

Numerical compliance with EU fiscal rules: The compliance database of the Secretariat of the European Fiscal Board

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Abstract

EU fiscal rules are meant to keep public finances on a sustainable path. This paper presents a new database that tracks numerical compliance with the four main rules of the Stability and Growth Pact. The database is updated annually and currently covers 1998 – 2019. Our assessment of numerical compliance abstracts from the many exceptions and elements of discretion allowed by the letter and the spirit of the law. It focuses on the main course of action implied by the rules. Overall, our database points to a mixed compliance record. On average – across countries, years and rules – budgetary policies of the EU Member States are compliant in just over half of the cases; differences across countries are stark and persistent. Compliance with the deficit and the debt rule is procyclical: It automatically improves during upturns fuelling a sense of safety, while rules implying a more stable course of action receive less attention. A reversal takes place during downturns. Weaker compliance is typically associated with higher average shortfalls from the rules and – as deviations accumulate over time – with a higher government debt-to-GDP ratio. Better compliance is positively correlated with the quality of governing institutions.

Disclaimer: The views expressed in this paper do not necessarily reflect the position of the European Commission.

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1. Introduction

Over the past several years, the secretariat of the European Fiscal Board has collected information on whether and how EU Member States have complied or deviated from the rules of the Stability and Growth (SGP). This paper offers an introduction to the database that collects the results of our meticulous work. It explains relevant concepts and definitions and discusses a number of key facts and trends.¹ The database focuses on numerical as opposed to legal compliance. Abstracting from legal interpretations or margins of discretion allowed by the letter or spirit of the law, it assesses whether in pure quantitative terms the relevant fiscal aggregates – the budget balance, the debt-to-GDP ratio or government expenditure – evolved within or outside the perimeters defined by the fiscal rules.

Compliance with the rules of the SGP is not an end in itself. It is meant to safeguard the smooth functioning of the Economic and Monetary Union (EMU) and to contribute to the overall stability of the euro area. The economic governance of the EMU combines two opposite models of macroeconomic policymaking. Monetary policy is delegated to a central institution, the European Central Bank (ECB), while fiscal policy remains in the hands of individual EU Member States. To avert cross-border spill-overs from national budgets as well as impediments to monetary policy making by the ECB, governments agreed to a set of fiscal rules, the SGP.² The agreement is rooted in the understanding that with an advanced degree of economic integration like the one achieved in the EU national governments cannot ignore the cross-border impact of their budgetary decisions, lest they jeopardise the functioning of the EMU.

When the SGP entered into force in the late 1990s, its implementation *de facto* revolved around one simple rule, the deficit rule: Member States are asked to attain sound medium-term budgetary position. If the budget balance of a country exceeds 3% of GDP it can be asked to implement budgetary corrections under the so-called excessive deficit procedure (EDP).

The SGP also requires Member States to keep gross government debt below 60% of GDP or to diminish the excess over the 60% of GDP reference value at a satisfactory pace. In practice, however, the debt rule did not play much of a role in the early days because average rates of nominal GDP growth of around 5% per year meant that countries complying with the deficit rule would also be in line with the debt rule. Complying with the deficit rule was a sufficient and necessary condition to comply with the Pact.

Successive reforms of the SGP added new rules and clarified existing ones. The first reform entered into force in 2005 introducing the cyclically-adjusted budget balance as the key reference for defining the course of budgetary policies in the EU Member States. The reform was triggered by events in November 2003, when the Council refused to follow the proposal of the Commission to step up the EDP for Germany and France. The stand-off reflected changing views on the relative importance of sustainability versus stabilisation in fiscal policymaking in the EMU. By formulating the deficit rule in nominal terms, the SGP mark I had given priority to the sustainability of public finances. It had turned a blind eye on the fact that during economic downturns, such as those triggered by the burst of the

¹ The database can be accessed via a dedicated web tool at: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/european-fiscal-board-efb/efb-compliance-tracker_en

² For a concise introduction to the Stability and Growth Pact see Larch and Jonung (2014)

ICT bubble at the beginning of the 2000s, government budget balances would deteriorate even without discretionary interventions on the part of governments. Hence, abiding by the deficit rules in a cyclical downturn implies pro-cyclical tightening. Shifting focus to the cyclically-adjusted budget balance, and later on to the structural budget balance, was meant to address the problem.³

The number of EU fiscal rules increased further in 2011 with the so-called six-pack reform. The post-2007 global economic and financial crisis had painfully revealed that compliance with the deficit rule, be it in nominal or structural terms, had not prevented a build-up of dangerous imbalances, which in the 2008-09 downturn gave rise to dramatic increases in government debt. With a view to overcoming the objective difficulties with assessing the cyclical position of an economy, most importantly in boom periods, the six-pack reform added the expenditure benchmark to the SGP. The benchmark essentially imposes a speed limit on government expenditure by using an estimate of the medium-term rate of potential output growth as an anchor, an estimate that is considered to be much more stable than the potential output gap estimate of a given year underpinning the structural budget balance.⁴

The six-pack reform also introduced an operational definition of the satisfactory pace of debt reduction of the debt rule. A more detailed and free-standing definition turned out to be necessary as, after decades of progressive decline, average rates of nominal GDP growth had reached levels where keeping the deficit below 3% of GDP was no longer sufficient to keep the government debt-to-GDP ratio on a downward path.

Overall, more than 20 years after inception, the SGP encompasses four distinct numerical rules: the deficit rule, the structural budget balance rule, the expenditure rule and the debt rule. While they all aim at keeping public finances on a sustainable path in the medium and long term, they can entail a different fiscal performance in the short term depending on the macro-financial context. Understanding patterns of compliance across rules and time in the EU Member State can shed light on their effectiveness and possible challenges.

