A guide to stress testing

It's not just a regulatory exercise

Contents

Maximising the value of stress testing

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The banking crisis shook the global economy and the last ten years have been characterised by consistent regulatory efforts to prevent it from happening again. Stress testing is a valuable part of those efforts and is an essential tool for viewing the bigger picture.

While stress testing programmes are nothing new, they are often poorly embedded into broader risk management processes. But they can be a vital tool to identify key dependencies across the business and help identify under-capitalised or at risk businesses. This can strengthen the risk management framework, which is particularly important for the globally systemic banks on whom the economy depends.

Although there are a number of regulatory drivers pushing the stress testing agenda, it would be short sighted to view it as a simple box ticking exercise. Stress testing can be a valuable tool to assess how a business will fare in the face of change. These changes may be pre-planned organisational growth or restructuring, or unavoidable changes due to external factors. Either way, putting together potential business scenarios and testing against them can identify emerging risks and improve business resilience in the long term.

But what should those scenarios be? This is perhaps the most challenging area of stress testing and one that can be limited by a lack of imagination. Testing scenarios should be extreme, catastrophic and truly relevant to the business. If the market has been stable for some time, it can be difficult to imagine the worst case scenarios, but it is important to do so. Effective stress testing should identify unknown weaknesses and strengthen the control framework moving forward.

Essentially stress testing is a forward looking exercise. But it can be difficult to apply the findings. What do they really mean? What changes are needed across the business? This is where senior management input is vital from the word go. There's no point identifying these issues without the decision making power to implement the necessary changes. So it is important to really think through the stress testing programme in terms of ownership, intended benefits and how this is practically fed back into the existing risk management framework.

Following a three stranded approach to stress testing

Firms need to establish comprehensive stress testing programmes that accurately assess their business health and how they would cope in the face of another financial crisis. To achieve this, stress testing should be considered in three key strands, as outlined below.

Not only must they meet regulatory expectation, but firms must create a plausible (yet extreme) scenario and effectively apply their findings to the business moving forward.

Meeting regulatory expectation

- Firms subject to Basel based regulations are expected to perform stress testing on the key areas of the business at least annually.
- Stress testing is a regulatory requirement for inclusion in the ICAAP and ILAAP, and feeds into the recovery and wind-down plans.
- Banks across Europe are required to participate in the European Banking Authority's stress testing exercises.
- Failure to run adequate stress tests can lead to additional capital or liquidity requirements.

Building the scenario

- The scenario should offer valuable insight into future uncertainty, both within the business and from market change. It should be forward looking in nature and include elements such as the effect of digital entrants to the market.
- A strong scenario should also robustly test for key business vulnerabilities (such as concentration risk), which can be identified by examining the correlation and interaction between different elements of the business.

Applying the results of the stress test

- Drawing on the output of the stress test, firms should factor their findings back into the risk profile to inform their risk management processes.
- Anticipation of adverse events helps businesses to be proactive and become more effective under a variety of conditions, therefore improving their chances of survival.

Who does stress testing apply to?

Stress testing is applicable to a broad range of financial institutions including banks of all types, fund managers, insurers, brokers and security houses. A variety of risk areas may be assessed through stress testing, such as:

- Liquidity risk
- Net interest income
- IFRS 9
- Operational continuity in resolution
- Model risk
- Recovery planning
- FRTB
- Credit risk
- ICAAPs
- Market risk
- ILAAPs
- Operational risk

Meeting regulatory expectation

In recent years, there has been an increasing global trend towards stress testing programmes. Spearheaded by BCBS's 'Principles of Sound Stress Testing Practices and Supervision' guidance paper, banks, insurers and other financial institutions around the world are now required to maintain a comprehensive stress testing programme.

The results of these are used to measure whether they have sufficient capital and liquidity to endure adverse conditions.

Central banks across the globe run regular stress testing exercises to assess if the banks they govern are robust enough to withstand future shocks. These tests are becoming increasingly sophisticated, and assess:

- A range of metrics in addition to the capital contagion effect across markets
- The impact of globalisation on contagion
- The use of relevant stress scenarios in day to day risk management processes and reporting

Where banks do not meet the minimum criteria following a stress test, firms may be asked to bolster their capital.

