Discussion
of

"Fiscal Policy in Monetary Union"

by

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(The views expressed are those of the discussant and do not necessarily reflect the views of the Bank of Greece)

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Motivation – Purpose of the paper

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Clearly a very interesting and timely paper

Purpose

- To what extent have spreads in sovereign bond yields been driven by fundamentals in the context of EMU?
- How does this compare with the experience under EMS?
- How relevant is fiscal tightening as a response to the current sovereign debt crisis?

Empirical Analysis – The model

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The empirical relevance of fundamentals in explaining the interest rate spread of 10-year sovereign bonds *vis a vis* the Bund is assessed *via:*

(1)

, where is the spread in country *i*, are fixed effects, are period dummies and is a vector of fundamentals including:

- (Debt/GDP) and
- Real Effective Exchange Rate
- Real GDP growth rate
- Inflation differential *vis a vis* Germany
- Accumulated Current Account Balances (as a ratio of GDP)
- %Δ(Exchange Rate)

Empirical Analysis – The data

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The Data

Quarterly panel covering:

- The EMS period (1981q1-1993q4) for IT, DK, BE, IE, AT, FR, NL.
- The EMU period (2000q1-2012q2) for GR, PT, IE, ES, IT, BE, FR, AT, NL, FI.

Empirical Analysis – Main Findings

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- **In the context of EMS:**
  - There is no evidence of time-dependent market sentiment (proxied by the period dummies).
  - Despite exchange rate speculation, bond spreads remained linked to fundamentals, as governments maintained control over own currency.

- **In the context of EMU:**
  - Significant period effects, leading to departures from fundamentals (especially in the periphery).
  - Pre-crisis, sovereign risks were underpriced.
  - Post-crisis, the absence of a liquidity backstop (lender of last resort) led to overreaction.
  - The ECB announcement of OMT had an immediate stabilizing effect.

Summary - Conclusions

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- EMU membership has changed fundamentally Members' budget constraint, rendering sovereigns vulnerable to self-fulfilling liquidity crises.

- The ECB accepting the role of lender of last resort in the context of the OMT programme has been a game changer.

- Austerity measures appear to have had little relevance in restoring market confidence.

- In undermining the social responsibilities of national governments, fiscal tightening threatens their legitimacy.

Discussion Points (1)

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1. The treatment of Greece

- **The paper makes the case** that the fiscal crisis that erupted after 2008 cannot be attributed to government profligacy prior to 2008. As a consequence, the tightening of control mechanisms on national fiscal policies is criticized to be barking at the wrong door.
- Greece is clearly (and rightly) noted to be the odd one out in this diagnosis.
- To the extent that statistical window-dressing concealed the true extent of fiscal profligacy in Greece, one might argue that pricing away from fundamentals may in part reflect reputation effects.

Suggestion:

It would be interesting to include some indication of the robustness of estimates to the Greek outlier.

Discussion Points (2)

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2. Domestic Private Debt

- The inclusion of General Government Debt accounts for public debt held by both, domestic and foreign agents.

- The inclusion of the Accumulated Current Account controls for public and private debt held by foreign agents.

Suggestion:

Including a measure of private debt held by domestic agents would additionally capture sovereign risks stemming from domestic banks' exposure to domestic risks (e.g. mortgage NPLs), thus completing the feedback loop between economic activity, financial sector balance sheets and sovereign credit risk.

Discussion Points (3)

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3. Endogeneity

- The relationship between spreads in sovereign bond yields and macroeconomic fundamentals may work both ways.

Suggestion:

It would be useful to be more explicit on the extent to which the estimation methods employed account for possible endogeneity issues (e.g. GMM, 2SLS)

Discussion Points (4)

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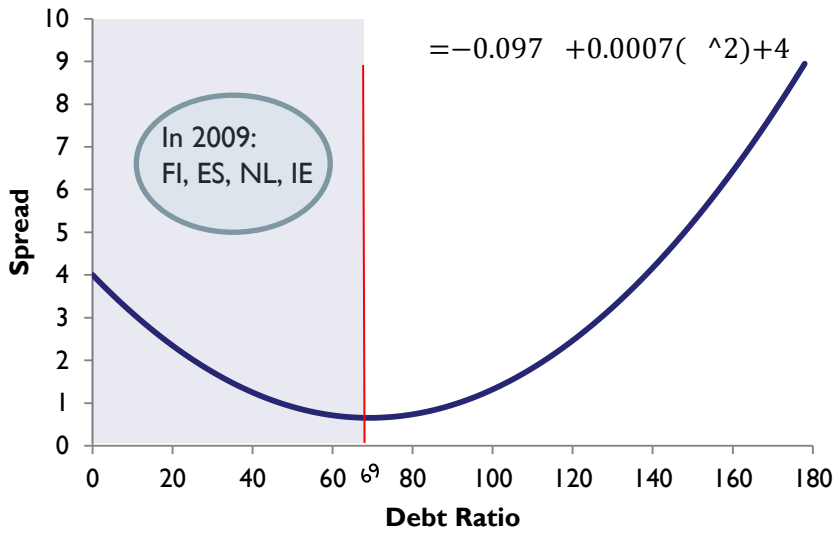
4. Non-linearity

- Intuitive convexity in debt ratio, BUT:
- The estimated minimum is at 69% of GDP.
- In 2009, two out of four eurozone members with debt ratios below 69% were Spain and Ireland, which, experienced sharp increases in spreads.

