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Do institutional aspects shape the effectiveness of independent fiscal institutions?

The case of countries' compliance with EU fiscal rules

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Abstract

To assess the potential of independent fiscal institutions (IFIs) to support compliance with EU fiscal rules, this study examines which institutional aspects are associated with IFI effectiveness. Our dataset comprises 30 IFIs in 26 EU member countries, obtained from a survey of members of the Network of EU IFIs in spring 2022.

We present a descriptive analysis of the survey results on IFI effectiveness. We then econometrically evaluate the impact of some IFI attributes on compliance with the fiscal rules of the Stability and Growth Pact (SGP) for the period 2000-2021. As a proxy for IFI effectiveness, we use an index built on data from the European Fiscal Board database on compliance with fiscal rules (Larch et al., 2023). Thus, we construct an overall (aggregated) compliance index, calculated as the sum of indices that are defined as dummy-type variables (qualitative indicator) to measure compliance with every one of the four rules of the SGP governing the deficit, debt, structural balance and expenditure. As an alternative proxy for IFI effectiveness, we use two measures from the same database: an expenditure-rule compliance dummy and an expenditure-rule compliance gap.

As variables of interest, we first use a dummy variable that takes a value of e if country j has established an IFI at time t, and 0 otherwise. We then use indices that are proxy variables for some features of IFIs, based on minimum standards proposed by the Network of EU IFIs and other aspects. Finally, we propose an overall index of institutional aspects, computed as the sum of seven corresponding indices. We also construct two dummy variables based on fiscal rules: one variable takes a value of 1 if the fiscal rules index is lower than the median of the sample, and 0 otherwise; and another variable takes a value of 1 if the fiscal rules index is greater than or equal to the median of the sample, and 0 otherwise. These dummy variables are then interacted with the IFI proxies. This approach enables us to examine whether compliance with the SGP fiscal rules differs when there is a higher number of national or supranational rules in place, compared with the presence of fewer rules.

For the main estimation method, we employ the fixed effects estimator with robust standard errors and for robustness checks the bias-corrected least-squares dummy variable estimator.

The results show a positive and statistically significant relationship between the presence of IFIs and compliance with fiscal rules when there is interaction between IFIs and the fiscal rules framework. Certain institutional features of IFIs are associated with better compliance with fiscal rules: public disclosure, a sufficient level of resources, good and timely access to information, a high degree of independence, a broad mandate of IFI tasks and prominent media visibility.

We also find that the higher the values of components in the overall index of IFI aspects, the higher is the overall compliance index and expenditure-rule compliance gap.

Regarding the number of fiscal rules, the presence of too many fiscal rules weakens the ability of IFIs to influence compliance overall and the expenditure rule in particular. When there are fewer numerical fiscal rules in place, the characteristics of IFIs complement them and have a positive influence on compliance. These findings reinforce the idea that, from the perspective of a more flexible and less complex EU fiscal governance framework, IFIs have the potential to contribute effectively to compliance with European fiscal rules, by leveraging their institutional features and meeting certain minimum institutional standards.

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Views, if any, expressed in the paper reflect the views of the authors working on the study and do not necessarily represent the views of the individual IFIs of the Network or the collective views of the Network.

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1 Introduction

Independent fiscal institutions (IFIs) are tasked with fiscal oversight to promote sound fiscal policy and sustainable public finances. Studying the contributions of IFIs on fiscal policy outcomes is critical in understanding their effectiveness. To this end, this paper analyses the capacity of IFIs in EU countries to improve compliance with EU-level fiscal rules, and delves into the institutional aspects associated with their effectiveness in doing so.

The European Commission defines IFIs as 'non-partisan public bodies, other than the central bank, government or parliament' with an aim to promote sound fiscal policy and sustainable public finances through various functions[8]. Their functions include monitoring compliance with fiscal rules, producing or endorsing macroeconomic forecasts underlying the budget, and/or advising governments on fiscal policy matters. Therefore, IFIs can play an important role in promoting the transparency of public finances. The impact on governments is reputational, as they may face electoral costs if they follow imprudent policies (von Trapp and Nicol, 2018).

This study is relevant given the ongoing reform of the European fiscal framework, through the economic governance review, scheduled to be agreed upon before the end of 2023. The role of EU IFIs is important to support the aims of the reform: to simplify complex fiscal rules and strengthen national ownership of Member States' fiscal adjustment paths. Member States would be required to produce their own medium-term fiscal-structural plans with a single operational indicator (net primary expenditure). IFIs are envisaged as an important player in (i) monitoring compliance with the medium-term plans and (ii) assessing their underlying assumptions.

The reforms further envisage strengthening minimal institutional requirements for IFIs. This paper on the effectiveness of IFIs can provide insights on which reforms could help to strengthen the role of IFIs. It focuses on the effect of IFI features on compliance with fiscal rules. Beetsma et al. (2023a) find that production or assessment of macroeconomic forecasts by an IFI with a high media impact leads to actual budgetary improvement relative to projections. This calls for stronger institutional underpinnings of national IFIs, particularly in countries where their resources, institutional design and mandate are currently limited.

Earlier literature supports the need to study the institutional aspects of IFIs as well as to highlight their importance for fiscal policy. Barnes (2022) argues that IFIs could play a vital role in assessing compliance with the new fiscal framework, given their expertise on the application of domestic fiscal rules. This was supported by Căpraru et al. (2022), postulating that IFIs have a positive, significant influence on government balances and compliance with fiscal rules. To do so, the literature has argued that there are key institutional aspects which the new framework should ensure. For instance, Franek and Postula (2021) contend that countries with fiscal councils that are independent, have a strong presence in the public debate and enjoy a broad mandate, enable better fiscal performance. This is supported by previous studies (Horvath, 2018) assessing the potential effectiveness of EU IFIs. Better access to information and 'comply or explain' mechanisms lead to improved fiscal oversight in the EU. Overall, the literature has pointed towards the importance of IFIs in improving national ownership and enhancing fiscal oversight.

This paper contributes to the empirical literature in the field in several ways. First, we construct seven new indices that are proxy variables for some institutional aspects of IFIs: public disclosure, resources, access to information, existence of the comply or explain principle, independence, the breadth of IFI tasks and media visibility, and an overall index of institutional aspects, computed as the sum of all seven indices. The data were obtained through members of the Network of EU IFIs, surveyed in spring 2022. Thus, these indices are based on information reported by IFIs themselves. Other studies assessing the institutional aspects of IFIs use proxy

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dummy variables or a composite index. Those approaches indicate the presence of certain characteristics, but capture fewer aspects compared with our approach (see Section 4). We consider this to be one of the most important contributions of our paper.

Second, we propose an overall compliance index, calculated as the sum of four dummy variables (qualitative indicator) that captures compliance with each of the four fiscal rules under the European Commission's Stability and Growth Pact (SGP): the deficit, debt, structural balance and expenditure rules. Our approach is based on data from the European Fiscal Board database on compliance with fiscal rules (Larch et. al., 2023). In this order, we investigate whether IFIs have the capability to monitor simultaneously all rules, due to some specific institutional features, and to impact positively the compliance with them. To our knowledge, there are no other studies in the literature that deal with this issue.

Third, we disentangle the interplay between the institutional features of IFIs and fiscal rules by interacting them based on the number of fiscal rules in place, and a lower or higher number of binding numerical norms. Finally, we control for the electoral cycle's impact on overall compliance with EU fiscal rules, another novelty compared with other studies.

The remainder of this paper is organised as follows. Section 2 reviews the main literature in the field. Section 3 contains the descriptive analysis of the survey results on the effectiveness of IFIs. Section 4 econometrically evaluates the impact of some institutional aspects of IFIs on their effectiveness. It presents the sample and data, the empirical strategy, the results obtained and their discussion. Finally, Section 5 concludes with the paper's main findings.

2 Literature review

2.1 Effectiveness of IFIs

IFIs have been a focal point of public discourse on fiscal performance for the past three decades. In the EU, after introducing the 'six-pack' regulation, Member States were encouraged to have independent bodies tasked with evaluating and endorsing official macroeconomic forecasts of the state budget. Currently, there are over 30 IFIs operating within the EU, while a significant number of these organisations are also operational in countries outside the EU.

Significant theoretical and empirical research focuses on the operation of IFIs. The main question that empirical research tries to answer is if the existence of these institutions can be associated with an improving governmental fiscal performance. Assessing the effectiveness of IFIs first requires defining appropriate performance metrics. Thus, the vast majority of the literature considers an IFI effective explicitly or implicitly if it contributes either to enhanced fiscal discipline or to the mitigation of the 'deficit bias', which refers to the tendency of governments to create budget deficits and to accumulate public debt.

More specifically, two early papers (Fabrizio and Mody, 2006; Debrun and Kumar, 2008) examined the role that budget institutions and IFIs may play in curbing fiscal pressures, implying that an important measure for a budget institution's effectiveness is the limitation of the deficit bias. The nexus between IFI effectiveness and reduction of the deficit bias is also discussed in Debrun and Kinda (2017); Debrun et al. (2017); Beetsma and Debrun (2016); Beetsma et al. (2019), Calmfors and Wren-Lewis (2011) and Calmfors (2015).

As depicted in Table 1, the empirical research investigates the relationship between effective IFIs and the deficit bias using various variables. Among them are the general government's balance (Franek and Postula, 2021; Căpraru et al., 2022), its cyclically-adjusted balance (Wildowicz-Giegiel, 2019; Căpraru et al., 2022) its primary balance (Nerlich and Reuter, 2013; Maltritz and Wüste, 2015; Debrun and Kinda, 2017; Căpraru et al., 2022) and its cyclically-adjusted primary balance (Martins and Correia, 2020; Nerlich and Reuter, 2013; Debrun and Kumar, 2007; Fabrizio and Mody, 2006; Căpraru et al., 2022).

Table 1. Literature overview

Article	Country/ period	Methodology	Dependent variable	Key findings
Frankel and Schreger (2013)	34 countries 1997-2012	Panel data fixed effects	Forecast bias (changes in the budget balance)	Over-optimistic forecasts due to the 3% deficit limit; IFIs can reduce the bias with independent forecasts by 2% of GDP
Nerlich and Reuter (2013)	27 EU Member States 1990-2012	Dynamic panel	(Cyclically-adjusted) primary balance, primary expenditure, revenue and diverse disaggregated expenditure/revenue components	Numerical fiscal rules lower expenditures and revenues, improving the primary balance (strengthened by independent IFIs and effective medium-term budgetary frameworks)
Maltritz and Wüste (2015)	27 EU Member States 1991-2011	Panel data. Generalized method of moments	Primary budget balance	Positive joint influence of fiscal rules and fiscal councils on budget balance
Debrun and Kinda (2017)	58 advanced and emerging countries 1990-2011	Least-squares dummy variable estimator for a dynamic panel data model with correction for bias (LSDVC)	Primary balance	Only well-designed IFIs (operational independence, budgetary forecasts, public debate and monitoring fiscal policy rules) are associated with stronger fiscal performance
Debrun et al. (2017)	7 EU countries 2003-2010	Panel data fixed effects	Number of times the official name of the Fiscal Council appears in a country's national press	IFIs raise awareness about potential fiscal risks through media, reducing informational asymmetries and voters reward good policies

Beetsma et al. (2019)	29 IFCs 2016 (IMF Fiscal Council Dataset)	Panel data fixed effects	Forecasting error in the real growth rate, primary balance, absolute forecasting errors and compliance gap (expenditure, budget balance or debt)	IFIs provide more accurate, less optimistic fiscal forecasts and greater compliance with fiscal rules
Wildowicz-Giegiel (2019)	EU 2006–2017	Descriptive and panel data analysis	Cyclically-adjusted budget balance	IFIs positively affect the fiscal performance as they provide indirect social control, meaning greater fiscal transparency and lower fiscal illusion
Bach (2020)	18 EU countries 2016	Qualitative analysis	Media communication	More effective communication of IFIs improves fiscal transparency and accountability
Martins and Correia (2020)	28 EU Member States 1999-2016	LSDVC	Cyclically-adjusted fiscal policy variable (primary balance, primary expenditure, revenue)	IFIs improve the discretionary implementation of fiscal policy (less procyclical and more concerned with the sustainability of public debt)
Pappas and Kostakis (2020)	19 EMU 1995-2018	fixed effects-2SLS and dynamic LSDVC	Long-term bond yield growth	IFIs help to reduce government's debt-risk premium
Franek and Postula (2021)	28 EU Member States 2004-2016	Panel data	General government balance/GDP ratio (cyclically-adjusted)	IFIs improve fiscal sustainability and performance, but the relationship between fiscal rules and IFIs and fiscal outcomes are less strong than with multi-annual budgetary frameworks
Mohl et al. (2021)	27 EU Member States and UK 2004-2020	Text mining approach	Compliance with fiscal rules (structural balance, expenditure, deficit and debt rule)	Media visibility increases effectiveness of fiscal rules compliance; the effect is higher in the case of well-developed fiscal institutions, bad economic times and when close to the release of the European Commissions' fiscal policy news
Căpraru, Georgescu, and Sprincean (2022)	EU 2000-2019	Dynamic panel model	Fiscal balance, primary balance, cyclically-adjusted fiscal balance, and cyclically-adjusted primary balance; compliance gap (deviations of the 4 fiscal rules)	There is a positive and significant effect of IFIs on public finances (different fiscal balances and compliance with SGP's fiscal rules) for 'old' IFIs (created before 2013) and for IFIs that went through a reform process
Chrysanthakopoulos and Tagkalakis (2022b)	40 advanced economies 1990-2020	Random effects panel probit model	Probability of initiating a fiscal adjustment (increase in the cyclically-adjusted primary balance)	The probability of adjustment is increased with a strong mandate for IFIs (i.e., enhanced remit and independence and accountability), enhanced tasks and instruments, and well-designed fiscal rules
Beetsma et al. (2023a)	27 EU countries 1998-2020	Panel data fixed effects	One-year-ahead forecast errors of the budget balance	Optimistic budgetary projections are led by optimistic GDP growth projections
Larch, Malzubris and Santacroce (2023)	27 EU Member States and UK 1998-2021	Data analysis and logit model	Logit model compliance dummy (deficit rule, debt rule, structural balance rule, expenditure rule)	Better national fiscal rules, national governance and EDP procedure are associated with better compliance Deficit and debt rules are procyclical (lower compliance)

Source: own elaboration.

