Fiscal Councils and Creative Accounting in EU Member States

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Abstract

We study the relationship between fiscal councils and creative accounting in 27 European Union (EU) countries. We use stock-flow adjustments to indicate creative accounting and relate them to our fiscal council indicator in a panel framework. Regarding the fiscal rules that trigger creative accounting, we distinguish between external (resulting from European Monetary Union membership) and internal fiscal rules. While fiscal councils are not significant when used as stand-alone variable their interaction with fiscal rules is significant. Our findings indicate that fiscal councils reduce creative accounting triggered by fiscal rules and thus help to enforce fiscal rules and sound fiscal policies.

Keywords: *Fiscal Councils; Creative Accounting; European Monetary Union; Fiscal Rules; Stock-Flow Adjustments.*

JEL Classification: *H60, H62, H63, H83.*

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1. Introduction

High public debt and budget deficits are major problems in many countries. This study examines whether and under what conditions fiscal councils positively impact sound fiscal policy. In addition to fiscal councils, fiscal rules also play an important role in reducing deficits and debt. Various rules have been introduced in the Eurozone to discipline member states and ensure currency stability. The Maastricht criteria related to budget deficits and public debt, which bind Eurozone countries under the Stability and Growth Pact (SGP) of 1997, play a central role here. Nevertheless, many countries have introduced internal fiscal rules to enforce low debt and deficits. In the Eurozone, the Fiscal Compact of the European Economic and Monetary Union (EMU) was agreed upon in 2012 as a further development of the SGP in response to the European debt crisis. It obliged countries to implement fiscal rules under national laws.

As fiscal rules limit the financial scope of a government (see, e.g., von Hagen, 1991; Rose, 2006, for a discussion and empirical evidence), they can lead to creative accounting. This means that the government takes measures to make official debt and deficit figures appear better in financial reporting. This connection has been extensively discussed in literature. Milesi-Ferretti's (2003) seminal study analyzes this problem theoretically, drawing on von Hagen and Harden (1996). Empirical contributions to this issue can be found in Dafflon and Rossi (1999), Koen and van den Noord (2005), and Milesi-Ferretti and Moriyama (2006), who explain how several EMU countries embellished public finances through creative accounting in the run-up to the introduction of the euro. For a comprehensive empirical analysis using statistical methods, an indicator for creative accounting is needed, as creative accounting is of course not included in publicly available indicators. Von Hagen and Wolff (2006) suggest approximating creative accounting with the help of stock-flow-adjustments (SFAs). This idea is explained in more detail in Section 2. Using regression models, von Hagen and Wolff (2006) show that SFAs are significantly related to fiscal rules. This is evidence that governments use creative accounting; that is, certain steps are taken to circumvent fiscal rules, which in turn leads to SFAs. Alt et al. (2014) also show that SFAs are significantly related to joining the Eurozone.

Based on studies that determine the relationship between fiscal rules and creative accounting, our study examines the relationship between fiscal councils and creative accounting. Our aim is to analyze whether and under what conditions fiscal councils can reduce creative accounting. We use SFAs as the dependent variable and indicator of creative accounting in a panel regression for 27 EU countries. SFAs are regressed on an indicator for fiscal councils and several fiscal

rule indicators. In addition to the external fiscal rules resulting from Eurozone membership, we also consider internal fiscal rules that countries have implemented on their own. Here, we make a further distinction between rules that affect debt and those that affect fiscal balance.

In the second chapter, we explain how and why SFAs can be used as an indicator of creative accounting and the role that fiscal councils and rules play in this context. In Section 3, we present our methodology and the data used in detail. Section 4 describes our results and their implications. Finally, Section 5 summarizes the study.

2. Theoretical Considerations of SFAs, Creative Accounting, and Fiscal Councils

2.1. Basic Idea: SFA and Creative Accounting

In the following section, we briefly explain how and why SFA can be used as an indicator of creative accounting (von Hagen and Wolff, 2006). Creative accounting means certain fiscal transactions are used to improve debt or deficit figures that do not improve the true value of budgetary positions. Creative accounting is not primarily understood to mean the deliberate misrepresentation of key figures but rather, fiscal measures implemented by the government to make the fiscal position appear better in official key figures.

Such measures can lead to SFA, but not necessarily. What do we mean by SFA? Theoretically, the budget deficit in a given period, D_t, corresponds to the change in the debt level, B_t, between period t and period t-1:

$$D_t = B_t - B_{t-1} \tag{1}$$

This is because a deficit is financed by taking on additional debt. SFAs occur because certain fiscal transactions change only one side of Equation (1) or because both sides are changed by a different amount. Therefore, while Equation (1) holds in theory, in practice, differences are often observed between the recorded figures on either side of Equation (1); that is, the recorded change in debt does not equal the deficit. These differences are referred to as SFAs. According to the European Commission, SFAs arise for various reasons: "primarily from financial operations, for example, debt issuance policy to manage public debt, privatization receipts, impact of exchange rate changes on foreign denominated debt. In general, these should tend to cancel out over time." (European Commission, 2003, 82).

For a more detailed description of the measures that lead to SFAs and their relationship with creative accounting, we refer to the literature, in which the process is explained in detail using interesting examples (see, e.g., Dafflon and Rossi, 1999; Koen and van den Nord, 2005).