Eurozone (2000q1-2012q2)	
Debt ratio	-0.0968**
(Debt ratio)^2	0.0007**
REER	0.0293
GDP growth rate	-0.2058**
Σ(Current Account)/GDP	-0.0301



Discussion Points (5)

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5. Further points

- Role of fiscal deficit as a regressor

- Persistence

  Based on daily and monthly data, Attinasi *et al* (2009) report strong significance of lagged spreads with coefficient close to unity.

Discussion Points (6): Element of contagion

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How should we think about contagion?

Hondroyiannis, Kelejian and Tavlas (2010), Hondroyiannis, Kelejian, Purba and Tavlas (2013)

- not as correlation, but:

- *Edwards (2000)*

"…contagion reflects a situation where the effect of an external shock is larger than what was expected by experts and analysts".

- *World bank broad definition*

"contagion is the cross-country transmission of shocks or general cross-country spill-overs"

Discussion Points (6): Correlation matrix (this is not contagion)

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Table
Ten – year government bond yield spreads
correlation matrix of nine euro –area countries

	Austria	Belgium	Spain	Finland	France	Greece	Italy	Netherlands	Portugal
Austria	1.000								
Belgium	0.945***	1.000							
Spain	0.943***	0.971***	1.000						
Finland	0.948***	0.957***	0.934***	1.000					
France	0.947***	0.974***	0.971***	0.956***	1.000				
Greece	0.880***	0.897***	0.954***	0.859***	0.897***	1.000			
Italy	0.938***	0.969***	0.974***	0.945***	0.973***	0.924***	1.000		
Netherlands	0.958***	0.977***	0.953***	0.974***	0.974***	0.870***	0.962***	1.000	
Portugal	0.916***	0.910***	0.917***	0.874***	0.901***	0.880***	0.880***	0.907***	1.000

Notes: *** indicate significance at 1%.

Discussion Points (6): Ten-year government bond yield spreads of Portugal (this is not contagion)

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Table
Ten year government bond yield spreads of Portugal

Variables	Estimated coefficients	
C	15.617*** (7.41)	2.215* (1.70)
Portugal (-1)		0.756*** (26.14)
Belgium	0.472*** (2.91)	0.317*** (3.43)
Spain	0.273*** (1.49)	0.022*** (0.21)
Finland	-0.681*** (-4.32)	-0.339*** (-3.75)
France	0.311*** (1.06)	-0.168*** (1.00)
Greece	0.203*** (5.35)	0.082*** (3.74)
Italy	-0.835*** (-7.68)	-0.179*** (-2.68)
Netherlands	1.268*** (4.96)	0.359** (2.41)
Austria	0.588*** (6.35)	0.133** (2.41)
Adjusted R-squared	0.89***	0.97***
F	351.64***	1042.66***

Notes: *, ** and *** indicate significance at 10%, 5% and 1% level respectively.

Discussion Points (6): The model I

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$$spread_{it} = a_0 + a_1 D_{1i} + \ldots a_8 D_{8i} + \beta_1 (spread_{it-1}) + \beta_2 (dliqn_{it}) + \beta_3 (cd_{it}) + \beta_4 (drate_{it}) + \beta_5 (volatility_{it}) + \beta_6 (wspread_{it}) + \varepsilon_{it} \quad (2)$$

, where

$spread_{it}$ is the ten-year government bond yield spread of country i relative to Germany at time t

D_{ri}
- =1 if the i-th observation corresponds to country r
- =0 otherwise

$dliqn_{it}$ is defined as a proxy for the degree of liquidity of country i in the Euro area

cd_{it} is a measure of credit risk and is proxied by the level of country's CDS

$drate_{it}$ is the change in the rating of the country

$volatility_{it}$ is the corresponding stock market volatility in the country i

$wspread_{it}$ aims to capture the spill over effects between countries

ε_{it} is an error term such that $\text{var}(\varepsilon_{it}) = \sigma_i^2, i = 1,\ldots,13.$

