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# Fiscal Rules, Financial Stability and Optimal Currency Areas

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**Abstract.** In this paper we suggest that Eurozone countries face a policy trade-off between: (1) a common rule imposing co-movements in fiscal policy; (2) financial stability; (3) financial integration. We provide empirical evidence documenting the existence of such a trade-off in the period characterized by the financial crisis and by the sovereign debt crisis.

Then, we conclude that the intense fiscal rules that have been introduced in the Eurozone after the emergence of the debt crisis can reduce the capacity of national governments to deal with asymmetric shocks and can be incompatible with either free capital mobility and/or financial stability.

**JEL classification:** E61, E62, F3

**Keywords:** Fiscal policy rules, Eurozone, Financial stability, Policy objectives, Optimal currency Areas.

## 1. Introduction

The theory of optimal currency areas (OCA) teaches us that in the absence of flexibility in the labour markets, asymmetric shocks have to be taken care of by flexibility in national fiscal policies.

If these fiscal policies are constrained by rules, then countries will have an insufficient capacity for dealing with asymmetric shocks. We can then conclude that the monetary union will be suboptimal.

Prior to the emergence of the global financial crisis, the notion that the Eurozone was not optimal was considered to be of little practical importance. It appeared to be a purely academic concept without real world implications. The recent sovereign debt crisis has made it clear, however, that the implications of sub-optimality in the monetary union are very real. We now understand that a non-optimal monetary union can lead to financial instability and/or a breakdown of the integration of financial markets in the union. The reason why this is observed in a suboptimal monetary union is the following (see De Grauwe, 2011). When an asymmetric shock occurs and when national fiscal policies are constrained, financial market participants will anticipate major adjustment problems. If these are perceived to be severe enough, a self-fulfilling crisis may be set in motion pushing countries into a bad equilibrium. The latter is characterized by large capital outflows, surging government bond spreads and a deepening recession which lead to a further deterioration of public finances (De Grauwe and Ji, 2013). This suggests that in the presence of asymmetric shocks, rigid fiscal rules are incompatible with financial integration and stability. Put differently, there appears to be a trade-off between fiscal rules, financial integration and financial stability.

In this paper we analyse empirically whether such a trade-off exists in the Eurozone by employing the methodology introduced by Aizenman *et al.* (2008). Such an empirical analysis can shed some light on the need for enhanced fiscal rules in the EMU. These rules have become tighter since the sovereign debt crisis as a result of the perception among policymakers that monetary unions need strong fiscal discipline. The issue remains whether making these rules tighter was the right response to the crisis.

## 2. The Trade-off Indicators

We evaluate the existence of the trade-off through: 1) a financial integration index (FI); 2) a financial stability index (FS); and 3) a fiscal rule index (FR). We employ a panel of 11 countries of the Eurozone (Austria, Belgium, Finland, France, Greece, Germany, Ireland, Italy, Netherlands, Portugal and Spain) by adopting quarterly data spanning the period 1999:Q1-2012:Q4.

We construct the three indexes so that each of them falls between zero and one, with the value of one representing the maximum level of financial stability, perfect degree of capital markets openness/integration, and the full respect of the common fiscal rule.

### *Financial Integration Index (FI)*

We adopt a *de facto* measure of financial market openness (see Lane and Milesi-Ferretti, 2003) considering Direct and Portfolio Investments. It is calculated as follows:

$$FI_t = \frac{(FA+FL)_t - (FA+FL)_{min}}{(FA+FL)_{max} - (FA+FL)_{min}} \quad (1)$$

where data for FA and FL (financial assets and liabilities in Direct and Portfolio Investments) are from the IMF Balance of Payment database. According to equation (1) the indicator is normalized between 0 and 1 by using the maximum and minimum values of the entire series.