Relevant geographical regulations, requiring outputs for stress testing purposes include:

Geographic region	Typical regulations
Global	Basel Principles
USA	Dodd-Frank Act (DFAST), CCAR
Europe	CRD IV, EBA
UK	SYSC 20, PRA Rulebook, FCA Handbook, Solvency II

Stress testing models

The PRA has acknowledged the risks posed to effective stress testing by inadequate models and has introduced the following four principles:

Principle 1 – Banks have an established definition of a model and maintain a model inventory.

Principle 2 – Banks implement an effective governance framework, policies, procedures and controls to manage their model risk.

Principle 3 – Banks implement a robust model development and implementation process and ensure appropriate use of models.

Principle 4 – Banks undertake appropriate model validation and independent review activities to ensure sound model performance and greater understanding of model uncertainties.

Regulatory change

Regulations around stress testing continue to evolve:

- Stress testing principles: In December 2017, BCBS issued a consultative document regarding nine stress testing principles to replace the previous 21.
- Recovery planning: The PRA have detailed the changes in approach toward stress testing in recovery situations. The EBA also issued a paper on the use of scenarios in the recovery plan.
- Pillar 2A: The PRA consultation paper on Pillar 2A capital requirements expressed the need for the output of stress scenarios to be incorporated into these calculations.
- The PRA have issued a supervisory statement on dealing with a market turning event in the general insurance sector, which introduces stress testing and reverse stress testing.

Building the scenario

A stress test considers a plausible scenario and assesses an organisation's ability to respond to it. Testing is most effective when based on extreme scenarios and as such, a lack of imagination can be a limiting factor.

Selecting an appropriate range of scenarios and models is crucial to understanding vulnerabilities and risk interactions across the business. Building the scenario can be time consuming and requires input from a wide range of areas within the organisation.

Key elements required to build scenarios include:

- A realistic methodology/approach
- Justifiable assumptions
- Effective challenge by senior management
- The ability to reproduce scenarios at short notice
- The ability to apply the output of scenarios to day-to-day risk management
- Alignment with regulatory expectations and parameters
- The ability to tease out elements of the business (eg portfolios) which are particularly sensitive to various macro-economic factors

As with any type of assessment, stress testing should have clearly identifiable inputs and useable outputs. They should have significant senior oversight and be subject to robust challenge, as outlined below.

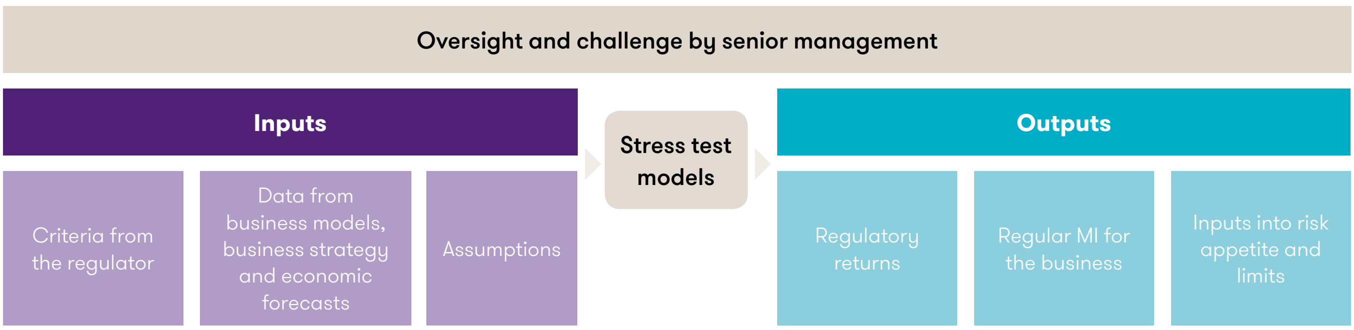
Idiosyncratic and systemic risk

Stress testing scenarios should address one of two types of risk factor, idiosyncratic and systemic.

Systemic risk refers to scenarios which are market driven and may affect all organisations, for example Brexit.

