BANCA D'ITALIA
EUROSISTEMA

Comments to:
A. Rouabah-M.J. Theal
'Macro Stress-Testing for the Luxembourg Banking Sector'

Sebastiano Laviola
Banca d'Italia
Chairman of the BSC Working Group on Macroprudential Analysis
Luxembourg, 28 April 2010

Comments to A. Rouabah-M.J. Theal

- The paper deals with a hot topic, macroprudential stress tests of the banking sector. With the crisis, we have found out that most banks tress tests were too lenient, and in some cases the degree of analysis by the authorities of the vulnerabilities and interlinkages within the financial sector and between the real and the financial sector was insufficient. In this regard, the paper constitutes an important contribution to the authorities understanding of the vulnerabilities implicit in the banking sector and its linkages with the real economy.

BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

- Points of strength or innovative features of the paper:

  - Integrated model – system of six linear equations; lagged values of endogenous variables allow to model simultaneously default probabilities and macroeconomic variables.

  - Model estimated using SUR, which allows to capture correlation in the residuals across equations. Mote Carlo simulation to generate baseline and adverse scenario.

BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

- Assumptions and results obtained

  1. Top-down approach to stress test. Proxy for PDs: Loan loss provisions/Total Loans. Logit transformation for PDs

  2. Four adverse scenarios – decrease in Lux and euro area GDP, increase in IRR, reduction property prices

  3. Unstressed profits; regulatory LGD; invariant EAD.

  4. Results: Avg aggregate PDs increase about 30 bp in all scenarios, tail PDs never beyond 4%.

  5. Impact on capital requirements (including profits) calculated at system-wide level and individually for the first 5 banks

  6. Results: T1 Capital ratios remain comfortably above 4% level.

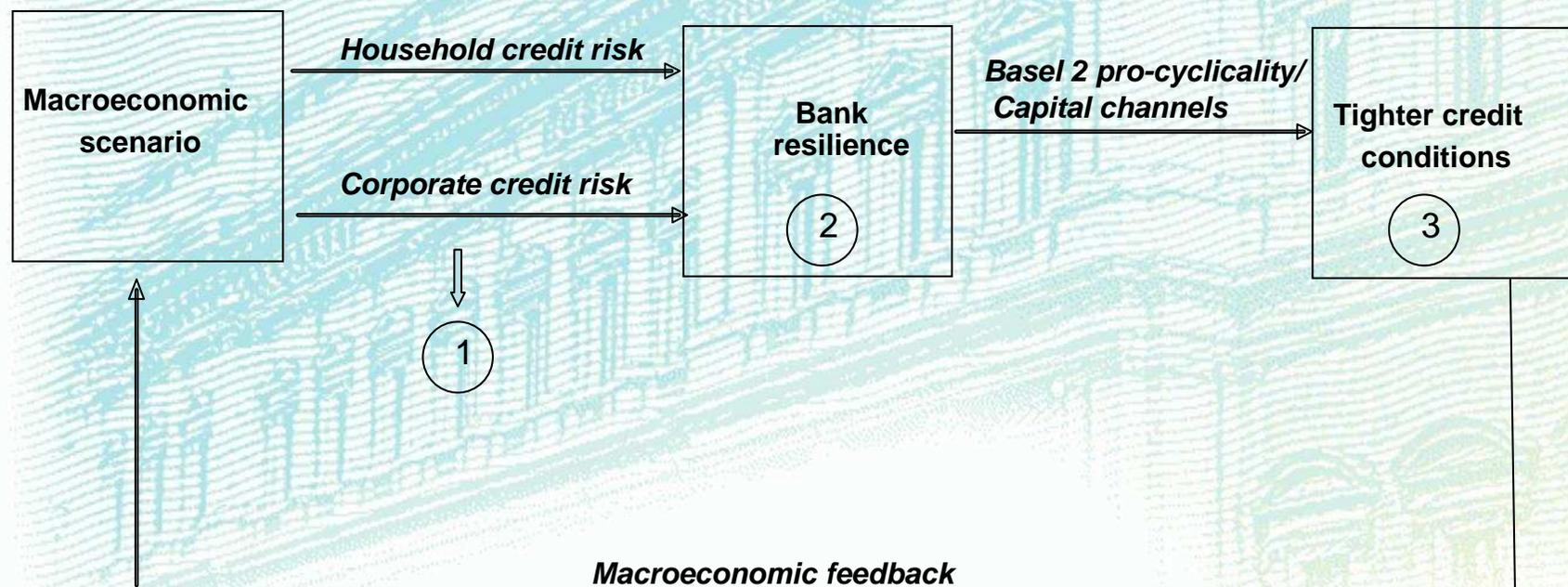BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

- Points of weakness or challenges:

1. Main weakness – as acknowledged by the authors, use of loan losses/Total loans as a proxy for defaul rates can be highly problematic. Provisions are driven by balance-sheet policies, accounting concepts. Better solution is to use data on non-performing loans rates, which should be less prone to manipulations than provisions. Otherwise, use in the equation variables to control for unwanted effects related to provisions.