### *Financial Stability Index (FS)*

Our indicator intends financial stability as the absence of excessive bonds and equities markets volatility:

$$FS_t = 1 - \frac{\frac{\sigma_t^{BM} - \sigma_{min}^{BM}}{\sigma_{max}^{BM} - \sigma_{min}^{BM}} + \frac{\sigma_t^{SM} - \sigma_{min}^{SM}}{\sigma_{max}^{SM} - \sigma_{min}^{SM}}}{2} \quad (2)$$

where  $\sigma$  represents the squared deviation of the ten year bond yield (BM) and stock market index (SM) from their means, respectively. After having normalized the two series between 0 and 1, the average of the two is calculated and the FS index is obtained according to equation (2). BM data are from the IMF database. SM data are ibex35 (Spain), dax (Germany), mib storico (Italy), cac40 (France), athex composite (Greece), bel20 (Belgium), atx (Austria), aex (Netherlands), psi20 (Portugal), iseq overall (Ireland) and hexpic (Finland) and are obtained from individual indexes and national stock exchanges websites.

### *Fiscal Rule Index (FR)*

Common fiscal rules reduce the capacity of countries to follow flexible fiscal policies to deal with asymmetric shocks. The more rigid the rule, the lower is the fiscal capacity of countries to deal with asymmetric shocks. Put differently, when fiscal rules are soft, national governments can perform fiscal policies flexibly to respond to idiosyncratic developments in the country and follow policies that deviate from what other countries do. Thus, flexible fiscal policies make uncorrelated national fiscal policies possible. Conversely, fiscal rules force national fiscal policies to be correlated. This is how we measure the intensity of fiscal rules: by their capacity to impose correlated fiscal policies. Therefore, the intensity of the fiscal rule is measured as the quarterly correlation of the public deficit/GDP ratio between a single country and the EMU average.

$$FR_t = \frac{corr(def_t; def_{emu,t}) + 1}{2} \quad (3)$$

Where  $def_t$  and  $def_{emu,t}$  are public deficit/GDP ratios for the single country and the EMU average, respectively;  $corr(def_t; def_{emu,t})$  refers to their correlation over a quarter. These data are from the Eurostat database.

### 3. Empirical Analysis and Results

The existence of a trade-off among alternative policy goals was first estimated by Aizenman *et al.* (2008) referring to the open economy policy trilemma. In order to achieve this task, the common practice in this literature is to test if the weighted sum of the variables in the trade-off adds up to a constant. If this is the case, it can be concluded that the trade-off is binding as the rise in one of the variables implies a drop in another variable, or in the weighted sum of the other two.

In this section we empirically investigate the existence of the trade-off in a policy setting where the authorities target a common fiscal rule, financial markets stability and financial market integration. We employ the approach developed by Aizenman *et al.* (2008 and 2013) and test if the weighted sum of the three variables (FS, FI and FR) adds up to a constant. If the trade-off is binding, the enforcement of more intense fiscal rules is associated with lower financial stability, and/or less financial integration.

This implies examining the results the following linear regression:

$$1 = \beta_1 FI_{i,t} + \beta_2 FS_{i,t} + \beta_3 FR_{i,t} + \varepsilon_{i,t} \quad (4)$$

If the estimated coefficients have positive sign we conclude that the linear regression is able to model the trade-off between the policy variables. On the contrary, a negative sign could indicate that the theory behind the trilemma is not correct, or that the relationship between its variables is not linear. Statistical significance of the estimated parameters also plays a role in this analysis.

The results from the pooled panel estimation of equation (4) are reported in Table 1(A). All the estimated coefficients are positive and highly statistically significant. These elements suggest that the linear trade-off exists, and that member countries of the Eurozone cannot fully achieve free capital mobility and financial stability under the constraint of a rule that tries to enforce national fiscal policies co-movements. To obtain the weights that policy makers assign to each policy goal we multiply the estimated coefficients with the average values of the variables. If the linear approximation is satisfactory, the sum of these weights should be close to 1.

It is clear that the predicted weights based on our linear model sum up to around 1 (see columns 4 and 5 in table 1). This result further indicates that the linear trade-off is binding. We can also conclude that the respect of fiscal rules has been the main goal for the Eurozone countries, while financial integration and stability have had relatively small weights.

As we cannot exclude that there have been changes in the trade-off configuration over time, we also perform the panel estimation for two sub-periods: our pre-crisis period runs from 1999:Q1 to 2008:Q2, while the post-crisis period runs from 2008:Q3 to 2012:Q4.