How do SFAs relate to creative accounting? Certain transactions carried out for creative accounting–that is, to circumvent fiscal rules–lead to SFAs. Thus, SFAs can be used to identify creative accounting activities. Using regression models, von Hagen and Wolff (2006) demonstrate that SFAs are significantly related to fiscal rules. This is evidence that governments use creative accounting; that is, certain steps are taken to circumvent fiscal rules, which in turn leads to SFAs.

SFAs can be calculated using Equation (1), where rearranging Equation (1) yields:

$$0 = B_t - B_{t-1} - D_t \qquad (1a)$$

The budget deficit D_t corresponds to the change in debt; that is, the difference between the debt level in year t, B_t, and the previous year, B_{t-1}. As already explained, the equation does not apply in practice, that is, deviations can be observed between the right- and left-hand sides. These residuals are the SFAs:

2.2. Fiscal rules and their effect on SFAs

If a government's room for maneuvering is restricted by various types of fiscal rules, it has an incentive to engage in creative accounting. If the government engages in creative accounting transactions, it can lead to SFAs. A significant correlation between fiscal rules and SFAs proves that creative accounting occurs (see von Hagen and Wolff, 2006).

We note here that creative accounting can have either positive or negative effects on SFAs, depending on the type of restriction in place or the rule being circumvented. If the government takes measures to avoid violating debt rules, then it will reduce SFAs. This can be observed by modifying Equation (2):

$$SFA_t = B_t - B_{t-1} - D_t \qquad (2)$$

$$SFA_t^{(-)} = B_t^{(-)} - B_{t-1} - D_t^{(0)} \qquad (2a)$$

We assume that in year t, when the debt of the previous year, B_{t-1}, already exists, the government takes a measure (for creative accounting) that reduces debt compared to a situation without this measure. Thus, we observe a lower debt value, $B_t^{(-)}$ instead of B_t. However, we assume that the measure taken has no impact on the deficit, which is possible as explained above. Thus, the deficit

remains unchanged in the new situation: $D_t^{(0)} = D_t$. This implies that only one term on the right-hand side of Equation (2) changes, that is, it is reduced. Consequently, the left-hand side is also reduced and the following applies: $SFA_t^{(-)} < SFA_t$.

Conversely, a measure that reduces the deficit (but not the debt) can increase SFAs. To demonstrate this point, we again consider a modified version of Equation (2):

$$SFA_t^{(+)} = B_t^{(0)} - B_{t-1} - D_t^{(-)} \qquad (2b)$$

We assume that a measure is taken to improve the fiscal balance sheet, which results in the deficit $D_t^{(-)}$ being lower than the deficit, D_t, without the assumed measure: $D_t^{(-)} < D_t$. As the deficit enters Equation (2) or (2b) with a negative sign, the right-hand side increases. At the same time, we assume that this measure does not affect the current debt, $B_t^{(0)}$ (and of course it does not affect the previous year's debt, B_{t-1}). Therefore, SFAs increase as a result of this activity: $SFA_t^{(+)} > SFA_t$.

2.3. Importance of SFAs and the Effect on Statistical Significance in Regression Estimates

We should emphasize that not all measures recorded under creative accounting necessarily cause SFAs. Many fiscal tricks can change both the deficit and debt situations and therefore do not lead to SFAs.

Conversely, not all SFAs result from intentionally creative accounting. Instead, SFAs were originally considered random idiosyncratic measurement errors, as can be seen in the European Commission's statement quoted above.

However, as von Hagen and Wolff (2006) and Alt et al. (2014) show, a significant correlation exists between fiscal rules and SFA. This result proves that SFA are not purely idiosyncratic but an indicator of creative accounting. This can be explained as follows. Fiscal rules that constrain government action create an incentive for the government to circumvent these rules through creative accounting, which can lead to SFAs. Therefore, SFAs are expected to be significantly related to fiscal rules if they result from creative accounting. An empirically significant relationship is evidence that SFAs are caused by creative accounting; that is, by measures to circumvent fiscal rules. We should emphasize that not all measures recorded under creative accounting necessarily cause SFAs. Many fiscal tricks can change both the deficit and debt situations and therefore do not lead to SFAs.

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For the reasons mentioned and, in particular, the fact that different government measures influence SFAs in different directions, SFA tend to underestimate the actual extent of creative accounting and the misrepresentation of numbers. Therefore, this indicator cautiously measures creative accounting. For our statistical analyses, this means that the importance and significance are underestimated rather than overestimated. If we detect creative accounting, it is most likely to occur. However, insignificant results do not rule out the possibility of creative accounting.

2.4. Different Types of Rules: Internal versus External and Debt versus Deficit

Regarding fiscal rules, a distinction can be made between external and internal rules. The most relevant external rules for our sample countries are those related to Eurozone membership, particularly the Maastricht criteria with regard to deficit and debt. In addition, many countries have implemented their own fiscal rules (internal rules). Further distinctions can be made between debt and budget rules. The distinction between the two types of rules is important in the empirical analysis, as it alleviates the problem described above that different government measures can have opposing effects on SFAs, as SFAs can result from measures to avoid deficits on the one hand, and measures to avoid debt on the other.

No such distinction can be made with regard to membership in the Eurozone, as it is associated with both deficit and debt rules at the same time. This can be expected to reduce the significance. Nevertheless, if EMU membership significantly influences creative accounting the direction of influence indicates which rules are more likely to lead to creative accounting. For example, a positive

correlation indicates that the deficit rule is more likely to lead to creative accounting, as creative accounting to circumvent deficit rules leads to positive SFAs. If debt rules are more likely to be binding, a negative sign would be expected for the euro indicator.