Most of these studies find a positive relationship between the existence of an IFI and the chosen measure of fiscal performance. For example, Căpraru et al. (2022) find a positive and significant effect of IFIs on public finances, resulting in a smaller public budget deficit, which is robust to a variety of specifications and models, including alternative definitions of a government budget and after controlling for a set of institutional characteristics.

It should be noted that, as stressed by this literature, the causal link between IFIs and fiscal performance is not clear-cut (Debrun et al., 2013; Nerlich and Reuter, 2013; Larch and Braendle, 2018; Martins and Correia, 2020), since there is a possibility of reverse causality in the sense that countries with prudent fiscal policies have created an independent fiscal institution, rather than the other way around. This would imply that fiscal councils do not cause better fiscal performance, but are rather the result of it. To address this problem, some studies use instrumental variables or panel data methods to control for unobserved factors that may affect both the adoption of fiscal councils and fiscal performance.

Although most theoretical and empirical research focuses directly on the deficit bias, there is a strand of literature that focuses on other measures of effectiveness:

- **Macro and budgetary projections**. Frankel and Schreger (2013) raise the issue of over-optimistic official budget balance and growth forecasts, concluding that IFIs which provide their own independent forecasts may help mitigate the government's bias. Gilbert and De Jong (2017) obtain evidence of budgetary over-optimism for euro area countries whose budget deficits risks exceeding the 3% reference value, while no such effect is found for non-euro area countries. Debrun and Kinda (2017) find that well-designed IFIs are associated with more accurate macroeconomic and budgetary forecasts. Beetsma et al. (2019) find evidence for the EU that in the presence of an IFI, fiscal forecasts are more accurate. More recently, Beetsma et al. (2023a), using the Stability Programmes of 27 EU countries since 1999, explore the errors in national budgetary projections and their driving factors. They find that the most important explanatory variable of the first-release budget error, as well as its components, is the first release of the (real) GDP growth error. They find that IFIs with a high media impact producing or assessing macroeconomic forecasts appear to lead to better budgetary performance relative to projections.

- **Procyclicality of fiscal policy**. Chrysanthakopoulos and Tagkalakis (2022, 2023) show that the presence of IFIs with an enhanced remit, strong independence and accountability, and sufficient resources can mitigate procyclicality. Their results are particularly relevant for countries with weak governance and in the period after the global financial crisis.

- **Compliance with fiscal rules**. Other papers explore whether the introduction of IFIs improves governments' compliance with numerical fiscal rules (Beetsma et al., 2019; Căpraru et al., 2022). It is known that many IFIs routinely provide inputs that feed into fiscal rules – such as estimates of structural balances – check ex-post compliance and communicate extensively about fiscal rules (Beetsma et al., 2019). Căpraru et al. (2022) document that when weak (poorly designed) fiscal rules are in place, IFIs have a positive and significant impact on countries' compliance with deficit and debt ceilings but not with structural balance and expenditure rules, where the coefficients, although with a positive sign, lack statistical significance. When they consider stronger numerical restrictions on fiscal outcomes (well-designed fiscal rules), IFIs enhance compliance with all rules. Similarly, Beetsma et al. (2019) find that the presence of IFIs is associated with a sizeable and statistically significant effect on compliance.

- **Government borrowing costs**. Finally, Pappas and Kostakis (2020), Martins and Correia (2020) and Căpraru et al. (2022) associate the presence of an IFI with a lower government debt-risk premium.

Other studies analyse from a theoretical perspective the channels through which IFIs can improve fiscal outcomes and reduce the deficit bias. It is argued that a core cause of excessive fiscal deficits and public debt accumulation is informational asymmetry (Calmfors and Wren-Lewis, 2011; Calmfors, 2015; Beetsma and Debrun, 2016; Debrun and Kinda, 2017; Larch and Braendle, 2018; Debrun et al., 2017; Horvath, 2018; Beetsma et al., 2019; Wildowicz-Giegiel, 2019; Martins and Correia, 2020). More specifically, voters are poorly informed about fiscal policy and the true intention of the government. For example, the electorate may not recognise if a budget deficit is necessary as a procyclical policy action or if it is just a way for a government to boost its re-election chances through increased public spending or tax cuts in pre-election periods. An effective IFI may improve the public's understanding of the quality of fiscal policy, allowing voters to reward prudent policies. In return, in the presence of effective IFIs, governments will have the incentive to act prudently, taming the deficit bias and raising social welfare.

Furthermore, a 'common pool' problem is identified as a potential source of the deficit bias (Calmfors and Wren-Lewis, 2011; Calmfors, 2015; Larch and Braendle, 2018; Debrun and Kinda, 2017; Wildowicz-Giegiel, 2019). The problem arises when certain, often small, groups of society pressure politicians for favourable

budgetary actions for them, with respect to government spending and/or tax cuts, acting exclusively for their own benefit. A government could easily satisfy such lobbies since the benefits will materialise in the coming elections, but the costs will appear in the long run and will be shared with other groups in society. An IFI could raise this issue and possibly expose these practices.

Finally, intergenerational redistribution may cause a deficit bias (Calmfors and Wren-Lewis, 2011; Calmfors, 2015; Beetsma and Debrun, 2016; Larch and Braendle, 2018; Căpraru et al., 2020). Intergenerational redistribution implies that a government is prone in fiscal policy to appease the current electorate, thereby taking advantage of future generations. Since future generations are unable to vote, governments are often motivated to transfer the burden of debt and possibly higher taxes onto them.

An IFI that has strong influence in the public debate could contribute to mitigating informational asymmetries and common pool problems and highlight the issue of intergenerational redistribution when such imprudent fiscal policies are conducted, thus raising the reputation cost for the government to run bad policies. Mohl et al. (2021) finds evidence that media visibility can contribute to the effectiveness of fiscal rules and fiscal councils and at the same time that the creation of fiscal councils appears to have further increased the media reporting on fiscal rules. Debrun et al. (2012), using a sample of 15 EU countries for the years 1990-2004, demonstrate a relationship between the intensity of media reports referring to the fiscal council, on the one hand, and the planned change in the cyclically-adjusted budget balance (CAB) at the beginning of the year and the first estimate of the deviation in the CAB with respect to plans on the other hand. In another paper, Debrun et al. (2017) find that IFIs seem to exert some influence on the public debate, at least as measured by their media presence. It appears that the activities and media impact of IFIs increase in times of budget slippages or relative fiscal activism. In the same vein, Bach (2020), using the findings from a questionnaire on media communication practices of fiscal councils in EU countries, demonstrates that frequent communication with the media is one of the potential tools for increasing transparency and accountability of public finances.

2.2 Institutional aspects of IFIs

Extensive empirical research suggests that certain features of IFIs are essential preconditions for them to effectively fulfil their tasks. According to this strain of literature, the most important features are below.

- **Independence**[9]. Various forms of independence may be considered, such as in leadership, operations, access to information, transparency, and so on. These are described comprehensively in von Trapp and Nicol (2018).

- **Strong presence in the public debate and high media impact**[10]. The effectiveness of an IFI in curbing fiscal deficit bias relies heavily on its ability to communicate and influence both voters and politicians. The more impact it has on public opinion, the higher the odds of reducing informational imbalances and increasing the reputational cost for a government for bad policies.

- **Broad mandate**[11]. A broad mandate is necessary for acting effectively and independently. Such a mandate may include own macroeconomic and fiscal forecasts, technical contributions to the budget process and the implementation of fiscal policy, monitoring of compliance with fiscal policy rules, policy costing, etc.

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[9] See Calmfors and Wren-Lewis (2011); Nerlich and Reuter (2013); OECD (2014); Beetsma and Debrun (2016); Debrun and Kinda (2017); Debrun et al. (2017); Horvath (2018); von Trapp and Nicol (2018); Beetsma et al. (2019); Wildowicz-Giegiel (2019); Căpraru et al. (2022); Franek and Postula (2021).

[10] See Calmfors and Wren-Lewis (2011); Nerlich and Reuter (2013); OECD (2014); Beetsma and Debrun (2016); Debrun and Kinda (2017); Debrun et al. (2017); Martins and Correia (2020); Căpraru et al. (2022); Franek and Postula (2021).

[11] See Frankel and Schreger (2013); Nerlich and Reuter (2013); OECD (2014); Beetsma and Debrun (2016); Martins and Correia (2020); Căpraru et al. (2022); Franek and Postula (2021).

- **Resource sufficiency**[12]. Resources may include financial, human and information technology resources, which are essential for fulfilling the mandates of an IFI.

- **International monitoring and external evaluation**[13]. International monitoring is crucial for raising the political cost of governments for interfering with the independence of IFIs. Additionally, external evaluation is essential for enhancing the standards and quality of the councils' tasks.

Similarly, in a position paper the Network of EU IFIs (2022a) identifies a number of areas where minimum standards set at the EU level for national institutions would help to strengthen many IFIs in their role at the EU level and domestically (Barnes, 2022): (i) a mandate to address government and parliament, and a mandate to publicly disclose reports and recommendations; (ii) a sufficient level of resources and management flexibility; (iii) good and timely access to information; (iv) effective implementation of the comply or explain principle; and (v) sufficient safeguards against political pressures.

From a methodological strategy point of view, empirical econometric studies that deal with IFI activity can be split by taking into account how these institutions are used as a proxy variable in the assessment: some papers introduce a dummy variable which takes the value of 1 if the fiscal council exists in a particular year and 0 otherwise, while other studies introduce an interaction between this dummy variable with some institutional characteristics. Another strand of papers considers composite indices as a proxy for IFI institutional features.

Accordingly, several studies have shown that the presence of IFIs has a positive influence on fiscal outcomes, whether in combination with other fiscal governance features like fiscal rules or independently (Maltritz and Wüste, 2015; Beetsma et al., 2019; Pappas and Kostakis, 2020; Căpraru et al., 2022). For example, Pappas and Kostakis (2020) use a dummy variable as a proxy for the role of IFIs, which is found to be statistically significant and with a negative impact on government borrowing costs. Assessing the determinants of the budget balance of 27 EU countries from 1991 to 2011, Maltritz and Wüste (2015) obtain a positive and significant effect on the primary balance of the interaction between fiscal rules and IFIs and that between IFIs and a crisis dummy. In the same way, Martins and Correia (2020) divide their sample into two subsamples: countries with institutions and countries without institutions; their findings confirm that countries with fiscal institutions exhibit a higher level of concern regarding the sustainability of public finances.

Other studies suggest that the presence of IFIs by itself does not necessarily lead to stronger fiscal balances. Instead, it is important to consider specific characteristics of IFIs that can have an impact on fiscal performance. In this vein, Debrun and Kinda (2017) conclude, after assessing 58 advanced and developing economies, that key features for effective IFIs include: operational independence from politics, the provision or public assessment of budgetary forecasts, a strong presence in the public debate and an explicit role in monitoring fiscal rules. Nerlich and Reuter (2013) look at different features of national numerical fiscal rules in combination with IFIs and medium-term budgeting frameworks for a sample spanning the period 1990 to 2012 for 27 EU countries. They find that the positive effect on the primary balance and on cyclically-adjusted primary expenditure can be further strengthened by supporting numerical fiscal rules with IFIs and an effective medium-term budgeting framework. In their assessment, they use as a dummy variable some characteristics of IFIs which were generally found to be important: preparation of macroeconomic or fiscal forecasts; issuance of normative statements; public assessment of government programmes; an obligation for a government to comply or react to assessments; legal status; freedom from the influence of the finance ministry; and independent resources and hiring of staff. According to Beetsma et al. (2023a), with high media impact, producing or assessing macroeconomic forecasts seems to lead to better budgetary performance relative to projections. Chrysanthakopoulos and Tagkalakis (2023) demonstrate that an IFI with an enhanced remit,

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[12] See Calmfors and Wren-Lewis (2011); Nerlich and Reuter (2013); OECD (2014); Horvath (2018); Căpraru et al. (2022).

