

FRAMEWORK FOR STRESS TESTING



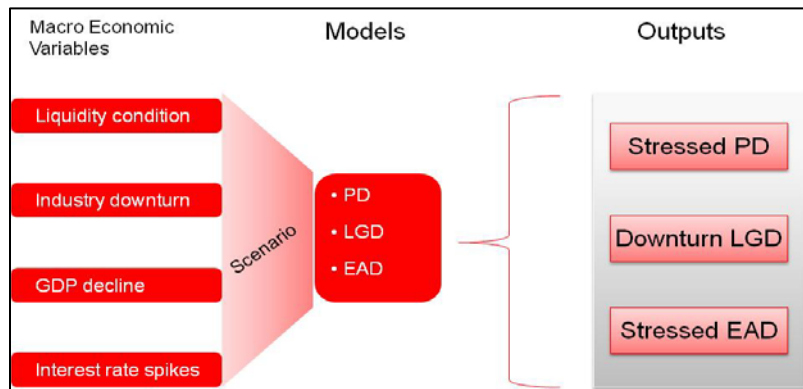
ORACLE FRAME WORK FOR STRESS TESTING

- Regulatory Requirements
- Global Best Practices
- Methodology of Stress Testing
- Library of Scenarios
- Stress Test Reports

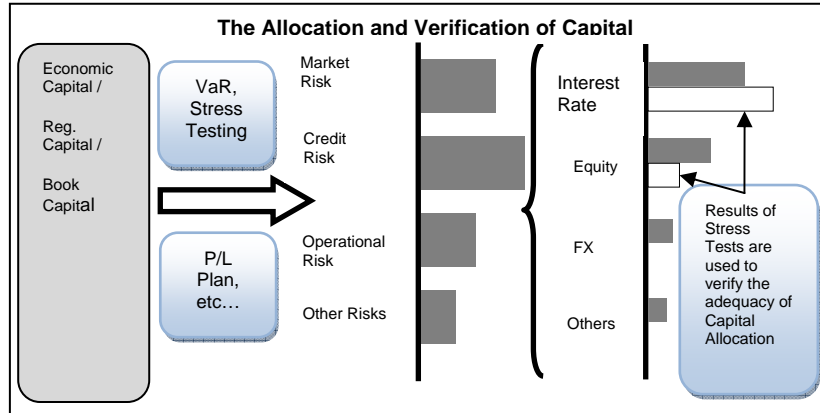
Financial institutions are focusing on establishing a comprehensive risk management framework to avoid the occurrence of ‘incidents’ in the future. Stress testing is a crucial component of such a framework. It plays a critical role in ensuring effective risk management and understanding how economic cycles, especially downturns, affect risk-based capital requirements, assets and liabilities across business lines. Stress testing techniques help estimate the likely losses that financial institutions may suffer under exceptional, but plausible scenarios. Oracle Financial Services has developed a framework and methodology for helping banks meet their stress testing needs.

The need for Stress Testing

- **Regulatory Requirements:** Stress testing can be used to check if the “capital buffer” is sufficient under the conditions described. Basel II accord demands estimation of risk-based capital requirements under Pillar I & II at “Steady State” and “Stress scenarios”, respectively. Further, banks that want to qualify for TARP (Troubled Assets Relief Program) in the United States may have to demonstrate viability under various stress test scenarios. The Federal Reserve and the US Department of Treasury help financial institutions avoid bankruptcy through the TARP.