2.5. Fiscal Councils and Creative Accounting

Based on the hypothesis that fiscal councils influence creative accounting, we should find a significant correlation between fiscal council indicators and SFA. However, the considerations explained above for fiscal rules also apply to the influence of fiscal councils: significance tends to be underestimated because fiscal councils may reduce both deficit and debt figures, which have a contradictory influence on SFA. Thus, we cannot be certain that fiscal councils have no influence if the indicator is insignificant.

Similarly, as explained for the Eurozone indicator, a significant effect indicates which direction of creative accounting fiscal councils are more likely to avoid; that is, whether fiscal councils are more likely to foster deficit or debt reduction measures.

The fiscal council can influence creative accounting in several ways. On the one hand, the existence of fiscal councils can prevent creative accounting. If such an effect is present and predominates in one of the two directions, a significant effect with a corresponding sign is expected.

However, fiscal councils can also have a positive effect by improving the enforcement of existing fiscal rules (internal and external). In other words, if rules are in place fiscal councils reinforce their effects. In this case, there is a positive interaction effect between the fiscal rule and fiscal council indicators. The positive influence of fiscal councils is indicated by the sign of the interaction term counteracting that of the fiscal rule indicator. As fiscal rules lead to creative accounting (indicated by a significant effect with a corresponding sign), the opposite sign of the interaction term results in a dampening effect on creative accounting resulting from the existence of fiscal councils.

3. Research Approach and Data

3.1. Research Approach

We investigate whether fiscal councils affect creative accounting. To do so, we regress SFA as an indicator of creative accounting on a Fiscal Council indicator. In addition, various indicators for internal and external fiscal rules, as well as control variables, were included in the analyses. We run regressions using panel data. Our sample comprises 27 EU countries for the period 1991-2012. The observation period ends in 2012, because the Fiscal Compact was introduced in 2012, committing the governments of European countries to ratify national laws enforcing the fiscal rules agreed upon in the EMU. Thus, external rules related to EMU membership became internal rules, that is, rules enshrined in national law. This blurs the boundaries between internal and external rules. Until the introduction of the Fiscal Compact in 2012, our (internal) fiscal rules indicate internal rules introduced at the discretion of each country. In 2012, the Fiscal Compact required national rules. Thus, these rules are imposed externally, even though they are anchored in national laws. To distinguish between external and internal rules, data from later years were not included in our sample.

3.2. Dependent Variable: SFAs

SFAs are determined as suggested in the literature (e.g., von Hagen and Wolff, 2006). Our indicator is calculated based on data from the AMECO database. These time series use Eurostat data, which are based on the ESA 95 accounting standard. SFAs are calculated as the difference between the consolidated gross general government debt from year t and year t-1 plus the general government budget balance (or minus the deficit), as in Equation (2). This figure is standardized by the country's total expenditure, which leads to percentages.

3.3. Fiscal Council Indicator

To answer our research question, we constructed a fiscal council indicator. This is based on data from the EU Financial Institutions Database following the European Commission's approach. A more detailed description is provided in Table A-2 of the Appendix. Fiscal Council scores were determined by applying several criteria. One point is scored if a fiscal council fulfills one of the following criteria, that is, if it holds true that a council:

- ✓ Provides analysis of fiscal policy development without normative judgment.

- ✓ Provides the independent macroeconomic and budgetary forecasts.

- ✓ Issues with normative statements (involving judgments) on fiscal policy.

- ✓ Issue recommendations (considering policy alternatives) regarding fiscal policy.

Therefore, a fiscal council can achieve a maximum score of four points. The number of fiscal councils in a country is also considered, with additional fiscal councils receiving lower point values, as described in more detail in the appendix.

3.4. National (Internal) Fiscal Rule Indicators

Our fiscal rule indicators are also calculated based on data from the European Commission (2003, 2011). As previously explained, we differentiate between deficit and debt rules. Several criteria are included in the determination, based on the balanced scorecard approach. In addition to the existence of the rule, the strength of the rule is also evaluated. This index also considers the number of rules. The criteria and calculations are described in detail in Table A-3 in the Appendix.

3.5. External Fiscal Rules: EMU and Eurozone Dummies

In addition to internal fiscal rules, we consider external fiscal rules resulting from Eurozone membership. In particular the two Maastricht criteria for deficit and debt: the current deficit may not exceed 3% of GDP and debt may not exceed 60% of GDP.

A dummy variable is used to measure whether a country is part of the common currency area in the considered year. As is usual in the literature, we use 1999 as the starting year, from which a common currency area can be assumed for founding members. For countries that joined the common currency area later, we use the corresponding accession year.

3.6. Control Variables[1]

In addition to the explanatory variables discussed thus far that are directly related to our research question, we consider some important control variables. According to the Political Business Cycle Theory, governments in democratic

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[1] See Table A-1 for a detailed description of the control variables.

countries have the greatest incentive to please their electorates in election years. As Rose (2006) demonstrates, fiscal rules can have a restrictive effect. However, if governments are restricted in their spending options by fiscal rules, they have greater incentives for creative accounting during election years. To account for this, we added an election dummy that reflects whether elections for (central) government institutions are held in the country in a given year.

In addition, we use a federalism dummy that determines whether we consider a federal or a centralized country. The existence of local governments and their interactions with the central government may reduce incentives for creative accounting as they may have an eye on the central government (especially if they have different political orientations). On the other hand, subordinate levels of government also have incentives for (additional) creative accounting.