[13] See Calmfors and Wren-Lewis (2011) and OECD (2014).

independence and accountability, along with extended tasks and instruments increases the probability of successful fiscal adjustments.

Improving the direct impact of IFIs on fiscal outcomes depends on best practices from the early years of their operation and the lessons learned from each other's experience (Jankovics and Sherwood, 2017). That is why some studies show that experience matters for the performance of IFIs (Beetsma et al., 2019; Căpraru et al., 2022). Beetsma et al. (2019) include a differentiation between 'veteran' and new institutions and between councils that emanated from a homegrown process as opposed to those introduced under external pressure. Interestingly, veteran councils only have a slight edge relative to their younger peers on the perceived media impact of their activities and new institutions hold formal consultations with the government and parliamentary hearings on a more regular basis. Căpraru et al. (2022) distinguish between fiscal councils established before 2013 (the median of the sample) and those established from 2013 onwards. Their findings indicate that for fiscal councils established before 2013, there exists a strongly significant and positive effect on all government balances. Also, they argue that IFIs which went through a process of institutional reform (broadening their mandate and enhancing their independence) had a beneficial effect on fiscal balances. Moreover, when interacting with an IFI dummy, the coefficients are positive and highly significant. This may indicate that reforms have a beneficial effect on fiscal balances.

For a much more comprehensive approach to IFI influence on fiscal performance, other studies use various composite indices[14]. For example, Debrun and Kumar (2007) develop a series of indices to evaluate the structure, independence and potential impact of IFIs on the budgetary process, including their involvement in public debates, across 22 EU member countries. Fabrizio and Mody (2006) use panel data of 10 new and potential EU Member States over the period 1997-2003 and show that the primary-balance-to-GDP ratio seems to be positively correlated with a fiscal institution index, which groups the institutional features of the budget process in three dimensions: (i) the preparation stage, when the budget is drafted; (ii) the authorisation stage, in which the draft budget is approved and formalised; and (iii) the implementation phase, where the budget is executed and may be modified/amended.

A couple of studies consider the Scope Index of Fiscal Institutions (SIFI) as a proxy for IFIs (Wildowicz-Giegiel, 2019; Franek and Postula, 2021; Căpraru et al., 2022). This index was introduced by the Directorate-General for Economic and Financial Affairs of the European Commission and aims to measure the breadth of tasks discharged by IFIs (EC, 2016). The SIFI index is calculated only for 'core IFIs', based on information reported by these institutions themselves. It contains six separate groupings of tasks that constitute the SIFI index: (1) monitoring of compliance with fiscal rules; (2) macroeconomic forecasting; (3) budgetary forecasting and policy costing; (4) sustainability assessment; (5) promotion of fiscal transparency; and (6) normative recommendations on fiscal policy. Wildowicz-Giegiel (2019) assesses the impact of fiscal councils using as a proxy the SIFI index for 28 EU countries in the years 2006–2017, concluding that IFIs contribute to the improvement of fiscal performance. Căpraru et al. (2022) find similar results for 27 EU Member States for a period that spans from 2000 to 2019. Franek and Postula (2021) construct a synthetic index that takes into account the strength of both the fiscal rules and the medium-term budgetary framework and IFIs. As proxy for IFIs, they use the SIFI index.

2.3 Fiscal rules and the new fiscal governance framework

Some papers have emerged from the perspective of the changing EU economic and fiscal governance framework. The overlapping crises of the last years have shown the need for a more flexible, less procyclical and simpler framework. These studies deal with the necessity of IFIs to reform and to achieve some minimum standards in order to be effective in the new circumstances (Barnes, 2022; Checherita-Westphal et al., 2022;

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[14] See (Fabrizio and Mody, 2006; Debrun and Kumar, 2007; Wildowicz-Giegiel, 2019; Franek and Postula, 2021, Căpraru et al 2022)

Arnold et al., 2022; Caselli et al., 2022; Beetsma, 2022, 2023b; Dăianu, 2023). Arnold et al. (2022) underline that strengthening IFIs is a crucial element in the context of the proposed fiscal governance framework and represents a major shift from the current situation. With the same idea, Caselli et al. (2022) consider that an enhanced role for IFIs will build the credibility of medium-term fiscal plans.

Regarding the institutional reform of IFIs, Beetsma (2022) agrees that some IFIs would need to strengthen their analytical capacity under the proposed fiscal framework and their enhanced role would require imposing minimum standards on IFIs, for instance in terms of their resources, access to information, legal enshrinement of their independence and freedom to publish (Beetsma, 2023b). In the same vein, Dăianu (2023) states that IFIs need to consolidate their capabilities for macroeconomic and debt sustainability analysis and need to be strengthened by setting minimum common standards. He also emphasises the potential pitfalls that might arise in the process of reforming.

The Network of EU IFIs (2022b), based on an anonymous survey of 29 IFIs from 25 EU countries, asks individual EU IFIs about their capacity to do certain current tasks. The answers show that, in general, IFIs in the EU seem to have a good capacity to accomplish a wide range of tasks and to undertake an increased role, but there is room to ensure that all institutions are able to perform in line with their EU peers in all areas.

3 Descriptive analysis of the survey results on the effectiveness of IFIs

3.1 Methodology

Members of the Network of EU IFIs were surveyed in spring 2022 on key parameters that define the effectiveness of an IFI, based on the existing literature. Thirty IFIs responded to the survey, representing a total of 26 countries (20 eurozone, 6 non-eurozone). Among them, 5 countries are home to 2 IFIs; when both IFIs responded (which was the case for 4 out of these 5 countries), their answers were merged into a single data point for the country. In the analysis below, when it is stated that country X provides a specific answer, it must be understood that it is the country's IFI that responded.

The questions cover seven areas:

- **breadth of the IFI mandate –** the extent to which the IFI's mandate includes various tasks; IFIs were also surveyed on the scope of each task (e.g., does assessing macro forecasts include all variables/only certain variables?) and on possible non-mandated tasks they perform;

- **comply or explain principle –** whether the IFI is able to make use of the comply or explain principle, and how the government responds;

- **media visibility –** the organisation of each IFI's communication and the extent to which IFI staff appears in the media;

- **external contacts with stakeholders –** how the IFI delivers its message to parliament and schedules meetings with the European Commission, international organisations and ministries of finance;

- **access to information –** how the IFI is granted access to information;

- **challenges –** IFIs were asked whether they face challenges and, if so, of which level of intensity when fulfilling their mandate; challenges were divided into key areas like financial resources, human resources, access to information, etc.

- **budget and staffing –** level of autonomy and independence granted to individual IFIs in terms of staffing, financial resources, board nominations, etc.

Most questions were multiple choice, enabling responses to be filtered; for some questions, open answers were added to allow respondents to comment on their multiple-choice answer. The analysis below follows the structure of the survey.

3.2 Breadth of IFI mandates

Core tasks

The answers to the survey highlight a number of tasks that are performed by most IFIs as part of their mandate and which can be labelled as core tasks. In almost 80% of the responding countries (see Figure 1) IFIs are mandated to assess compliance with EU fiscal rules, either ex ante, ex post or both, with more than 60% assessing compliance both ex ante and ex post. The share may be a bit higher, since we can estimate that at least some of the 'no' answers may be inaccurate.

Figure 1. Assessment of ex-ante/ex-post compliance with EU fiscal rules
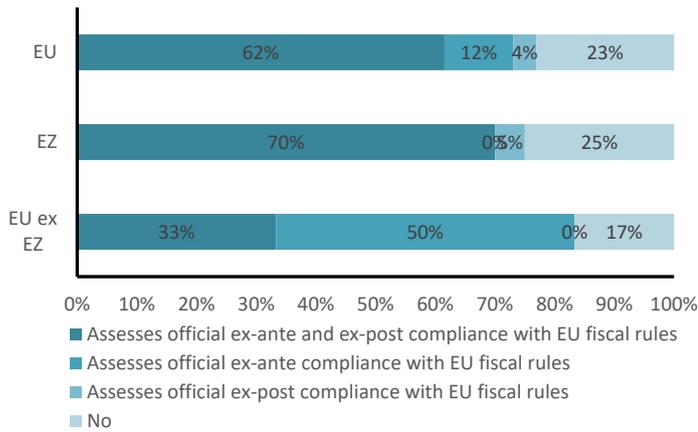
Figure 2. Macroeconomic forecasts
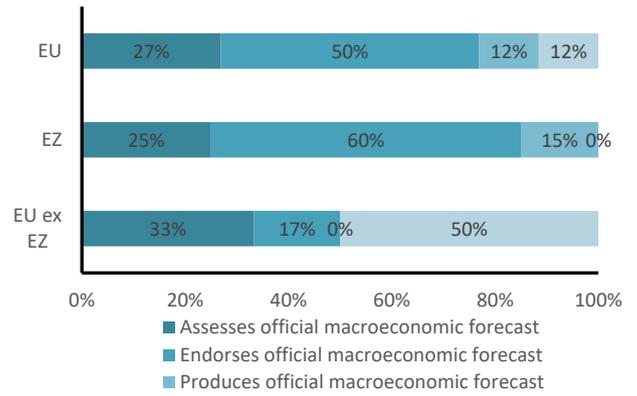
Assessment of the government's macroeconomic forecasts is the most commonly mandated task: in all eurozone countries, macroeconomic forecasts are either produced, endorsed or assessed by an IFI, while the same happens in about half the non-eurozone countries. It is most common to endorse macroeconomic forecasts in the eurozone, as about 60% of the countries do, while it is most common to assess macroeconomic forecasts in non-eurozone countries, as a little more than 30% do (see Figure 2).

Endorsing or assessing short-term or medium-term budgetary forecasts is another common task. About 80% of the countries assess or endorse short-term budgetary forecasts, with about half the countries assessing them (see Figure 3).

Figure 3. Short-term (t+1) budgetary forecasts
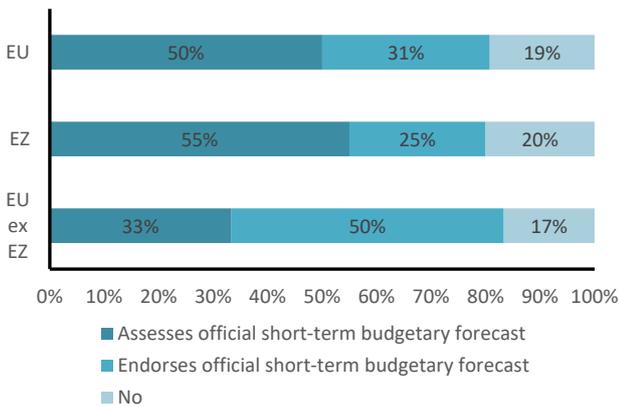
Figure 4. Medium-term (t+1 to t+5) budgetary forecasts
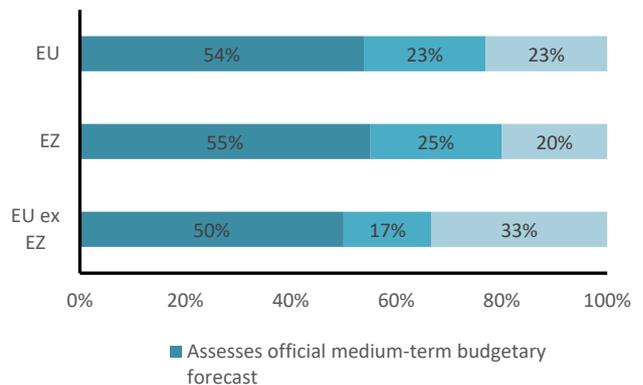
Moreover, almost 80% of the countries also task their IFIs with assessing or endorsing medium-term and/or long-term trajectories for public finances and government debt (Figure 4). In this case, more than 50% of the countries have an assessment of medium-term budgetary forecasts. This task will probably be useful in the setting of the new EU fiscal framework under discussion, based on medium-term debt sustainability, and should be developed further by IFIs.

Non-core tasks

A few tasks that are only present in some IFI mandates emerge from the survey results and can thus be considered non-core tasks. A little less than half the countries mandate their IFI to assess one-off and/or discretionary measures, with most assessing both (see Figure 5). Another non-core task is policy or proposal costing, which is part of the IFI mandate in only about 20% of the countries, with most costing both policies and proposals (see Figure 6).