The remainder of this paper is organised as follows. Section 2 describes the basic numerical constraints imposed by the EU fiscal rules and details the definitions of numerical compliance used for the purpose of our database. Section 3 presents a number of key facts and trends of compliance across Member States and time. Section 4 contrasts our compliance data with a number of key fiscal and macroeconomic variables so as to highlight some noteworthy correlations and relationships. Section 5 presents some basic regressions.

2. Defining numerical compliance: the main constraints imposed by the EU fiscal rules

The compliance database of the secretariat of the European Fiscal Board encompasses the four main rules of the SGP sketched out in the introduction. Its objective is to provide comparable information on the budgetary performance of the EU Member States vis-à-vis the main constraints implied by the commonly agreed rules. The emphasis is very much on ‘the main constraints’. SGP legislation and implementing documents define an intricate set of contingency provisions allowing for a

³ The cyclically-adjusted budget balance is the headline balance corrected for the influence of the economic cycle on government revenues and expenditure. The structural budget balance is the cyclically-adjusted budget balance net of one-off and other temporary measures.

⁴ See Larch and Turrini (2010) for a detailed discussion of the structural budget balance.

considerable degree of discretion around the basic constraints implied by each rule in both defining guidance and assessing outcomes.⁵ These provisions make a formal assessment of compliance an exceedingly challenging endeavour. Moreover, the European Fiscal Board is not tasked to judge the legal but the economic dimension of how EU rules are implemented. As a result, the focus of our database is on what we call numerical compliance, that is, an assessment of fiscal performance compared to a characterisation of the EU rules that captures their essence. Of note, our assessment is backward looking, based on actual data. We do not assess compliance in the planning process.

The definitions of numerical compliance underpinning our database are as follows:

- *Deficit rule:* A country is considered compliant if (i) the budget balance of the general government is equal or larger than -3% of GDP or, (ii) in case the -3% of GDP threshold is breached, the deviation remains small (maximum 0.5% of GDP) and limited to one year.
- *Debt rule:* A country is considered compliant if the debt-to-GDP ratio is below 60% of GDP or if the excess above 60% of GDP has been declining by 1/20 on average over the past three years.
- *Structural balance rule:* A country is considered compliant if the structural budget balance of the general government is at or above the medium-term objective (MTO) or, in case the MTO has not been reached yet, the annual improvement of the structural budget balance is equal or higher than 0.5% of GDP.
- *Expenditure rule:* A country is considered compliant if the annual rate of growth of primary government expenditure, net of discretionary revenue measures and one-offs, is at or below the ten-year average of the nominal rate of potential output growth minus the convergence margin necessary to ensure an adjustment of the structural budget deficit of the general government in line with the structural balance rule.

To be absolutely clear, the definitions listed above do not have an official, let alone legal status. They nevertheless represent an accurate description of the main features the EU fiscal rules as set out in primary and secondary EU legislation.

We use the definitions to compute two complementary indicators of compliance for each rule: a qualitative and a numerical one. The qualitative indicator is a simple binary variable, which takes the value 1 to signal compliance, that is, the actual fiscal performance of a given country in a given year is in line with our definition; it takes the value 0 to signal non-compliance.

The numerical indicator measures the deviation from the definition of compliance in percent of GDP. A positive value indicates an overachievement of the target or reference value implied by our definition of the rule; a negative value a shortfall:

- For the deficit rule, a positive (negative) sign means the budget balance is above (below) -3% of GDP.

⁵ For a complete description of existing rules and practice see latest edition of the Commission's vade mecum of the Stability and Growth Pact: https://ec.europa.eu/info/publications/vade-mecum-stability-and-growth-pact-2019-edition_en

- For the debt rule, for countries with a debt-to-GDP ratio above 60%, a positive (negative) sign means the actual debt-to-GDP ratio is below (above) the one required by the 1/20 debt-reduction rule. For countries with debt-to-GDP below 60% of GDP, the sign is positive and measures the distance to the 60% reference value.
- For the structural balance rule, a positive (negative) sign means that the country is above its Medium-Term Objective (MTO) or its structural fiscal effort is higher (lower) than the benchmark requirement of 0.5% of GDP.
- For the expenditure rule, a positive (negative) sign means that the annual rate of growth of net government expenditure is below (above) the medium-term potential output growth minus the convergence margin.

We calculate the qualitative and numerical indicators of compliance for all EU countries starting in 1998, the year after the two main regulations of the SGP entered into force: Regulation (EC) 1466/97 and Regulation (EC) 1467/97. The database is updated every year, as soon as the latest annual assessment cycle of EU fiscal surveillance is completed, normally in June. It currently covers 28 countries and 22 years, i.e. up to and including 2019.

For countries that joined the EU after the inception of the SGP and for rules introduced after 1997, part of our compliance scores are hypothetical but still of interest. They tell us how fiscal performance compared to the requirements of the SGP, and more importantly, whether compliance changed significantly ones a country joined the EU or a rule was introduced.

