Overview of Supervisory Stress Testing

Pierpaolo Grippa (MCM-IMF)
World Bank/International Monetary Fund/Federal Reserve System
Seminar for Senior Bank Supervisors from Emerging Economies
October 21, 2015 – Washington D.C.
• “My remarks today are intended simply as a small awareness-raising step in what, if pursued, is likely to be a long road”

D. Crockett, September 20, 2000: Marrying the micro- and macro-prudential dimensions of financial stability
Outline

- Principles for sound stress testing practices and supervision (2009) – principles for supervisors
- What BCBS principles on stress testing are NOT about
- Assessing banks’ own stress tests
- Supervisory (re)action
- Conclusions
Principles for sound stress testing practices and supervision (2009)

• Principle 16:
  – Supervisors should make regular and comprehensive assessments of a bank’s stress testing programme.

• Principle 17:
  – Supervisors should require management to take corrective action if material deficiencies in the stress testing programme are identified or if the results of stress tests are not adequately taken into consideration in the decision-making process.
Principles for sound stress testing practices and supervision (2009)

• Principle 18:
  – Supervisors should assess and if necessary **challenge** the scope and severity of firm-wide scenarios. Supervisors may ask banks to perform sensitivity analysis with respect to specific portfolios or parameters, use specific scenarios or to evaluate scenarios under which their viability is threatened (reverse stress testing scenarios).
• Principle 19:
  – Under Pillar 2 (supervisory review process) of the Basel II framework, supervisors should examine a bank’s stress testing results as part of a supervisory review of both the bank’s internal capital assessment and its liquidity risk management. In particular, supervisors should consider the results of forward-looking stress testing for assessing the adequacy of capital and liquidity.
Principles for sound stress testing practices and supervision (2009)

• Principle 20:
  – Supervisors should consider implementing stress test exercises based on common scenarios.

• Principle 21:
  – Supervisors should engage in a constructive dialogue with other public authorities and the industry to identify systemic vulnerabilities. Supervisors should also ensure that they have the capacity and skills to assess a bank’s stress testing programme.
What BCBS principles on stress testing are NOT about

• “Increasingly, supervisory stress tests are being used to set minimum capital requirements, determine explicit capital buffers or to limit capital distributions by banks. This recent development was not extensively considered in the principles and as a result was not a key focus of the review”

  (BCBS, Peer review of the BCBS principles for sound stress testing practices and supervision, 2012)
a few steps back
The micro and the macro

• “in order to build most productively on past achievements in the pursuit of financial stability, we should [...] consolidate a shift in perspective that is already taking place, complementing the micro-prudential perspective with increased awareness of, and attention to, the macro-prudential facet”

A.D. Crockett, “Marrying the micro- and macro-prudential dimensions of financial stability”, 2000 (http://www.bis.org/speeches/sp000921.htm)
The micro and the macro

- Micro $\rightarrow$ limiting idiosyncratic risk (i.e. the likelihood of single institutions failing)
- Macro $\rightarrow$ limiting systemic risk (i.e. limiting the probability and/or the costs to the whole financial system/economy of financial distress)
- actions that may seem desirable or reasonable from the perspective of individual institutions ...
- ... may result in unwelcome system outcomes
The micro and the macro

• Why macroprudential? **Externalities.** Pigouvian tax to internalize ‘social’ costs

• Banking regulation **before** the GFC → predominantly ‘micro’:
  – No penalization for size, systemicness, etc.
  – Actually not even a systematic effort to measure the ‘systemic footprint’ of banks
  – No liquidity requirements
The micro and the macro

• Banking regulation after the GFC \(\rightarrow\)
  progressively more ‘macro’:
  – G-SIBs, D-SIBs
  – LCR, NSFR
  – Stress testing

• But ‘micro’ or ‘macro’ stress testing ???
A bit of taxonomy

Source: speaker’s own views
Stress test what?

- Solvency
- Solvency + Liquidity
- Solvency + Liquidity + Interbank Contagion
- Solvency + Liquidity + Interbank Contagion + Spillovers (to other sectors/countries)
- Solvency + Liquidity + Interbank Contagion + Spillovers + Real feedback
- + …
Stress test, who?

