a non-recurrent nature [that] affect general government net lending or borrowing in a given year or for a few years, but not permanently” (p. 6). Practices of this nature may include the privatization of real assets, tax amnesties, or the acceleration of tax intakes, and are clearly different from budget transparency. They distinguish these from “creative accounting”: “the more or less unorthodox treatment of operations involving the general government, which affects the fiscal balance or public debt but not, or far less, government net worth” (p. 7). The latter category includes strategic choices about the accounting treatment of particular transactions that interpret rules in a favorable way, or, occasionally, downright cheating. Such dubious practices are analytically distinct from the institutional framework for budgetary reporting, in particular accounting systems and standards.

Weber (2012: 14-16) does consider the empirical connection between transparency and stock-flow adjustments, a measure of fiscal gimmickry that we discuss in detail in the next section. Her dataset consists of a large panel of 122 countries between 1980 and 2010. Using a fixed effects specification, the author first regresses stock-flow adjustments onto a set of time-varying explanatory variables that capture inflation, valuation effects, debt forgiveness, and banking crises. In advanced economies, only banking crises have a significant effect, whereas in emerging and low-income countries all four variables have significant effects. Weber (2012: 13) argues that the obtained country fixed effects “could reflect measurement issues being more important in some countries than others or a tendency of governments to revert to creative accounting practices in order to circumvent fiscal rules.” She proceeds to regress the absolute values of these fixed effects onto a measure of fiscal transparency based on IMF assessments (Hameed 2005) and finds a negative relationship. In other words, fiscal transparency may reduce

the component of gimmickry that is not accounted for by the first-stage panel regression, for instance due to improper accounting. This analysis makes a valuable addition. However, given that a major concern is that countries “hide” deficits, the sign of the fixed effects – not only their absolute value – is of analytic interest.<sup>3</sup> Moreover, despite alluding to the role of fiscal rules, the author does not include a test of the theoretical work by Milesi-Ferretti (2004).

Existing empirical studies introduce several other variables that may help to explain variation in gimmickry across countries and over time. In particular, there is some evidence that upcoming elections may increase a government’s incentives to embellish deficits. Using data for 12 Eurozone countries, Buti et al. (2007: 136) find that elections increase gimmicks, although the estimate is not very precise. Looking at fiscal data revisions, de Castro et al. (2011: 21-23) explore electoral effects with various specifications and find that pre-election years in particular increase the likelihood that a published deficit figure subsequently will be revised upward. The literature on forecasting in EU countries contains similar findings (Brück and Stephan 2006: 12, Pina and Venes 2011: 540). However, none of this work has incorporated the insight that the scope for government to temporarily obfuscate the true state of public finances is conditional on the degree of transparency of budgetary practices (Alt and Lassen 2006b).

Economic and fiscal conditions, too, may play a role in explaining the use of fiscal gimmicks. The IMF (2011b: 73) has warned that, in the wake of the global economic crisis, governments “may be tempted to supplement genuine fiscal adjustment with accounting stratagems.” Indeed, as we mentioned above, von Hagen and Wolff (2006: 3271-3273) find that especially the cyclical part of deficits tends to be offset by gimmicks. To test whether macroeconomic conditions alter the incentives for governments to resort to gimmickry, empirical work should include a measure of output shocks. Here, too, we conjecture that it may be more

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<sup>3</sup> The following section discusses stock-flow adjustments in detail and returns to this point.

difficult for governments to obscure the fiscal implications of economic downturns when the degree of budgetary disclosure is high.

Overall, there is evidence that fiscal rules, elections, and economic conditions may affect fiscal gimmicks.<sup>4</sup> However, the core implication of Milesi-Ferretti's (2004) analysis – that there is an interaction between fiscal rules and budget transparency – remains untested. More generally, the role of budget transparency has been largely ignored in empirical work on creative accounting, and we have good reasons to believe that it may also condition the effect of elections and economic conditions.

## **2. Measuring fiscal gimmickry**

Fiscal gimmickry is an intuitive concept, but less easy to operationalize. It is also difficult to detect and quantify, although some practices are well known (Koen and van den Noord 2005: 27-30, von Hagen and Wolff 2006: 3263). For instance, a typical strategy is to disguise capital injections that cover recurring losses of a public company as an equity injection (a “below-the-line” transaction in equity that does not affect the deficit) instead of a capital transfer (an “above-the-line” expense that increases the deficit). Another example is the above-the-line treatment of privatization receipts. However, much of the practice of fiscal gimmickry exists in a shadowy world of government accounting that is properly understood by few and where surveillance has been far from perfect. For example, Greek fiscal data suffered from significant inaccuracies and distortions over the past two decades, many of which were not detected for several years (Eurostat 2004 and 2010). Despite these difficulties, a small but growing set of empirical studies

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<sup>4</sup> In addition, some of the literature on forecasting errors includes political variables such as government ideology and the type of government, but these do not appear to play a clear role (Brück and Stephan 2006: 11-13, Beetsma et al. 2009: 777, Pina and Venes 2011: 544).

suggest ways to measure and quantify fiscal gimmickry, or at least some of its components and related concepts (Irwin 2012).

The most widely-used approach (and the one that forms the basis of our estimates below) draws on a statistical residual, the “stock-flow adjustment” (SFA). The SFA in year  $t$  is defined as the difference between the annual change in gross debt  $B$  and the budget deficit  $D$  (expressed as a *positive* number<sup>5</sup>):  $SFA_t = B_t - B_{t-1} - D_t$ . A positive SFA indicates that the change in gross debt exceeds the relevant budget deficit, and vice versa. For instance, if debt outstanding increases by 4 and the deficit is reported as 2, then the above expression yields an SFA of 2. A surplus of 2 that resulted in no debt reduction would give the same result. Some differences between deficits and debt changes are unavoidable (von Hagen and Wolff 2006: 3262-3264, Buti et al. 2007: 119-123, Seiferling 2012), but over time they should even out so we assume SFAs are zero in expectation.

The European Commission (2003: 82) and the International Monetary Fund (IMF 2011a: 51) 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”. Worryingly, the IMF calculates that the increase in public debt stocks between 1980 and 2010 has exceeded accumulated deficits over the same period in most countries, including 29 out of 34 advanced economies. Milesi-Ferretti (2004: 390) recommends the use of SFAs for studying fiscal gimmickry, and several empirical studies adopt this approach (von Hagen and Wolff 2006, Buti et al. 2007, Bernoth and Wolff 2008). The SFA is a proxy for fiscal gimmickry that is easy to compute with widely available fiscal data, and it is used as a tool in fiscal surveillance. The SFA is our dependent variable of choice.