Figure 5. Assessment of official estimates of discretionary and one-off measures
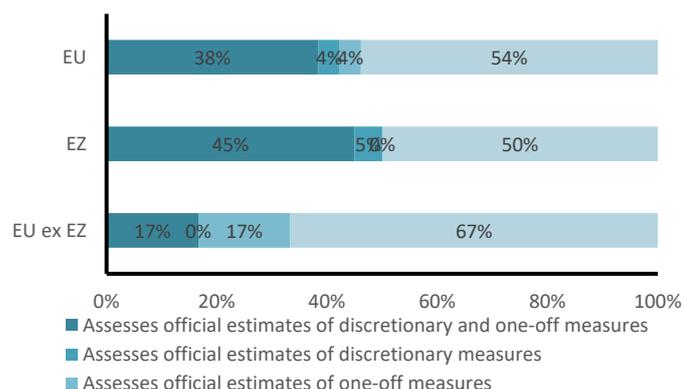
Figure 6. Government policy and proposal costing
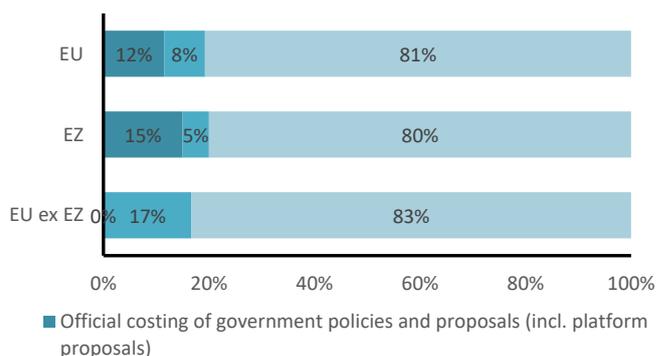
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

3.3 Comply or explain principle

More than 60% of the countries responded that they can apply the comply or explain principle (70% for eurozone countries). Among those, not all have already had the occasion to use it. Altogether, a little more than 40% of the countries have seen the principle in operation and in all cases the government always complied or explained.

3.4 Media visibility

Organisation

In about 80% of the countries, IFIs have at least a communication policy and in about 60% of them there is a communication strategy (see Figure 7). However, in about 20% of the countries, IFIs have none of these, which raises questions on how they ensure an effective dissemination of their opinions. At the other end of the spectrum, a little more than 10% of IFIs have a published communication policy and less than 10% of them have a published communication strategy (see Figure 8). Finally, in more than 50% of eurozone countries, IFIs can rely on a dedicated staff or agency to perform their communication tasks, while it is less often the case in non-eurozone countries (less than 20%).

Figure 7. IFIs with a communication policy (how the IFI and staff will engage with media requests, interact on social media, etc.)
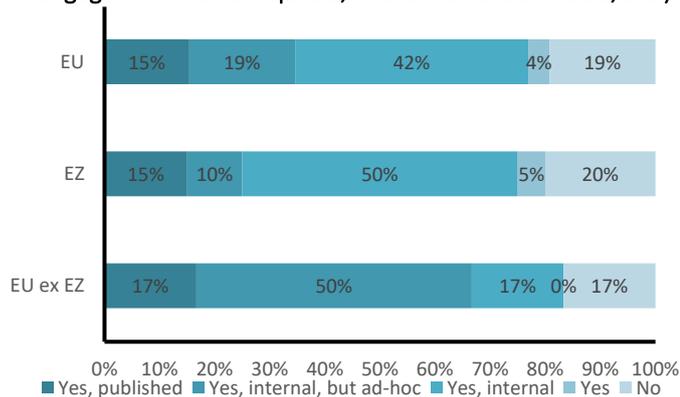
Figure 8. IFIs with a communication strategy (how the IFI will increase impact and reach)
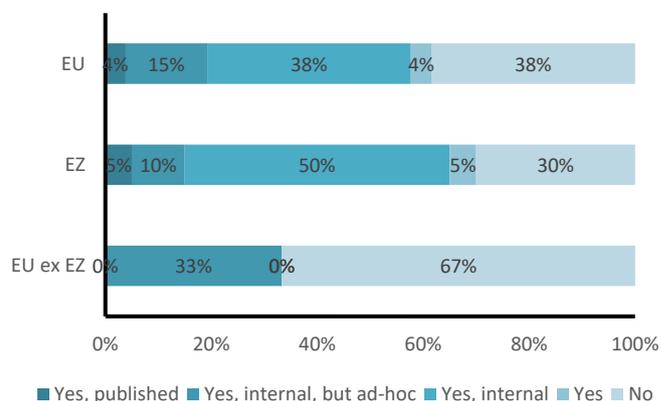
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

3.5 Staff and members' visibility

While there is no specific question on the chair or president of IFIs, it may be assumed that this person appears in different media when the IFI assessments are published. More interestingly, in most countries (about 80% for eurozone countries, all for non-eurozone countries) board members or staff appear in the media.

3.6 External contacts with stakeholders

In all the countries, IFIs appear at parliamentary hearings, either invited or requested or both (see Figure 9). In about half the countries, IFIs are both invited and requested. In most countries (we can assume in all), IFIs have regular (in about 50% of cases) or occasional (in a little less than 40% of cases) contacts with the European Commission and other international organisations on the assessments of IFIs (see Figure 10). In almost 90% of the surveyed countries, IFIs have regular or occasional calls or meetings with their national ministries of finance. However, in only a little more than 50% of them do IFIs have regular calls or meetings (see Figure 11). A little more than 20% of them answer 'not applicable', which may reflect specific institutional choices or settings that warrant access to information.

Figure 9. IFIs that have been invited or requested to attend parliamentary hearings
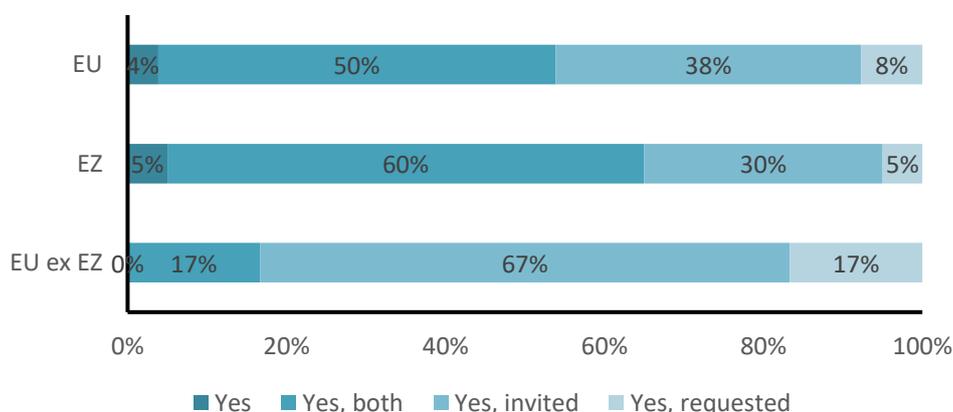
Figure 10. IFIs that schedule calls/meetings with the European Commission and other international organisations on the assessments of IFIs
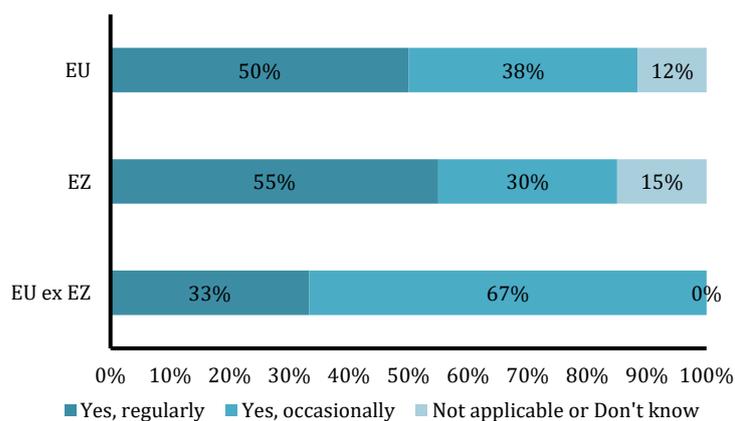
Figure 11. IFIs that schedule calls/meetings with the national ministries of finance on the reports of IFIs
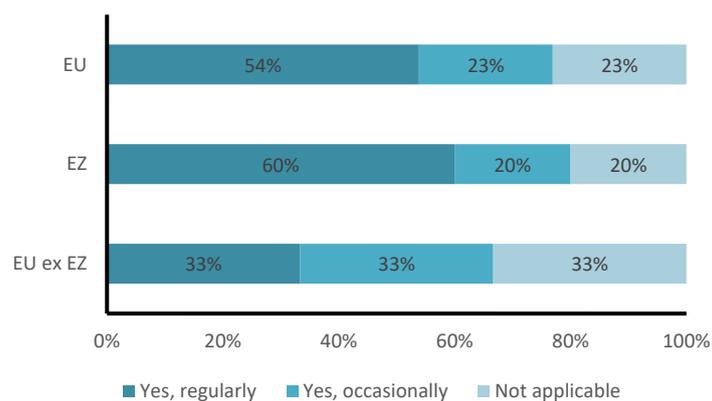
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

3.7 Access to information

More than 80% of the countries have a legislated access to information, and almost 60% with broad powers. Still, its effective agreement takes the shape of a memorandum of understanding in almost 70% of EU countries (in about 80% of eurozone countries, in a little more than 30% of non-eurozone countries) (see Figure 12 and Figure 13). Finally, about 30% of the countries have an enforcement or grievance mechanism, if requests for information are not fulfilled, that takes the form of a legislated mechanism for almost 30% of the countries (see Figure 14).

Figure 12. IFIs that have a legislated access to information
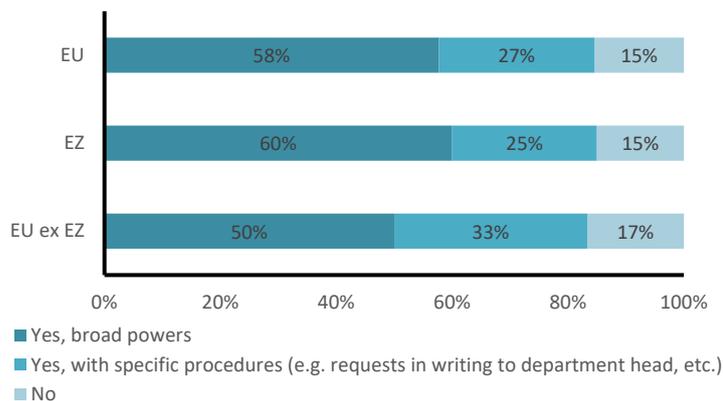
Figure 13. IFIs that have a memorandum of understanding or other non-legislated agreement to exchange information
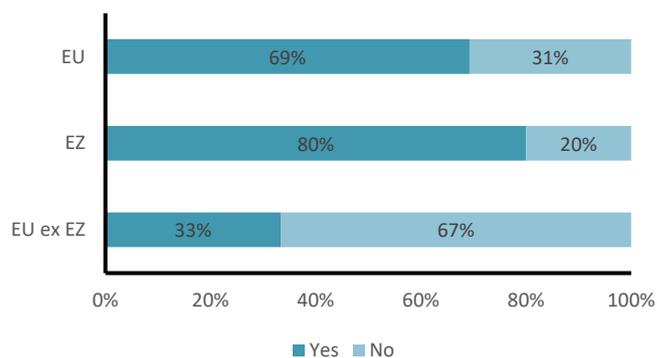
Figure 14. IFIs that have a legislated enforcement or grievance mechanism if requests for information are not fulfilled
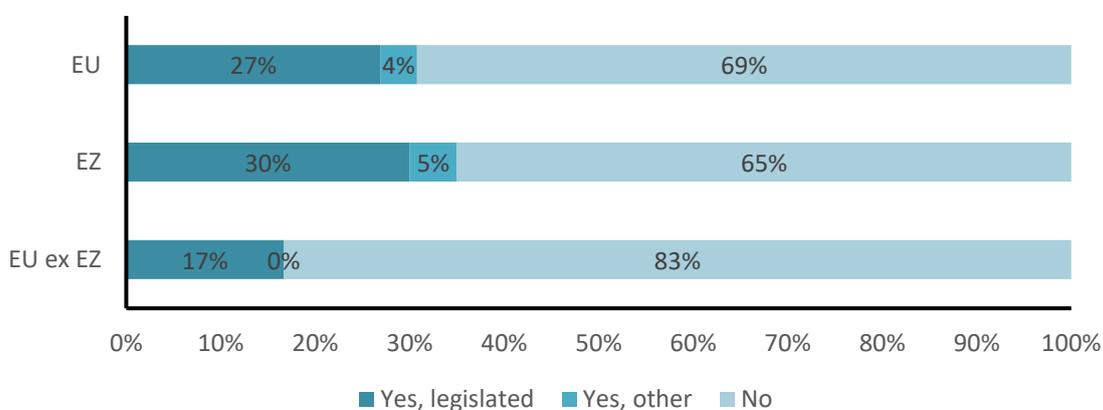
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

3.8 Challenges

When asked if they face challenges in providing an assessment of the official macroeconomic and fiscal forecasts and communicating it effectively to national governments, parliament and the general public, more than 55% of the countries' IFIs answer yes in the whole EU, a little less in the eurozone and almost 70% outside it (see Figure 15). In general, non-eurozone countries face more hurdles than eurozone countries, which is consistent with a positive effect of the eurozone's stricter fiscal framework on country-level fiscal governance. Insufficient human resources emerge as a moderate to significant challenge in a little more than 50% of the countries, making it the most mentioned one for IFIs (see Figure 16). The second most mentioned challenge (see Figure 17) refers to timely access to information: delayed provision of information by the government is a moderate to significant challenge in almost 50% of the countries. Another is incomplete or unreliable information, mentioned as a moderate to significant challenge in almost 50% of the countries (see Figure 18).

