How do Global Macro-Financial Shocks Affect Corporate Sector Expected Default Frequencies in the Euro Area?

A Comment on Castren, Dees and Zaher,

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Outline of Discussion

- The Paper, The Topic of Financial Stability and Economic Research

- Review of the paper: Methodology and Results

- Evaluation and General Comments

- Specific Issues and Questions

- On Financial Stability and Monetary Stability as targets for the CB

Financial Stability and Economic Research

- Definition of FS not uniquely accepted in sharp contrast with monetary stability
    - ..refers to the smooth functioning of the key elements that make up the financial system (Duisenberg)
    - ..easier to define its opposite, financial instability involves some notion of market failures or externalities that can potentially impinge on real economic activity
- As a by product, economic research on the topic not as much "structured" as in related fields.
- Need of rigorous empirical and theoretical studies
- This paper is on this line, provides interesting piece of empirical work to assess the role of global macro and financial variables on the Euro Area corporate probabilities of default

Review of the Paper - 1

- The paper uses a GVAR to model dynamic macro relations across countries and evaluate the response to different shocks

- Some of the main macro variables (for the Euro Area) are then considered as determinants of the Default Probabilities at Aggregate and Sector Level of Corporations in the Euro Area, measured by Moody's KMV EDF (Satellite Model).

- Finally, the GVAR model and the Satellite model are estimated together so as to obtain how different macro and financial shocks affect such EDFs

- The Methodology follows Pesaran, Schuerman and Weiner (JBES,2004), Dees, di Mauro, Pesaran and Smith (JAE, 2007) and Dees, Holly, Pesaran and Smith (w.p.2007).

- While in PSW, the GVAR was used as a linking model and the stock returns of individual firms was assumed a function of domestic and international variables, in the current paper the GVAR is a linking model and EDFs are affected by macro and financial domestic and foreign variables.

- No feedback is considered going from default probabilities to output and other macro variables. We have however some evidence that such feedback exists and may affect output.

Review of the Paper - 2

- Main results: Aggregate EDFs for the Euro area are most affected by shocks to Output, to the Euro-dollar exchange rate, to oil prices and to equity prices.

- The effect of other macro shocks (inflation, monetary policy) is there but somehow less evident.

- Sectoral EDFs behave similarly but for the Tech sector which seems more sensitive

- Bootstrap experiments show consistency of aggregate EDFs (only to a lesser extent of some sector EDFs)

Evaluation and General Comments

- Useful piece of empirical work
- Combination of different techniques and of different data
- Nicely and compactly written…easy to read but also…
- Room for explaining better some modelling choices and discuss possible alternatives.
- Little space for economic intuition and analysis of the underlying transmission channels
- Statistical Significance and Robustness of results
- If the framework is to be used to assess corporate credit quality, how to best exploit individual characteristics that are relevant for EDFs?

Specific Issues: Methodology 1

- In the Satellite model only domestic variables are used. A natural question is then: How to evaluate pros and cons of a GVAR model instead of a standard VAR for the Euro Area.

  – What do we gain? Full inclusion of foreign and "global" variables.

  – Is there anything we loose? Richness of Dynamic Structure? GVAR (2,1): Limits to the number of Lags included (more important in monthly exercises), Statistical Significance. Are the results robust?

- Generalized impulse responses used. Such responses are invariant to the ordering of variables…….natural in a GVAR with many countries but ….no room at all for Economic Theory?

Specific Issues: Methodology 2

- The GVAR is written as a vector error correction model and cointegration constraints are used for identification.

- Discuss the long run constraints more in detail.

- Given the definition and content of EDF, would not be preferable to use short run constraints for identification and focus on short run dynamics (up to 3 years). Would the results be affected?

- It is true that by using only short run constraints nonstationairty of the data is somehow neglected, however if we focus only on short run dynamics this may not necessarily be so bad. Also in such a large dataset some of the data may as well be quasi-nonstationary and unit root tests may have little power. If the VAR is estimated in levels, standard asymptotic tests may still be used even with unit roots (efficiency vs consistency). Brief discussion of pros and cons of the two approaches would be nice.

Specific Issues: GVAR's IRFs

- The IRFs are not plotted and little info is given on the statistical significance of the simulations.
- The IRFs of a positive shock to the short term US interest rate are not in line with previous VAR literature (interpreting these as mon policy shocks). The authors obtain positive and insignificant reply of prices and <u>output,</u> while in the literature a significant hump-shape response of output neatly emerges. Why?
- The output effect of a global shock to oil prices (of about 15%) is never statistically significant for both the Euro Area and the US. Is that plausible?
- The effect of a positive shock to the US short rate on Euro area long term rates is positive and significant for some periods. Is it higher or lower than the effect of a euro area monetary restriction? New literature on that.

Specific Issues: Satellite model and Results of IRFs for the EDF

- In the new version, the RHS of the SM is specified at first differences. This induces considerable loss of statistical significance in the estimated coefficients (but Chart 1 still looks good).

- Also, maybe because of fewer observations, the results of the shocks are quite different depending on the specification used (level vs first differences).

- Much of the content of EDF is at micro level. Considering only the median firm for different sectors and the aggregate economy could be not so much informative. Maybe we could get some more info by studying also how second moments are affected by different shocks.

EDF responses to macro and financial shocks

- The IRFs show Aggregate EDF in the Euro area to react in order:
  - Positively to a negative output shock
  - Positively to an appreciation of the Euro-dollar exchange rate
  - Positively to increases in global oil prices
  - Positively to a reduction in equity prices

  A Simulation exercise shows this to hold at 90% confidence interval

  This inference is not very powerful and does not even hold for most of the sectors (but clearly data on the median firm may vary little even if indidvidual data move a lot…).

Monetary and Financial Stability as Targets for CBs

- Central Banks' Growing Concern for Financial Stability

- How do Financial Stability Considerations Interact with the conduct of Monetary Policy?

- Can a Trade off between Monetary and Financial Stability Emerge? How to deal with it?

- Growing literature on the Properties of Interest Rate Rules with Interest Rate Smoothing. But existing literature has not provided any sound analysis of the form that an interest-rate smoothing objective should take, if it is based on considerations of financial stability

A novel contribution

- In a recent paper (Di Giorgio and Rotondi, 2007) we derive interest rate smoothing as a consequence of the concern of central banks for contributing to financial stability even when being aware of risk management practices undertaken by banks and other Fis to counter balance interest rate risk.

- Different formulations of such concern may induce in equilibrium bakward or forward interest rate smoothing policies

- This allows to obtain new Results on Determinacy of Rational Expectations Equilibria with interest rate smoothing and the outcome of a new possible trade off between monetary and financial stability.

- We argue that different tools are necessary for different targets….

Conclusions

- A recent research challenge is to increasingly use both theoretical and empirical investigations to study financial stability and its interactions with other CB's targets.

- Castren, Dees and Zaher (2007) provides a promising example of empirical work along this line.

- Thank you!