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<sup>5</sup> This notation follows the literature in expressing the budget deficit as a positive number. In our empirical work below we will employ a variable “Balance” which expresses the deficit more naturally as a negative number.

There are alternative ways to measure gimmickry. Work related to the SFA on the quality of fiscal adjustment employs a balance sheet approach. Easterly (1999: 57) argues that “[f]iscal adjustment is an illusion when it lowers the budget deficit or public debt but leaves government net worth unchanged.” A government’s net worth is defined as the difference between its (financial plus non-financial) assets and liabilities. Changes in net worth can be used to assess the “structural” impact of fiscal operations in terms of reducing the need for future taxation (Milesi-Ferretti and Moriyama 2006). However, the coverage of reliable data on the net acquisition of assets and the net incurrence of liabilities is still limited.

Among the earliest attempts to capture fiscal gimmickry were “bottom-up” approaches that relied on the identification of individual incidents for a small number of countries. Dafflon and Rossi (1999) collect eight anecdotes, such as the sale of central bank gold reserves to reduce debt (Belgium) and the reclassification of railway debt to reduce the deficit (Italy). Not all of these incidents are quantifiable, but for two countries (France and Italy) they calculate an aggregate impact on the 1997 deficit-to-GDP ratio of about three-quarters of a percent.

Koen and van den Noord (2005) undertook a far more comprehensive effort along similar lines. They identify a total of 206 incidents of 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. 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. These numbers partly capture the types of manipulation that increase SFAs, for instance capital injections into state-owned entities and enterprises, or the understatement of certain expenditures. On the other hand, they also include various legitimate “one-off” measures

that temporarily improve deficits without affecting SFAs, such as tax amnesties or privatizations. We emphasize that in many cases these different types of gimmicks could be substitutes rather than complements, and will give this consideration more detailed analysis elsewhere. Overall, this “bottom-up” approach offers the possibility of directly capturing the phenomenon of interest. This intuition might bias the judgement of experts interpreting incidents as gimmicks. Hence, our main concern is that it captures *detected* fiscal gimmickry, or the proverbial tip of the iceberg.<sup>6</sup>

Another set of studies exploits the availability of multiple vintages of fiscal data for the same period to capture sequential revisions or implementation errors (for a review, see Cimadomo 2011). One strand of this literature evaluates the quality of fiscal forecasts (Brück and Stephan 2006, Beetsma et al. 2009, Pina and Venes 2011). More relevant here is another set of papers that examine the sequential revision of ex post fiscal data (Balassone et al. 2006, Mora and Martins 2007). In a more recent study of this kind, de Castro et al. (2011) also examine the impact of decisions issued by the EU’s statistical agency, Eurostat, that lead to revisions of fiscal data. These decisions and methodological clarifications, they argue, “reflect the need for detailed monitoring of practices by national statistical institutes that often tend to exploit to the limit the interpretation of existing legislation, typically aiming at concealing certain operations/issues that could increase government deficits” (p. 13). Their results confirm that Eurostat decisions consistently result in the upward revision of deficit figures (p. 24). Hence, this measure captures which governments attempted to push the limits of accounting rules, and when they choose to do so. On the other hand, the availability of the relevant data is limited, as Eurostat only started to publish this information in 1999.

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<sup>6</sup> As a practical matter, we would want to update the Koen and Van den Noord data, more than doubling the amount of euro-era data, before coming to any conclusions.

Other methods have been proposed to detect potentially fraudulent data supplied by governments, based on the extent to which economic and fiscal data reported by European countries deviates from a hypothesized distribution according to Benford's Law (Rauch et al. 2011). The application of Benford's Law is hugely controversial in some fields such as the literature on vote fraud (Breunig and Goerres 2011, Deckert et al. 2011, Mebane 2011). Given that the existing work on fiscal gimmickry already offers a variety of far less contested measures, the utility of adding a new facet to this ongoing controversy is questionable. Even if the approach were valid, it would only help to identify an extreme and narrow segment of a wider set of creative accounting operations, namely where governments deliberately falsify fiscal data. We do not pursue this approach here.

### **3. Data and empirical approach**

We focus on SFAs, primarily as these have the best coverage, both across countries and over time. The SFA in year  $t$  is defined as the difference between the annual change in gross debt and the budget deficit. A positive SFA means that government debt increases by more than the annual deficit (or decreases by less than the surplus), while a negative SFA implies that government debt increases by less than the annual deficit.

*Dependent variable: Stock-flow Adjustments.* Consider Figure 1, which 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 1(a), this is not too bad a description of the data. Lack of data for some countries makes it hard to

offer a concise summary, but cumulative surpluses are uncommon, and cumulative deficits are on the whole larger than in later years.

[Figure 1 about here]

Figure 1(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. Figure 1(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). Von Hagen and Wolff (2006: 3264) note that Finland and Luxembourg in particular used surpluses to buy assets rather than to pay off debt. In the case of Luxembourg, the reason is simple: the country had an average debt to GDP ratio of 6.4% over the period 1998 to 2007, or practically zero, so surpluses could not go into paying off debt.<sup>7</sup> 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.

There may be many perfectly legitimate reasons for non-zero SFAs, including loans granted by governments or government injections of equity into corporations, both of which will show up as a change in the stock of debt but will not appear in the deficit figures. Generally, differences between the annual deficit and changes in the stock of debt will occur due to (i) net acquisition of financial assets, including net changes in deposits and currency, (ii) adjustments in

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<sup>7</sup> In any case, Luxembourg is not in our regressions, due to the lack of transparency data for the country.

net incurrence of liabilities, effects of face valuation and appreciation or depreciation of foreign-currency debt and (iii) statistical discrepancies (Eurostat 2011). Despite such legitimate explanations, concerns have also been raised that the great attention paid to deficit figures rather than debt under the EU's system of fiscal surveillance, based on the Excessive Deficit Procedure, have provided national governments with an incentive to lower deficits and instead increase SFAs (von Hagen and Wolff 2006, Eurostat 2011).<sup>8</sup> According to this reasoning, the negative correlation between reported deficits and SFAs observed by von Hagen and Wolff is evidence of active fiscal gimmickry. In sum, positive SFAs can be a sign of fiddling to stay below the deficit limit and instead accumulate debt or it can be a sign of legitimate transactions made for other reasons, such as asset purchases or loans guarantees. Which is more likely, in our view, depends on transparency.