Other potential hindrances seem less important, even though roughly 20% of the countries mention each of them as a moderate to significant challenge. In particular, insufficient financial resources are considered a moderate challenge in more than 20% of eurozone countries and a significant one in a little less than 20% of non-eurozone countries. Lack of expertise, lack of qualified staff and narrowness of legal mandate also constitute minor strains for most countries. They are seen as a moderate to significant challenge in only about 20% to 30% of EU countries. Notably, lack of qualified staff and narrowness of legal mandate are a moderate to significant challenge for more than 20% of eurozone countries.

Figure 15. IFIs that face challenges in providing an assessment of official macroeconomic and fiscal forecasts and its effective communication to national governments and the general public
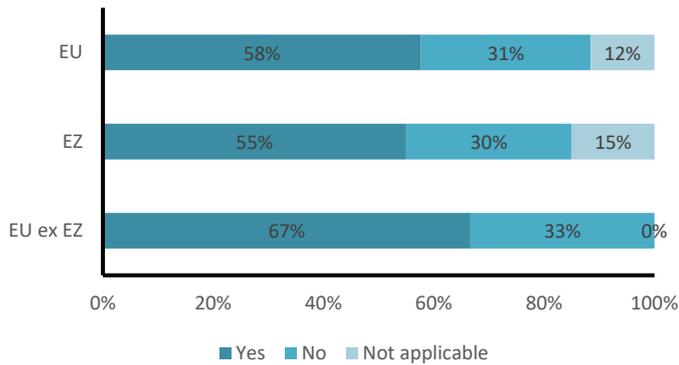
Figure 16. Insufficient human resources
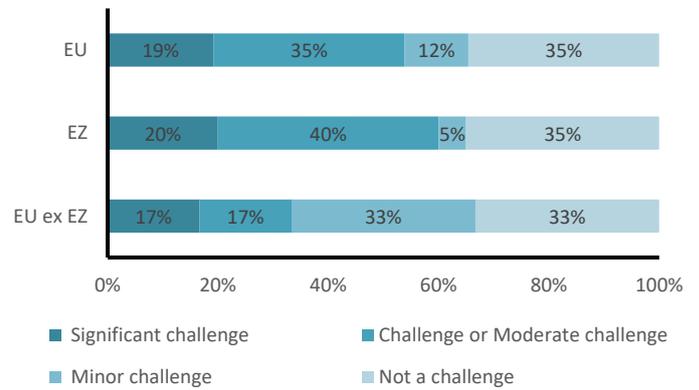
Figure 17. Delayed provision of information by the government
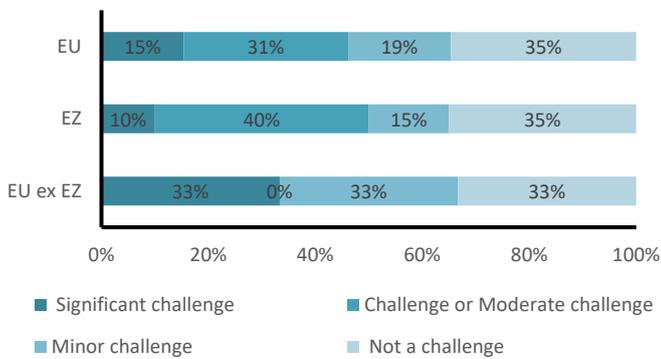
Figure 18. Incomplete or unreliable information by the government
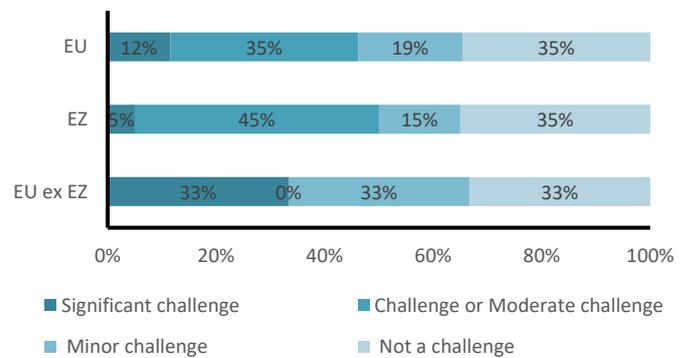
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

3.9 Budget and staffing

In only a minority of countries (a little less than 30%), IFIs have a secure multi-annual funding commitment, while in almost 60% of the countries IFIs have a multi-annual funding commitment, although not always guaranteed (see Figure 19).

Figure 19. IFIs that have a multi-annual funding commitment
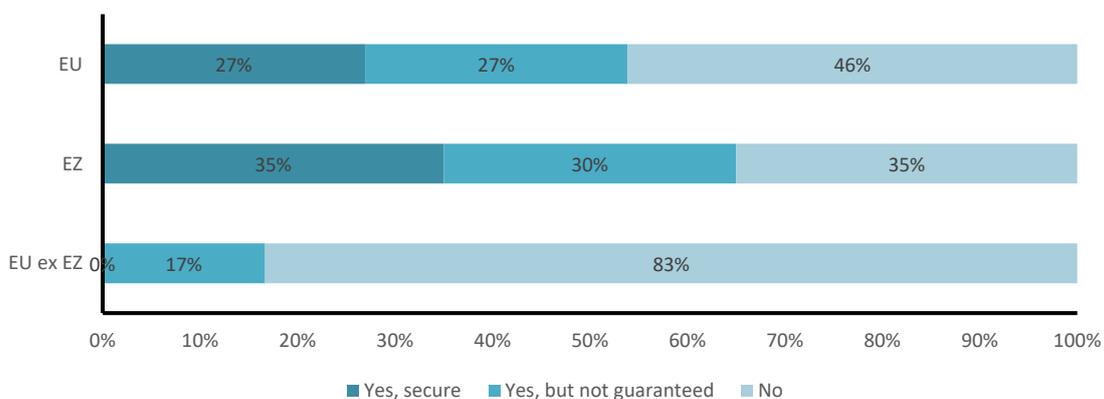
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

Moreover, in a little more than 40% of the countries, the IFI can set the remuneration of the secretariat by itself and in more than 80% of the countries the board members are remunerated. Finally, the number of secretariat employees is very diverse, due to differences in mandate and organisation, although about 60% of IFIs have fewer than 10 employees and only about 20% of IFIs have more than 30 employees (see Figure 20).

Figure 20. Number of secretariat employees at each IFI
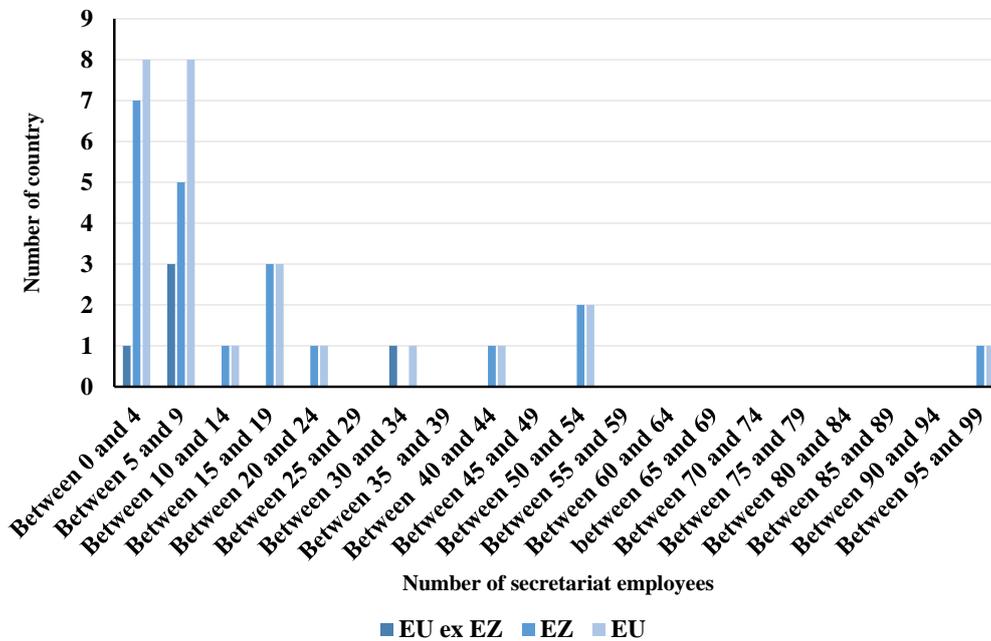
Source: authors' elaboration according to the data from the Network of EU IFIs spring 2022 survey

4 Econometric assessment of the nexus between IFI features and their effectiveness

4.1 Objectives

According to Beetsma et al. (2019), IFIs do not directly control fiscal performance, thus compliance with fiscal rules may be considered more loosely connected to the IFI sphere of influence. They primarily engage in ex-post compliance checks and communicate their findings. Also, they do not have 'hard power' in relation to the budgetary process, because such decisions are in the hand of the political executive or legislature (Beetsma et al., 2023b). Likewise, Kopits (2023) considers that the measurement of influence of IFIs on fiscal performance is elusive. If governments pre-empt the reaction of IFIs on policy proposals and learn in time what IFIs do, this influence is rather subtle, not observable, and does not result from a confrontation between IFIs and the government.

However, some studies show that the presence of IFIs is associated with better compliance with fiscal rules. Reuter (2015) studies compliance with national numerical fiscal rules for 11 EU Member States over the period 1994 to 2012 and finds that the presence of a stronger monitoring or enforcement body raises the likelihood that a rule will be complied with. Beetsma et al. (2019) show that IFIs have contributions in fostering compliance with budget-balance and expenditure rules, partly through their influence on the accuracy of budget plans. The 'signal-enhancement' role of IFIs theorised by Beetsma, Debrun and Sloof (2017) can explain the mechanism of IFI influence on compliance with fiscal rules as well. These institutions may make it easier for current democratic controls to function. Better informed voters and veto players in the budget process can give policymakers stronger incentives to deliver sound policies. In the same vein, Căpraru et al. (2022), using a dataset of the European Fiscal Board on compliance gaps with EU-level rules, demonstrate that when weak (poorly designed) fiscal rules are in place, IFIs have a positive and significant influence on countries' compliance with deficit and debt ceilings, and when well-designed fiscal rules are found, IFIs enhance compliance with all rules.

In this section, we econometrically explore the contributions of some institutional aspects to IFI effectiveness in the EU. In this respect, we succeed in testing three assumptions: (i) whether the existence of an IFI relates to higher compliance with fiscal rules, (ii) whether specific institutional aspects relate to higher compliance with fiscal rules, and (iii) whether all the important institutional aspects (taken together) contribute to higher compliance with fiscal rules. Overall, the literature has explored the contribution of some institutional aspects of IFIs to various policy and macroeconomic outcomes, finding a positive association between them (Debrun et al., 2012; Nerlich and Reuter, 2013; Debrun and Kinda, 2017; Debrun et al., 2017a; Căpraru et al., 2022; Beetsma et al., 2023a; Chrysanthakopoulos and Tagkalakis, 2023). The new economic governance framework of the EU underlines the necessity of strengthening IFIs by ensuring some minimum standards, like operational independence, sufficient and stable own resources, adequate and timely access to information, the capacity to communicate publicly and the comply or explain principle. All of these will help IFIs build the capacity to carry out the tasks required by the Commission's proposals and play an effective role in the new economic governance framework (see Proposal for a Council Regulation amending Regulation (EC) No 1467/97 0137 (CNS), Article 8).

