

DETERMINANTS OF FISCAL RULES IMPLEMENTATION – AN EU CASE STUDY

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Abstract: *This paper examines the implications of EU treaties, EU accession and other significant variables on the implementation of fiscal rules by EU states at a national level, sample period being years 1994-2015. The four targeted rules are the Budget Balance Rule, Public Debt Rule, Public Expenditure Rule and Public Revenue Rule for general or central governments. Two were our established key hypothesis: first, the fact that EU treaties enhance fiscal discipline at a national level, and second, the fact that the fiscal integration process determined in this particular case by EU accession and the two Maastricht treaty rules has a positive impact too. Both variables exert a positive influence on the implementation of fiscal rules at a national level by EU member states. While levels of public revenues as ratio-to-GDP exert a positive influence on the implementation of the related rules, it also has a negative impact on the implementation of the expenditure rule. Enhancing fiscal discipline through external factors is not necessarily the best method, as it may not correlate with internal structures and aggregates. Nevertheless, our results indicate that treaties and the integration process do bring with themselves fiscal rules that enhance fiscal discipline, fiscal framework, and conduct to more solid public finances.*

Keywords: *fiscal integration; fiscal discipline; fiscal rules; European Union.*

JEL classification: *E61; E62; H60.*

1. Introduction

Fiscal discipline represents one of the most important subjects of today's economics. How it can be achieved, what is influenced by, what are the limitations and what are the advantages are questions that need answers. Now, more than ever, the fiscal discipline needs to be enhanced, especially after the recent crisis proved that governments are not even near the required solidity of public finances in order to be able to face new shocks and crises.

At the EU level, in the past 2 decades, fiscal discipline and fiscal integration have gained a lot of attention due to signed treaties and the larger European integration process. Even so, it is important to determine what are the key factors that drive EU members in assessing and implementing fiscal rules at a national level for their general or central governments.

Our goal for this article is to reveal which are the factors that determine EU states in implementing fiscal rules, especially those related to debt, deficits, and expenditure and revenue levels. Our sample is composed of the 28 EU member states, sample period being years 1994-2015. Results indicate strong positive

connections between enhancing fiscal governance through treaties and through the fiscal integration process. These results also suggest that the path taken by the EU in the last two decades related to enhancing fiscal discipline has mainly been a positive one and should continue in the next years. Also, our final results reveal that the crisis had a negative impact, due to the fact that states suspended implemented rules or the ongoing process due to fast increasing levels of deficits and debt. Other variable that we introduced in the analysis are public debt, deficit, expenditure and revenue levels as percentage of the GDP, number of countries that have a public deficit under 3% of their GDP, number of countries that have a governmental consolidated debt under 60% of their GDP and accession to EU membership.

2. Literature Review

The rise of public debt-to-GDP ratios and deficit levels across many of the EU member states has triggered a wide discussion on the determinants of the sustainability of public finances. As most papers suggest, achieving sound public finances is a goal that has at its disposal a clear weapon: fiscal discipline through fiscal rules.

In response to the recent economic and financial crisis, many EU countries have strengthened their fiscal governance frameworks by introducing fiscal rules, which have the role to constrain fiscal policies through numerical limits on fiscal aggregates, such as deficit and debt levels and their evolution (Nerlich and Reuter, 2015). One of the government's arguments for adopting fiscal rules is that the burden of public spending should fall fairly across generations (Emmerson et al., 2006). No government has the right to leave behind high deficit and debt levels, even in the case of crises and shocks. Instead, it has the duty to limit the effects of such negative situations and to prevent the appearance of excessive burden for future governments and generations.

There are two broad schools of thought concerning fiscal rules. The 'public choice' view states that budgets are important constraints on political actors that end to alter budget outcomes (Eliason and Lutz, 2015). In contrast, as same authors' state, the 'institutional irrelevance view' states that political actors systematically evade the intent of rules while adhering to their letter. As so, the rules are seen as nothing more than a 'veil' that can easily be removed by politicians. In our point of view, this statement is not always valid. For example, if there exists proper and independent implementing, enforcing and monitoring institutions this situation is highly improbable to happen.