Precisely because there exist legitimate reasons for non-zero SFAs, one key concern about the use of SFAs as measures of fiscal gimmickry is measurement error, but this can be reduced through proper choice of control variables: First, some residuals always accrue in government accounts. These can reasonably be expected to be white noise, and will not affect estimates. Second, transactions that increase SFAs may have legitimate reasons arising from (changes in) economic conditions correlated with our variables of interest. For example, the financial crisis led to a number of government operations increasing the net acquisition of financial assets (Eurostat 2011), motivating the inclusion of banking crises as a control variable. Finally, certain causes of SFAs can be cyclical, for example if surpluses are used to invest in assets, which motivates including cyclical indicators among the controls.

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<sup>8</sup> Figure 1(b) draws our attention to positive SFAs as the thing to be explained. But negative SFAs could also be an issue, if debt was more of a concern than deficits. While deficits have been more important under the SGP, it is not clear that this assumption would hold for a longer period, like the one Weber (2012) considers.

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. This data set includes all relevant information for the EU27-countries as well as most OECD economies and is the basis for the European Commission's policy work. Exact data sources are presented in Appendix 2.

*Explanatory variable: Budget Transparency.* Budget transparency has received a good deal of public attention. A common perception is that most spending is performed without sufficient monitoring, creating a lack of transparency. This in turn has produced calls for reform increasing transparency to maintain fiscal discipline and reduce incentives to accumulate debt (Gavazza and Lizzeri 2011).

The International Monetary Fund (IMF 1998) and the Organisation for Economic Co-operation and Development (OECD 2002) have adopted standards for budget transparency, informing several measurement efforts. One of these is an 11-item index initially developed by Alt and Lassen (2006b) and later revised (Lassen 2010). Since 2006, the International Budget Partnership, an independent think tank, has published the Open Budget Index (OBI). This 92-item measure captures the public availability of fiscal information across eight types of budget documents similar to those recommended by the OECD (International Budget Partnership 2010). 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 (Hameed 2005, Weber 2012).

Available data across these various measures for the countries in our sample are displayed in Appendix 1, Table A1. Reassuringly, they reflect a broadly similar pattern. The OBI is positively correlated with the Alt and Lassen index (.69), its revised version (.80), and the IMF index (.66). We use a regression-based imputation method to combine available data from these

measures into a single index. The method is described in Appendix A1, and Table A1 gives the imputed scores, which are displayed in Figure 2.

[Figure 2 about here]

*Empirical Specification.* This leads to the following empirical specification with countries indexed by  $i$  and years by  $t$ :

$$budget_{it} = \alpha + \delta budget_{it-1} + \beta' X_{it} + \gamma' X_{it} OBI_i + \lambda' Z_{it} + \eta_i + \tau_t + \varepsilon_{it}$$

Here,  $budget_{it}$  can be fiscal balance, change in debt or the SFA. Throughout, we include a lagged dependent variable and let  $X_{it}$  denote variables that we hypothesize affect one or more of the budget outcomes conditional on fiscal transparency, captured by the interaction term, while  $Z_{it}$  contains the variables that are not conditional on fiscal transparency. Our measure of fiscal transparency, the Open Budget Index  $OBI_i$ , is indexed by country only, as we assume this to be unchanged over the period we consider. As a consequence, any direct effects of fiscal transparency on budget outcomes are subsumed by the fixed country effect,  $\eta_i$ . Furthermore,  $\tau_t$  captures year fixed effects, and  $\varepsilon_{it}$  is an error term. We estimate the models correcting for clustering at the country level.

The main explanatory variables, all assumed to affect the likelihood of observing SFAs aimed at reducing reported deficits, are fiscal rules, electoral incentives, and economic conditions. The fiscal rule is captured by the SGP, which took effect from 1998 on. The SGP included two fiscal rules, a 3 % limit on the government deficit and a 60 % cap on the government debt to GDP ratio. As noted above, our proposition that positive SFAs signal fiscal gimmickry assumes that member countries considered the deficit rule more important than the debt rule. A government's electoral incentives are captured by years left in the term of office, ending in zero in the election year. We also distinguish between years of above-trend growth

(boom) and below-trend growth (slump). All the exact data sources and explanations are listed in Appendix 2. Following Milesi-Ferretti (2004), we expect that these main relationships of interest will be conditional on fiscal transparency. In addition, we control for the existence of a banking crisis, which can affect governments' use of asset purchases and loans to the private sector (Weber 2012). We have no strong expectation that the effect of a banking crisis depends on fiscal transparency, though it could.

Below, we first present results without interacting key variables with the level of fiscal transparency, equivalent to forcing all elements of  $\gamma$  to be equal to zero, in order to look at direct effects. We subsequently allow for an interaction with fiscal transparency to estimate conditional effects, with higher transparency removing the incentives to manipulate public finances created by the presence of rules, the electoral cycle, and economic downturns. Moreover, we estimate all these equations not only for SFAs, but also separately for the components of SFAs, deficits and the change in debt, to reflect our belief that gimmicks were used in this period to manipulate deficits rather than debt.

#### **4. Results**

Table 1 presents a simple overview of the main quantities of interest. We see that the average SFA for the whole period is just under 1% of GDP and that SFAs were larger under the SGP than before (for all countries in Table 1(a) the difference just achieves conventional levels of statistical significance). SFAs are also apparently larger in booms (years when GDP growth is above trend) than slumps (again just significantly for all countries) but that relationship will not hold up in multivariate analysis. Finally, the level of transparency alone does not appear to make

a difference, though we see an interaction between the electoral calendar and transparency: higher SFAs in less (more) transparent cases when elections are due (not due).

[Table 1 about here]

Table 2 presents the results from the simplest direct-effects specification, without interactions with fiscal transparency. We use the full collected data rather than the simplified dichotomies of Table 1, for 14 EU countries<sup>9</sup> for the years from 1990-2007. Fiscal rules, as captured here by participation in the SGP, improve fiscal balance significantly, but have no significant effect on changes in public debt or SFAs. Electoral concerns, measured by years left in current term, affect all three budgetary outcomes: countries with more years until the next election have a better fiscal balance, a reduction in public debt, and smaller SFAs. Thus the familiar opportunistic electoral budget cycle has a clear direct effect in this data, where the earlier years of a term are used to create surpluses and pay down debt, with less evidence of manipulation. The cyclical position of the economy, measured by positive and negative output gaps, does not affect budget outcomes in this specification, though banking crises appear to increase deficits a little.<sup>10</sup>

[Table 2 about here]

Table 3, columns 1b-3b, presents the main results. The first two rows of columns 1b and 2b suggest strong conditional effects of the SGP on the budget balance, but not on debt changes. Column 3b reports results for the SFA. Participation in the SGP increases SFAs, but this increase is countered by fiscal transparency. Combined with the results on fiscal balance presented in column 1b, and the lack of results for debt change in column 2b, our estimates support the

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<sup>9</sup> Again, lacking transparency data for Luxembourg we cannot include it in the conditional regressions below, and so omit it here.