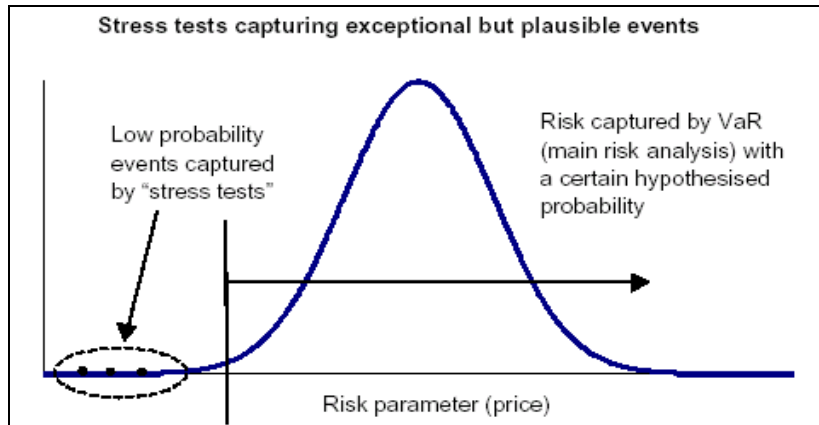


Pillar I Credit Risk stress testing



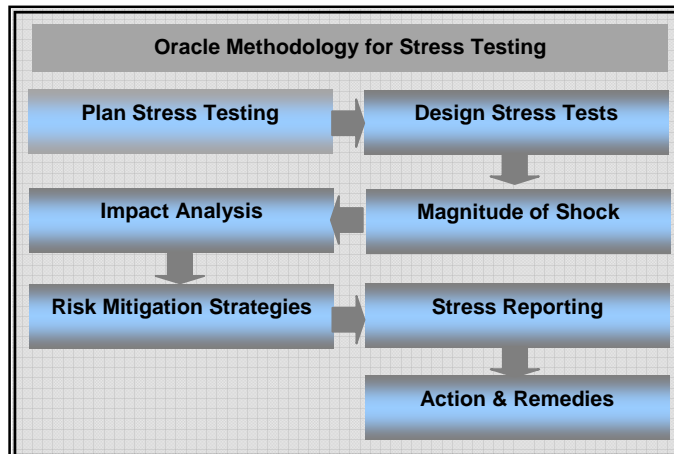
Pillar II Stress testing

- Global Best Practices:** Identifying a risk source that causes changes in financial markets / financial positions and measuring the quantum of changes are the best-practices of prudent financial institutions. Stress testing captures the impact of exceptional, but plausible large loss events on portfolio/positions.



Oracle Framework for Stress Testing

Methodology for Stress Testing: The seven-step oracle methodology to implement stress tests is illustrated in the following chart.



Plan Stress Testing: Identification of portfolios, across business lines and risk factors to be stressed on the basis of specific vulnerabilities recommended by the regulator and the bank's own assessment

Design Stress Tests: Designing plausible scenarios / identification of a set of appropriate risk factors in the specific context, in line with risk management objectives and portfolio exposures

Magnitude of Shock: Shock should be realistic/relevant to the portfolio, as well as the macroeconomic environment and also be greater than the conservative estimate of potential losses over the business cycle

Impact Analysis: To analyze if the existing models of the bank can make an appropriate assessment of the impact of stress; and to analyze the impact on RWA, Capital, Provisions and P&L

Risk Mitigation Strategies: Risk mitigation/contingency strategies that empower a bank to contain/mitigate risks in the event of a shocking/stressful situation. Based on the outcome of the impact analysis, appropriate financial engineering and hedging mechanisms can be implemented

Stress Reporting: What are the vulnerable areas and risk factors? What is the coverage of stress test? What are the assumptions for stress testing? What is the impact on profitability? What is the risk-adjusted capital? What is the procedure used to monitor stress loss limit, absolute loss amount and key financial ratios? Stress reporting aims to address these questions

Action and Remedies: Financial institutions may have to take remedial measures as and when there is a breach in stress tolerance levels. Some examples of such measures are reduction of risk limits, amendment of pricing policies, augmentation of capital requirements, enhancement of fund resources and reduction of risks by enhancing risk mitigation strategies like additional collateral requirements, securitization and hedging

Library of Scenarios: Stress scenarios may be defined on historical events or based on expert judgment. These scenarios may be specific to the business lines of the bank and complexity of operations based on historical events or hypothetical assumptions for shock values. Various scenarios based on algorithmic approaches like Factor push, Maximum loss etc.

Impact on Capital Adequacy / Other Measures: "Ideal Static" versus "Real Options" type framework to apply sensible shock scenarios on bottom line measures

Presentation of results: Variance of capital adequacy, based on various stress test scenarios

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