4.2 Sample and data

Our dataset comprises 30 IFIs from 26 EU member countries and covers the period 2000-2021. As a proxy for IFI effectiveness, we use an index built on data from the European Fiscal Board database on compliance with fiscal rules (Larch et al., 2023). This database provides information on the fiscal performance of EU Member States, assessing their compliance with the four rules outlined in the SGP. With this aim, we compute two complementary indicators of compliance for each rule: a qualitative one and a numerical one. The qualitative

indicator is a dichotomous variable, which takes the value of 1 to signal compliance and 0 otherwise. The numerical indicator measures the deviation from the fiscal rule threshold as a percentage of GDP. A positive value indicates the achievement of the rule, and a negative value a shortfall. Thus, we propose an *overall compliance index* (FR_comp), calculated as the *sum of indices that define, as a dummy-type variable (qualitative indicator), compliance with every one of the four rules of the SGP*: the deficit rule, debt rule, structural balance rule and expenditure rule. This overall compliance index takes a value from 0 to 4; 0 when none of the rules are complied with and 4 when all rules are complied with. *Through the overall compliance index, we assess if IFIs have the capability to monitor simultaneously all rules and positively contribute to their compliance*. To our knowledge, there is no other study that tests this capacity of IFIs.

As **variables of interest**, we first use a *dummy variable* that takes a value of 1 if country j has established an independent fiscal institution at time t, and 0 otherwise. Data on the IFIs' year of establishment are collected from OECD (2021) and IMF (2022) databases. Furthermore, we employ indices that are *proxy variables for some institutional aspects of IFIs based on minimum standards proposed by the Network of EU IFIs* (2021, 2022a; see also Barnes, 2022) and other aspects (see Table 3). The data were obtained through the survey of the Network of EU IFIs, conducted in spring 2022. The different characteristics of IFIs examined in the survey are grouped into the aforementioned seven institutional *aspects* (see Table 3). Hence, for every institutional aspect we attached items from the questionnaire that are either a score or a binary type of variable, building an index by summing their values. The higher the value of the index, the stronger is that particular characteristic, concerning compliance with fiscal rules. Finally, we propose an *overall index of institutional aspects*, computed as the sum of all seven indices of institutional aspects.

Table 2. Description of variables

Variable	Definition	Source
	Dependent variables	
Overall compliance index	Sum of indices which define the compliance with every one of the four rules of the Stability and Growth Pact as a dummy-type variable: deficit rule, debt rule, structural balance rule and expenditure rule; it takes a value from 0 to 4; 0 when none of the rules are complied with and 4 when all rules are complied with	Own calculations based on Larch et al. (2023)
Compliance with expenditure rule dummy	Takes the value 1 to signal compliance with the rule and takes the value 0 to signal noncompliance	Larch et al. (2023)
Expenditure-rule compliance gap	A positive (negative) sign shows that the annual rate of growth of net government expenditures are below (above) the medium-term potential output growth minus the convergence margin	Larch et al. (2023)
	Independent variables	
IFI dummy	Dummy variable that takes a value of 1 starting from the year the IFI was established, and 0 otherwise	IMF, OECD database
IMF Fiscal Rules Index	Sum of the expenditure, revenue, balanced budget, and debt rules in place, either national or supranational, defined as dummy-type variables. The index takes values from 0 (minimum) to 4 (maximum), higher values being associated with a higher number of rules in place	Own calculations based on IMF data
Public disclosure; Resources; Access to information; Comply or explain principle; Independence; Breadth of IFI tasks; Media visibility; Overall index	See Table 3 for details	Own calculations based on the survey of Network of EU IFIs members in spring 2022
Electoral cycle	Dummy variable of the political cycle, which takes the value 1 in the year of elections and 0 otherwise	Own calculations

			based on Armingeon et al. (2022)
GDP per capita growth	Gross domestic product at market prices – chain-linked volumes, percentage change on previous period, per capita		Eurostat
The ratio of gross debt to GDP	General government consolidated gross debt as a percentage of GDP		Eurostat
Inflation	Harmonised Index of Consumer Prices (HICP) – Annual average rate of change		Eurostat
Unemployment	Total unemployment rates from 15 to 64 years – percentage of the labour force		Eurostat

Table 3. Index of variables of interest – Seven proxies for institutional aspects and the overall index of institutional aspects

Index variables	Minimum standards (*Network of EU IFIs, 2022a*; *Barnes, 2022*) or other aspects	Items from the questionnaire	Expected impact on the overall compliance index, compliance with expenditure rule, expenditure-rule compliance gap
Public disclosure *pub_discl*	A mandate to address government and parliament and disclose reports and recommendations	Has your IFI been invited or requested to attend parliamentary hearings? *Score: No 0; Yes invited 1; Yes requested 2; Yes & yes both 3*	+
		Does your IFI schedule calls/meetings with the European Commission and other international organisations on the assessments of IFIs? *Score: Don't know not applicable 0; Yes occasionally 1; Yes regularly 2*	
		Does your IFI schedule calls/meetings with the national ministries of finance on the reports of IFIs? *Score: Don't know not applicable 0; Yes occasionally 1; Yes regularly 2*	
Resources *res_man*	Sufficient level of resources and management flexibility	Insufficient financial resources. *Score: Not 3; Minor 2; Moderate 1; Significant 0*	+
		Insufficient human resources. *Score: Not 4; Minor 3; Moderate 2; Challenge 1; Significant 0*	
		Lack of expertise. *Score: Not 4; Minor 3; Moderate 2; Challenge 1; Significant 0*	
		Lack of qualified staff. *Score: Not 4; Minor 3; Moderate 2; Challenge 1; Significant 0*	
		What is the annual budget of your IFI? *Dummy: takes a value of 1 if the budget-to-GDP per capita value is greater or equal to the median of the sample, and 0 otherwise*	
		Does your IFI have a multi-annual funding commitment? *Score: No 0; Yes but not secure 1; Yes secure 2*	
		What is the average gross monthly remuneration of secretariat staff at your IFI? *Dummy: takes a value of 1 if the proportion of average staff wages in the average national wage is greater than or equal to the median of the sample, and 0 otherwise*	

		Are board members of your IFI remunerated? *Score: No 0; Yes leader chair 1; Yes leader chair and council members, Yes 2*	
Access to information *info*	Good and timely access to information	Does your IFI have a legislated access to information? *Score: No 0; Yes with specific procedures 1; Yes broad power 2*	+
		Does your IFI have a memorandum of understanding or other non-legislated agreement to exchange information? *Dummy: No 0; Yes 1*	
		Does your IFI have a legislated enforcement or grievance mechanism if requests for information are not fulfilled? *Score: No 0; Yes other 1; Yes legislated 2*	
		Does your IFI face challenges when it comes to the provision of an assessment of official macroeconomic and fiscal forecasts and its effective communication to national governments and the general public? *Dummy: No 1; Yes 0*	
		Delayed provision of information by the government. *Score: Not 4; Minor 3; Moderate 2; Challenge 1; Significant 0*	
		Incomplete or unreliable information by the government. *Score: Not 4; Minor 3; Moderate 2; Challenge 1; Significant 0*	
Comply or explain principle *comply*	Effective implementation of the comply or explain principle	Can your IFI exercise the Comply or Explain Principle? *Dummy: No 0; Yes 1*	
		If yes, has your IFI exercise the comply or explain principle already? *Dummy: No 0; Yes 1*	
		The government always complied or explained. *Dummy: No 0; Yes 1*	
Independence *Pol_pres*	Sufficient safeguards against political pressures/ independence	Can your IFI set the budget by itself? *Dummy: No 0; Yes 1*	+
		Is the government/administration involved in board member election/appointment? *Dummy: No/don't know 1; Yes 0*	
		Can your IFI set the remuneration of the secretariat staff by itself? *Dummy: No 0; Yes 1*	
Breadth of IFI tasks *tasks*	Extended tasks and instruments	Macro forecasts. *Score: No 0; Assesses 1; Endorses 2; Produces 3*	+
		Short-term (t+1) budgetary forecasts *Score: No 0; Assesses 1; Endorses 2*	
Media visibility *media*	Effective communication in order to improve fiscal transparency and accountability	Does your IFI have a communication policy (how the IFI and staff will engage with media requests, interact on social media, etc.)? *Score: No 0; Yes 1; Yes internal 2; Yes internal but ad hoc 3; Yes published 4*	+
		Does your IFI have a dedicated communication staff or agency? *Dummy: No 0; Yes 1*	
		Does your IFI staff (i.e., board members or technical) appear on TV/radio/podcasts/newspapers, etc.? *Dummy: No 0; Yes 1*	
Overall index *total*	Sum of all seven sub-indices	Score	+

4.3 Empirical strategy

The regression equation models compliance with fiscal rules as a function of IFI characteristics, fiscal rules and control variables with country fixed effects and year dummies:

$$FR\_comp_{j,t} = \beta_1 \times IFI_{j,t} + \beta_2 \times FR_{j,t} + \beta_3 \times X_{j,t} + \delta_j + \gamma_t + \varepsilon_{j,t} \ (1)$$

where *IFI$_{j,t}$ is our variable of interest* for country j in year t, *FR$_{j,t}$ is the fiscal rules index* of country j in year t. We compute the fiscal rules index using the Fiscal Rules Dataset from the IMF, comprising information on the expenditure, revenue, balanced budget and debt rules in place, either nationally or supranationally, defined as dummy-type variables. We sum all these variables to get the fiscal rules index, taking values from 0 (minimum) to 4 (maximum), with higher values indicating a greater number of fiscal rules in place. $X_{j,t}$ is a (k×1) vector of *country-specific control variables* used in the literature, that is, *GDP per capita growth[15], the ratio of gross debt to GDP, inflation, and unemployment*. δ_j and γ_t are cross-sectional and time fixed effects, and $\varepsilon_{j,t}$ is the idiosyncratic error term.

Another control variable used is the *electoral cycle (elect),* a dummy variable of the political cycle that takes a value of 1 in the year of elections and 0 otherwise. In some economies there is a historical pattern where deficits are raised before and after the general elections, creating political business cycles (Malley et al., 2007; Pulatov and Hassan Ahmad, 2021). Thus, we assume that compliance may be weaker in the year of elections.

Furthermore, we extend the model to assess the interaction between IFIs and fiscal rules.

$$FR\_comp_{j,t} = \beta_1 \times IFI_{j,t} + \beta_2 \times FR_{j,t} + \beta_3 \times IFI_{j,t} \times FR_{j,t} + \beta_4 \times X_{j,t} + \delta_j + \gamma_t + \varepsilon_{j,t} \ (2)$$

Following Căpraru et al. (2022)[16], we also construct two dummy variables based on fiscal rules, namely, *FR_Low*, which takes a value of 1 if the fiscal rules index is lower than the median of the sample, and 0 otherwise, and *FR_High*, which takes a value of 1 if the fiscal rules index is greater than or equal to the median of the sample, and 0 otherwise, and interact them with IFI j at time t (equation 3). This approach enables us to examine whether compliance with SGP fiscal rules differs when there is a higher number of national or supranational rules in place, compared with when there are fewer rules.

$$FR\_comp_{j,t} = \beta_1 \times IFI_{j,t} + \beta_2 \times FR\ Low/High_{j,t} + \beta_3 \times IFI_{j,t} \times FR\ Low/High_{j,t} + \beta_4 \times X_{j,t} + \delta_j + \gamma_t + \varepsilon_{j,t} \ (3)$$

As the main estimation method, we employ the fixed effects estimator. We use robust standard errors to correct for any form of heteroskedasticity and autocorrelation in the residuals.

Because the lagged dependent variable is, by construction, endogenous, we apply as robustness checks the bias-corrected least-squares dummy variable (LSDVC) estimator that outperforms the IV-GMM estimators in small samples in terms of bias and root mean squared error (Bruno, 2005). We initialise the LSDVC with the Blundell-Bond estimator (for details, see Blundell and Bond, 1998) to make the bias correction possible. LSDVC by construction uses cross-sectional fixed effects. The inclusion of fixed effects controls for omitted variable bias (e.g. on fiscal preferences, see Krogstrup and Wälti, 2008; Debrun and Kumar, 2009), which may be a cause of potential endogeneity.

The regression equation becomes:

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[15] We also used GDP growth and the results were similar.

[16] The method of obtaining the dummy variable follows Correa et al. (2022).

$$FR\_comp_{j,t} = \beta_1 \times IFI_{j,t} + \beta_2 \times FR\ Low/High_{j,t} + \beta_3 \times IFI_{j,t} \times FR\ Low/High_{j,t} + FR\_comp_{j,t-1} + \beta_4 \times \boldsymbol{X_{j,t}} + \delta_j + \gamma_t + \varepsilon_{j,t}\ (4)$$

Also, there may be predetermined fixed rules driven by consolidation pressures, which give rise to simultaneity bias (Iara and Wolff, 2014; Debrun and Kumar, 2008). Changes in fiscal governance prior to both the global financial crisis and the sovereign debt crisis were in general unconnected with these pressures[17]. The first reform, which entered into force in 2005 and introduced the cyclically-adjusted budget balance, was triggered by the fact that during economic downturns (like the aftermath of the ICT bubble at the beginning of the 2000s), government budget balances would deteriorate even without discretionary interventions on the part of governments. The update of the SGP legislation with new rules in 2011 through the six-pack reform, after the global financial crisis, was done because compliance with the deficit rule (in nominal or structural terms) had not prevented the emergence of dangerous imbalances, resulting in dramatic increases in government debt (Larch et al., 2023). Thus, the changes in the fiscal governance framework were not determined exclusively by pressures stemming from noncompliance with existing rules, the endogeneity issue being diminished.