We also consider the political orientation of the government by including the ratio of left-wing members of parliament to the total number of seats to capture whether governments with different political orientations may be more or less inclined toward creative accounting.

In addition to these sociopolitical control variables, we include the GDP growth rate to account for the influence of the economy, particularly changes in economic activity and spending. It is clear that the economic situation can impact budgetary situations.

3.7. Regression Approach

We conducted analyses using annual panel data for 27 EU countries. However, this approach has some limitations. Some variables show only minor fluctuations over time. This is particularly true for the variables related to our central research question; this means the fiscal council indices, indices for internal fiscal rules, and the Eurozone dummy. However, this also applies to other variables, such as the federalism dummy (which shows no variation over time). Therefore, it is neither meaningful nor possible to include country-fixed effects. However, we take advantage of the panel structure of the data by including time-fixed effects. Based on the considerations explained above, the general regression equation is as follows:

$$SFA_{it} = \alpha + \beta * FC_{it} + \gamma * FR_{it} + \delta * FC * FR_{it} + \psi * X_{it} + \tau_{it} + \varepsilon_{it} \quad (3)$$

SFA_{it} denotes the SFAs for country i and year t, calculated using Equation (2). Parameter α represents a constant and β describes the coefficient with respect to

the Fiscal Council Index, FC. FR stands for fiscal rules, that is, the internal rules for budget or debt and the EMU dummy. In addition, we include the interaction terms between FC and FR in the regression. The parameters γ and δ represent the corresponding coefficients. X includes the control variables discussed above, ψ describes the respective coefficients. The parameter τ_{it} indicates the time effects, and ε_{it} denotes the residuals.

We use the Phillips–Perron chi-square test to test for the presence of a unit root. The results show that our explanatory variables (except for the Eurozone dummy) are not affected by (non-) non-stationarity problems. However, our dataset suffers from heteroscedasticity problems, as shown by the Breusch-Pagan-Godfrey test. Therefore, we apply a regression with GLS weights and a White correction of the residuals.

4. Discussion

4.1. The Basic Model

Table 1 shows the results of the baseline regression. In addition to the control variables described above, various fiscal rule indicators and our Fiscal Council indicator are considered, together with their interactive terms. Among the fiscal rule indicators, both Euro-area membership associated with external fiscal rules as well as internal fiscal rules have a significant impact. This implies that fiscal rules lead to SFAs. As described above, this is strong evidence of creative accounting.

The fiscal rule indicators show the expected signs according to the above considerations. The positive sign for Euro membership implies that the balance rule associated with euro membership (fiscal budget may not be higher than 3% of GDP) has a greater influence on creative accounting than the debt rule (debt lower than 60% of GDP).

Our primary interest is in the influence of fiscal councils on creative accounting. Considering the Fiscal Council indicator and its significance it appears that fiscal councils have no significant influence on stock-flow adjustments and thus on creative accounting in European countries. However, this impression is misleading as a more detailed analysis clarifies.

Table 1. Basic Regression

Variable	Coefficient	Std. Error	t-Statistic	p-Value
CONSTANT	-0.065506	0.874256	-0.074928	0.9403
GDP	0.142520	0.113260	1.258337	0.2089
ELECTION-DUMMY	0.295168	0.597553	0.493960	0.6216
FEDERAL-DUMMY	-0.039216	0.967426	-0.040536	0.9677
POL. ORIENTATION	-0.012833	0.007576	-1.693877	0.0909
EURO	3.870003	1.015806	3.809788	0.0002
BUDGET RULES	0.607523	0.220983	2.749189	0.0062
DEBT RULES	-0.362814	0.197811	-1.834148	0.0672
FISCAL COUNCIL	-0.140515	0.247976	-0.566650	0.5712
Joint: FC*EURO	-0.577514	0.291118	-1.983781	0.0478
Joint: FC*Budget R.	-0.030191	0.063602	-0.474693	0.6352
Joint: FC*Debt R.	0.152405	0.093252	1.634330	0.1028
R-squared	0.181550		**F-statistic**	3.348112
Adjusted R-squared	0.127325		**Prob(F-statistic)**	0.000000
Durbin-Watson	1.832518			

Note: Dependent variable is Stock-Flow Adjustments. Sample period is 1991-2012. Number of Cross-sections is 27 and Total Panel observation is 516.

4.2. Joint Effects

To examine the influence of fiscal councils in more detail, we include interaction terms that represent the joint influence of fiscal councils and fiscal rules. The joint effects of fiscal councils have a significant influence. In the joint estimation of all variables, only the joint effects of euro membership and fiscal councils are significant.

These insignificant results of other joint effects could be due to multicollinearity. If we exclude the euro indicator from the regression, we find significant interaction effects with the fiscal councils for the internal fiscal rule

indicators, as shown in Table 2. This finding implies that fiscal councils significantly influence creative accounting in connection with internal fiscal rules.