Achieving fiscal discipline, in any country, but more in a monetary union, without a central fiscal authority, while crucial for its stability, is a challenging task (Hitaj and Onder, 2013). For example, in the case of the EU, and especially the case of the European Monetary Union, countries have become more and more bounded on all fronts. If one country faces a shock, there is a high chance that the shock becomes contagious. As so, it is extremely important to maintain sound public finances through fiscal discipline. In such a context, fiscal discipline can be promoted easily through fiscal rules, defined by Sucharita and Sethi (2011) as permanent constraints on fiscal policies expressed in terms of a summary of fiscal performance, such as budget deficits, debt levels or other key variables such as public expenditure and revenues. Fiscal discipline on the other hand, can be defined as the capacity of a government to maintain smooth financial operations and long-term fiscal health

(Hou, 2003). So, fiscal discipline is related to the concept of maintaining sound public finances. According to the same author, fiscal discipline targets three major processes: planning, budgeting and operating, and it implies estimations of expenditures and revenues, debt management, adopting counter-cyclical fiscal devices and maintaining structural balance.

The question of how much discipline is needed in a monetary union was proposed by know authors De Grauwe and Ji (2013). According to them, the nature of fiscal policies was changed dramatically by the creation of the Eurozone. Also, as same authors' state, and we agree with them, national governments of member countries of the union should be subjected to additional budgetary discipline and rules when compared with stand-alone countries. An important role in this regard can be attributed to the existence of a collective mechanism for mutual support and control, mechanism more probably to be found inside a political union. In the absence of such an organism, member states need to fill the necessary pieces of such a collective mechanism (De Grauwe, 2011).

The long run benefits of budget deficit and debt reduction have received extensive attention from economists and academia. As so, lower levels of public deficits and debt reduce real interest rates, increase investments, and thereby advantage productivity growth (Taylor, 1995). Given these facts, there seems to be no reason why states should not improve their fiscal discipline and set rules regarding debt and deficit levels. As Alesina and Perotti (1996) state, in theory, the benefits of numerical targets for insuring fiscal discipline are obvious. For example, a balanced-budget law, if enforced, eliminates persistent deficits induced by policy-makers and political distortions. Unfortunately, as same author states, there are two key problems that need to be solved. First, balanced budgets are not optimal, neither from the point of view of Keynesian stabilization policies and neither from optimal taxation theory. Second, numerical targets increase incentives for creative and non-transparent accounting (see von Hagen and Wolff, 2006). Also, tying government's hands may lead to an increase in the amplitude of business cycle (Fatás and Mihov, 2006).

Nevertheless, if the EU truly wants to become a fiscal union, even with problems as the one mentioned, it needs to enhance its public finances soundness. The logic behind this relies on the fact that in the absence of constraints, there is a bias towards excessive debt financing and more (Fuest and Peichl, 2012). No EU member for example will agree with the introduction of a fiscal equalisation mechanism without ensured sound public finances for all members. But, as Wyplosz (2012) stated, in order to achieve such a daring goal, rules need a specific function: to specify what is the acceptable behaviour. To be effective, rules must include sanctions that need to be applied in the event of non-compliance. These sanctions determine states look more in 'the neighbour garden' and see if it respects the rule (enhancing outside supervision).

Considering the papers and results presented so far, we establish for our article two main hypotheses:

H1: EU treaties such as the Maastricht Treaty, the SGP, SGP II and the Fiscal compact enhance fiscal discipline due to states introducing the rules in their own national legislation as constrains on policy-makers;

H2: the fiscal integration process had a positive impact, countries converging in introducing fiscal rules at a national level in order to maintain solid public finances and gain in fiscal discipline terms.

It is highly important to analyse the influence of such variables on the implementation of fiscal rules because the process becomes inefficient if for example, treaties are signed and not further implemented – thus the work done in bringing states together will have no results. It also allows us to see if the continuous fiscal integration that takes places in the EU has any impact on countries laws regarding fiscal policies.

3. Data

3.1. Sample composition

We used in our analysis data composed of 28 countries, meaning the member states of the European Union, the sample period being 1994-2015 (annual records). We used dummy variables such as member of the EU (1), non-member of the EU (0), member of EMU (1), non-member of EMU (0). We also quantified our key variables as dummy: implemented budget rule at a national level for the general or central government (1), non-implemented (0), implemented public debt rule at a national level for the general or central government (1), non-implemented (0), implemented public expenditure rule at a national level for the general or central government (1), non-implemented (0), implemented public revenues rule at a national level for the general or central government (1), non-implemented (0).