<sup>10</sup> This result is fragile. Laeven and Valencia (2010) identify only 11 banking crisis years in the EU-15 during the 1990 to 2007 period, which affected three countries: Finland and Sweden (both 1991 to 1995), and the UK (2007).

interpretation that reductions in deficits in low-transparency countries are largely cosmetic, as they are offset by changes in SFAs, while high-transparency countries see actual improvements in fiscal balance under the SGP. These estimated effects of the SGP conditional on minimum and maximum observed transparency are presented in the lower part of Table 3 and, to aid interpretation, Figure 3, panel (a) plots the marginal effect of the SGP on the SFA for each value within the sample range of transparency, the conditioning variable (Brambor et al. 2006). Reading across the panel from left to right, with minimal transparency, the SGP induces a significant increase in SFAs of four percentage points (as also in Table 3, column 3b), while the SGP has no effect on SFAs with maximal transparency.

[Table 3 about here]

[Figure 3 about here]

Furthermore, we find strong support for a conditional electoral cycle in SFAs. With low budget transparency, the number of years left in the current electoral term is a significant predictor of an improved fiscal balance and smaller debt changes, as well as smaller SFAs. Note that with minimal transparency, the electoral effect on debt changes is more than four times larger than on deficits – most of the election-induced manipulation of fiscal policy happens through SFAs. For example, for each extra year left in the term of office where transparency is minimal, the SFA declines by one percentage point of GDP. This is consistent with the argument that low-transparency circumstances allow misrepresentation of the true fiscal situation (deficits), independent of whether there are fiscal rules or not (Alt and Lassen 2006a). As was the case for participation in the SGP, however, fiscal transparency has a strong mediating effect: in countries with a maximum fiscal transparency, the number of years left in the electoral term has

no significant effect on deficits or debt changes, and has a small *positive* effect on SFAs. Again, Figure 3, panel (b) illustrates this conditional effect as read from left to right.

Finally, fiscal transparency also affects the response to business cycle movements [see also Andersen and Nielsen (2010) for the relationship between fiscal transparency and the procyclicality of fiscal policy, and Lassen (2010) for an analysis of fiscal transparency and fiscal consolidations]: In slumps, low-transparency countries make more use of SFAs, while high-transparency countries make less use of them. The difference made by higher transparency to the use of SFAs during bad economic times is particularly striking. With minimal budget transparency, a one percentage point gap between actual and trend GDP pushes up the SFA by 1.6 percentage points, whereas maximal transparency is associated with an effect of similar magnitude but the opposite sign. Somewhat unexpected, we find a similar pattern for booms. However, Figure 3, panels (c) and (d), shows that the conditional boom coefficients are of far smaller magnitude than for slumps, and their statistical significance is more marginal. Moreover, our estimates for booms are fragile and do not survive some of the robustness tests that we report below, so we caution against over-interpreting this result.

Figure 4 presents an alternative illustration of the SFA regression in Table 3, column 3b, using the estimates from 1991-2007 to predict SFAs in 2008 and 2009, the initial years of the fiscal crisis. From 1991 to 2007, the red dots are the time effect coefficients (the average residual conditional on all other explanatory variables including unit fixed effects). These ramble around zero with no very clear pattern, though there are notable positive observations in 1993 and 1999, and then again in 2008. In those years, observed SFAs exceeded the regression's prediction on average across countries.<sup>11</sup> Vertical bars indicate the range of residuals for each

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<sup>11</sup> That is, debt increased by more than recorded deficits, to a greater extent than one might have expected from observed variables.

year, with countries having the highest and lowest residual indicated in each year. There is a little heteroskedasticity (the residuals appear larger in the early years), but again no very striking patterns. In 2008 the forecast errors from the regression through 2007 appear. While the range is large, the regression is not dramatically off center, and many unusual things happened in 2008. For example, the biggest positive residual, the Netherlands, is explained thus by Eurostat: "The high positive value for the Netherlands in 2008 reflects loans given to a bank in the context of the current financial crisis." By 2009 the regression appears back on track, the forecast errors strongly resemble residuals of the earlier years, and there is nothing to suggest a major change in the pattern of determination of SFAs.

[Figure 4 about here]

Table 4 presents some further results. First, we limit the sample to countries exceeding the deficit limit of 3% of GDP, since binding fiscal rules could increase incentives to resort to gimmickry (von Hagen and Wolff 2008). Despite omitting more than half of our observations, the pattern of results in Table 4, column 3c is remarkably stable (though of course standard errors are larger). One exception is that the conditional boom result disappears. Note that, as expected, the magnitude of the coefficients on SGP and its interaction term increases, although not by a large amount. Someone concerned with subsample variation might wonder about the effect of the "cumulative surplus" countries with positive SFAs in Figure 1(b). Column 3d reports SFAs in a sample of ten countries excluding Denmark, Finland, Ireland, and Sweden. Despite dropping four countries and 30% of observations, the results are qualitatively identical to column 3b. 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 3e excludes Greece from the

other end of the 45-degree line: it is equally evident that Greece is not driving the results we report.

[Table 4 about here]

Column 3f repeats the SFA specification for the eleven Eurozone countries: the difference made by booms and by transparency during booms is smaller and no longer significant, and the role of banking crises larger, but the main results remain evident. Column 3g 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 3, column 3b, though the effect of banking crises again appears, while boom and its interaction with transparency have no significant effect. However, we caution that these eleven extra countries only added 32 data points, and thus suggest that we not make too much of these differences.

## **5. Discussion and conclusions**

Our results show that indeed, in circumstances of low fiscal transparency, the imposition of fiscal rules can be counterproductive. Without the possibility of behavior being observed, rules create incentives for fiscal authorities to resort to gimmickry: to manipulate reported data, rather than to fix fiscal policy. Institutions reflecting higher budget process transparency reduce and possibly eliminate these incentives. Our results also show that the electoral calendar has similar effects: in democracies, even advanced ones, incentives for politicians to employ gimmicks rise when elections loom, but once again budget process transparency alleviates this problem. Finally, as others have also conjectured, the incentives to manipulate are stronger in times of economic stress. Once again, and independent of the other effects just reviewed, this effect of slumps is

conditional on low transparency permitting politicians to get away with and benefit from budget manipulation. Our inference seems inescapable: fiscal rules simply do not work in non-transparent environments. In those circumstances, in fact, they can make things worse.