Table 2. Regression without Euro Indicator

Variable	Coefficient	Std. Error	t-Statistic	p-Value
CONSTANT	1.455261	0.731732	1.988790	0.0473
GDP	0.129311	0.112048	1.154068	0.2490
ELECTION-DUMMY	0.149916	0.605518	0.247584	0.8046
FEDERAL-DUMMY	0.523790	0.854553	0.612940	0.5402
POL. ORIENTATION	-0.013940	0.007552	-1.845833	0.0655
BUDGET RULES	0.851641	0.206633	4.121519	0.0000
DEBT RULES	-0.644083	0.179639	-3.585433	0.0004
FISCAL COUNCIL	-0.192375	0.234686	-0.819710	0.4128
Joint: FC*Budget R.	-0.124244	0.056356	-2.204617	0.0279
Joint: FC*Debt R.	0.199888	0.095300	2.097459	0.0365
R-squared	0.148733		**F-statistic**	2.824626
Adjusted R-squared	0.096077		**Prob(F-statistic)**	0.000000
Durbin-Watson	1.799367			

Note: Dependent variable is Stock-Flow Adjustments. Sample period is 1991-2012. Number of Cross-sections is 27 and Total Panel observation is 516.

In all cases, the signs of the interaction effects point in the opposite direction to those of the individual effects of the fiscal rules. This result implies that the existence of fiscal councils has a positive; that is, dampening, influence with regard to the effect of fiscal rules on SFAs. Thus, the existence of fiscal councils reduces the creative accounting applied to circumvent fiscal rules. These results show that fiscal councils positively influence the fiscal behavior of governments. When fiscal rules are implemented, the presence of a fiscal council significantly reduces creative accounting.

4.3. Additional Analysis of the Effects and Their Significance

In the following section, we analyze the joint effects of fiscal councils and fiscal rules in more detail. To do so, we determine the marginal effects (see, e.g., Kam et al., 2007). Figure 1 shows the marginal effects of Eurozone membership and the rules associated with it plotted against the Fiscal Council Index (on the X-axis). Fiscal Councils have values between 0 and 8 in the dataset, with a mean value of approximately 2. The Y-axis shows the effects of the fiscal rules, that is, the extent to which the fiscal rules change the SFA level. SFA are expressed as a percentage of government spending.
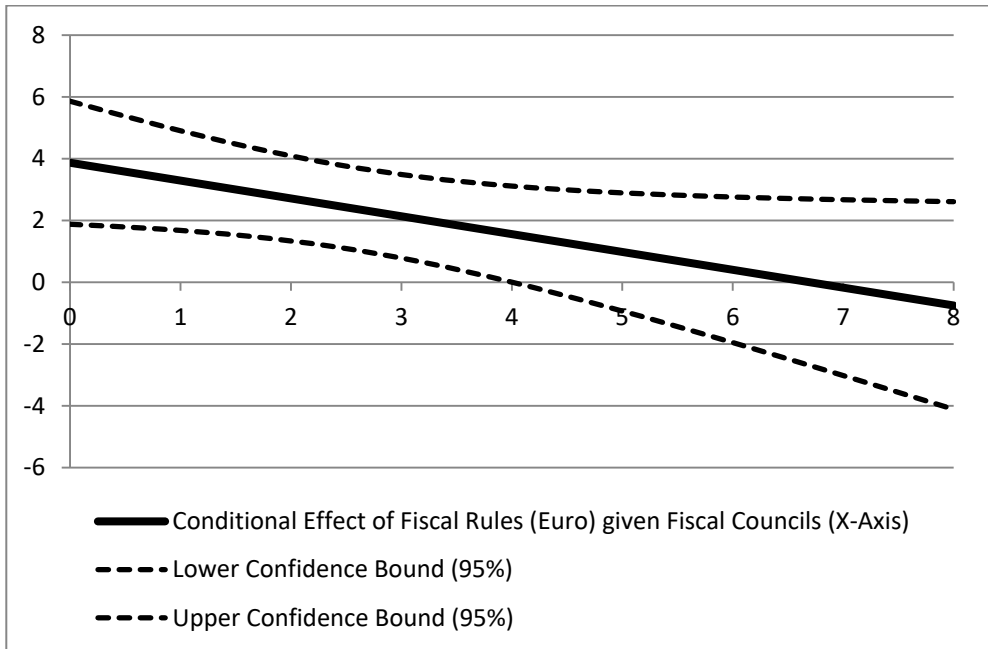

Figure 1. Conditional Effects of the Euro Indicator (given Fiscal Councils)

The chart shows that without fiscal councils, that is, when the value of the Fiscal Council Index is zero, membership in the common Eurozone increases SFA by 3.87 percentage points. On average, the Eurozone indicator has a value of around 0.33 (which results from the lower number of observations of euro currency area members relative to non-members at specific points in time). With the mean value of the Euro indicator of 0.33, the effect of Eurozone membership is approximately 1.3%.

How do fiscal councils affect Euro membership? Starting with an effect of 3.87 % for a Euro indicator value of 1 (Euro area membership), the effect is