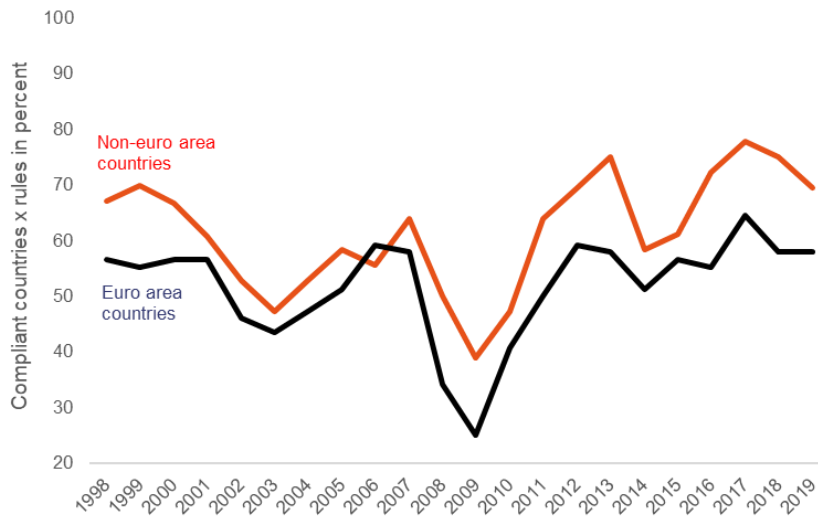
3. Main facts and trends

This section presents the main facts and trends of compliance. The analysis uses average rates across countries (i), time (t) and rules (r). Averages are calculated by summing up cases or degrees of compliance across the different dimensions, divided by the total number of cases. As an example, the average rate of compliance of country i (C_i) across all four fiscal rules r and all years t is obtained as:

$$C_i = \frac{\sum_t \sum_r C_{i,r,t}}{\sum_t \sum_r}$$

Since the entry into force of the SGP, the overall compliance record was slightly above 50% (Table 1). This means that on average (i) only every other country complied with all rules every year; or (ii) all countries complied with all rules every second year; or (iii) all countries complied with half of the rules every year. Our finding is broadly in line with the literature, which shows that compliance with national and supranational fiscal rules in the EU has been mixed at best. Reuter (2019) finds that average compliance with all rules – national and supranational – was around 50% in 1995-2014 and slightly higher – around 58% – for the EU rules. Using somewhat different definitions of EU fiscal rules and a narrower definition of compliance, Eyraud et al. (2017), and Gaspar and Amoglobeli (2019) conclude that, noncompliance has been the rule rather than the exception in the EU.

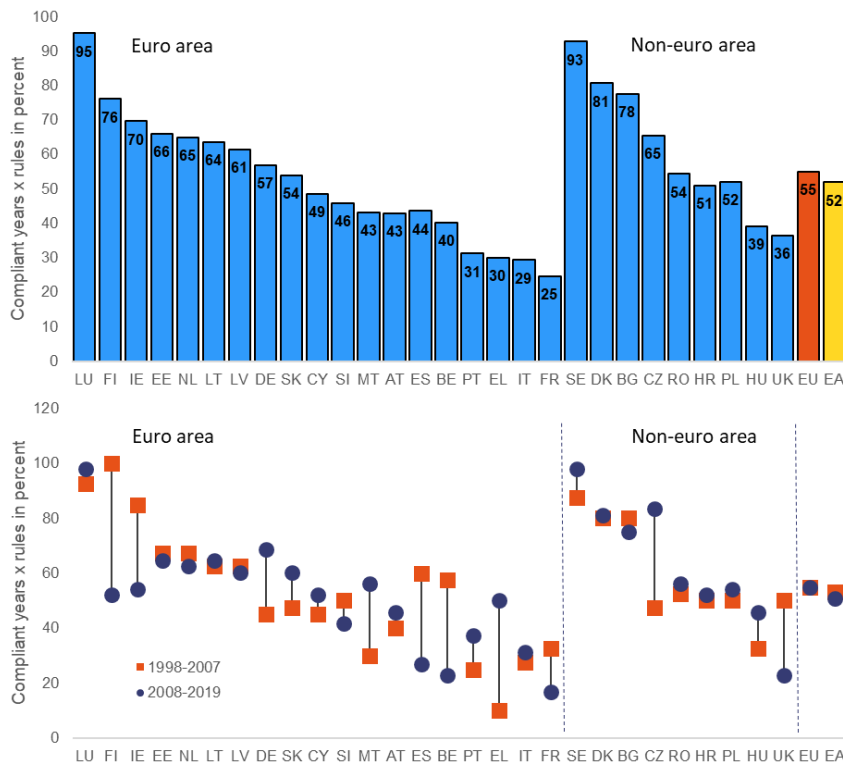
Graph 1: Average compliance with fiscal rules over time (1998-2019)



Source: European Commission, own calculations

The overall compliance score in our database masks stark cross-country differences (Graph 2). It ranges from 2/3 or more in Luxembourg, Sweden, Denmark, Bulgaria, Finland, Ireland and Estonia, to 1/3 or less in Portugal, Greece, Italy and France. The difference between euro and non-euro area countries is limited but statistically significant; i.e. euro area countries have a slightly lower compliance score.

Graph 2: Average compliance with fiscal rules across countries (1998-2019)



Source: European Commission, own calculations

Lower average compliance tends to go along with higher levels of government debt-to-GDP ratios.⁶ Countries with very-high debt levels exhibit an average compliance score of 42% as opposed to 70% of low-debt countries.⁷ This result is not surprising. Systematic shortfalls from the course of action implied by the deficit, structural balance or expenditure rules inevitably lead to an increase in government debt.

Turning to compliance over time, we notice a predictable and significant drop during the downturn triggered by the global economic and financial crisis (Graph1 and Table 1). Especially compliance with the two deficit rules – headline and structural – dropped significantly in the wake of the 2008-2009 recession, but staged a rebound to well above pre-crisis averages after 2011.

