Stress Testing: Past, Present and Future?

“Macroprudential policy, bank regulation and financial stability” Conference at Brunel University, 28 June 2019

Jo Paisley, Co-President
Stress Testing: Past, Present and Future

1. Past: how has it developed?
2. Present: where are we now?
3. Future: how does it need to develop?
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Recall: 2007 Context

- Worst recession since Great Depression
- Freezing up of many parts of the financial markets
- Capital ratios were not forward-looking
- Markets unable to distinguish weak from healthy banks
- Basel (2009) looked at stress testing practices – generally poor, but firms that were doing stress testing well fared better in the crisis
- Basel published principles to guide banks and supervisors
- Regulators started to use stress tests in earnest
US Did First Concurrent Stress Test

- The Supervisory Capital Assessment Programme (SCAP) was the first *concurrent* exercise.
- That is: all banks run the *same* scenario at the *same* time
- 10 of the 19 banks required to raise US$75bn of capital within six months... which they did without government support.
Why Was the US Stress Test (SCAP) So Successful?

- Severe scenario
- Credible
- Well executed
- Good coverage
- Public disclosure
- Credible government backstop
European Stress Tests Less Credible

- 2009 test
  - No bank’s Tier 1 capital ratio falling under 6%.
  - Very little explanation about methodology.

- 2010 test
  - 7 of the 91 banks were required to raise just €3.5bn capital.
  - Undermined when Ireland asked for financial assistance from EU and IMF.

- 2011 test
  - Dexia (Belgium) and Bankia (Spain) passed the EBA 2011 stress test only to require significant restructuring within a few months.
The Financial Policy Committee wanted regular stress tests introduced, to assess the adequacy of the UK financial system’s capital.

Plus other aims:
- Macro/micro decisions on capital adequacy
- Accountability device
- Public confidence
- Strengthen supervision
- Improve risk/capital management
- Better access to data
- Strengthen market discipline
Regulator Has Many Design Issues to Decide...

- Who does modelling?
- Scope of firms?
- How granular?
- What scenario, how severe?
- Pass rate?
- Disclosures?
- Asset quality reviews?
- Qualitative standards?
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## Regulatory Stress Test Calendar

<table>
<thead>
<tr>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
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<tbody>
<tr>
<td><strong>Group</strong></td>
<td><strong>US</strong></td>
<td><strong>Latin America</strong></td>
<td><strong>Middle East</strong></td>
<td><strong>Europe</strong></td>
<td><strong>Canada</strong></td>
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<td>PRA Stress Testing - ALL</td>
<td>CCAR (HNAH)</td>
<td>Argentina ICAAP (starts Dec)</td>
<td>HBME Regional ST (Interest Rate Shock)</td>
<td>PRA ST – HBEU Standalone Submission</td>
<td>HKMA SDST</td>
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<td>EBA / ECB Stress Testing - ALL</td>
<td>Brazil ICAAP</td>
<td>Uruguay ICAAP</td>
<td>Qatar: Half yearly regulatory mandated</td>
<td>EBA/ECB ST – HBFR &amp; HBMT Standalone submission</td>
<td>Singapore MAS IWST</td>
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<td>Internal ST (TBC) - ALL</td>
<td>Mexico Local Regulatory ST exercises</td>
<td>HBME Regional ST exercises</td>
<td>Internal: ad hoc internal stress tests for specific regional portfolios requested by senior management</td>
<td>1. Quarterly Regional Specific scenarios (HBEU Solo &amp; Cons) / 2. Additional county level analysis for HBFR, HBMT, HBTR &amp; Board</td>
<td>China</td>
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<td>Group ICAAP - ALL</td>
<td>Mexico Brokerage House Stress Testing (new in 2016)</td>
<td>HBME &amp; UAE Regional stress test (EM shock and low oil price refresh)</td>
<td>Internal Canadian stress testing activities</td>
<td>HKMA RST</td>
<td>India</td>
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<td>Group Resolution &amp; Recovery Plan (TBC) - ALL</td>
<td>UAE reverse stress test</td>
<td>HBME Large Exposure and Reverse stress test</td>
<td>Recovery &amp; Resolution Plan – HBEU Solo, HBFR, UK RFB</td>
<td>Singapore Recovery Plan</td>
<td>Sri Lanka</td>
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<td><strong>Source:</strong> Trevor Wells presentation to RiskMinds December 2017</td>
<td>Brazil ICAAP</td>
<td>Mexico Brokerage House Stress Testing (new in 2016)</td>
<td>UAE reverse stress test</td>
<td>Australia Reverse ST</td>
<td>Malaysia BNM supervisory Stress Test</td>
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- Have clear objectives, effective governance
- Be used as a risk management tool to inform business decisions
- Cover material and relevant risks, be sufficiently severe
- Have sufficient resources
- Be supported by sufficiently granular data and robust IT systems
- Be based on fit for purpose models/methodologies
- Be reviewed and challenged
- Practices/findings should be communicated within and across jurisdictions
Comparing Stress Tests: EBA and BOE 2018