As dependent variables we used the specified rules: Budget Balance Rule (*BBR*), Public Debt rule (*PDR*), Public Expenditure Rule (*PER*) and Public Revenues Rule (*PRR*). Data was collected from the Fiscal Rules Database provided by the European Commission. Given the fact that the implementation of the specified fiscal rules depends also on the evolution of other macroeconomic variables, we introduced in our analysis variables such as Public Debt as % of the GDP (*PDGDP*), Public Deficits as % of the GDP (*DEFGDP*), Public Expenditure as % of the GDP (*PEGDP*), Public Revenues as % of the GDP (*PRGDP*), maintaining the public deficit under 3 % of the GDP (*PD3GDP*), maintaining the public debt under 60 % of the GDP (*PD60GDP*).

In order to capture the influence of the key treaties (*Treaties*) regarding fiscal policies, we gave each treaty a number from 1 to 4, in order to capture also the influence of the enforced discipline on states. As so, we gave value 1 for years 1994 to 1997 for the Maastricht Treaty, value 2 for years 1998-2004 for the Stability and Growth Pact, value 3 for the Stability and Growth Pact Reformed (years 2005-2012) and value 4 for the Fiscal Compact (years 2013-2015).

The variable Fiscal Integration Index (*FII*) was calculated by us by using a similar methodology as the one we used to quantify fiscal discipline (see Macsim and Oprea, 2016).

Table 1: Budget Balance Rule, Public Debt Rule, Public deficit as percentage of the GDP, Public Debt as percentage of the GDP and the Growth rate of the GDP

Country	Number of observations	BBR	PDR	DEFGDP	PDGDP	GDPGRR
Austria	22	0.772	0	-2.671	71.619	3.134
		0.428	0	1.491	8.059	1.854
Belgium	22	0.090	0	-2.076	105.785	3.137
		0.294	0	1.816	11.666	1.912

Country	Number of observations	BBR	PDR	DEFGDP	PDGDP	GDPGRR
Bulgaria	22	0.227 0.428	0.590 0.503	-1.252 3.146	37.778 26.074	7.858 11.855
Croatia	22	0 0	0.318 0.476	-4.486 1.607	55.085 19.523	4.905 5.650
Cyprus	22	0.136 0.351	0 0	-3.333 2.690	64.595 19.014	4.349 4.736
Czech Republic	22	0.045 0.213	0 0	-3.785 2.579	27.947 11.150	6.928 6.931
Denmark	22	1 0	0 0	0.171 2.785	42.162 6.810	3.238 2.369
Estonia	22	0.954 0.213	0.227 0.428	0.352 1.670	6.552 1.993	10.624 9.021
Finland	22	0.545 0.509	0.818 0.394	0.277 3.787	46.466 8.217	4.344 4.442
France	22	0.136 0.351	0 0	-3.718 1.568	70.852 13.575	2.975 1.861
Germany	22	1 0	0 0	-2.223 2.400	66.180 8.201	2.380 2.310
Greece	22	0.181 0.394	0 0	-7.928 2.890	122.866 31.040	2.812 6.157
Hungary	22	0.090 0.294	0.318 0.476	-5.247 2.271	67.828 10.151	6.015 7.040
Ireland	22	0.136 0.351	0.136 0.351	-3.342 8.295	61.014 33.594	8.569 9.316
Italy	22	0.090 0.294	0.090 0.294	-3.476 1.478	111.828 10.624	3.122 3.710
Latvia	22	0.136 0.351	0.136 0.351	-2.142 2.560	21.895 13.916	9.912 11.676
Lithuania	22	0.045 0.213	0.863 0.351	-3.314 3.198	24.633 10.281	10.933 10.919
Luxembourg	22	0.136 0.351	0.545 0.509	1.938 2.054	12.328 6.445	6.008 4.162
Malta	22	0.090 0.294	0.090 0.294	-4.538 2.342	61.709 10.309	5.890 3.322
Netherlands	22	0.090 0.294	0 0	-2.014 2.418	57.757 9.252	3.5098 2.706
Poland	22	0.136 0.351	0.863 0.351	-4.280 1.438	46.247 5.810	7.439 8.701
Portugal	22	0.636 0.492	0.136 0.351	-5.271 2.155	78.033 29.318	3.503 3.386
Romania	22	0.090 0.294	0.090 0.294	-3.347 2.224	22.761 10.140	9.528 11.204
Slovakia	22	0.090 0.294	0.181 0.394	-5.052 2.816	40.300 9.646	8.735 7.264
Slovenia	22	0.136 0.351	0.454 0.509	-3.838 3.276	35.566 19.963	4.477 3.998
Spain	22	0.636 0.492	0.181 0.394	-3.814 4.166	61.309 19.100	4.343 4.104
Sweden	22	0.727 0.455	0 0	-0.157 2.314	49.138 11.517	4.310 6.378