• Marrying the micro and macroprudential dimensions of financial stability also means:
  – Improving and intensifying the dialogue between the financial stability experts (generally working within a dedicated unit at central banks) and the supervisors: both have to gain, a lot
  – For supervisors, to get more familiar with the technicalities of stress test (to better question banks’ choices) and, possibly, to equip themselves with some (simple) tools (to better challenge banks’ results)
  – For banks, to increasingly incorporate ‘macro’ elements (contagion, real feedbacks, etc.) in their models
Assessment of banks’ own stress tests
BCP 15 (Risk Management)

• The supervisor requires banks to have forward-looking stress testing programmes, commensurate with their risk profile and systemic importance, as an integral part of their risk management process.

• The supervisor regularly assesses a bank’s stress testing programme and determines that it captures material sources of risk and adopts plausible adverse scenarios.

• The supervisor also determines that the bank integrates the results into its decision-making, risk management processes (including contingency arrangements) and the assessment of its capital and liquidity levels.
Where appropriate, the scope of the supervisor’s assessment includes the extent to which the stress testing programme:

a) promotes risk identification and control, on a bank-wide basis;

b) adopts suitably severe assumptions and seeks to address feedback effects and system-wide interaction between risks;

c) benefits from the active involvement of the Board and senior management; and

d) is appropriately documented and regularly maintained and updated.
Evidence from recent FSAPs

- Monetary Authority of Singapore (FSAP 2013)
  - Supervisors factor the results of MAS’ regular industry-wide stress tests (IWST) in their assessments of the banks’ safety and soundness.
  - Bottom-up stress tests can reveal areas of vulnerability in terms of banks’ exposures and risk management practices, while top-down stress tests provide a benchmark to compare the results of bottom-up stress tests.
  - Supervisors review the stress test results of their banks from the IWST as well as other internal stress tests undertaken by the banks. As part of the review, supervisors challenge banks on their approaches and assumptions, with a view to encouraging good stress testing practices.
  - MAS also conducts an independent top-down stress tests on the key banks using an econometric modeling approach as another way to validate the robustness of the bottom-up IWST performed by banks.
EBA SREP guidelines

Figure 1. Overview of the common SREP framework
EBA SREP guidelines

• Authorities should assess the banks’ stress-testing programmes, covering the appropriateness of the selection of the relevant scenarios, and the underlying assumptions, methodologies and infrastructure, as well as of the use of stress tests’ outcomes.
EBA SREP guidelines

• As a minimum, this should include an assessment of:

  a) the extent to which stress testing is *embedded* in a bank’s risk management framework;

  b) the bank’s ability and infrastructure, including *data*, to implement the stress testing programme in individual business lines and entities and across the group, where relevant;

  c) the *involvement* of senior management and of the management body in the stress-testing programmes; and

  d) the *integration* of stress testing and its outcomes into decision-making throughout the bank.
Supervisory (re)action
BCP 15 (Risk management)

• The supervisor requires corrective action if material deficiencies are identified in a bank’s stress testing programme or if the results of stress tests are not adequately taken into consideration in the bank’s decision-making process.
Some evidence from recent FSAPs

- Honk Kong Monetary Authority (FSAP 2014)
  - Banks must submit the results of their firm-wide stress tests, including any actions taken in response to the results generated and the supporting analyses and justifications for the actions taken.
  - Where the HKMA’s assessment reveals material shortcoming in a bank’s stress-testing program - or that the results generated from the program are not adequately attended to or acted upon - the bank must provide a detailed plan of corrective actions and follow-up on its implementation.

(...)