Our results have implications for the design and governance of economic unions. First, the warnings raised in policy and research papers since the early 1990s about risks of moral hazard in economic policy making for countries in economic unions seem largely justified in light of the available evidence. Second, stricter fiscal rules, such as those embodied in the new euro-area Fiscal Treaty, are unlikely to bring about the desired outcomes unless accompanied by considerable improvements in fiscal transparency (and maybe even cultures of governance), as tighter fiscal rules with no transparency does not effectively change incentives for national policy-makers to face real trade-offs rather than to rely on fiscal gimmickry.

The emphasis on fiscal transparency may even be more important in light of the Fiscal Treaty's emphasis on so-called "second generation" fiscal rules based on measures of structural economic indicators. Such structural indicators are notoriously prone to differing interpretations and different methods of calculation.<sup>12</sup> Leaving estimation of output gaps and structural indicators to countries themselves may not bring about the fiscal discipline sought by the designers of the Treaty without concurrent changes in fiscal transparency.

How, then, does better fiscal transparency come about? One solution is to require members of an economic union to adhere to certain transparency requirements, but if such requirements are not incentive compatible for politicians, they may be of little use. However, it may indeed occasionally be worthwhile for politicians themselves to increase transparency. Alt

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<sup>12</sup> For example, as reported by *The Economist* (December 11, 2011), the German federal government thought the output gap negative in 2011, while the Bundesbank thought it positive. Similarly, as noted by McArdle (2012), the EU's 2008 estimate for the Irish output gap was 0.2%, but has since been revised to -4.0%, with an impact on the structural budget of -1.7%.

and Lowry (2010) find, for the US states, that budget process transparency lowers the electoral costs to elected politicians of raising taxes, making reelection more likely, with voters accepting high taxes when they know where their money is going.

The analysis in this paper provides a first step in analyzing empirically the interaction between fiscal rules and fiscal transparency, but there is an urgent need to systematically document the use of fiscal gimmickry more widely and with other indicators, as well as to analyze the conditions that foster it, in order to formulate effective policy responses. Such a study, including more countries and more measures, also has wider relevance for political economy models of moral hazard and redistribution in economic unions, with implications for constitutional design of any future fiscal union in the Eurozone and for economic unions more generally.

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## **Appendix 1: Measuring fiscal transparency**

The measurement of transparency builds on standards promoted by the International Monetary Fund (IMF 1998) and Organisation for Economic Co-operation and Development (OECD 2002). As discussed in the text, three overlapping data sources are available: the 11-item Alt-Lassen index (Alt and Lassen 2006b, Lassen 2010), the International Budget Partnership Open Budget Index (OBI), a 92-item measure (International Budget Partnership 2010), and the IMF coding of country assessments for the Reports on the Observance of Standards and Codes initiative (Hameed 2005, Weber 2012). Available data for the countries in our sample are displayed in Table A1.

[Table A1 about here]

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 reasonable assumption (Alt et al. 2006). 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 indices are easy to grasp and produce plausible results. However, in the context of this sample, they lack 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 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 final column of Table A1, which ranks countries in descending order on the basis of this score. 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.

**Table A1: Available measures of fiscal transparency for 27 EU countries**

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

Notes: There are no data for Luxembourg and Malta. The OBI score for Greece is not part of the original results but was calculated separately by Andrianaki (2009), following the OBI methodology. Countries are ranked by their score on the interpolated measure and in descending order.

## Appendix 2: Variable definition and data sources

*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: 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: Laeven and Valencia (2010).

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

*Debt change*: Change in general government consolidated gross debt, excessive deficit procedure (based on ESA 1995), in percent of GDP at market prices. Source: AMECO, series UDGG.

*SFA*: Stock-flow adjustment, calculated as *Debt change* plus *Balance*. See footnote 5 on the sign of *Balance*.

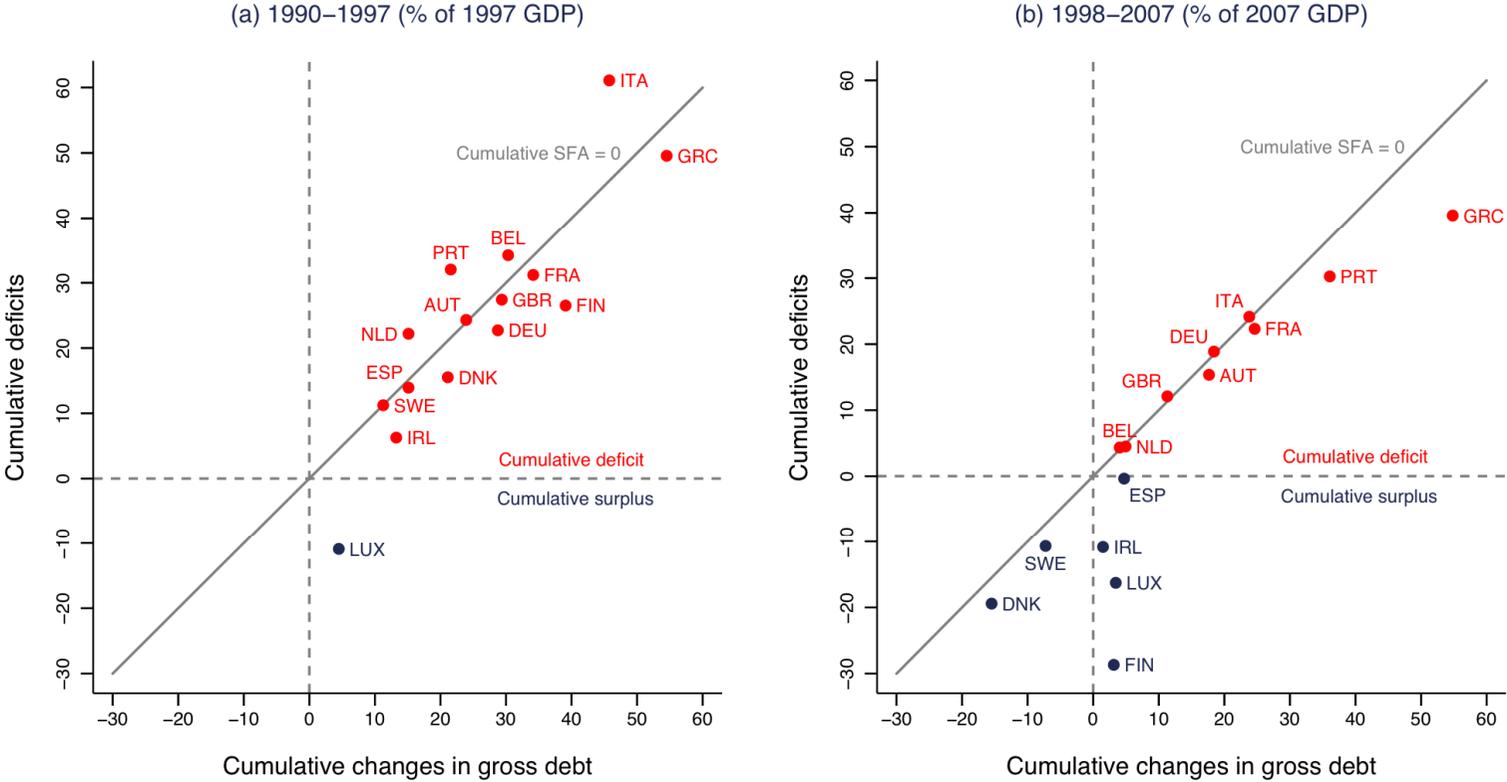
*SGP*: Dummy variable for the Stability and Growth Pact, equal to 1 from 1998 onward, and 0 before.

