Discussion of: “Model-based approach for scenario design: stress test severity and banks’ resilience”

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Summary

- The paper
    1. proposes a model-based approach to assess the **severity** of the adverse scenarios underlying different stress tests exercises;
    2. evaluates whether the **resilience** of the Italian banking sector to adverse scenarios has increased over time.

- A scenario on a variable is considered **more or less severe** according to the probability of realization of the path of the macro-financial input variables (i.e., the greater the severity of the scenario the lower will be its overall probability).
- **Resilience** is assessed by measuring the impact on banks' balance sheet of different stress tests that are equally severe.
    - ✓ Moreover, a banking sector is considered more resilient if it is in a **better position to absorb the shock** (lower capital shortfall) and **reduce spillover effects** (by sustaining the domestic credit market).

Summary

1. **Measure of severity** of the stress test exercise on each "input variable": probability that the target variable is equal or below (or above depending on the variable) the level in the stress test scenario at horizon *h*;

Aggregate severity index: weighted average of single-variable marginal probabilities of realization (weight: contribution to the aggregate variance of banking variables).

2. **Resilience**: generate counterfactual stress tests by reproducing an artificial path of the input variables in 2016 and 2018 that are consistent with the probability of realization of the 2014 scenario.

3. **IBASE model**: large Bayesian VAR model that includes macro-financial variables and aggregate bank balance sheet variables and that allows for

- **Feedback effects**;
- **Dynamic balance sheet approach**.

Summary

Main results

- **Severity**: the 2018 exercise was the most severe of the three exercises considered (in particular due to the path of GDP, the stock market index and the 3-month Euribor rate).

- **Resilience**: in 2018, the Italian economy would have experienced a lower decline in loans compared to the previous stress scenarios.

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  Despite the more significant reduction of Tier 1 capital ratio, the authors interpreted this result as evidence that the resiliency of the Italian banking sector to adverse stress scenarios has increased.

Comments

- The paper draws separate conclusions on severity and resilience. However, they seem to be interdependent as both "blocks" are jointly determined in the model. Could the authors further explore the interlinkages between the two? E.g., is the resilience of the banking sector also affecting the conclusions drawn on the severity of the exercise?

- Severity: the results reported in Table 6 seem to be a bit "mixed" and conclusions on severity seem to be different depending on the variables considered (although the "synthetic aggregate severity measure" computed by the authors points to a more severe scenario in 2018).

- According to the European Court of Auditors (ECA), the 2018 EBA adverse scenario did not ensure minimum severity for all countries included in the exercise and was less severe than the financial crisis (with severity being measured by the absolute decline between the starting point and the end point). To what extent the results of the paper contribute to this debate and the model can be used to assess the ECA's conclusion?

Comments

- To measure resilience, the authors generate counterfactual stress tests by reproducing an artificial path of the input variables in 2016/18 that is consistent with the probability of realization of the 2014 scenario. Is the synthetic aggregate severity measure the same as well in all scenarios (i.e., are the weights used to compute this measure the same in all scenarios)?

- Resilience: the results reported in table 7 also seem to be "mixed", and it may not be fully clear how to interpret them as an increase in resilience over time. There is in fact a smaller decline in net loans, but a larger decline in the Tier 1 capital ratio. Is it possible to draw a straightforward conclusion on banks' resilience based on these results? If banks are more resilient, why do bad loans increase by more in 2018 than in 2014/16?

- Given its relevance for the conclusions drawn on resilience, is there any feature in the model that drives the trade-off between the reduction in banks' capital and deleveraging?

Comments

- Do the authors plan to follow, in the future, a structural approach to better understand the transmission mechanisms underlying the model?

- As mentioned by the authors, the model can be used to assess the impact of the shocks on single banks. Would you expect any significant change in the conclusions drawn from the model if banks' heterogeneity and the existing interlinkages between banks are introduced in the model?