The results in table 1(B) and (C) show that the trade-off is binding only in the post-crisis period. This suggests that before the crisis it was possible to enforce free capital mobility and fiscal rules without harming financial stability. It is only after the start of the financial crisis that the trade-off became binding. Thus, we can conclude that during the crisis the use of intense fiscal rules that reduced the capacity of national governments to deal with asymmetric shocks became incompatible with either free capital mobility and/or financial stability.

**Tab. 1: Estimations Results**

	Coefficient	Mean	Contribution (weight)	Sum of Contributions(R <sup>2</sup> )
<b>(A) All Countries</b>				0.969
FR	1.109*** (0.021)	0.748	0.829	
FS	0.393*** (0.039)	0.307	0.121	
FI	0.049* (0.026)	0.385	0.019	
<b>(B) All Countries (99:q1-08:q2)</b>				0.991
FR	1.279*** (0.014)			
FS	-0.002 (0.031)			
FI	-0.036** (0.017)			
<b>(C) All Countries (08:q3-12:q4)</b>				0.945
FR	0.861*** (0.052)	0.668	0.575	
FS	0.771*** (0.081)	0.365	0.281	
FI	0.255*** (0.063)	0.349	0.089	
<b>(D) Core (99:q1-08:q2)</b>				0.996
FR	1.236*** (0.013)			
FS	-0.014 (0.024)			
FI	-0.016 (0.015)			
<b>(E) Core (08:q3-12:q4)</b>				0.959
FR	0.768*** (0.075)	0.706	0.542	
FS	0.904*** (0.108)	0.381	0.344	
FI	0.215*** (0.079)	0.339	0.073	
<b>(F) Periphery (99:q1-08:q2)</b>				0.988
FR	1.312*** (0.024)			
FS	0.081 (0.065)			
FI	-0.051 (0.032)			
<b>(G) Periphery (08:q3-12:q4)</b>				0.933
FR	0.953*** (0.079)	0.619	0.589	
FS	0.626*** (0.133)	0.348	0.218	
FI	0.346*** (0.111)	0.363	0.126	

S.E. in parentheses; \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

We also find that, in the post-crisis period the weight assigned to financial stability more than doubled (0.28), while the weight of fiscal rules decreased to 0.57. Therefore,

Eurozone countries have been forced to reduce the importance of fiscal coordination in order to preserve financial stability by the fact that the trade-off started being binding. As a further analysis we also split the panel in two groups of countries, defined as “core” (Germany, France, Netherlands, Finland, Austria and Belgium) and “periphery” (Italy, Greece, Portugal, Spain and Ireland). Table 1 panels (D) to (G) show that the linear trade-off is binding only in the post-crisis period in both groups. In addition, the weight assigned to financial stability is higher in the core, while in the periphery the weight assigned to financial integration is higher. Both groups show similar weights assigned to the attainment of fiscal rules during the crisis.

#### **4. Conclusion**

In this paper we have tested the existence of a trade-off between common fiscal policy rules, financial stability and financial integration in the Eurozone. We found such a trade-off in the post-crisis period but not in the period preceding the financial crisis. Our interpretation of this result is the following. A monetary union creates the potential for two regimes. When trust in the stability of the union prevails, then asymmetric shocks lead to stabilizing capital flows. There is then little need for fiscal policies flexibility to deal with these asymmetric shocks and capital markets take over the stabilizing role. In this case the trade-off is non-binding. This seems to have been the prevailing regime in the Eurozone during the period 1999-2008.

When there is distrust in the optimality of the monetary union, so that financial markets lose their confidence in its sustainability, the trade-off becomes binding. In this case fiscal flexibility is needed to maintain financial stability and integration. In this regime capital flows cease to be a source of stability and fiscal policy has to take over as the stabilizing instrument. Therefore, when fiscal rules prevent governments from using fiscal policies flexibly, financial stability cannot be guaranteed. Our results suggest that this has been the prevailing regime in the Eurozone after 2008.

Hence, we can conclude that the intense fiscal rules that have been introduced in the Eurozone after the emergence of the debt crisis can reduce the capacity of national governments to deal with asymmetric shocks and make them more vulnerable to financial instability.

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