Country	Number of observations	BBR	PDR	DEFGDP	PDGDP	GDPGRR
United Kingdom	22	0.818 0.394	0.772 0.428	-4.068 3.173	55.647 19.906	5.126 8.239

First row is the *mean*. Second row is the *standard deviation* of the variable
Source: author calculations

Table No. 1 marks our part of descriptive statistics, the first row being the mean and the second row representing the standard deviation. A first look reveals us the fact that more developed countries register better values for the implementation of the budget balance rule. They also tend to register higher values regarding public debt (see for egg. Italy, Greece, Belgium). As assumed, lower developed countries register higher growth rates of their GDP, benefiting from foreign investments and EU funds for economic alignment.

What we find as being strange is the fact that some developed countries haven't implemented a public debt rule, although they don't register the best obtainable values for this specific macroeconomic variable.

3.2. Preliminary analysis

Table 2: The correlations between the Budget Balance Rule, Public Debt Rule, Public Deficit as percentage of the GDP, Public Debt as percentage of the GDP and the Growth Rate of the GDP

		BBR	PDR	DEFGDP	PDGDP	MEU
BBR	Pearson Correlation	1				
	Sig. (2-tailed)					
PDR	Pearson Correlation	0,135**	1			
	Sig. (2-tailed)	0,001				
DEFGDP	Pearson Correlation	0,198**	0,093*	1		
	Sig. (2-tailed)	0,000	0,024			
PDGDP	Pearson Correlation	0,070	-0,164**	-0,390**	1	
	Sig. (2-tailed)	0,095	0,000	0,000		
MEMUE	Pearson Correlation	0,312**	0,089*	0,114**	0,327**	1
	Sig. (2-tailed)	0,000	0,027	0,006	0,000	

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author calculations

Table No. 2 depicts our further investigation into the links between some of our most important variables. As the results indicate, there is a positive strong connection between the BBR, PDR, public deficits and ascension to EU member status. This indicates that the implementation of one rule leads to the implementation of the other. Our results also indicate that while the public debt rule leads to a reduction of the public debt, it has negative influences on public deficits. Finally, ascension to

EU member status while it leads to more and more countries implementing the two specific rules, it presents a strong positive connection with public debt and deficit levels.

4. Methodology

In order to establish the relationship between fiscal rules and the other chosen variables, we employ the next basic model (1):

$$\begin{aligned} \text{Implemented rules indicators}_{c,t} &= \alpha_i + \beta_1 \text{Respected rules} + \beta_2 \text{MEU}_{c,t} + \beta_3 \text{MEMU}_{c,t} + \beta_4 \text{POC}_t \\ &+ \beta_5 \text{FII}_{c,t} + \beta_6 \text{Treaties}_{c,t} + \beta_7 \text{N}_{c,t} + \varepsilon_{it} \quad (1) \end{aligned}$$

Where: *Implemented rules indicators*_{c,t} is one of the four indicators for implemented fiscal rules used in analysis: Implemented Budget Balance Rule (*BBR*), Implemented Public Debt Rule (*PDR*), Implemented Public Expenditure Rule (*PER*) and Implemented Public Revenues Rule (*PRR*);