*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 AMECO, series AVGDGT.

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

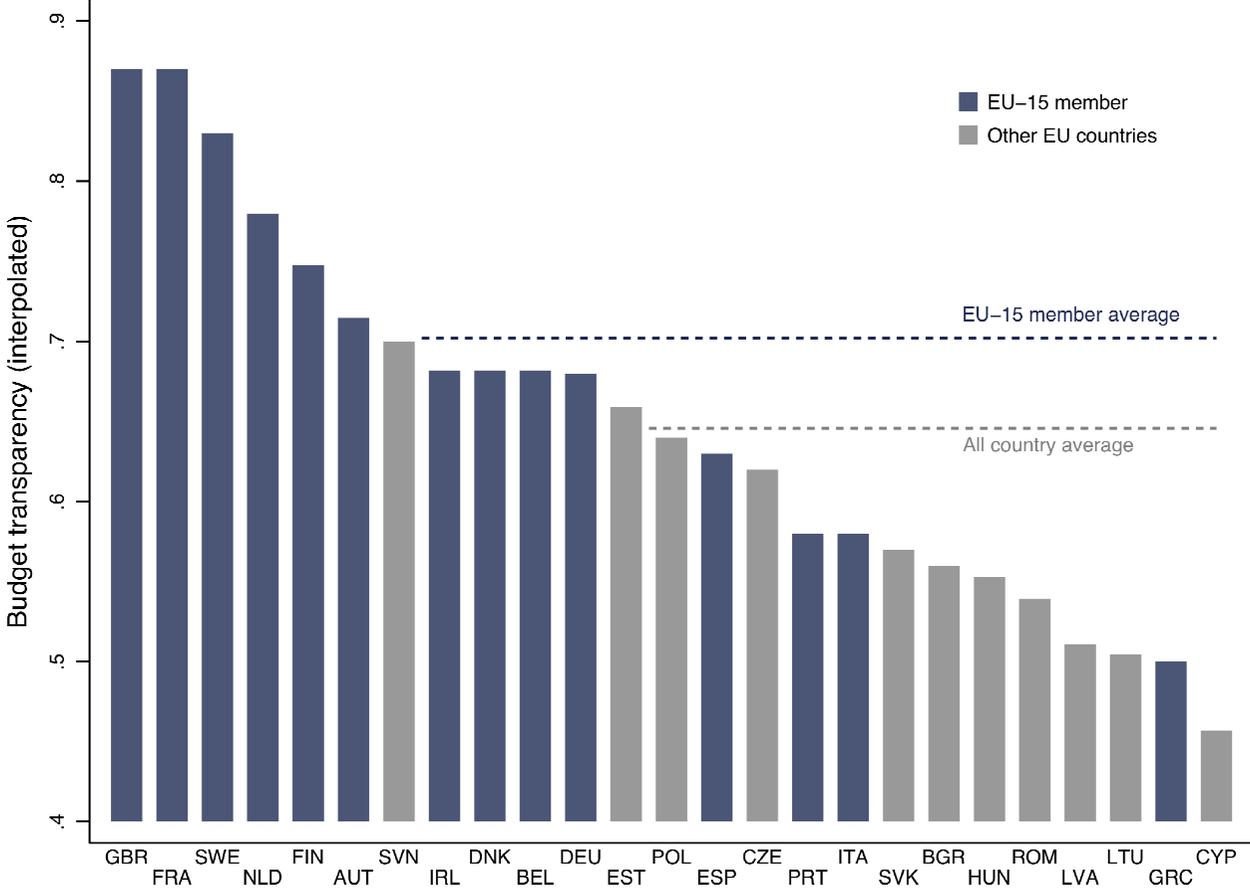
*Years left in term*: The number of years left in the government's current electoral term. Only full years are counted. Thus, a zero is scored in an election year, and n-1 in the year after an election, where n = length of term. Source: Beck et al. (2001).

**Figure 1. Cumulative Debt Changes and Deficits in the EU-15, 1990-2007**



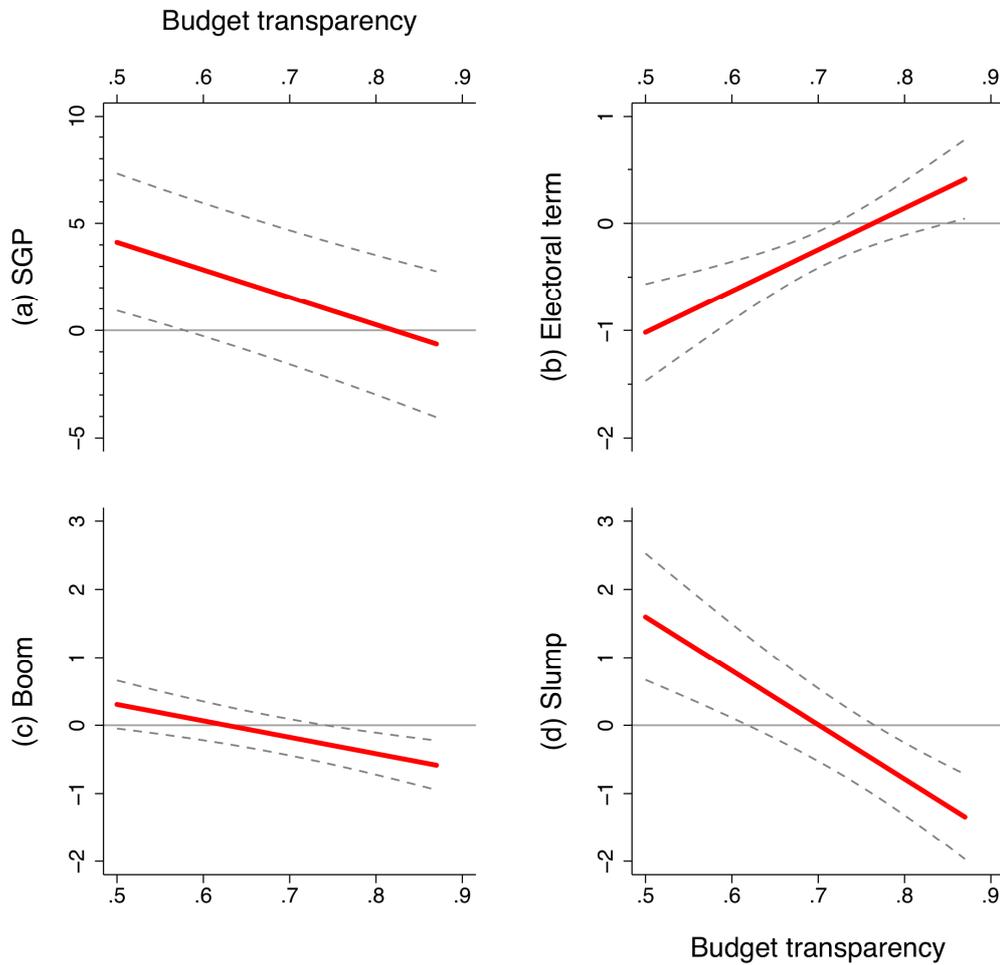
Notes: Due to missing data, panel (a) covers 1991-1997, except for FRA and ITA (from 1990), DEU (from 1992), and ESP and SWE (from 1995).