Some evidence from recent FSAPs

- Honk Kong Monetary Authority (FSAP 2014)
  
  (...)  
  - In case the stress test results suggest a shortfall in a bank’s capital adequacy, the BSD will convey its concern to the bank and, where necessary, take supervisory actions (e.g., requiring the AI to reduce its exposure, requiring the bank to develop a plan to strength its capital position).
  - In addition, the results of the stress test would also form part of the input to the Supervisory Review Process which determines the minimum capital adequacy requirement for individual AIs.
Some evidence from recent FSAPs

- Monetary Authority of Singapore (FSAP 2013)
  - The stress tests are used as a pre-emptive supervisory tool to encourage financial institutions to have appropriate capital planning processes and/or risk mitigation plans across a range of stressed conditions.
  - In addition, the results are used to assess the robustness of banks’ stress testing methodologies, for instance, by comparing the degree of conservatism exercised by different banks in the stress testing of common corporate borrowers.
EBA SREP guidelines

Figure 1. Overview of the common SREP framework

- **Categorisation of institutions**
- **Monitoring of key indicators**
- **Assessment of risks to capital**
  - Assessment of inherent risks and controls
  - Determination of own funds requirements & stress testing
  - Capital adequacy assessment
- **Assessment of risks to liquidity and funding**
  - Assessment of inherent risks and controls
  - Determination of liquidity requirements & stress testing
  - Liquidity adequacy assessment

**Overall SREP assessment**

**Supervisory measures**
- Quantitative capital measures
- Quantitative liquidity measures
- Other supervisory measures

**Early intervention measures**
EBA SREP guidelines

• Competent authorities should use stress testing (the bank’s own and/or supervisory testing) to determine the impact of a baseline and adverse scenarios on available own funds and whether these are sufficient to cover capital requirements or any other relevant target ratio set by competent authorities for system-wide stress tests.

• Competent authorities should also consider the impact of stress tests on the bank’s leverage ratio.
EBA SREP guidelines

• Competent authorities should analyse:
  – the outcome of stress tests run by the bank as part of its ICAAP on the basis of a plausible but severe stress relevant to its business model and risk profile and suitably challenged by the competent authorities; and/or
  – the outcomes of the supervisory stress tests carried out by the competent authorities, and ranging from, for example:
    • prescribing specific ‘anchor’ scenarios/assumptions to be implemented by banks; to
    • conducting system-wide stress tests using consistent methodologies and scenarios run either by banks or by supervisors
EBA SREP guidelines

• Taking into account outcomes of the stress tests, competent authorities should consider whether and which measures are necessary to address any breaches of the capital requirements or of any other relevant target ratio set by competent authorities for system-wide stress tests.

• Competent authorities should require the bank to submit a credible capital plan, ensuring that it is able to meet its capital requirements / target ratio over the assumed time horizon.
EBA SREP guidelines

• Analysis of the capital plan
  – Competent authorities should review and consider the appropriateness of credible mitigating management actions that a bank indicates it would take.
  – Competent authorities should assess these in the context of the legal and reputational constraints of the bank, noting the extent to which they are already stated in public documents (e.g. dividend policies) and the institution’s business plan and risk appetite statements.
  – Competent authorities should also assess the credibility of mitigating actions in the context of broader macro-economic considerations.
EBA SREP guidelines

- Where relevant, competent authorities should apply additional capital requirements / capital measures (e.g. limits to dividend distribution), taking into account:
  a) the time horizon when the breach occurs compared to the starting point of stress tests;
  b) the magnitude of the breach compared to the starting point of stress tests;
  c) the magnitude of the absolute and relative decrease of resources compared to the starting point of stress tests;
  d) the bank’s strategy and financial plans and outcomes of the assessment of its business model.
EBA SREP guidelines

• Assessing the liquidity contingency plans
  – Competent authorities should assess whether the bank’s **liquidity contingency plan** (LCP) adequately specifies the policies, procedures and action plans for responding to severe potential disruptions to the institution’s ability to fund itself
  – Competent authorities should assess whether the actions described in the LCP are **feasible** in relation to the stress scenarios in which they are meant to be taken, taking into account the level of consistency and interaction between the bank’s liquidity-related stress tests, its LCP and its liquidity early warning indicators
A reminder: ‘good supervision’

• How is good supervision?
  – Intrusive
    • supervisors have intimate knowledge of the supervised entity
  – Skeptical but proactive
    • supervisors must question
  – Comprehensive
    • supervisors stay vigilant, also on the edge of the regulatory perimeter
  – Adaptive
    • supervisors must be in a constant learning mode
  – Conclusive
    • supervisors must follow through conclusively on their findings

(Viñals et al., The Making of Good Supervision: Learning to Say “No”, IMF, 2010)