reduced by the presence and strength of fiscal councils, as shown in Figure 1. Thus, fiscal councils can reduce creative accounting. For the mean value of the Fiscal Council indicator of approximately two, the effect of Eurozone membership is approximately 2.7%. For a Fiscal Council Index value of approximately four, the marginal effect of fiscal rules is reduced to such an extent that the influence of fiscal rules on SFA is no longer significant at the 5% level. On average, the increase in SFA triggered by EU membership is then only around 1.5%. As described above in the description of the variables, a Fiscal Council index value of 4 would be achieved if one fiscal council existed in the country that fulfilled all four criteria.
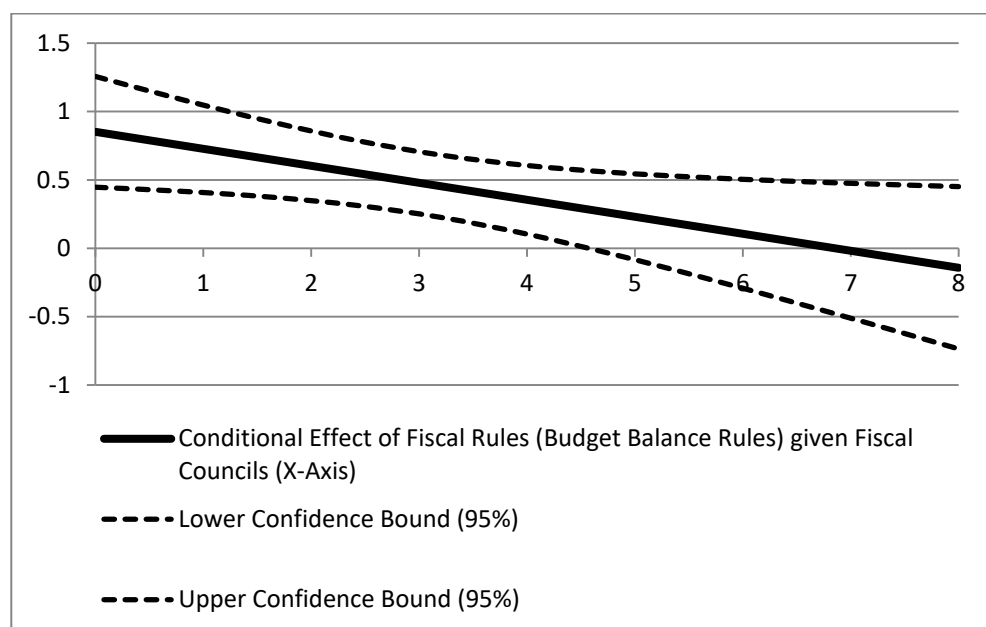

Figure 2. Conditional Effects of the Budget Rules (given Fiscal Councils)

Figure 2 shows the effects of the internal budget rule indicator in a manner similar to that of the euro indicator. Here, we consider the regression results without the Eurozone indicator (see Table 2).[2] The coefficient of 0.85 of the Budget Rules Indicator (and thus the conditional effect for a value of zero for the Fiscal Council Index) is significantly lower than that for the Eurozone indicator, but still significant. Thus, as discussed above, internal budget rules lead to SFA and,

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[2] For completeness, we show the results for the marginal effects of the basic regression estimation including all variables (regression results in Table 1) in Figure A-1 in the Appendix. The effects and significance in Figure A-1 are somewhat lower (most likely due to multi-co-linearity), but the basic statements remain valid.

therefore, to creative accounting. Regarding the strength of the effect, it should be noted that the budget rules indicator variable is not a dummy with a maximum value of 1, as is the case with the Eurozone indicator. Instead, the values of the indicator range from 0 to 10, with a mean value of approximately 2. For the mean value of the budget rules indicator, the effect on SFA would be around 1.9, which is even higher than the effect of the Eurozone indicator of 1.3, given its mean value (of 0.33, see above considerations).
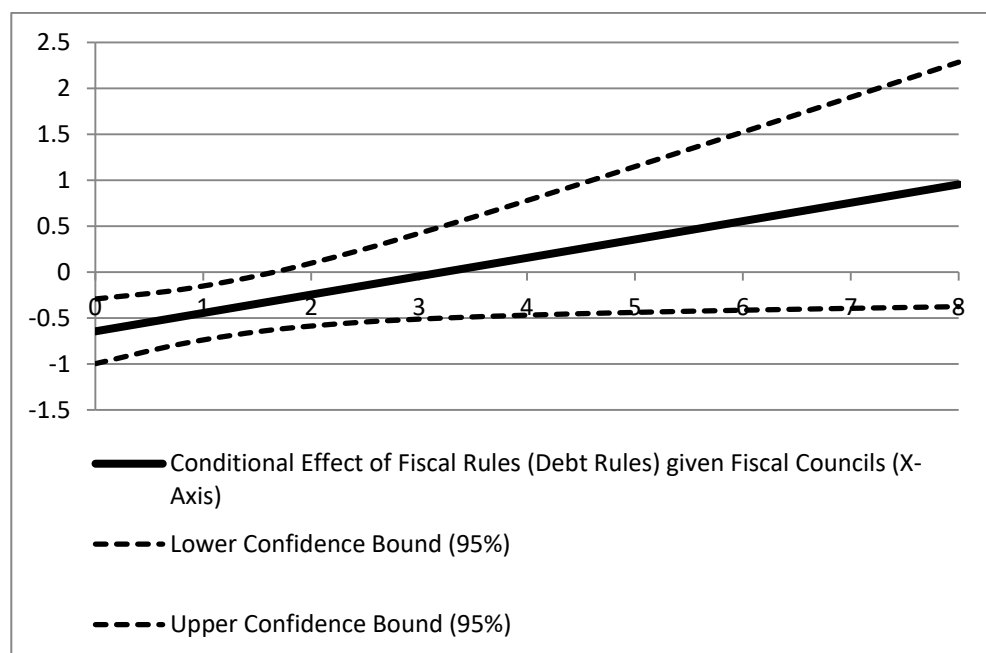

Figure 3. Conditional Effects of the Debt Rules (given Fiscal Councils)

What effects do fiscal councils have on budgetary rules? The dampening effect of fiscal councils on creative accounting detected for the Euro indicator can also be observed for the internal budget rules. For the index value for fiscal councils of approximately 4.5, the marginal effect of budget rules is no longer significant at the 5% level.