**Figure 2. Imputed Measure of Budget Transparency, 25 EU countries**



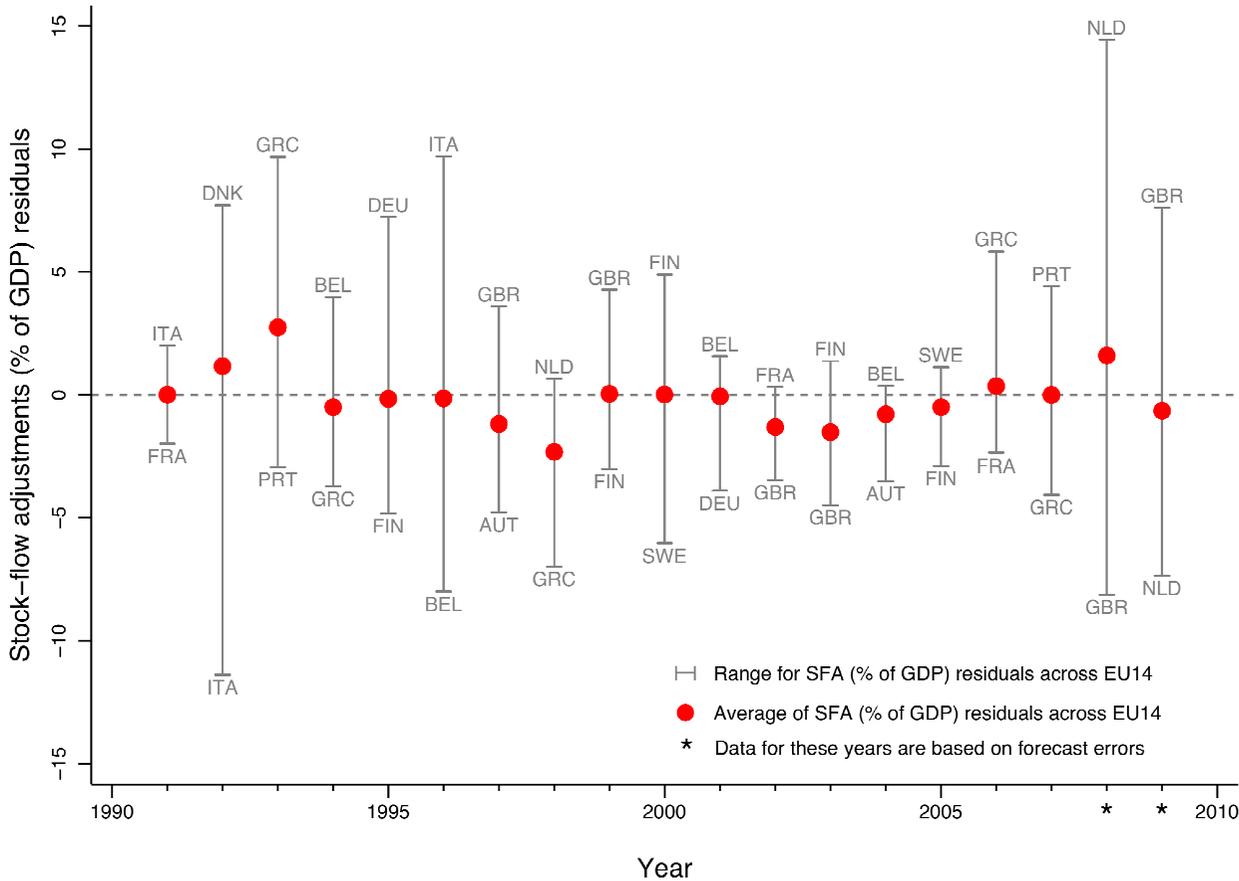
Notes: See Appendix 1 for full details on index construction.

**Figure 3. Marginal Effects on Stock-flow Adjustments, Conditional on Budget Transparency**



Notes: The solid lines display the marginal effects on SFAs (in % of GDP), conditional on each value within the sample range of budget transparency, of (a) the SGP, (b) years left in the electoral term, (c) boom, and (d) slump. Based on the results in column 3b of Table 3. The dashed lines indicate 10% confidence intervals.

**Figure 4. Residuals and Forecast Errors**



Notes: Based on the model reported in column 3b of Table 3. The figure reports residuals up to 2007, and forecast errors for 2008 and 2009.