Of note, in the early years of our sample relatively few countries run fiscal policies consistent with the expenditure rule. The rule was only introduced with the 2011 reform of the SGP and calls for a more prudent course of action, especially during upturns or boom years, than the deficit and structural budget balance rules.

In line with expectations, compliance with the debt rule reacted with a considerable lag to the post-2008-2009 recession. Several countries entered the crisis with a debt-to-GDP ratio below 60% and it took a number of years before the constraint implied by the rule became binding. Compliance with the debt rule remained low in 2012-2019 also due to lower nominal economic growth.

Table 1: Average compliance with each fiscal rule

	1998-2019	1998-2007	2008-2011	2012-2019	
EU-28	Deficit rule	64%	67%	33%	77%
	Debt rule	69%	80%	59%	61%
	Structural balance rule	46%	43%	34%	56%
	Expenditure rule	40%	31%	40%	52%
	<i>Overall compliance</i>	55%	55%	42%	61%
EA-19	Deficit rule	65%	69%	32%	76%
	Debt rule	61%	73%	50%	53%
	Structural balance rule	43%	39%	32%	53%
	Expenditure benchmark rule	38%	31%	37%	48%
	<i>Overall compliance</i>	52%	53%	38%	58%
EA-12 (old)	Deficit rule	65%	73%	31%	72%
	Debt rule	49%	66%	29%	39%
	Structural balance rule	46%	45%	31%	55%
	Expenditure rule	40%	31%	35%	54%
	<i>Overall compliance</i>	50%	54%	32%	55%

Source: European Commission, own calculations

Graph 3 illustrates the evolution of average compliance for each of the four rules over time and highlights two additional and interlinked findings. First, compliance with the deficit and the debt rule

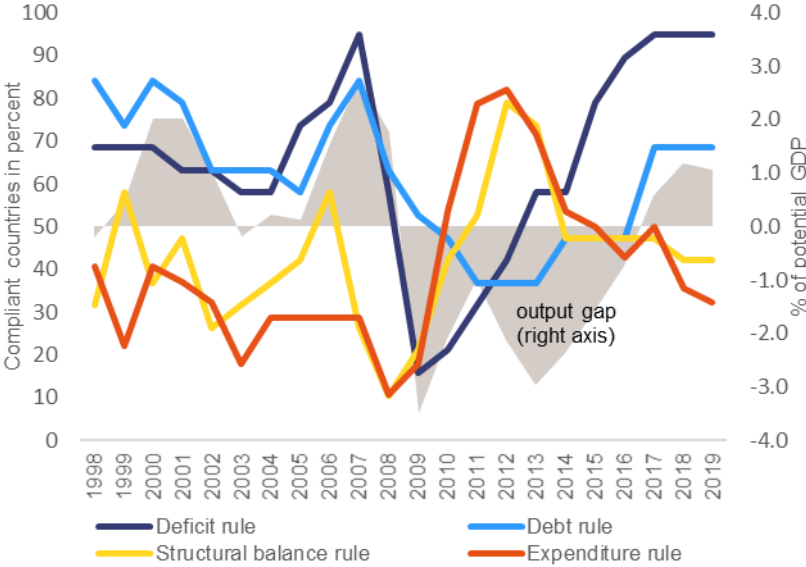
⁶ We classify countries in three group based on based on the average debt-to-GDP ratio in 2011-2019: Very high-debt countries = above 90% of GDP (i.e. BE, EI, EL, ES, FR, IT, CY, PT); High-debt countries = between 60% and 90% of GDP (i.e. DE, HR, HU, MT, NL, AT, SI, UK); Low-debt countries = below 60% (i.e. BG, CZ, DK, EE, LV, LT, LU, PL, RO, SK, FI, SE).

⁷ The difference between very-high debt and high debt countries – 48% vs 42% - is statistically not significant at conventional levels of confidence.

exhibits a clear pro-cyclical pattern. Headline budgets, and in turn debt-to-GDP ratios, automatically improve during upturns and worsen in downturns. The only period where compliance with the deficit rule improved despite a worsening of economic conditions was in 2011-2013 when most of the EU Member States were in EDP or under an economic adjustment programme and market pressure had increased significantly.

Second, average compliance with the structural balance rules and especially the expenditure rule was relatively poor before 2008. This result confirms a by now well-known insight: In the run-up to the 2008-2009 crisis, many EU countries did not make use of the economic good times to build up fiscal buffers. Low headline balances and declining debt-to-GDP ratios were interpreted as evidence of healthy public finances. Signals from other gauges were ignored. In 2007, the last year before the global economic and financial recession hit Europe, more than 80% of the EU Member States complied with the deficit and the debt rule of the SGP. Compliance with the structural budget balance rule was much lower and in very few countries net expenditure growth was aligned with the underlying rate of economic growth. A similar pattern emerged in the years before the covid-19 pandemic: compliance with rules that exhibit a cyclical pattern improved, while compliance with rules designed to cut through cyclical swings deteriorated.

Graph 3: Average compliance with each fiscal rule and output gap developments (Euro area, 1998-2019)



Source: European Commission, own calculations

On top of recording the rate of compliance, our database also looks at the degree by which a rule is over- or underachieved, what we call the deviation from the rule. Graph 4 shows the average deviation from the four fiscal rules of the SGP since 1998. The green line is the average deviation across compliant countries, the red line the average deviation across non-compliant countries.

During the first ten years of the SGP, shortfalls with respect to the deficit, structural balance and expenditure rule were sizeable. A more granular examination reveals that this result was largely determined by the group of very high and high-debt countries (see footnote 5 for the classification of countries). Conversely, deviations from the debt rule were limited in the early years thanks to the comparatively low levels of debt and high rates of nominal GDP growth.