2. Methodology used – it may be that Lux and euro-area GDP strongly correlated, therefore the SUR should be run excluding one of the two, at least as a robustness check.

Comments to A. Rouabah-M.J. Theal

- Points of weakness or challenges:

  1. Feedback effects – the inclusion of the lagged dependent variable does not completely allow to take into account the feedback effect from the the banking sector to the real economy.

  2. Feedback effects (continued) – Integrated model approach: ECB - GVAR extended with lending, credit ratios and financials indicators; IMF - Tieman&Maechler (2009). Reduced form approach: Driscoll (2004); Čihák and Koeva Brooks (2008); ECB (2009).

BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

Framework for feedback effects (WGMA, 2009)

```
┌──────────────┐   Household credit risk    ┌──────────┐  Basel 2 pro-cyclicality/  ┌──────────────┐
│Macroeconomic │ ─────────────────────────> │   Bank   │  Capital channels          │Tighter credit│
│  scenario    │                            │ resilience│ ──────────────────────────>│  conditions  │
│              │   Corporate credit risk    │          │                            │              │
│              │ ─────────────────────────> │    (2)   │                            │      (3)     │
└──────────────┘          │                 └──────────┘                            └──────────────┘
      ↑                   ↓                                                                  │
      │                  (1)                                                                 │
      │                                                                                      │
      │                       Macroeconomic feedback                                         │
      └──────────────────────────────────────────────────────────────────────────────────┘
                                            (4)
```

7

BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

- Points of weakness or challenges:

1. Severity of scenarios – shocks may be mild, particularly for euro-area GDP. In Italy's FSAP, we used a severe shock for the exogenous macrovariable (oil price was increased by 70% with respect to average level at the time of the exercise, see Laviola, Marcucci, Quagliariello (2009) in Quagliariello (2009).

2. In recent BoI stress tests, we assumed decrease in GDP 3 pp greater than that forecasted by IMF and OECD. The default rate increases by 230 bp. Plus, conservative figures for LGDs and EADs.

3. Scenario calibration – indication of the severity of the scenarios, in terms of probability of occurrence ?

BANCA D'ITALIA
EUROSISTEMA

Comments to A. Rouabah-M.J. Theal

- Points of weakness or challenges:

1. Impact on capital ratios – Before calculating the impact on capital, it is important to consider the impact of the stress on the profit and loss account.

2. CAR (stress)= (OF+GOP(stress) – Losses(stress)) / RWA

3. GOP= gross operating profits projections under stress

4. As the authors acknowledge, this is a limitation of the work, because the income items remain static and do not incorporate the effects of changes in IRR, property prices, GDP. The use of historical profits and not simulated ones as a result of the stress determines inconsistency. Laviola, Marcucci, Quagliariello (2009) use the econometric model of the income statement developed by Casolaro - Gambacorta (2004) to determine the effect of the macroeconomic shocks on the income items. The recent BoI stress test has also used the same model.

9

Comments to A. Rouabah-M.J. Theal

- Points of weakness or challenges:

1. Not clear whether in the calculation of the impact on capital ratio, the effect of stressed EL (that is, the EL derived using stressed PD) is included in eq. 6, which means to deduct from historical profits the extra provisions generated by the adverse shocks.

Comments to A. Rouabah-M.J. Theal

- Future challenges for stress tests:

  1. Projections of GOP under stress – to be improved, difficult to capture banks behaviour and managerial actions
  2. Banks reaction to the stress environment – needs to be considered if time horizon is extended too much
  3. Feedback effects: research is on-going, not entirely clear how to incorporate them
  4. Interaction between risks – important role in recent crisis
  5. Improvements in banks bottom-up approaches !

THANK YOU !

sebastiano.laviola@bancaditalia.it

Tel.: 0039 06 4792 4601

BANCA D'ITALIA
EUROSISTEMA