**Table 1. Stock-flow Adjustments in Percent of GDP, 1990 to 2007**

<i>(a) By transparency and SGP</i>			
	<b>Prior to SGP</b>	<b>SGP</b>	<b>All years</b>
High transparency	0.56 (n = 39)	1.11 (n = 72)	0.91 (n = 111)
Low transparency	0.16 (n = 52)	1.00 (n = 96)	0.70 (n = 148)
All countries	0.33 (n = 91)	1.04 (n = 168)	0.79 (n = 259)
<i>(b) By transparency and whether elections are due</i>			
	<b>Election not due</b>	<b>Election due</b>	<b>All years</b>
High transparency	1.01 (n = 88)	0.55 (n = 23)	0.91 (n = 111)
Low transparency	0.58 (n = 114)	1.11 (n = 34)	0.70 (n = 148)
All countries	0.77 (n = 202)	0.88 (n = 57)	0.79 (n = 259)
<i>(c) By transparency and boom/slump</i>			
	<b>Slump</b>	<b>Boom</b>	<b>All years</b>
High transparency	0.46 (n = 52)	1.31 (n = 59)	0.91 (n = 111)
Low transparency	0.43 (n = 68)	0.94 (n = 80)	0.70 (n = 148)
All countries	0.44 (n = 120)	1.09 (n = 139)	0.79 (n = 259)

Notes: High transparency is defined as a score of .7 or above on the interpolated budget transparency index. Elections are coded as due if there are zero years left in the current electoral term. Boom (slump) years are identified by a positive (negative) gap between actual and trend GDP at 2000 market prices. The sample contains 14 of the 15 countries that were members of the EU prior to 2004, excluding Luxembourg.

**Table 2. The Determinants of Stock-flow Adjustments, Direct Effects**

	(1a)	(2a)	(3a)
Dependent variable	Balance	Debt change	SFA
SGP	2.28 (1.08)*	-4.20 (3.62)	0.96 (0.88)
Years left in term	0.21 (0.07)**	-0.43 (0.19)**	-0.29 (0.16)*
Boom	-0.08 (0.18)	-0.06 (0.22)	-0.11 (0.12)
Slump	-0.16 (0.14)	0.44 (0.28)	0.15 (0.34)
Banking crisis	-1.97 (0.96)*	2.55 (2.25)	-0.94 (1.61)
Lagged balance	0.64 (0.05)***		
Lagged debt change		0.04 (0.08)	
Lagged SFA			0.07 (0.08)
Observations	219	219	219
Countries	14	14	14
Country effects	Yes	Yes	Yes
Year effects	Yes	Yes	Yes
Adjusted R-squared	0.83	0.34	0.05

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 3. The Determinants of Stock-flow Adjustments, Conditional Effects**

	(1b)	(2b)	(3b)
Dependent variable	Balance	Debt change	SFA
SGP	5.19 (0.95)***	-1.84 (5.82)	10.54 (2.96)***
SGP × transparency	-3.88 (0.77)***	-2.48 (6.20)	-12.85 (3.60)***
Years left in term	0.56 (0.26)*	-3.63 (0.94)***	-2.95 (0.88)***
Years left in term × transparency	-0.49 (0.34)	4.57 (1.33)***	3.86 (1.23)***
Boom	-0.42 (0.45)	2.21 (0.55)***	1.51 (0.56)**
Boom × transparency	0.60 (0.67)	-3.53 (0.80)***	-2.40 (0.79)***
Slump	1.62 (0.69)**	2.00 (1.43)	5.57 (1.45)***
Slump × transparency	-2.56 (0.96)**	-2.38 (1.93)	-7.95 (1.88)***
Banking crisis	-1.83 (0.68)**	3.89 (1.62)**	1.03 (1.37)
Lagged balance	0.59 (0.06)***		
Lagged debt change		0.04 (0.08)	
Lagged SFA			0.07 (0.07)
SGP   transparency = MIN	3.25 (0.75)***	-3.08 (3.87)	4.12 (1.95)*
SGP   transparency = MAX	1.82 (0.71)**	-3.99 (3.65)	-0.63 (2.08)
Years left in term   transparency = MIN	0.31 (0.10)***	-1.34 (0.29)***	-1.02 (0.28)***
Years left in term   transparency = MAX	0.13 (0.08)	0.35 (0.26)	0.41 (0.22)*
Boom   transparency = MIN	-0.12 (0.20)	0.44 (0.30)	0.30 (0.22)
Boom   transparency = MAX	0.10 (0.26)	-0.86 (0.36)**	-0.58 (0.22)**
Slump   transparency = MIN	0.34 (0.23)	0.81 (0.52)	1.60 (0.57)**
Slump   transparency = MAX	-0.61 (0.20)***	-0.07 (0.39)	-1.34 (0.38)***
Observations	219	219	219
Countries	14	14	14
Country effects	Yes	Yes	Yes
Year effects	Yes	Yes	Yes
Adjusted R-squared	0.84	0.38	0.10

Notes: OLS estimates. The dependent variables are expressed as per cent of GDP. Standard errors clustered by country in parentheses. The minimum transparency score in the 14-country sample is .5 (Greece) and the maximum score is .87 (France and the UK).

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

**Table 4: Robustness Checks**

	<b>(3c)</b>	<b>(3d)</b>	<b>(3e)</b>	<b>(3f)</b>	<b>(3g)</b>
Dependent variable	SFA	SFA	SFA	SFA	SFA
SGP	12.12 (6.33)*	10.86 (2.75)***	12.24 (4.08)**	9.20 (2.58)***	8.24 (2.76)***
SGP × transparency	-16.42 (7.71)*	-12.71 (2.98)***	-14.95 (5.51)**	-10.29 (2.87)***	-12.76 (3.25)***
Years left in term	-3.15 (1.07)**	-2.71 (1.10)**	-2.00 (0.51)***	-3.33 (1.14)**	-1.72 (0.83)**
Years left in term × transparency	4.05 (1.73)**	3.36 (1.55)*	2.62 (0.76)***	4.48 (1.67)**	2.12 (1.18)*
Boom	-3.16 (3.01)	0.97 (0.43)**	2.22 (0.67)***	0.73 (0.58)	0.46 (0.35)
Boom × transparency	5.93 (5.79)	-1.69 (0.71)**	-3.24 (0.99)***	-1.33 (0.97)	-0.82 (0.58)
Slump	4.49 (1.84)**	4.30 (1.07)***	6.23 (2.15)**	4.37 (1.39)**	4.97 (1.16)***
Slump × transparency	-6.38 (2.36)**	-6.91 (1.40)***	-8.74 (2.86)**	-6.69 (2.19)**	-7.31 (1.61)***
Banking crisis	7.98 (3.84)*	-2.88 (1.30)*	0.66 (1.30)	3.38 (2.17)	-3.54 (0.78)***
Lagged SFA	-0.10 (0.09)	0.04 (0.05)	0.12 (0.06)*	0.08 (0.08)	0.02 (0.07)
Observations	90	159	203	175	251
Countries	13	10	13	11	25
Sample description	Deficit > 3%	Excl. DNK, FIN, IRL, SWE	Excl. GRC	Eurozone	EU-27 except LUX, MLT
Country effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.06	0.07	0.07	0.07	0.11

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%.