Figure 3 shows the effects of the Debt Rule indicator as a function of the fiscal council.[3] As previously explained, debt rules are expected to have a negative

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[3] Figure A-2 in the Appendix shows the results for the basic regression with the Eurozone indicator included. In the basic regression (see Table 1) that includes all variables is based, the Debt Rules Index is only significant at a p-value of approximately 7%, even without fiscal councils.

impact on SFA when creative accounting is applied. This is confirmed by the regression estimates. The effect in the regression without the Eurozone indicator is 0.65, which is slightly lower than that of the budget rule indicator, whereby the value range of both fiscal rule indicators is similar.

Similar to the other indicators, fiscal councils have a dampening effect on the creative accounting caused by debt rules. The influence of debt rules is already insignificant at the 5% significance level at low values of the Fiscal Council Index of approximately 1.5.

4.4. General Remarks: Quality of the Empirical Model and the Control Variables

Having discussed the results regarding our research question – the influence of fiscal councils (and fiscal rules) on creative accounting – we briefly discuss the quality of the model and the effect of the control variables.

Based on the R^2 values of 18%, our model can explain a significant part of the variation in SFAs, with the significance of the explanatory variables showing that fiscal rules and fiscal councils are jointly of central importance. The results clearly show that creative accounting exists and that SFAs are not completely random. Fiscal councils have a damping effect. As a large part of the variation in SFAs is unexplained, SFAs still appear to be idiosyncratic to a considerable extent, confirming the official notion of SFAs as idiosyncratic accounting errors discussed above. Nevertheless, our results show that part of the variation is due to systematic "errors" that resulting from creative accounting.

Most of the control variables are not significant for most specifications. However, we find a significant influence of some control variables in some specifications. The partial significant influence indicates that it makes sense to include these variables to obtain unbiased results. However, it also makes sense to include non-significant control variables. The control variables may not have been significant for several reasons. Of course, it is possible that there is simply no influence, or that the influence is not strong enough to be recognized.

However, as explained above, it is important to remember that the influence of variables on SFA can work in both positive and negative directions, depending on whether excessive debt or fiscal deficits are avoided. This means that the calculated effect and significance can be reduced by influences in opposing directions. Even when the results are not significant some unrecognized influences may be captured that affect SFAs in opposing directions.

5. Conclusion

Fiscal councils can positively influence governments' fiscal policies. This study investigates whether and how fiscal councils reduce creative accounting. Governments have incentives to engage in creative accounting when fiscal rules restrict the fiscal space. This study investigates the impact of fiscal councils in this context. As suggested in the literature, we apply SFAs as an indicator of creative accounting. For various reasons, this indicator underestimates, rather than overestimates, the actual extent of creative accounting, so that the positive evidence is robust. In our analysis, we regress SFA on an indicator for fiscal councils together with several indicators of internal fiscal rules (separately for debt and deficit rules) and external fiscal rules (membership in the common euro currency area).

Fiscal rules have a positive influence on SFA in the expected direction, which confirms the occurrence of creative accounting, as SFA are not merely idiosyncratic errors. By contrast, fiscal councils alone have no influence on SFAs. One reason for this may be that SFA underestimate the true extent of creative accounting because measures to avoid deficits and reduce debt offset each other in terms of their effect on SFA.

However, the central result of our study is that fiscal councils influence creative accounting in connection with fiscal rules, as indicated by the significant influence of interaction terms between fiscal rules and fiscal councils on SFA. The joint effect works in the opposite direction to the significant influence of the fiscal rules. This finding indicates that fiscal councils reduce creative accounting triggered by fiscal rules. Thus, fiscal councils have a positive influence on fiscal policy as they reduce creative accounting, at least if fiscal rules exist, which they help enforce.

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APPENDICES

Table A-1. Description of Variables

Variable	Definition	Source
SFA: Stock-flow adjustments	Stock-flow adjustments are calculated as the sum of the general government budget balance and the difference of general government consolidated gross debt from year t and t-1 in percent of total general government expenditures. (see Equation 2)	AMECO; own calculations
GDP: Real GDP growth	Change of real GDP in percent	IMF Economic Outlook Database
Election-Dummy	Dummy variable which takes the value 1 if there was a legislative or executive election in a given country in a given year and 0 if otherwise	Beck et al. (2001); own calculations
Federal-Dummy	Federalism; coded: 0 = no; 1 = yes.	Armingeon et al. (2010)
Pol. Orientation	Political Orientation of the government: Percentage share of government posts that were held by social democratic or other left parties whereby the percentage share is weighted by the number of days the government was in office in a given year	Armingeon et al. (2010); own calculations
Fiscal Council	See Table A-2	EU Fiscal Institutions Database[4]
Euro	Euro is a dummy variable that takes the value 1 if a country was a member of the Eurozone in a given year and 0 otherwise. For founding members this starts in 1999.	European Central Bank[5]
Fiscal Rule Indices: Budget Rules / Debt Rules	See Table A-3	EU Fiscal Rules Database[6]; own calculations

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[4] http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/independent_institutions/index_en.htm

[5] http://www.ecb.int/euro/intro/html/map.en.html

[6] http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/fiscal_rules/index_en.htm

Table A-2. Criteria for Constructing the Fiscal Council Index

Construction

The calculation of the fiscal council score relies on 4 criteria (see below) and is based on the calculations by the European Commission (2011, 117).

