

Non-Technical Summary

Research Project RRC 14-12:

“The Study of Fiscal Vulnerability: Empirical Evidence for European Union Countries”

Our research aimed to introduce a new framework for assessing fiscal vulnerability, to study the factors which drive fiscal vulnerability and to develop a methodology of early signalling fiscal vulnerability.

With this regard, we firstly provided the methodology (*V-L-D*) to evaluate vulnerability in fiscal policy for the European Union countries. Much of the relevant work in this field has focused on measuring or signalling fiscal vulnerability around episodes of defined fiscal crises. The contribution of our research was that we developed a new framework to detect short-term fiscal vulnerability, which do not necessarily imply immediate fiscal stress or a fiscal crisis. For this purpose, it was important to understand the concept of fiscal vulnerability. Much of the relevant literature was acknowledged in that sense and we defined fiscal vulnerability as *fiscal vulnerability* as ‘any kind of intrinsic weakness in the existing fiscal policy or exogenous shocks that lead to a significant deterioration in the level and/or dynamics of the budgetary deficit and/or public debt over the short term that will limit the government’s ability to achieve its goals’.

Based on this definition, we decomposed our measure of overall fiscal vulnerability (*V*) into two components: capturing vulnerability through the size of fiscal variables (the *level indicator* [*L*]), and capturing vulnerability through their changes over two consecutive years (the *dynamic indicator* [*D*]). We used *cyclically adjusted balance* and *public debt* as leading fiscal variables with this respect.

L detects the vulnerabilities signalled by the size of the *cyclically adjusted balance* (*CAB*) and *public debt* through *distance-to-stability* (*D-S*), and *D* detects vulnerabilities signalled by changes over two consecutive years in the *cyclically adjusted balance* (*UCAB*) and *public debt* (*UDebt*), both expressed as GDP ratios.

In order to establish a relevant threshold beyond which the size of the *cyclically adjusted balance*, as well as changes in *CAB* and in *public debt* as GDP ratios, indicate fiscal vulnerability, we studied the size of the *cyclically adjusted budget* and *cumulated changes* for two consecutive years in *CAB* and *public debt* to GDP ratios in the year before fiscal adjustments were made. Using annual data over the period 1990–2013 for 28 EU countries, we found 64 episodes of fiscal adjustments. Studying the values for *CAB*, *UCAB*, and *UDebt* in the year preceding the fiscal adjustment, we calculated the median in order to establish the threshold that would indicate fiscal vulnerability. The following thresholds were evidenced: (i) a deficit of 4.7 p.p. of GDP for the *cyclically adjusted budget balance*; (ii) a deterioration of the *CAB* of 2.3 p.p. of GDP for two

consecutive years; and (iii) an increase of the public debt to GDP ratio of 6.1 p.p. of GDP for two consecutive years.

The *V-L-D* framework for detecting short-term overall fiscal vulnerability for EU countries was employed on a dataset ranging from 1990–2013 for 28 EU countries. The total number of observations was 516. The *V-L-D* indicated 310 episodes (years) of fiscal vulnerability, out of which 26 were extreme, 62 were strong, 94 moderate and 128 low. For the other 206 observations, *V-L-D* detected no fiscal vulnerability.

In order to check if the *V-L-D* sends the right signals, we explored the correlation between financial market sentiment, using *CDS* as the dependent variable and the *V-L-D* results for overall fiscal vulnerability as a predictor. We employed a balanced panel model with random effects and one categorical variable over the period 2008–13. The results show that financial markets react to strong and extreme fiscal vulnerability by increasing *CDS*. These two categories are significant for each regression employed, suggesting a robust relationship between market sentiment and heavy deterioration in fiscal policy.

We also studied government's reactions to adjusting their fiscal policy during periods of vulnerability. In this sense, we employed a logit model for balanced panel data using a dummy variable (*adjustment*) as dependent, which takes the value of 1 for the years when we identified episodes of fiscal adjustments and 0 otherwise. The results indicate that the probability of consolidating fiscal policy when vulnerability goes from 'low and moderate' to 'strong and extreme' decreases. When adding the control variable, we found that the odds of taking fiscal adjustments increase when market sentiment becomes poorer.

Using the *V-L-D* framework for detecting fiscal vulnerability, we employed a logit model with random effects for a balanced panel comprising of 20 European Union countries and on annual data extracted for 2000-2012. We used as a dependent a dummy variable which takes value of 1 if fiscal policy is assessed as being vulnerable (extremely or strongly as in *V-L-D*), and 0, otherwise. As explanatories, we use two distinct categories which capture the intrinsic and the exogenous sources of fiscal vulnerability. The results showed that higher overall taxation and non-distortionary taxes decrease the likelihood of fiscal policy to be vulnerable, whilst the size of total and of productive government expenditures contribute to an increase in the fiscal vulnerability. Tight fiscal policy has an important contribution to decrease in the fiscal vulnerability. The responsiveness of fiscal policy through discretionary actions also is more likely to reduce fiscal vulnerability than through the automatic response of stabilizers. Improved economic conditions mitigate the risk of one country to become more fiscal vulnerable, whilst large financial sector increase the probability. Tighter control of corruption will lead to a decrease in fiscal vulnerability, while stronger rule of law contributes to growth in fiscal vulnerability.

Using these results, now we can employ a methodology of early signalling fiscal vulnerability.