*β*₁*Respected rules*: One of the two indicators for the number of countries that respect the two key rules: maintaining the public deficit under 3% of the GDP and maintaining the debt level under 60% of the GDP;

*MEU*_{c,t} - depicts the European Union accession dummy by year;

*MEMU*_{c,t}- is the European Monetary Union accession dummy by year;

*POC*_t - is a dummy variable, depicting the 2008-2011 global financial crisis;

*FII*_{c,t} - depicts the evolution of the fiscal integration index calculated by us for the European Union;

*Treaties*_{c,t} – depicts the 4 key treaties signed in the EU, the Maastricht Treaty, the SGP, SGP II and the Fiscal Compact;

*N*_{c,t}- represent country specific control variables: Public expenditures as % of the GDP (*PEGDP*), Public revenues as % of the GDP (*PRGDP*), Public deficits as % of the GDP (*DEFGDP*), Public consolidated debt as % of the GDP (*PDGDP*).

5. Empirical results

In order to capture the influence of our independent variables on fiscal rules indicators we used Ordinary Least Squares panel distribution with fixed effects to allow for country specific characteristics as government spending and revenues to be accounted. While public expenditure, revenues, debt and deficit levels were provided by the European Commission, we quantified the years in which countries had implemented at a national level the budget balance, debt, public expenditure and revenue rules according to data also provided by the EC as in the Fiscal Rules database. As the two rules that suggest public deficits should register values under 3% of the GDP and the public debt should register values under 60% of the GDP, we attributed value 1 for the years that a country respected the rule and 0 otherwise. Also, our key variables that target implemented rules at a national level take the form of dummy variables, value 1 for years that countries had the rule implanted and 0 otherwise. In order to circumvent the risk of serial correlated errors, we have done our analysis with all the standard errors clustered at a country level.

Table 3: Implemented fiscal rules at a national level for the general or central government

Panel A: Dependent Variable BBR			Panel B: Dependent Variable PDR		Panel C: Dependent Variable PER		Panel D: Dependent Variable PRR	
Variable	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
PD3GDP	-0.023 (0.047)	-0.028 (0.046)	-0.015 (0.040)	-0.017 (0.041)	-0.049 (0.048)	-0.051 (0.047)	-0.009 (0.017)	-0.009 .018
PD60GDP	0.120 (0.100)	0.105 (0.097)	0.075 (0.067)	0.069 (0.066)	0.100 (0.098)	0.094 (0.098)	0.038 (0.048)	.039 .048
MEMUE	-0.093 (0.069)	-0.075 (0.068)	0.108 (0.069)	0.116* (0.067)	0.222** (0.106)	0.231** (0.106)	0.038 (0.063)	.036 0.063
MEEMU	0.092 (0.081)	0.064 (0.081)	-0.026 (0.079)	-0.038 (0.081)	0.098 (0.103)	0.086 (0.100)	-0.050 (0.041)	-0.046 0.040
POC	-0.132*** (0.045)	-0.017 (0.038)	-0.094* (0.054)	-0.047 (0.051)	-0.033 (0.059)	0.018 (0.051)	0.048* (0.028)	0.033 0.026
PEGDP	0.023 (0.019)	0.014 (0.015)	-0.026 (0.034)	-0.029 (0.032)	0.020 (0.018)	0.016 (0.020)	-0.087*** (0.018)	-0.086*** (0.017)
PRGDP	-0.019 (0.021)	-0.008 (0.019)	0.022 (0.039)	0.027 (0.037)	-0.070*** (0.024)	-0.065** (0.025)	0.080*** (0.022)	0.079*** (0.021)
DEFGDP	0.030 (0.022)	0.016 (0.019)	-0.021 (0.033)	-0.027 (0.031)	0.024 (0.020)	0.018 (0.022)	-0.081*** (0.018)	-0.080*** (0.018)
PDGDP	0.003** (0.001)	0.003* (0.001)	0.002 (0.002)	0.002 (0.002)	0.003 (0.003)	0.003 (0.003)	0.002 (0.001)	0.003 (0.001)
TREATIES	0.185*** (0.031)	0.075** (0.036)	0.127*** 0.037	0.083** (0.037)	0.089* (0.044)	0.040 (0.045)	-0.002 (0.029)	0.011 (0.026)
FII		0.401*** (0.077)		0.164** (0.073)		0.181** (0.084)		-0.051 (0.033)
Number of observations	574	574	574	574	574	574	574	574
R squared	0.322	0.359	0.196	0.203	0.250	0.257	0.065	0.068
F-stat	18.64	20.01	4.98	5.53	5.59	6.04	135.18	196.26
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

First row is beta coefficient. Second row is the standard errors clustered at country level. *** denotes significant at 1%, ** at 5%, * at 10%.