If one of the following criteria is fulfilled a fiscal councils score one point each. Thus, the scores per council vary between 1 and 4 (resp. zero of no council exists).

If more than one council in a given year exists, the numbers are weighted and added, whereby the highest ranked council is weighted with 1, the second highest with 1/2 , the third highest with 1/3 etc.

Criteria: A council…

    (1) provides analysis on fiscal policy developments without normative judgement,

    (2) provides independent macroeconomic and/or budgetary forecasts,

    (3) issues normative statements (involving judgement) on fiscal policy,

    (4) issues recommendations (considering policy alternatives) in the area of fiscal policy.

Figure A-1. Conditional effects of the budget rules indicator (given fiscal councils) based on the basic regression (Table 1 - including the euro indicator)
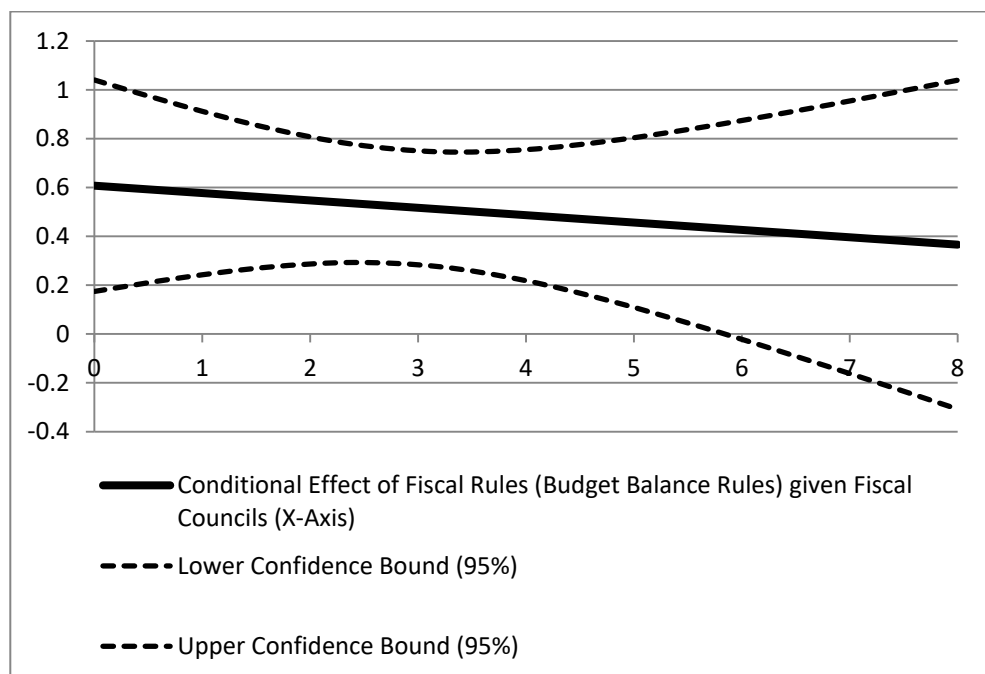
Table A-3. Criteria for Constructing the Fiscal Rule Indices

Criterion 1: Statutory base of the rule
4   Constitutional base
3   The rule is based on a legal act (e.g., Public Finance Act, Fiscal Responsibility Law)
2   The rule is based on a coalition agreement or an amendment reached by different general government tiers (and not
    enshrined in a legal act)
1   Political commitment by a given authority

Criterion 2: Room for setting and revising objectives
3   There is no margin for adjusting objectives (they are encapsulated in the document underpinning the rule)
2   There is some but constrained margin in setting or adjusting objectives
1   There is complete freedom in setting or adjusting objectives (the statutory base of the rule merely contains broad principles or the obligation for the government or the relevant authority to set targets)

Criterion 3: Nature of body in charge of monitoring respect and enforcement of the rule
The score of this criterion index is constructed as a simple average of the two elements below:

Nature of the body in charge of monitoring respect of the rule
3   Monitoring by an independent authority (Fiscal Council, Court of Auditors or any other Court) or the national parliament
2   Monitoring by the ministry of finance or any other government body
1   No regular public monitoring of the rule (there is no report systematically assessing compliance)
The score of this sub-criterion is augmented by 1 if there is real time monitoring of compliance with the rule, i.e. if alert mechanisms of risk of non-respect exist.

Nature of the body in charge of enforcement of the rule
3   Enforcement by an independent authority (Fiscal Council or any Court) or the national parliament
2   Enforcement by the ministry of finance or any other government body
1   No specific body in charge of enforcement

Criterion 4: Enforcement of mechanisms of the rule
4   There are automatic correction and sanction mechanisms in case of non-compliance
3   There is an automatic correction mechanism in case of non-compliance and the possibility of imposing sanctions
2   the authority responsible is obliged to take corrective measures in case of non-compliance or is obliged to present corrective proposals to Parliament or the relevant authority

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1   There is no ex-ante defined actions in case of non-compliance
The score of this variable is augmented by 1 if escape clauses are foreseen and clearly specified.

Criterion 5: Media visibility of the rule
3   Observance of the rule is closely monitored by the media; non-compliance is likely to trigger public debate
2   High media interest in rule compliance, but non-compliance is unlikely to invoke public debate
1   No or modest interest of the media

Figure A-2. Conditional effects of the debt rules indicator (given fiscal councils) based on the basic regression (Table 1 - including the euro indicator)