Stress Testing at the Central Bank of Colombia (BR)

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Top-down Stress Tests at BR: Taxonomy and Features

- **Solvency Stress Test (SYSMO)**
  - (relatively more relevant as a policy tool of the Financial Superintendency – financial supervisory authority).

- **Liquidity Stress Tests**
  - (relatively more relevant as a policy tool of the Central Bank).
SYSMO: Bank solvency stress test

1. Building macroeconomic scenarios (2-yr horizon)
   • Challenge: Create consistent, persistent scenarios with feedback effects.

2. Mapping macroeconomic scenarios to risk sources
   • Time series models (currently problematic).

3. Modelling bank behaviour under stress
   • Key assumption: pre-stress structure is optimal (currently problematic).

Policy use
   • Central Bank: mostly informative.
   • Financial Supervisor: helps to structure supervisory strategy.
Trouble in sight for 2021...

Distribution of total credit in solvency buckets
2020:I-2021:IV

Liquidity stress tests

1. Banks liquidity stress test:
   - Calculation of stressed flows. Key assumption: fall of interest income.

2. Investment funds liquidity stress test:
   - Calculation of stressed regulatory indicators for key investment funds. Key assumption: March-like withdrawals.
Challenges: Stress Testing in the Time of Coronavirus

- **Solvency Stress Test (SYSMO)**
  - What is a stress scenario, in the face of the worst crisis ever?
  - Some of the key financial and economic relationships we usually exploit for financial stability analysis are “broken”
    - Partial effect of supervisory response to the crisis (good example of Goodhart’s Law).
  - Possible solution: Reverse stress tests (Bank of England).
Example: reverse stress test using SYSMO

► Challenge: the true extent of credit risk is not observed with the same accuracy as before.

► Back of the envelope calculations suggest that the degree to which “alleviated” loans recover is the key to financial stability in the short term.
  ► 40% of total loans were “alleviated”.

► Calculate the % of alleviated loans NOT recovering that would lead to:
  1. Aggregate solvency ratios below regulatory minima.
  2. One of the 3 largest banks falling below regulatory minima.
Challenges: Stress Testing in the Time of Coronavirus

Liquidity Stress Tests

- There seems to be no major problem with the level of liquidity.
- There seem to be occasional problems with the distribution of liquidity.
- How to test for distribution shocks? How to create distribution scenarios?