Discussion Points (6): Contagion variable

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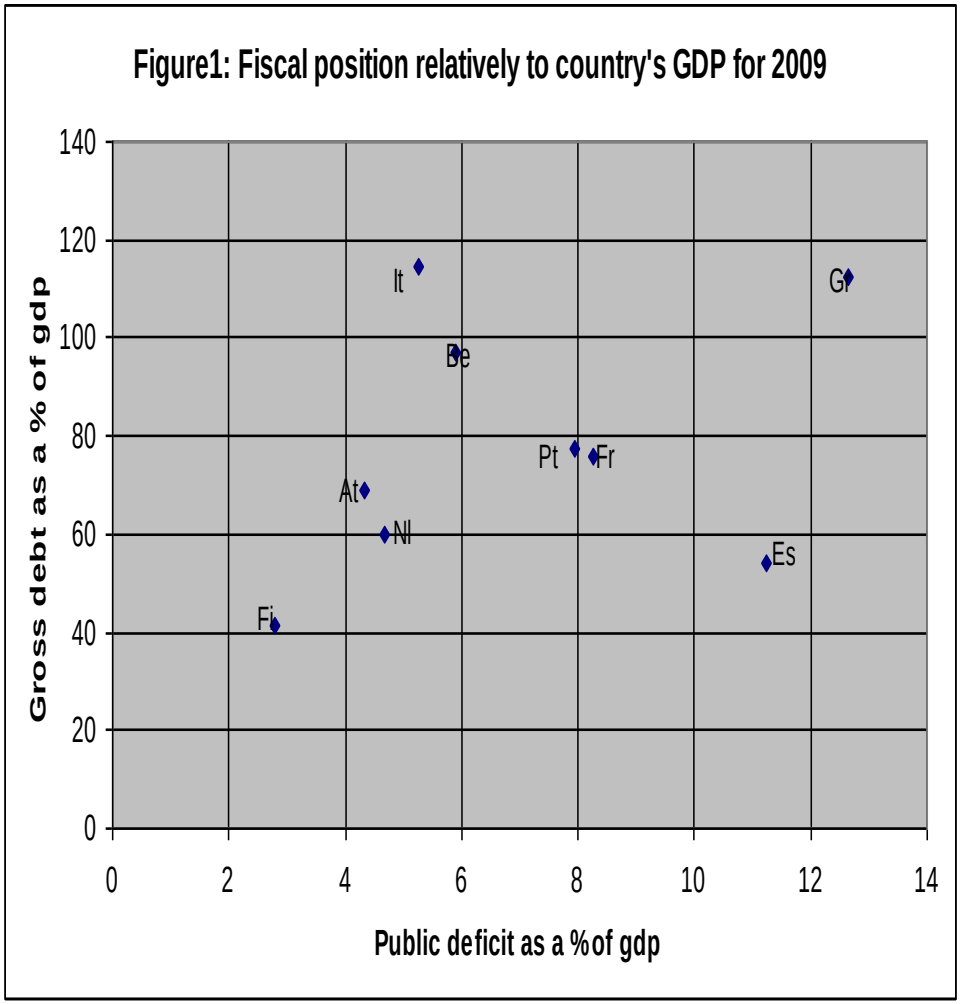
The contagion variable

- Our contagion variable is formulated in terms of weighting matrix which relate to the fiscal position of a country
- The weighting matrix, describes the fiscal position of a country relatively to its GDP at time *t*
- The distance spill-over variable of ten year government bond spread and which is used is given by:

$$W_{1,t}spread_{it} = \sum_{j=1}^{9} w^{W_1}{}_{ij,t}spread_{jt}$$



Discussion Points (6): Empirical results

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- Hondroyiannis, Kelejian and Tavlas (2010)
- Weakly data for the period 2003 to February 2010.
- Panel data
- Instrumental Variable (IV) procedure
- Hondroyiannis, Kelejian, Purba and Tavlas (2013)

Table 1
Model Estimation

Variables	Model 1
Constant	-12.323* (-1.59)
$spread_{it-1}$	0.716** (12.82)
$liqn_{it}$	0.408* (1.82)
cd_{it}	0.233** (5.80)
$drate_{it}$	222.94*** (4.34)
$volatility_{it}$	937.24*** (5.70)
$W_{1t}spread_{it}$	0.059** (2.23)
S.E. of regression	7.45

Notes: t-statistics are given in parenthesis. ***, ** indicates statistical significance at the 1% level and 5% level respectively.

Empirical results

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1.Contagion is a significant factor in influencing ten-year government bond yield spreads relatively to that of Germany

2. Its effects are not uniform across the countries considered

3.The channels of transmission relate to the differences in the fiscal positions of the country

4. Contagion spill-overs are most pronounced between countries that have similar fiscal positions

5. The significant determinants involved in inducing contagion are liquidity risk, default risk, downgrade risk and stock market volatility

6. The empirical results of the dynamic model used in the analysis point to the existence of significant persistence which is asymmetric across countries in Euro area.

Excellent job

I hope that my comments are useful

thank you