Source: Author calculations

Our goal was to capture the influence of related variables to the degree by which countries implement at a national level fiscal rules as constraints for their general or central governments regarding public deficits, debt, expenditure and revenues. Regarding the first dependent variable, the BBR, our analysis indicate that it is positively influenced by debt levels and especially treaties, and negatively by the crisis. As the discipline evolved in the EU through new treaties that enhanced and enforced rules, more and more countries implemented at a national level, in their own legislation, a rule that prevents excessive deficits. As the crisis emerged, states were obligated to suspend the rule due to too fast rising deficits. Also, as model 2 indicates, the fiscal integration process had a positive impact. As the process evolved, more and more countries implemented rules in order to restrain the actions of policy-makers. The implementation of the debt rule at a national level was influenced positively by new treaties that were signed and by the evolution of the fiscal integration process, crisis having similar effects as for the BBR. A small positive influence can be attributed to the accession of a state to EU membership. The public expenditure rule was also influenced by a positive manner by the accession of a state to EU membership, signed treaties and the evolution of the fiscal integration process quantified though our calculated fiscal integration index

(FII). While model 2 confirms the fact that higher public expenditures put stress on the implementation or suspension of the expenditure rules, we find strange the fact that in our first model the public revenue levels have a negative impact on the implementation at a national level of this specific rules.

Not last, the public revenue rule is clearly influenced by growing expenditure levels as percentage of the GDP negatively, same affect being significant to deficit levels. Only the evolution of revenue levels has a positive impact on the implementation of the rule, although it had a negative impact on the implementation of the expenditure rules. What we also find strange is the fact that neither public debt nor public deficits influence the implementation of most fiscal rules as constraints for the general or central governments.

6. Conclusions

Most countries of the world understand the importance of maintaining sound public finances as a mean to gain confidence from the general public, investors and media, but also as a mean to prevent future crisis to inflict damage on budgetary positions, debt and deficit levels. In this framework, the most important piece of the puzzle is being represented by fiscal discipline, enhanced through fiscal rules as constraints on governments.

But, fiscal rules don't appear sudden, from nowhere. They are the result of a process that targets limiting the power of policy-makers or a result of the fiscal integration process. Both cases seem to suit the case of the European Union.

Our goal was to analyse which are the causes that make countries implement such rules at a national level. Although at the EU level, such rules are stipulated in signed treaties, in order to enhance their effects and to become more and more effective these rules need to be found also in national legislations. We targeted in our analysis four important rules: the budget balance rules, the public debt rule, and the public expenditures and revenues rules.

The good news is that our two hypothesis are mainly confirmed. As new treaties emerged regarding enhancing fiscal discipline and convergence, the impact was a positive one, as countries implemented at a national level rules regarding balanced budgets, public debt, and public expenditure (see Panel A, B and C in section Empirical results). Unfortunately, as expected, treaties do not have an impact on the implementation of revenue rules, because treaties target mainly debt and deficit levels, and less revenue levels and their evolution. Second, the fiscal integration process has a positive influence on countries enhancing their discipline. As the process evolved, more EU member states implement specific rules targeting debt, deficit and expenditure levels.

What we find strange is the fact that while the level of public revenues as percentage of the GDP has a positive impact on the implementation at a national level of the related rule, it has a negative impact on the implementation of the expenditure rules. At the opposite table, public expenditure levels exert a negative influence on the implementation of the revenue rules. Nevertheless, what is important is the fact that treaties, used as a mean to enhance public finances solidity and the evolution of the fiscal integration process, are a good path to be undertaken. As the fiscal integration process has a positive impact, it is important to be continued in order to maintain discipline and constraints on policy-makers in making bad decisions.

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