Graph 4: Average deviations from each fiscal rule (compliant vs non-compliant cases)

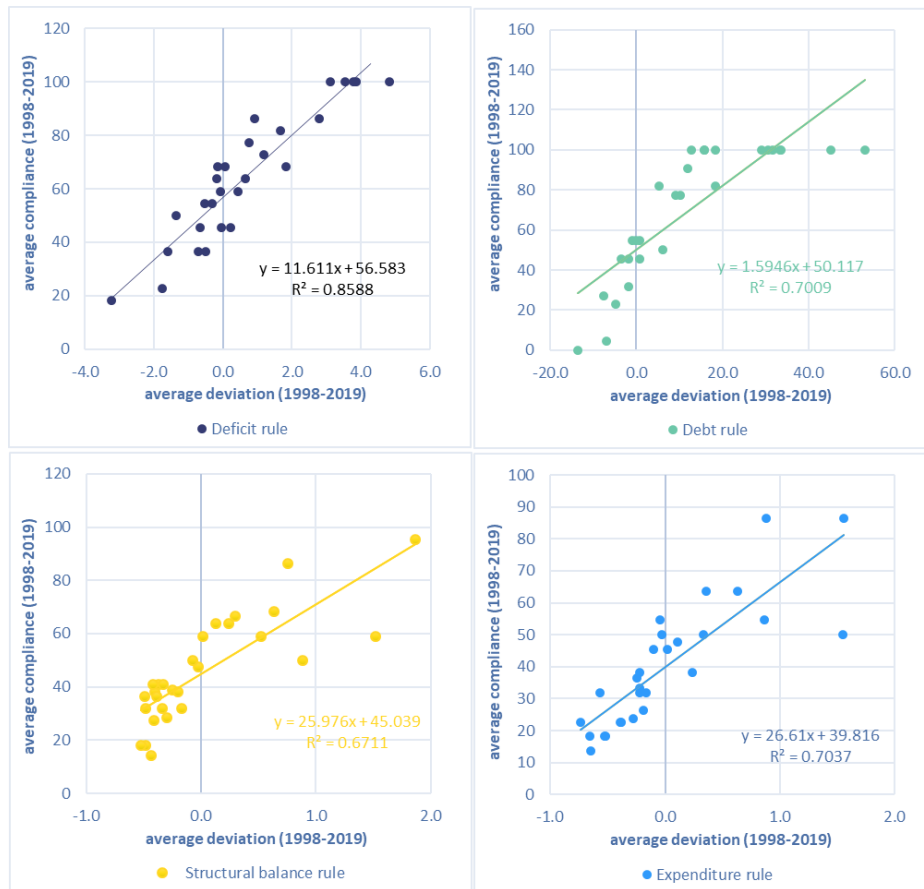


Source: European Commission, own calculations

In 2013-2016, when most of the EU Member States were in an excessive deficit procedure or under an economic adjustment programme, shortfalls with respect to the rules were considerably reduced. However, a closer look also reveals a convergence of negative deviations towards 0.5% of GDP, for both the structural budget balance and the expenditure rule. Since the six-pack reform of 2011, there is a margin of tolerance in the assessment of compliance with the structural budget balance and expenditure rule: A country is considered broadly compliant if the observed adjustment deviates by up to 0.5% of GDP in one year or in cumulative terms over two successive years. The fact that deviations convergence to 0.5% of GDP suggest the margin of broad compliance produced a ‘magnet’ effect in the sense that, on average, Member States tend to systematically exploit it.

Of note, Graph 5 shows a very clear positive correlation between the rate of compliance and the average deviation for each of the four fiscal rules considered. In other words, countries with a better compliance record tend on average to deviate less from the rules or overachieve more. By contrast, countries with a lower compliance score exhibit larger average deviations from the rules. While this may seem obvious, one could equally imagine a situation in which non-compliance happens by small margins. Our numerical indicators do not support this possibility.