Idiosyncratic risks are those which are specific to a particular type of business, such as Russian banks operating under regulatory restrictions.

When building scenarios, it is important to consider both idiosyncratic and systemic risk factors.



Building the scenario (cont.)

Case study

Building challenging scenarios

Our client developed a number of stress testing scenarios to assess the adequacy of their capital and liquidity resources. The stress testing scenarios were too simplistic and the organisation struggled to meet reverse stress testing requirements to develop a scenario that would challenge the business' existence. We reviewed and challenged the client's business model, strategies and forecasts and helped to create an inventory of relevant, severe scenarios. Our team helped senior management to identify and mitigate risks within the organisation.

Case study

Assurance over stress models

Our client sought assurance over their regulatory alignment and the soundness of the model employed for their EBA 2018 stress test. We designed the assurance framework, including the compliance template for our client to align to the each area of regulatory focus. Our experts offered meaningful challenge across all risk areas and provided an opinion on overall EBA compliance in relation to stress testing for all risk areas.

Applying the results of the stress test

Stress testing is designed to improve a bank's resilience by checking the effects of changing internal or external risk factors. It is not enough to simply conduct a stress test, senior management must analyse the outcome and use the findings to further mitigate risk.

Senior management buy-in is integral to stress testing, from planning through to mitigating the identified risks. Successful mitigation of the stress scenarios depends on the following:

- Promptly implementing new controls, as required
- Assessing the possible impact of those controls
- Weighing up the cost of implementing new processes
- Instigating a range of precautionary measures and contingency plans in the event of worsening conditions
- Measuring the effectiveness of improved controls and establishing Key Risk Indicators based on trend analysis
- Maintaining oversight and effective risk management

Common challenges

Key challenges firms face when conducting stress testing exercises include:

- Selecting scenarios which have no relationship to the business
- Taking longer than competitors to run or re-run stress scenarios
- Not taking the impact of stresses into daily risk management
- Not preparing plans to mitigate the effects of the stress scenarios
- Not creating sufficiently adverse scenarios (also highlighted by the regulators)

Meeting regulatory expectation

Regulators expect stress testing to systematically challenge existing and accepted risk management techniques across an organisation. This challenge should take into account stressed conditions such as illiquid markets, which could delay or eliminate any benefit from these actions.

Best practice is to rank the effectiveness of mitigating controls as follows:

- Effective notwithstanding any stressed conditions
- Delay in the effectiveness caused by stressed conditions
- Severely impacted by stressed conditions

Case study

Helping our client to respond to the results of stress testing

Following an ICAAP submission, the regulators noted that certain scenarios would put our client out of business and that no mitigating controls had yet been established. This had a direct impact on their capital buffer. We assisted our client by establishing feasible mitigation plans in the event of the scenarios taking place in real life. The approach was consistent with recovery planning and was considered by the regulators at their next SREP visit.

How we can help

Stress testing is more than a regulatory requirement and can be a valuable tool to identify emerging or overlooked risks across a business. Forward looking in nature, they should model severe scenarios to identify vulnerabilities and areas where further controls are needed to mitigate risk.

Our experts can help you to devise challenging and realistic scenarios, which offer genuine insight into your business. Drawing on significant experience across the financial sector, our team of finance and risk experts can advise on best practice including the type and combination of stress tests to be applied. We can help you interpret the results of the stress test and work with management to implement mitigating controls as required.

Our team can support your business in the following areas:

- Help design and implement an effective and proportionate stress testing framework
- Help create realistic stress scenarios from our market experience
- Support to create a realistic inventory of scenarios and updating these as circumstances change
- Provide a consistent and proportionate approach to stress testing across the key risks and addressing the challenges of FRTB and the moves to standardise counterparty and operational risks
- Offer assurance, benchmarking and updates on the latest regulatory direction and changes
- Help manage the latest challenges to the Pillar 2A capital requirements
- Assess the overall effectiveness of the model risk management framework in terms of the PRA's Supervisory Statement. We will evaluate and independently verify whether model risk management practices are comprehensive, rigorous, and effective
- Provide assurance to life and non-life insurers on their approach to stress testing

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