How severe are the EBA macroeconomic scenarios for the Italian Economy? A joint probability approach

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Views expressed are my own and need not reflect those of the Icelandic FSA.
Assigning probabilities to scenarios

- The paper outlines a method to assign a probability of observing the realization of an economic scenario that has many variables.
- The result from standard econometric methods would tend to zero as the number of variables and periods increase.
- By making use of a structural economic model the probabilities for each variable and period are dependent, giving the possibility of a non-zero result.
- The authors use this methodology to compare the 2016 and 2018 EBA scenarios and find that the 2016 scenario is more severe.
  - 2016 scenario has a 0.15% probability of materializing
  - 2018 scenario has a 0.50% probability of materializing
Detecting implausible variable paths

- Univariate analysis shows that the development of house prices are extremely unlikely in both scenarios.
- The paper lists the overall probabilities for the scenarios based on a subset of the variables.
  - If house prices are added to the subset, the overall probability drops.
- The methodology could be better formalized with respect to this.
  - Is it enough that the scenarios are compared on a consistent basis?

Figure 2: EBA 2018 endogenous variables

(a) GDP, Probability 3.1% (% dev. from baseline)
(b) Unemployment Rate Probability 30.3% (% dev. from baseline)
(c) SPREAD ITTP-Bond, Probability 22.3% (% dev. from baseline)
(d) Dwellings Price, Probability 0% (% dev. from baseline)

Source: Prometeia calculations on EBA data
Reverse stress testing

- The system of equations that is central to the methodology can be solved for the expected path of exogenous variables for a given profile of the endogenous variables.
- This attribute can be used to find an economically consistent path for the exogenous variables that supports a given stress severity.
- The authors fit the endogenous variables from the 2018 scenario to the model and generate a shock profile for the exogenous variables which includes a more severe shock to oil prices, a persistently high BTB-Bund spread but a less severe housing shock.
- The paper left me confused about the treatment of the housing variable as it is an endogenous variable.
The authors argue that the probability distribution should take into account the current phase of the business cycle. They use the output gap as a measure of the business cycle.

The paper finds that adverse scenarios are more likely when the output gap is negative.

It seems counterintuitive that the probability of a crisis is greater at the bottom of a crisis that after a long period of prosperity.

Weaker stress test scenarios at the height of the business cycle could also be procyclical.

Source: Prometeia calculations