Graph 5: Average compliance rates vs average deviation



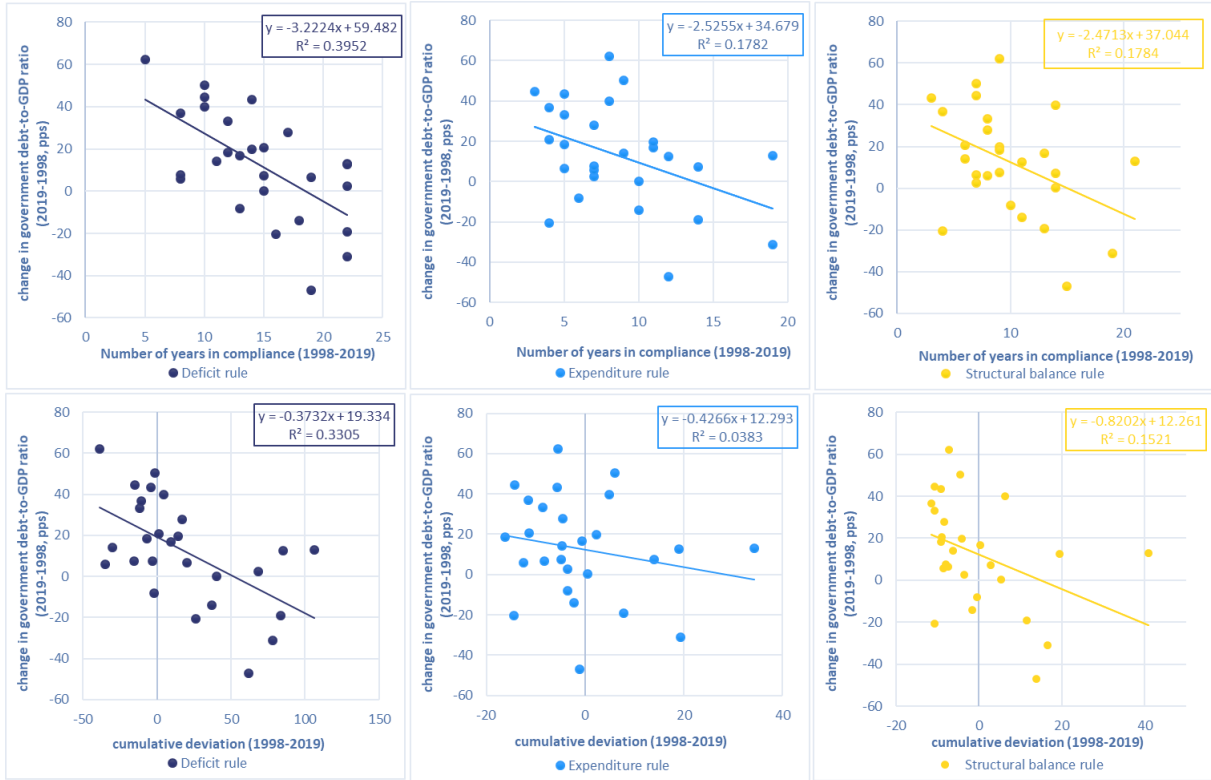
Source: European Commission, own calculations

4. Some relationships with macroeconomic and institutional variables

This section highlights some noteworthy links between numerical compliance on the one hand and a set of key macroeconomic and institutional variables on the other. To start with, Graph 6 plots, for each rule targeting budgetary aggregates (the deficit, structural balance and expenditure rule) the cumulative change in the debt-to-GDP ratio in 1998-2019 against (i) the number of years each Member State was in compliance with the rules, and (ii) the cumulative deviation from the rule.⁸ In line with the qualitative indications provided in the previous section, compliance turns out to be a good predictor of government debt dynamics. Countries with a lower compliance score and higher average deviations are clearly associated with a stronger increase in the debt-to-GDP ratio. Although not surprising, this association is of relevance because higher levels of debt are generally taken as indicators of fiscal space and/or sustainability.

⁸ The charts exclude Greece.

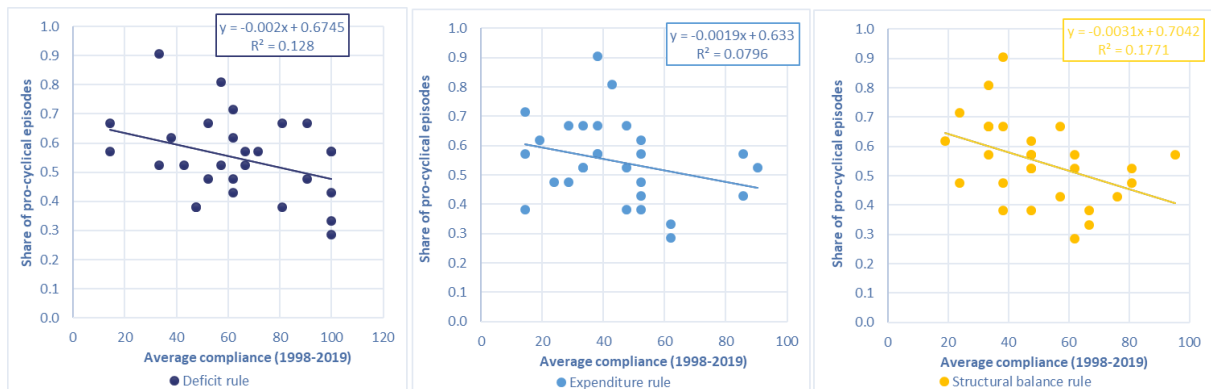
Graph 6: Debt accumulation and compliance with fiscal rules (1998- 2019)



Source: European Commission, own calculations

Graph 7 looks at the nexus between the compliance score and the number of pro-cyclical fiscal episodes recorded over the same period. In principle, fiscal policy should be counter-cyclical. In practice, however, pro-cyclicality is pervasive. Following established practice, we consider fiscal policy to be pro-cyclical if an improvement (deterioration) of the output gap is associated with a deterioration (improvement) of the structural primary budget balance.

Graph 7: Compliance score and pro-cyclical fiscal policy (1998-2019)

