**Ecomod Conference 2012 – Sevilla**

Influence of Sovereign debt on interest rate spread in the Euro int zone

1. Introduction.

Since the big financial crisis of 2008 and the recent development in the sovereign debt crisis in the Euro zone, spread vis a vis the German 10 year rate have grown considerably. The major question is : does this result from pure speculation or are the spread linked to more structural factors.

Some studies did indeed show that (e.g. in Bernoth, von Hagen & Schuknecht, 2006) that some variables linked to sovereign debts explain spread better than factors one would think of first like debt to gdp or deficit to gdp ratios. Most notably the real indicator of solvency seems more important , i.e. the debt service ratio. This is not surprising when looking at the data. Since the beginning of the period, the debt to gdp ratio was about 20 to 30 points **lower** in Spain than in Germany (in 2007 36.3% in Spain versus 67.6 in Germany) despite a positive spread in the Spanish rate!

So, beside debt service ratios, variables we found important is the degree of overall risk, and the expected future deficits as linked notably to the “pay as you go” pensions systems in countries when population is ageing fast. There is also some evidence of non-linearity effects when some variables start to balloon.

1. Approach.

The dependent variable SPREAD is the spread with the German 10 year bond yield for ten Euro area countries i.e. Austria, Belgium, Finland, France, Greece, Ireland, Italy, Portugal, Spain and the Netherlands.

The main explanatory variables are:

RISK: the degree of risk in the economy. After several trials, the best variable was the degree of sensitivity of public receipts to the business cycle, the rationale being that when the GDP does down in a crisis, countries with a high sensitivity of their public receipts are likely to see their public deficit and dfebt ratio deteriorating fast.

DEBSER: interest payments on public debt as a share of current expenditures

EXPDEF: average of the expected public deficit projected for the next five-year period in medium term projections.

PENEXP: expected increase in pension expenditures as a share of GDP projected between 2010 and 2050.

One of the major issue is the difference in frequency between the data: if need be interest rates are available on a daily base which is far from the case in all other data. We have used quarterly data whenever possible and quarterly interpolation in budget data

The estimation period is 2005-IV to 2011-IV

The estimation was done with Eviews 6.0 on a tower PC using an AMD Phenom II XX 1090T processor at 3.2Gz with 8 Gb of ram and with Windows 7 in 64-bit mode. A linear estimation was used since DEBSER is magnified when it reaches very high level, the variable has thus both a coefficient and elasticity

3. Estimated results

The final equation is

SPREAD = a0 + a1 RISK +a2DEBSERe1 +a3 EXPDEF +a4PENEXP

|  |  |  |
| --- | --- | --- |
| Coefficient | Estimation | Standard error |
| Constant a0 | 0.967 | 0.593 |
| RISK a1 | 1.982 | 0.211 |
| DEBSER a2 | 0.035 | 0.005 |
| DEBSER e1 | 1.982 | 0.111 |
| EXPDEF a3 | -0.234 | 0.029 |
| PENEXP a4 | 0.112 | 0.043 |
| Adjusted R2 | 0.937 |  |

1. Policy conclusions.

Confidence in Germany seems very high: the constant term gives all other countries a spread of about 100 basis points which seems totally irrational!

The risk of high sensitivity in public receipts has also a powerful impact.

The debt service ratio is the most important variable, given its high elasticity. This of course tends to make high spread in some sense self-fulfilling since it increases fast the debt service ratio like a reduction in agency ratings. This is clearly the most worrying point in the present working of financial markets.

Expected future deficits have a role in spreads. Thus credible future action plan of fiscal consolidation are important for all euro- area countries.

The same is true for future pension reforms.