In addition, we assume no simultaneity bias between degrees of compliance with fiscal rules and the fiscal rules per se, the establishment or the characteristics of IFIs, due to the existence of the usual adoption lags for political reforms (see Iara and Wolff, 2014). Even if many European IFIs were set up in the aftermath of the global financial crisis and sovereign debt crisis, the moment of establishment of such institutions differs over time and across EU countries and their institutional model and characteristics are heterogeneous. That said, we believe that simultaneity bias cannot be an issue in our case, for fiscal rules or IFI variables in relation to the degree of compliance with fiscal rules.

4.4 Further analysis of expenditure rules

In the economic governance reforms of the EU, the fiscal trajectory will be operationalised by a net expenditure path. The net expenditure path should be measured using a similar approach to the existing expenditure benchmark[18]. The key difference is that it is designed to meet the debt adjustment path, rather than an objective related to the structural balance[19].

Marinheiro (2021) expresses concerns about the use of this indicator in the current fiscal framework. According to the aforementioned paper, the expenditure benchmark is a complex indicator that may not be suitable for IFIs to use at the national level, as it relies on European Commission data and judgements that are not available in real-time. Thus, he advocates for more transparency and a simplification of the indicator to reduce reliance on non-observable variables. Wyplosz (2023) argues that the imperfections of the expenditure benchmark are deeper than those of the cyclically-adjusted budget balance. In his opinion, it is always a bad idea to mix up technical analysis, like debt sustainability and cyclical adjustment, with normative targets, like expenditure benchmarks. Conversely, Kamps and Leiner-Killinger (2019) consider that introduction, under the preventive arm in 2011, of the expenditure rule was a first step to resolving shortcomings of the original SGP. In their view, it is less procyclical than the structural balance and easier to monitor ex post than changes in the structural balance, which are subject to frequent ex-post revisions. Even if the expenditure rule also relies on the unobservable potential output, revisions to the expenditure benchmark tend to be much smaller than for

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[17] For a description of the evolution of EU-level fiscal rules, see Larch et al. (2023).

[18] The expenditure benchmark is a rule according to which the growth rate of net primary government spending should be at or below the country's medium-term potential GDP growth rate, depending on the country's position in relation to its medium-term budgetary objective. The expenditure benchmark was introduced as part of the 2011 reforms (the six pack).

[19] For an extensive debate on operational fiscal rules and the expenditure benchmark, see Marinheiro (2021), Wyplosz (2023) and Larch and Malzubris (2023).

the structural balance (see Kamps et al., 2014). On this theme, Larch and Malzubris (2023) underline a number of important advantages of an expenditure benchmark. Among them, they highlight that the expenditure benchmark evades the procyclical drift of rules centred on the budget balance or debt.

Regarding the role of IFIs on compliance with the expenditure rule of the SGP, Beetsma et al. (2019) demonstrate that the presence of an IFI improves rule compliance for national expenditure rules. Căpraru et al. (2022) find that for 2000-2019 in EU countries with well-designed fiscal rules, IFIs enhance compliance with the expenditure rule as defined in the SGP.

In order to check if the institutional features of IFIs might be positively associated with **compliance with the expenditure rule,** we use alternatively as an IFI effectiveness proxy: a compliance with expenditure-rule dummy and an expenditure-rule compliance gap from the European Fiscal Board database (Larch et al., 2023). The *compliance with expenditure-rule dummy* is a variable that takes the value 1 to signal compliance with the rule and takes the value 0 to signal noncompliance. The *expenditure-rule compliance gap* is a numerical indicator that measures deviation from the definition of compliance as a percentage of GDP. A positive (negative) sign indicates that the annual rate of growth of net government expenditure is below (above) the medium-term potential output growth minus the convergence margin. Thus, a negative 'compliance gap' shows that a country is noncompliant with the expenditure rule at time t and vice versa.

$$Exp\_rule/Exp\_rule\_gap_{j,t} = \beta_1 \times IFI_{j,t} + \beta_2 \times FR\ Low/High_{\ j,t} + \beta_3 \times IFI_{j,t} \times FR\ Low/High_{\ j,t} + \beta_4 \times \boldsymbol{X_{j,t}} + \delta_j + \gamma_t + \varepsilon_{j,t}\ (5)$$

4.5 Results and discussion

Table 4 provides preliminary results concerning the relationship between compliance with fiscal rules and independent fiscal institutions. In the first specification (1), where there is no interaction between fiscal rules (fr_imf) and an IFI exists there (IFI_Y), the relationship between IFIs and compliance with fiscal rules (FR_COMP) is positive but not statistically significant. The results, concerning the relationship between IFIs and compliance with fiscal rules, remain unchanged even when we introduce the control variable of election years (ELECT) (specification 2).

When an interaction is introduced into our model between the existence of an IFI and rules, we observe a positive and statistically significant relationship between the existence of an IFI and compliance with fiscal rules (specifications 3 and 4). The FR_IMF index remains statistically insignificant in all specifications. As far as the interaction between the FR_IMF index and IFI_Y is considered, it is statistically significant at the 5% significance threshold. The negative sign could point to the possibility that the capacity of IFIs to enable overall compliance depends on the ability of the rule to be binding (Beetsma et al., 2019). Furthermore, the control variable that implies a general election year (ELECT) is statistically significant and negatively related to compliance with fiscal rules. This result may be linked to the political business cycle theory, which suggests that politically driven fiscal expansions do occur during election years. Thus, it is more difficult for a government to comply with numerical fiscal rules during years of general elections.

We continue more granularly, deeming as variables of interest the seven indices that represent the various institutional features of IFIs. As discussed above, we constructed two dummy variables based on the number of fiscal rules, namely, FR_Low, where a low number of fiscal rules exist, and FR_High, where a high number of fiscal rules exist.

When the FR_High variable is introduced into the model (Table 5), we find a positive relationship with compliance with fiscal rules and a statistical significance for most of the institutional characteristics we examined. More specifically, we use various methods of estimation, including public disclosure, adequacy of resources, the comply or explain principle, good and timely access to information, a high degree of independence, a breadth of IFI tasks and high level of media visibility as variables of interest. This is done as

these indicators are related with higher compliance with fiscal rules, with the exception of the comply or explain principle. The results are similar when FR_Low is introduced into the model, where statistical significance only occurs for the indicator for good and timely access to information (see Table 6).

The lack of statistical significance of the comply or explain principle variable can have several explanations. Even if this principle is applied in most EU countries, there is heterogeneity in the way it is applied. Varying from country to country, it covers one or more of the following: compliance with some of SGP's fiscal rules (only in a few countries and not altogether), macroeconomic and fiscal forecasts, stability programmes, compliance with domestic fiscal rules, assessment of one-offs, etc. Hence, the comply or explain principle can extend to various aspects of the budgetary cycle, such as information issues and the adequacy of statistical production. There are also differences in who triggers it: IFIs, parliaments, ministries of finance, etc. Another explanation comes through the fact that some IFIs, being very young, have a short history in applying it. Thus, it is not likely to have an effective impact on overall compliance with fiscal rules (SGP), because in many cases compliance with them is not subject to application of this principle or is only partially so (only for some of the four rules).

Our results support the proposal of the EU Economic Governance Reform to generalise the application of this principle to all tasks undertaken by IFIs (including the monitoring of compliance with the EU's fiscal framework in accordance with the regulations), in order to be effective (see the proposal for a Council Regulation amending Regulation (EC) No 1467/97 0137 (CNS), Article 8(5)). The results are interesting when interacting a particular IFI characteristic with the number of rules. When the FR_High variable is introduced, the sign for individual characteristics and for the interaction between characteristics and fiscal rules turns negative. When FR_Low is used, the aforementioned signs are positive[20]. This is an interesting result which may imply that the interaction between the existence of fiscal rules and the operation of an IFI is efficient as long as the number of applied fiscal rules is moderate (not high). In this respect, a majority of the essential institutional features of IFIs, when the number of fiscal rules is low, remains significant and positively correlated with compliance with fiscal rules. In particular, the variables on public disclosure, a sufficient level of resources, a breadth of IFI tasks, media visibility and a high degree of independence were significant determinants of compliance with fiscal rules in an environment of fewer fiscal rules.

Furthermore, when the TOTAL index, concerning the sum of the seven institutional indices, is applied (Table 7) the results remain significant and positively correlated with compliance individually (specification 1) and when interacting with a low number of fiscal rules (specification 2). This reveals the beneficial effect of IFI features when a low number of numerical fiscal rules are in place and when interacting with them, those features complementing the lower number of rules. These results may imply that the higher the scores of the components of the overall IFI features index are, the stronger is the overall compliance index. As such, IFIs should be concerned with achieving higher scores on the features' indices, indicating stronger institutional features, even if some of them individually do not appear to have a significant impact on compliance, as per our research[21].

When introducing a high number of fiscal rules in interaction with the TOTAL index, the coefficient is negative (specification 1). In line with our results regarding individual characteristics, the impact of IFI features diminishes with a more complex fiscal framework (greater number of rules). This implication is highlighted in Mulas-Granados (2018) where an appropriate mix of rules and IFIs is needed. Barnes and Oliinyk (2021) consider that fiscal rules should not require countries to pursue unrealistic or undesirable policies. Our findings are also in line with those of Beetsma et al. (2019), showing that it is harder for IFIs to temper the optimistic forecasting bias when fiscal rules play a robust role in enhancing discipline. In the same vein, Ardanaz et al.

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[20] A negative sign is observed only in the 'Comply' variable but without statistical significance.

[21] These results resemble those of Căpraru et al. (2022) on alternative measures of effectiveness: different government budget balances and the compliance gap tracker of the European Fiscal Board.

(2021) demonstrate empirically that the flexible characteristics of fiscal rules can help safeguard public investment during periods of fiscal consolidation. Thus, when there are too many fiscal rules in place, the capacity of IFIs to influence overall compliance is weakened.

The TOTAL index individually (specification 1), when interacting with a high number of fiscal rules, is positive and statistically significant as far as compliance with fiscal rules is concerned. This result may imply that even if there is a high number of fiscal rules, the presence of important institutional characteristics of IFIs has a positive effect on overall compliance impacting through other channels and not through the interaction with fiscal rules.

The aforementioned results are in line with the perspective of changing the EU fiscal governance framework, to a more flexible, less procyclical and simpler one. This reinforces the idea that in the context of a more flexible and less complex EU fiscal governance framework, IFIs could lead to the improvement of fiscal outcomes/compliance with fiscal rules through their institutional features (especially when some minimum standards are guaranteed). Strengthened IFIs will achieve a better balance between flexibility and credibility (Caselli et al., 2022).

Furthermore, we focus on compliance solely with the expenditure rule (Exp_Rule_Comp) and the expenditure-rule compliance gap (Exp_Rule_Dev). Table 7, in specifications 3 and 4, shows that the TOTAL index is not statistically significant irrespective of the number of fiscal rules in place[22]. The interaction of the TOTAL variable with both a high and a low number of fiscal rules is also not statistically significant. However, when we run estimations with the expenditure-rule compliance gap (Exp_Rule_Dev), the results are similar to those obtained for the overall compliance index. When a regime with a high number of fiscal rules is in place (specification 5), the TOTAL variable alone is statistically significant and has a positive sign. This suggests the beneficial impact on the expenditure-rule compliance gap (Exp_Rule_Dev). As before, interacting with a high number of fiscal rules diminishes the impact of IFI characteristics. These results may show that IFI features do not ensure compliance with the expenditure rule per se but may improve the compliance gap. Overall, the *higher the scores of components of the overall IFI features index, the higher is the expenditure-rule compliance gap. Therefore, IFIs and their governments should aim to score highly in indices of IFI features.*

As far as other control variables are concerned, the ELECT variable implies a general election year. In almost all of our specifications, where compliance with all four fiscal rules is considered, the aforementioned variable has a negative sign and is statistically significant. This result may confirm the political business cycle theory (Malley et al., 2007; Pulatov and Hassan Ahmad, 2021), which implies that electoral uncertainty may exert pressure on governments to follow relatively short-sighted fiscal policies by conducting fiscal expansions and avoiding possible necessary fiscal consolidations, in order to win votes. Thus, during election years compliance with the fiscal rules may be more difficult.