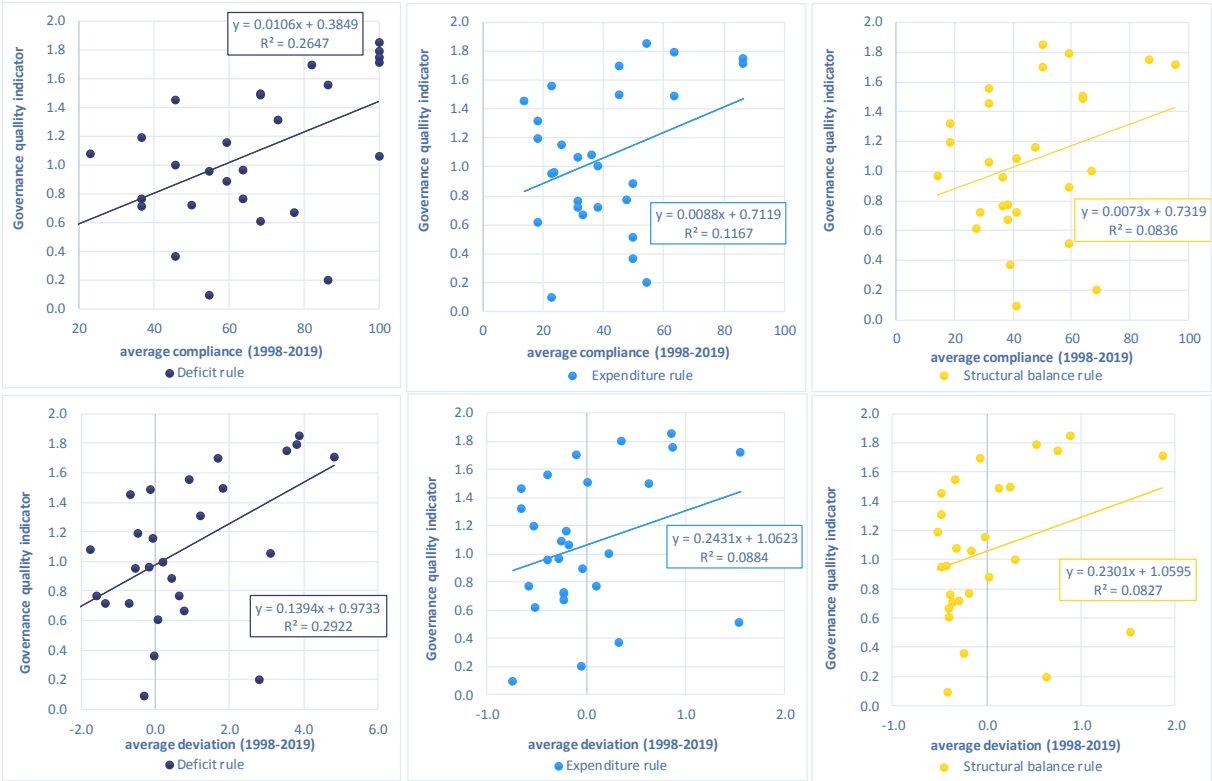


Source: European Commission, own calculations

It turns out that, better compliance with the rules targeting budgetary aggregates is on average associated with a lower number of pro-cyclical fiscal episodes. This finding should not come as a surprise. As indicated above in relation to Graph 6, better compliance with budgetary rules keeps the government debt ratio under control, which in turn is a rough but still important gauge of fiscal space. Hence, better compliance means more fiscal space to lean against cyclical swings.⁹

Compliance is arguably also a function of the quality of governance. To start with, our analysis shows that a higher compliance score tends to be associated with a longer tradition of independent national fiscal institutions.¹⁰ Countries where watchdogs were established before 2011, when the six-pack reform of the SGP introduced elements of independent scrutiny in the EU fiscal framework, show an average compliance score 20 percentage points higher than countries where watchdogs were established in 2011 or later. While the causality is not entirely clear, the presence of watchdogs is generally seen as a preference for fiscal probity and seems to be associated with a better compliance with rules (see Beetsma et al. 2018).

Graph 8: Quality of governing institutions and compliance with fiscal rules (1998-2019)



Source: European Commission, World Bank Group (WGI), own calculations

The more general role of governance for compliance is corroborated by Graph 8. The figures plot the average compliance score of each EU Member State against an indicator taken from the World Bank’s database of governance indicators (WGI). We use a composite indicator, which combines, as an average, the three WGI indicators which are expected to be more relevant for fiscal outcomes: the

⁹ For a more detailed econometric analysis of the link between EU fiscal rules and the stabilisation properties of budgetary policies in the EU, see Larch et al. (2020).

¹⁰ We classify countries into two groups based on the number of years since the establishment of a national independent fiscal body: well-established institutions - NL, SE, AT, BE, DK, EE, LT, LU; recently established institutions - IT, IE, SK, DE, EL, ES, FI, FR, HR, HU, LV, PT, RO, UK, MT, SI, CZ, CY, BG.

control over corruption, government effectiveness and quality of regulations.¹¹ Although the fit is fairly loose in the two-dimensional space, Graph 8 points to a clear positive relation between the overall quality of institutions and the average compliance with fiscal rules.

5. Some basic regressions

On top of looking at simple two-dimensional correlations, we also carry out a few basic panel regressions to control for several possible drivers of compliance at the same time. The aim of our exercise is not to derive robust findings in terms of causality, but to substantiate the correlations outlined in previous sections in a multivariate setting.

Table 2. Regression results (full sample)

	dependent variables (1998-2019)							
	compliant/non-compliant				size of deviation			
	deficit rule	debt rule	structural balance rule	expenditure benchmark rule	deficit rule	debt rule	structural balance rule	expenditure benchmark rule
market volatility index	-0.065*** (0.017)	0.076*** (0.019)	-0.061*** (0.016)	-0.058*** (0.017)	-0.071*** (0.019)	0.242*** (0.071)	-0.054*** (0.011)	-0.038*** (0.011)
Output gap	0.185*** (0.040)	-0.037 (0.046)	-0.157*** (0.034)	-0.306*** (0.041)	0.303*** (0.042)	1.390*** (0.160)	-0.095*** (0.026)	-0.152*** (0.026)
nominal GDP growth	0.062*** (0.019)	0.275*** (0.039)	0.016 (0.016)	0.063*** (0.019)	0.099*** (0.023)	0.391*** (0.087)	0.007 (0.013)	0.019 (0.013)
Quality of governance	1.015*** (0.202)	0.485** (0.189)	0.516*** (0.160)	0.756*** (0.170)	0.863 (0.845)	0.237 (3.209)	-0.072 (0.493)	-0.322 (0.487)
National fiscal rule index	0.779*** (0.124)	0.475*** (0.112)	0.001 (0.093)	0.130 (0.099)	0.683*** (0.139)	0.198 (0.529)	0.017 (0.081)	0.055 (0.080)
in EAP (dummy)							2.366*** (0.409)	3.434*** (0.404)
n. observations	567	567	567	567	567	566	567	567
effect specification	unstructured pool of observations	unstructured pool of observations	unstructured pool of observations	unstructured pool of observations	fixed effects	fixed effects	fixed effects	fixed effects
Method	ML - binary logit	ML - binary logit	ML - binary logit	ML - binary logit	Panel Least Squares	Panel Least Squares	Panel Least Squares	Panel Least Squares

