Title of the workshop

SUPTECH I WORKSHOP III. Contagion and financial stability

Venue

Secretaría General del Tesoro y Financiación Internacional, Paseo del Prado 6 - 28014 Madrid (Spain)

Date

January 20, 2020.

Hosting university

Complutense University of Madrid

Regulator/supervisor

Tesoro Público-Ministerio de Economía y Empresa.

The speakers

1. Javier Arroyo Gallardo
2. Miller Janny Ariza Garzón

Number of participants

4

The main topics:

The main topic discussed is the estimation of the risk of interbank contagion due to bankruptcy before and during the sovereign debt crisis (1999-2012):

Use case: Measuring bank contagion in Europe using binary spatial regression models.

The main topics discussed were:

1. Data and quantitative methodology for the estimation of the risk of contagion.
2. Definition of the bankruptcy event.
3. Practicality and other aspects.

The main results

The results are associated with the three topics mentioned above:

1. Data and quantitative methodology for the estimation of the risk of contagion.
   The seminar participants:

   - Consider very interesting the use of Machine Learning tools and the use of other types of information (Big Data) for estimating interbank contagion.
   - Deem very appropriate the construction of a connectivity matrix approximating the exchange of credit between banks in the European Union through connectivity networks.
   - Consider the use of spatial econometrics in the presentation and display of results to be appropriate, although not so novel.
   - Highlight that the estimation of the connectivity matrix to be unsophisticated because it uses low granularity input data. This fact can lead to biased results in the evaluation of contagion, failure probability and the identification of its drivers or determinants.
   - Consider that the previous problem could be solved with data of higher quality. The consider that the BIS or the Banco de España may have data of higher quality and a greater level of detail, but assume that these data are private.

- Consider it essential to present the units of the variables used, allowing them to understand the results better and gain confidence in the approaches taken. For example, the case of total assets which are expressed in logarithms, but the paper does not define what the unit of the variable is, which would allow them to infer which banks the default percentages presented correspond to.
- Wish to see general classification and inference statistics that complement the evaluation of the spatial econometric models. Only inferential statistics per variable are shown.
- Consider that the analysis time window is short to evaluate the contagion effect. The period from 2008 to 2012 is the beginning and core of the crisis, and it is only after this period that new support agencies, policies, interventions and government aid begin to be defined (some of them are still currently under development). This aspect also affects the significance of contagion variables and macroeconomic fundamentals in the models.
- Believe that a cross-sectional analysis with only a year's lag in the variables can bias the analysis of contagion. The events associated with bankruptcy risk generate an ex-post impact of several periods. Therefore, they suggest to expand the number of lag periods used or to use models that collect these dynamics to improve the estimation of contagion.
- Suggest reviewing network analysis models based on the force of gravity. They consider that this is a methodology with elements in common with the one used in the case presented and that it could complement it theoretically and methodologically by also including spatial and connectivity components.

2. Definition of bank default:

    - They consider relevant to expand its meaning. They agree that the legal status of bankruptcy insolvency, dissolution and liquidation are appropriate, but find that by not including bank rescue, the authors underestimate the default and, therefore, the estimate of the risk of contagion.

Although they recognize that aid, intervention and rescue policies in different countries were different, the help through these measures must be taken into account in the definition of default. The institutions that are more susceptible to these measures can generate the most considerable contagion, and additionally, they present the most substantial difficulty in an intervention process.

Related with this, they question the statistic on banking default presented in the paper for Spain. They consider that value overestimated the default if it only corresponds to the states or events legal of bankruptcy, of dissolution and that of liquidation.

3. Practicality and other aspects.

    - They also comment that the effect of intervention and aid is different from that produced by an aggregate policy or reform, so they advise considering these differences in the models.

New insights and main take aways

They think that the proposal valuable and consider the possibility that it could be used as an alternative for measuring contagion and estimating bank default. They agree with the results. For example, they agree with the fact that since the beginning of the crisis, macroeconomic variables became more relevant, due to interventions and reforms at European and national level. However, they suggest that new proposals should take into account what is described in points 1), 2) y 3) to have more robust, useful and usable estimates for regulators.

With the same purpose, they suggest that when updating the study in a longer window, also new policies and strategies associated with reducing the risk of bank failure should be taken into account. For example, ring-fencing, because its impact can be evaluated in combination with different conceptions of contagion and new measurement alternatives.

Further remarks

- Attendees demonstrate an excellent level of knowledge of quantitative analysis. Although they do not know in detail the methodologies presented, they generally understand their contributions and results. This allows them to compare with what they do in their daily work, make criticisms in a constructive manner, and propose new elements for future research.
- Participants are interested in the feedback given by other European regulators and supervisors to the use cases.
- They suggest that it would be positive to involve and exchange experiences with the most technologically and financially developed banks and with actors that offer new financial products. The above is relevant for the efficient and socially sustainable development of the financial market. They consider that these entities have evolved more rapidly and adapted to market innovations. Thus, they are fundamental actors, demanders and promoters of regulatory and supervisory reforms.

Annex. Event photo