Table 4. Baseline scenario

FR_COMP	(1)	(2)	(3)	(4)
	LS	LS	LS	LS
fr_imf	0.1718	0.1707	0.1925	0.1915
	(0.1432)	(0.1424)	(0.1414)	(0.1410)
IFI_Y	0.1543	0.1483	1.0754**	1.0758**
	(0.2161)	(0.2158)	(0.4612)	(0.4499)
ELECT		-0.2556**		-0.2566***
		(0.0641)		(0.0656)
FR_IMF*IFI_Y			-0.3317**	-0.3340**
			(0.1674)	(0.1633)
No obs	654	654	654	654

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[22] As a robustness check we use a logit panel estimator. The results are similar and available upon request.

R^2	0.48	0.49	0.48	0.49
No IFIs	30	30	30	30

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively. We use as a variable of interest the presence of an IFI (per se). Robust standard errors are referred to in parentheses. For the sake of brevity we present only the outcomes for our variables of interest and electoral cycle as control variables. The full findings are available from the author upon request.

Table 5. Estimations with variables of interest as indices of IFI features and the FR_High index

FR_COMP	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	LS	LS	LS	LS	LS	LS	LS	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC
FR_COMP(-1)								0.4924***	0.4985***	0.4931***	0.4944***	0.4775***	0.4750***	0.4919***
								(0.0386)	(0.0394)	(0.0387)	(0.0386)	(0.0324)	(0.0382)	(0.0474)
FR_High	0.4099**	0.2251	0.4249**	0.2941	0.2775	0.4253**	0.4015**	0.0663	0.0584	0.0885	0.0310	0.0178	0.1069	0.0181
	(0.1966)	(0.2287)	(0.1791)	(0.1936)	(0.2734)	(0.2158)	(0.1874)	(0.1505)	(0.1641)	(0.1529)	(0.1704)	(0.1695)	(0.1459)	(0.1456)
ELECT	-0.2355**	-0.2559***	-0.2385***	-0.2375***	-0.2544***	-0.2421***	-0.2155***	-0.1523**	-0.15376	-0.1545*	-0.1516*	-0.1725**	-0.1542*	-0.1388
	(0.0602)	(0.0649)	(0.0602)	(0.0609)	(0.0662)	(0.0596)	(0.0591)	(0.0829)	(0.0830)	(0.0826)	(0.0829)	(0.0867)	(0.0872)	(0.0926)
PUB_DISCL	0.1323**							0.1081**						
	(0.0531)							(0.0595)						
COMPLY		-0.1453							0.0811					
		(0.3921)							(0.2808)					
RES_MAN			0.0704***							0.0566*				
			(0.0225)							(0.0300)				
INFO				0.1048***							0.0645*			
				(0.0279)							(0.0358446)			
TASKS					0.2605***							0.1512*		
					(0.0797)							(0.0849)		
MEDIA						0.0772*							0.06135	
						(0.0423)							(0.0433)	
POL_PRES							0.6201***							0.3118
							(0.1501)							(0.2269)
FR_High *PUB_DISCL	-0.1284*							-0.1223**						
	(0.0723)							(0.0659)						
FR_High *COMPLY		0.0261							-0.1302					
		(0.3810)							(0.1704)					
FR_High *RES_MAN			-0.0773***							-0.0709**				
			(0.0279)							(0.0331)				
FR_High *INFO				-0.0537							-0.0589			
				(0.0361)							(0.0416)			
FR_High *TASKS					-0.2515**							(-0.1583)*		
					(0.1065)							(0.0908)		
FR_High *MEDIA						-0.1024**							-0.0776	
						(0.0508)							(0.0498)	
FR_High *POL_PRES							-0.5077***							-0.2909
							(0.1950)							(0.2292)
No obs	641	654	641	641	654	641	633	509	627	615	615	627	615	607
R²	0.5078	0.4907	0.5088	0.5120	0.4936	0.5069	0.5071							
No IFIs	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Panel regression with cross-sectional and time effects. Robust standard errors are referred to in parentheses (1-7). For a robustness test we run the bias-corrected least square dummy variable (LSDVC) dynamic panel estimator Bootstrapped standard errors based on 100 replications in parentheses (7-14). For the sake of brevity we present only the outcomes for our variables of interest and electoral cycle as control variables. The full findings are available from the author upon request.

Table 6. Estimations with variables of interest indices of IFI features and FR_Low index

FR_COMP	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	LS	LS	LS	LS	LS	LS	LS	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC
FR_COMP(-1)								0.4918***	0.4978***	0.4919***	0.4932***	0.4778***	0.4918***	0.4907***
								(0.0396)	(0.0404)	(0.039)	(0.0395)	(0.0324)	(0.0392)	(0.0472)
FR_Low	-0.4097**	-0.2246	-0.4244	-0.2941	-0.2778	-0.4252**	-0.4014	-0.0662	-0.0583	-0.0877	-0.0291	-0.0154	-0.0629	-0.0178
	(0.1964)	(0.2286)	(0.1790)	(0.1936)	(0.2737)	(0.2156)	0.1874	(0.1497)	(0.1667)	(0.1537)	(0.1718)	(0.1686)	(0.1553)	(0.1494)
ELECT	-0.2351***	-0.2551***	-0.2380***	-0.2373***	-0.2539***	-0.2416***	-0.2154***	-0.1530*	-0.1545	-0.1552*	-0.1525*	-0.1731**	-0.1576*	-0.1396
	(0.0600)	(0.0648)	(0.06)	(0.0607)	(0.0661)	(0.0595)	0.0589	(0.0830)	(0.0831)	(0.0827)	(0.0830)	(0.0884)	(0.0826)	(0.0932)
PUB_DISCL	0.0034							-0.0138						
	(0.0519)							(0.02723)						
COMPLY		-0.1199							0.0902					
		(0.0882)							(0.2959)					
RES_MAN			-0.0069							-0.0142				
			(0.0194)							(0.0115)				
INFO				0.0510*							0.0061			
				(0.0306)							(0.0255)			
TASKS					0.0075							-0.0072		
					(0.0949)							(0.0513)		
MEDIA						-0.0258							-0.0164	
						(0.0476)							(0.0328)	
POL_PRES							0.1121							0.0222
							0.0870							(0.0768)
FR_Low *PUB_DISCL	0.1286*							0.1225*						
	(0.0724)							(0.0649)						
FR_Low *COMPLY		-0.0246							-0.1341					
		(0.3808)							(0.1757)					
FR_Low *RES_MAN			0.0773***							0.0709*				
			(0.0279)							(0.0328)				
FR_Low *INFO				0.0537							0.0588			
				(0.0361)							(0.0412)			
FR_Low *TASKS					0.2522**							0.1568*		
					(0.1069)							(0.0917)		
FR_Low *MEDIA						0.1027**							0.0774	
						(0.0508)							(0.0504)	
FR_Low *POL_PRES							0.5079***							0.29123
							0.1951							(0.2292)
No obs	640	653	640	640	653	640	632	508	626	614	614	626	614	606
R²	0.5077	0.4907	0.5088	0.5119	0.4935	0.5068	0.5070							
No IFIs	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively. Panel regression with cross-sectional and time effects. Robust standard errors are referred to in parentheses (1-7). For a robustness test we run the bias-corrected least square dummy variable (LSDVC) dynamic panel estimator Bootstrapped standard errors based on 100 replications in parentheses (7-14). For the sake of brevity we present only the outcomes for our variables of interest and electoral cycle as control variables. The full findings are available from the author upon request.

Table 7. Estimations with variables of interest as the overall index of IFI features (sum of all seven indices), the FR_High index and the FR_Low index

	(1)	(2)	(3)	(4)	(5)	(6)
	FR_Comp		Exp_Rule_Comp		Exp_Rule_Dev	
	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC
FR_Comp(-1)	0.4810***	0.4812***	0.2222***	0.2222***	0.1049***	0.1185***
	(0.0321)	(0.0324)	(0.0430)	(0.0431)	(0.0433)	(0.0421)
TOTAL	0.0161**	-0.0043	0.0035	-0.0020	0.0290*	0.0146
	(0.0078)	(0.0052)	(0.0038)	(0.0023)	(0.0171)	(0.0100)
ELECT	-0.1730**	-0.1735**	-0.0737**	-0.0738**	-0.2201	-0.2174
	(0.0865)	(0.0882)	(0.0364)	(0.0371)	(0.1568)	(0.1548)
FR_High	0.0628		0.0627		0.4714	
	(0.1866)		(0.0779)		(0.3466)	
FR_Low		-0.0611		-0.0628		-0.4543
		(0.1838)		(0.0791)		(0.3291)
FR_High*total	-0.0204**		-0.0055		-0.0427**	
	(0.0094)		(0.0040)		(0.0178)	
FR_Low*total		0.0204**		0.0055		0.0428**
		(0.0093)		(0.0041)		(0.0173)
No of obs	627	626	626	625	626	625
No IFIs	30	30	30	30	30	30

Notes: ***, ** and * denote statistical significance at the 1%, 5% and 10% level, respectively. The bias-corrected least square dummy variable (LSDVC) dynamic panel estimator Bootstrapped standard errors based on 100 replications in parentheses. For the sake of brevity, we present only the outcomes for our variables of interest and electoral cycle as control variables. The full findings are available from the author upon request.

5 Conclusions

This study has assessed the institutional aspects associated with the effectiveness of independent fiscal institutions in the EU, over the period 2000-2021. The analysis is based on data obtained through the survey of the Network of EU IFIs on key parameters that could define the effectiveness of an IFI, conducted in Spring 2022.

Among the main points we found after aggregating the responses received from the 30 IFIs in the 26 countries, we can highlight the following. The core tasks that most IFIs are mandated with are to assess compliance with EU fiscal rules, to endorse or produce macroeconomic forecasts and to endorse or assess budgetary forecasts. In particular, the assessment of medium-term budgetary forecasts should be developed further in line with discussions on the new EU fiscal framework. Most have the additional task of assessing one-off and/or discretionary measures, while a small percentage of IFIs do policy or proposal costings, which could be a task to develop further among IFIs. These are mostly mandated tasks. A small percentage of IFIs can also apply the "comply or explain" principle, but this could depend a lot on the institutional setting. Most IFIs have a communication policy, a communication strategy and can rely on a dedicated staff or agency. This could be developed further, since all IFIs should improve the effectiveness with which they convey their opinions. Most IFIs have regular meetings with the European commission and national ministries and almost all have a legislated access to information, but only a small percentage have an enforcement mechanism, which could be extended to all IFIs to ensure effective access to information. The main challenges faced by IFIs are insufficient human resources, delayed provision of information, incomplete or non-reliable information. These are areas for improvement that should be detailed among the minimum standards for IFIs that have been discussed recently.

The econometric section deals with the relationship between compliance with fiscal rules, the existence of Independent Fiscal Institutions (IFIs), and the specific institutional characteristics of IFIs that may enhance compliance with fiscal rules. It also considers how these relationships changed, based on the number of fiscal rules in place. Our findings can be concisely summarized as follows:

a) We find a positive and statistically significant relationship between the presence of IFIs and compliance with fiscal rules when there is an interaction between IFIs and the fiscal rules framework.

b) We obtain strong indications that particular institutional characteristics of IFIs such as public disclosure, an adequate level of resources, a good and timely access to information, a high independence level of the IFI, the breadth of IFIs' tasks and a high media visibility are related to higher compliance with fiscal rules. Our results are in line with previous literature on this topic (Debrun et al., 2012; Nerlich and Reuter, 2013; Debrun and Kinda, 2017; Debrun et al., 2017a; Căpraru et al., 2022; Beetsma et al., 2023a; Chrysanthakopoulos and Tagkalakis, 2023).

c) Our results show that IFIs could have the capacity to beneficially contribute to the compliance with European fiscal rules through the aforementioned institutional features. The higher the values of the components of the overall IFIs' features' index are, the higher is the overall compliance index and expenditure rule compliance gap. According to our research, IFIs should aim to achieve higher scores on the institutional features' index, even if some of them individually do not appear to have a significant impact on compliance. Therefore, it is essential for IFIs to focus on strengthening all institutional features and achieving a minimum set of institutional standards to effectively ensure higher compliance with fiscal rules.

d) Regarding the number of fiscal rules, when there are too many fiscal rules in place, the ability of IFIs to influence overall compliance and the expenditure rule compliance gap is weakened. Furthermore, our results demonstrate that the operation of an IFI limits the necessity of a large number of fiscal rules (or of a complex fiscal framework), as IFIs' features complement a small number of numerical fiscal rules. This outcome enforces the idea that in the perspective of a more flexible and less complex EU fiscal governance

framework, IFIs could have the capacity to effectively contribute to compliance with European fiscal rules by leveraging their institutional features and meeting certain minimum institutional standards.

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