CET1 capital ratios: pre and post stress

- 2017 CET1 ratio
- EBA post-stress CET1 ratio
- BoE post-stress CET1 ratio (before management actions)
- BoE post-stress CET1 ratio (after management actions)
Benefits vs. Costs

The benefits are substantial

- Forward-looking
- Insights on firms/the system
- Crisis management tool
- Market discipline
- Data quality improvements
- Improves public confidence

But so are the costs...
Costs of Multiple, Disparate Stress Tests

- Regulatory tests hard to compare
- Publication standards differ across regulators – confuses investors
- Crowds out banks’ internal stress testing
- Encourages a ‘compliance’ mindset
- Firms discouraged from investing in robust, strategic IT architecture

- Can’t achieve economies of scale in production of stress test outputs

- Capital levels
  - Banks business models may not be taken into account
  - Diversification effects at Group not taken into account
  - Risk of double counting capital for micro/macro prudential purposes
Stress Testing: Past, Present and Future

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Future Direction?

- Encourage harmonization and coordination across regulators
- Develop approaches to address new risks, such as climate risk
A CODE OF PRACTICE FOR SUPERVISORY STRESS TESTS
Providing a Framework to Support Greater Coordination and Harmonization
By Jo Paisley and Mark Carey, Co-Presidents

- Published in December 2018
- Kickstart dialogue between practitioners and regulators
- https://www.garp.org/#!/garp-risk-institute/supervisory_stress_tests
The Approach

- Assume we aspire to achieve the Basel Principles
- Code of Practice provides a framework for harmonisation

1. PURPOSE
2. GLOBAL GUIDELINES
3. PROCESS COMPONENTS

- Aim for the right level of harmonisation
# Anatomy of a Supervisory Stress Test

## 1. PURPOSE
- **Micro prudential**
  - e.g. Capital/Liquidity planning
- **Macro prudential**
  - e.g. System-wide resilience

## 2. GLOBAL GUIDELINES
- Home Host protocol
- Timetable
- Proportionality & consultation
- Scenario selection

## 3. PROCESS COMPONENTS
### INPUT TEMPLATES
- Portfolio structure & granularity
- Definitions
- Accounting standards
- Risk coverage

### SCENARIOS
- Scenario and variables
- Time horizon

### OUTPUT TEMPLATES
- Reporting templates

### DISCLOSURE
- Public/private disclosure
- Use of results
- Management actions
- Disclosure templates

Scenarios can be common or set by individual regulators. Aim to harmonise how they are specified.
Climate risk

- Climate risk used to be viewed as purely an ESG issue
- Now increasingly seen as posing financial risks
- Pressure coming from: regulators, disclosures (e.g. TCFD), investors
- Scenario analysis is seen as a key tool
- But it is highly uncertain
The Future is Highly Uncertain

Physical risks – arising from climate change (e.g., storms, wildfires, rising sea level)

Transition risks – arising from the adjustment towards a low-carbon economy (e.g., policy, technology changes)

GARP’s Climate Publications

➤ **A Good Start But More Work To Do**: a survey showing financial firms’ uneven progress in creating core climate risk capabilities such as governance, strategy and scenario analysis.

➤ **Challenges and Opportunities**: an overview on climate change itself, the evolving regulatory landscape, and how climate risk can be embedded into existing risk management frameworks.
Conclusions

‣ Some regulatory stress tests proved powerful as a crisis management tool.
‣ It is now the tool of choice for many regulators.
‣ Stress testing is a critical part of risk management
‣ It can aid market discipline and improve public confidence
‣ But has become fragmented
‣ GARP Code of Practice aims to encourage greater coordination and harmonization
‣ Need to develop approaches to new risks, such as climate risk
‣ GRI publications available: https://www.garp.org/#!/garp-risk-institute
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