Notes: (1) Standard errors are in parentheses. (2) * denotes significance at 10 percent level, ** denotes significance at 5 percent; *** denotes significance at 1 percent. (3) Regressions exclude Croatia due to lack of data. (4) Market volatility refers to the Cboe Volatility Index® (VIX® Index), which measures the market's expectation of future volatility conveyed by S&P 500 Index option prices. (5) The Quality of governance is a composite indicator, which combines, as an average, three WGI indicators: the control over corruption, government effectiveness and quality of regulations. (6) The National fiscal rule index is an indicator of the strength of domestic fiscal rules constructed by the Directorate General for Economic and Financial Affairs (DG ECFIN) using information on i) legal base, ii) binding character, iii) monitoring bodies, iv) correction mechanisms, and v) resilience to shocks.

Table 2 presents our regression results. Compliance scores and deviations from rules are regressed on a set of macroeconomic and institutional variables. We use a logit model for the compliance score and a linear regression model for numerical deviations. The results confirm and nuance the correlations highlighted in the previous sections:

- Compliance with the deficit rule is clearly pro-cyclical and affects compliance with the rules correcting for the cycle: improvements in headline figures are on average used to relax compliance with more stringent rules.
- Nominal GDP growth fosters compliance across all rules: it is easier to comply with fiscal rules when inflation and real GDP growth are higher.
- Major tensions in financial markets impact compliance: it is more difficult to respect rules targeting budgetary targets, inter alia because average interest rates on government debt increase and GDP growth declines. At the same time, compliance with the debt reduction rule improves as governments try control debt dynamics on the back of market pressure.

⁽¹¹⁾ <https://info.worldbank.org/governance/wgi/>

- The quality of governance matters: better governance improves the compliance rate; deviations also tend to decline for most rules, but results are statistically insignificant. .
- National fiscal rules and institutions have a positive impact on rules targeting headline figures: stronger frameworks increase the probability to comply with the deficit and debt rule, and to reduce deviations from the same rules.
- Macroeconomic adjustment programmes impart discipline: they markedly trim deviations from the structural balance and the expenditure rule, signalling correction in underlying budgetary positions.

References

- Beetsma, R., X. Debrun, X. Fang, Y. Kim, V. Lledó, S. Mbaye, and X. Zhang (2019), 'Independent fiscal councils: Recent trends and performance', *European Journal of Political Economy*, Vol. 57, pp. 53-69.
- Caselli, F. and P. Wingender (2018), 'Bunching at 3 Percent: The Maastricht Fiscal Criterion and Government Deficits', *IMF Working Paper 18/182*, International Monetary Fund, Washington, DC.
- Caselli, F., L. Eyraud, A.Hodge, F. Diaz Kalan, Y. Kim, V. Lledó, S. Mbaye, A. Popescu, W.H. Reuter, J. Reynaud, E. Ture, and P. Wingender (2018), 'Second-Generation Fiscal Rules: Balancing Simplicity, Flexibility, and Enforceability—Background Papers', International Monetary Fund, Washington, DC.
- Eyraud, L. and T. Wu (2015), 'Playing by the Rules: Reforming Fiscal Governance in Europe', *IMF Working Paper No 15/67*, International Monetary Fund, Washington, DC.
- Eyraud, L., V. Gaspar, and T. Poghosyan (2017), 'Fiscal Politics in the Euro Area', In *Fiscal Politics*, edited by V. Gaspar, S. Gupta, and C. Mulas-Granados, pp. 439–76, International Monetary Fund, Washington, DC.
- Gaspar V., and D. Amaglobeli (2019), 'Fiscal Rules', *SUERF Policy Note, No 60*, Société Universitaire Européenne de Recherches Financières, Vienna, Austria.
- Kaufmann, D., Kraay, A., and Mastruzzi, M., *The Worldwide Governance Indicators: Methodology and Analytical Issues* (September 2010). World Bank Policy Research Working Paper No. 5430.
- Larch, M. and A. Turrini (2010) *The Cyclically Adjusted Budget Balance in EU Fiscal Policymaking*, *Intereconomics*, Vol. 45, No. 1: 48–60.
- Larch, M. and L. Jonung (2014) *Stability and Growth Pact of the European Union*, the. In: Palgrave Macmillan (eds) *The New Palgrave Dictionary of Economics*. Palgrave Macmillan, London
- Larch, M., E. Orseau and W. van der Wielen (2020) *Do EU Fiscal Rules Support or Hinder Counter-Cyclical Fiscal Policy?*, *JRC Working Papers on Taxation and Structural Reforms No 01/2020*
- Reuter, W.H. (2019), *When and why do countries break their national fiscal rules?* *European Journal of Political Economy*, Vol. 57:125–141 .