

# DISCUSSION

## Fiscal Shocks, Public Debt and Long-Term Interest Rates

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CIMF/IESEC Conference

Cambridge, 1-2 September 2011

# The aim of the paper

- The authors empirically investigate the effects of fiscal shocks and government debt accumulation on long term interest rates;
- Three countries are considered: USA, Germany and Italy (1983-2009);
- Three aspects are investigated:
  - ❶ Do shocks to government debt/GDP ratio have an effect on nominal and real interest rates?  
YES: positive for Italy and Germany, negative for US..
  - ❷ Is this effect transitory or permanent?  
For US both effects are important; for Germany and Italy permanent effects are more important (for Italy also the monetary trend is important);
  - ❸ Are there any international linkages that determine long term rates?  
YES: the cyclical components of US and Italy are linked.

# Theoretical predictions

There is no real consensus among economists on the effect of shocks to debt/GDP ratio on long rates. It depends on:

- Type of fiscal shock;
- Level of government debt;
- Macroeconomic environment;
- Default risk;
- Effect of shocks via expected inflation and currency depreciation;
- Credibility issues;
- Liquidity issues;
- Monetary policy ....

## *Empirical findings*

- Positive or no effects of fiscal shocks on long rates;
- sometimes some negative effects due to liquidity issues;

# What the authors do

- They propose a theoretical model;
- The model provides the structural identification strategy for a Vector Error Correlation (VECM) model that include debt/GDP, inflation, short term rates, long term rates;

# The Model

- DSGE New Keynesian cashless model with two bonds, one long and one short that are imperfect substitutes, monetary policy follows stochastic Taylor rule and fiscal policy is a function of output and a stochastic shock.
- There are 4 shocks:
  - financial shock (MRS shock): AR(1);
  - supply shock: AR(1);
  - monetary shock: permanent;
  - fiscal shock: permanent;

# The Empirical Exercise

They analyze the properties of the data using a VEC and find in all cases 2 cointegrated vectors and 2 common trends.

The identification strategy (based on the model and some other assumptions) allows the authors to decompose the time series into the sum of permanent and cyclical stochastic components:

$$i_t^L = \delta_L + I_t^P + I_t^C$$

where  $I_t^P$  is the cumulation of the two permanent shocks and  $I_t^C$  is the weighted sum of all the shocks.

Given this decomposition:

- 1 They check the consistency between theoretical and empirical shocks on the basis of Forecast Error Variance Decomposition;
- 2 They decompose the variables in their components and check how much the cumulation of every shock determine the components
- 3 They study impulse responses of the real interest rate of 1% increase in the debt/GDP ratio;
- 4 They check if there are any international linkages between the three countries.

# Some comments

- The theoretical model :
  - ① There are not really a short and a long bond but two short bonds that are imperfect substitutes (no term structure of the interest rates)
  - ② Given point 1 the budget constraint of the government is peculiar: it is not possible to understand if the authors are modelling total debt or new issuances.
  - ③ Suggestion: use a simplified version of Andres, Lopez Salido and Nelson (2004) model.
- The authors want to use the theoretical model to help their identification strategy of the empirical shocks. Question: based on what evidence have they chosen to identify the fiscal and monetary shock as permanent shocks and the demand and supply shocks as autoregressive?
- Why do they need a theoretical model?
- The paper needs more motivation/self-promotion:
  - How do there results compare with other empirical studies? if the results are different, why is it the case?
  - Can we draw any policy implications?

# Missed opportunity

- The authors use a short and a long rate but do not take into account the actual structure of debt and use only total debt.
- Given the structure of debt what is the right long rate to take into account?
- Conditional on the structure of debt, how does fiscal shocks affect the long rates?

# One step back

In the light of the papers presented and the keynote speeches, macro theory has a lot to say and a lot needs to be done.

- Given the incentives of fiscal policy, how does debt management react?
- In the optimal fiscal policy framework only recently we have departed from a complete market paradigm (Lucas and Stokey (1983), Angeletos (2002), Buera and Nicolini (2004)):
  - the predictions of extreme portfolio positions are implausible.
  - the data reject the complete market assumption (Marcet and Scott (2009))
- In the incomplete market framework for years we have been stuck to a single short asset (Aiyagari et al (2002)) . We had problems to use global approximation methods with large state spaces.
- Now we are having better luck and a new stream of contributions are emerging (Pouzo (2010), Faraglia, Marcet, Oikonomou and Scott (2011), Lustig, Leeper and Yeltekin (2008),...)
- The economic theory recognizes the links between optimal fiscal policy and debt management (in both directions).

# Average maturity across countries

Country	Average Maturity (Years)
UK	13.7
Denmark	7.9
Greece	7.7
Italy	7.2
Austria	7
France	6.9
Ireland	6.8
Spain	6.7
Switzerland	6.7
Portugal	6.5
Czech Republic	6.4
Sweden	6.4
Germany	5.8
Belgium	5.6
Japan	5.4
Netherlands	5.4
Canada	5.2
Poland	5.2
Australia	5
Norway	4.9
US	4.8
Finland	4.3
Hungary	3.3

Which conditions drive such different choices?

## Moreover

- How much the market structure imposed affects the optimal fiscal policy and debt management? In particular what prevents the government to complete the markets?
- Any theory of debt management needs to explain the costs and benefits for optimal fiscal policy varying the average maturity structure
- Is minimization of funding cost optimal compared to other solutions?
- In order to match part of the debt structure we always have to impose exogenous constraints to prevent the government to take extreme positions. Modeling default risk on both sides of the market seems a plausible solution to prevent this.
- What is the role of buy back?
- How can we model liquidity?